

EMPOWERMENT OF FARM WOMEN IN TELANGANA STATE

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2022

DECLARATION

I, **HINDUJA. N.A.**, hereby declare that the thesis entitled **“EMPOWERMENT OF FARM WOMEN IN TELANGANA STATE”** submitted to the **Acharya N.G. Ranga Agricultural University** for the degree of **Doctor of Philosophy in Agriculture** is the result of original research work done by me. I also declare that no material contained in the thesis has been published earlier in any manner.

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No part of the thesis has been submitted by the student for any other degree or diploma. The published part and all assistance received during the course of investigations have been duly acknowledged by the author of the thesis.

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LIST OF SYMBOLS AND ABBREVIATIONS

%	: Percentage
&	: And
<	: Less than
ADA	: Assistant Director of Agriculture
ADAH	: Assistant Director of Animal Husbandry
ADH	: Assistant Director of Horticulture
AEO	: Agricultural Extension Officer
ANGRAU	: Acharya N.G. Ranga Agricultural University
AO	: Agricultural Officer
ATMA	: Agricultural Technology Management Agency
CEDAW	: Convention on the Elimination of all forms of Discrimination Against Women
BAIF	: Bharatiya Agro-Industries Foundation
DAATTC	: District Agricultural Advisory and Transfer of Technology Centre
DAC&FW	: Department of Agriculture, Cooperation and Farmers Welfare
DDA	: Deputy Director of Agriculture
DDAH	: Deputy Director of Animal Husbandry
DDH	: Deputy Director of Horticulture
<i>et al.</i>	: And others
etc.,	: Etcetera
f	: Frequency
FACs	: Farmers Advisory Committees
FAO	: Food and Agriculture Organization of the United Nations
Fig	: Figure

FSGs	: Food Security Groups
GDP	: Gross Domestic Product
Ha	: Hectare
HO	: Horticulture Officer
<i>i.e.</i>	: That is
ICTs	: Information and Communication Technologies
JDA	: Joint Director of Agriculture
JDAH	: Joint Director of Animal Husbandry
JDH	: Joint Director of Horticulture
KVK	: Krishi Vigyan Kendra
MANAGE	: National Institute of Agricultural Extension Management
N	: Sample size
NGOs	: Non-Government Organizations
NGRCA	: National Gender Resource Centre in Agriculture
NRLM	: National Rural Livelihoods Mission
Rs	: Rupees
S. No.	: Serial number
SAU	: State Agricultural University
SD	: Standard Deviation
SHGs	: Self Help Groups
SPSS	: Statistical Package for Social Sciences
UTs	: Union Territories
VAS	: Veterinary Assistant Surgeon
<i>viz.,</i>	: Namely
VO	: Veterinary Officer
Vs	: Versus

ABSTRACT

Author of the thesis	: HINDUJA. N. A.
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Agriculture contributes significantly to the Indian economy and accounted for 19.9 per cent of Gross Domestic Product (GDP) in 2020-21. Agriculture sector in India employed 80 per cent of all economically active women of whom 33 per cent were agricultural labour force and 48 per cent were self-employed farmers (Annual Report, 2020-21), while in developing nations, on an average, women constituted 43 per cent of the agricultural workforce (FAO, 2011). Farm women participated in farming activities in three different ways depending on their family's socioeconomic position and regional factors. They typically operated as paid labourers, cultivators on their own land and managers of certain areas of agricultural output by supervising labour and by participating in post-harvest operations (Lal and Khurana, 2011). Although, farm women are dominant work force in the Indian agriculture, they face gender specific constraints that reduce their productivity and limit their contributions towards agricultural production, economic growth and the wellbeing of their families, communities and country. The persistent obstacles and economic constraints faced by farm women limit their further inclusion in agriculture.

Empowerment can serve as a powerful instrument for women to achieve upward social and economic mobility and is a source of equality and emancipation both at the individual and at the societal level. Empowerment in women's development is a way of defining, challenging and overcoming barriers in her life through which she increases her ability to shape her life. Empowering women in agriculture needs a holistic approach to participate in decision making in various farm related activities and to take up leadership position in agricultural activities by comprehensive understanding about work participation, drudgery and gender issues. Hence, the present study was taken up with the following objectives.

The present study was conducted to comprehensively understand the attitude of farm women towards farming and explore the factors that influence the extent of empowerment of farm women in farming. The magnitude of participation of farm women in farming were assessed and this study also analyzed the relationship between profile characteristics of farm women and their attitude towards farming and extent of empowerment of farm women in farming. The constraints faced by the farm women in farming activities were identified and suggestions given by the farm women to overcome the constraints were documented. Strategy to be followed for gender mainstreaming in agriculture at different levels was designed to empower the farm women in farming.

An *ex post facto* research design was employed in the current investigation. The investigation was carried out in three districts of Telangana state with the highest number of farm women in each agro climatic zone viz., 'Nizamabad' from 'Northern Telangana zone', 'Sangareddy' from 'Central Telangana zone' and 'Nalgonda' from 'Southern Telangana zone'. Four mandals from each of the selected three districts were purposively chosen based on the highest number of farm women in the mandals. Two villages from each of the selected twelve mandals were selected by following a simple random sampling procedure. Ten farm women were selected from each of the selected twenty four villages by following a simple random sampling procedure and thus, the sample constituted a total of 240 respondents.

The results of the study shown that majority of the respondents were in middle aged group and were illiterate. Majority of farm women belonged to nuclear families with marginal land holdings and medium farming experience. Majority of respondents had medium annual income, medium mass media exposure, medium level of social participation, medium extension contact, medium information sources utilization, medium creativity, medium achievement motivation, medium scientific orientation, medium risk orientation and medium economic orientation. Majority of farm women had medium participation in farming activities, had moderately favorable attitude towards farming and were in medium empowerment category.

Correlation analysis revealed that education, family type, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation, economic orientation displayed positively significant relationship with the attitude of farm women towards farming at 0.01 per cent level. Farming experience displayed negatively significant relationship with the attitude of farm women towards farming at 0.05 per cent level. Age displayed negatively non significant relationship with the attitude of farm women towards farming. The partial regression coefficients revealed that the independent variables

viz., education, farming experience, land holding, annual income and information sources utilization were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in attitude of farm women towards farming.

Correlation analysis revealed that education, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation and economic orientation displayed positively significant relationship with the extent of empowerment of farm women at 0.01 per cent level. Age and farming experience displayed negatively significant relationship with the extent of empowerment of farm women at 0.01 per cent level. Family type displayed positively non significant relationship with the extent of empowerment of farm women. The partial regression coefficients revealed that the independent variables viz., education, family type, annual income, social participation, information sources utilization, creativity and achievement motivation were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in extent of empowerment of farm women.

Farm women faced various constraints at different levels of farming activities. Constraints faced by farm women were categorized into three viz., socio-personal constraints, economic constraints and technological/on farm constraints. This study revealed that, being woman, it is difficult to performing certain farm operations, lack of control over use of income, male dominated society, lack of ownership of assets (land and farm machinery/tools), illiteracy, dependency on others and secondary status in decision making were ranked as the major socio-personal constraints faced by the farm women. Discouraging agricultural price policy, poor economic condition, discrimination in payment of wages and lack of credit were ranked as the major economic constraints faced by the farm women. Non access to gender friendly technologies, lack of technical knowledge about improved farming activities, unavailability of inputs at right time and right quantities, unavailability of farm machinery at right time, lack of information and communication technologies, lack of awareness about gender friendly technologies, lack of training programmes, poor or non-access to information sources, lack of irrigation and scarcity of labour were ranked as the major technological/ on farm constraints faced by the farm women.

In order to overcome those constraints, farm women suggested to increase the access to gender friendly technologies, intensification of farm women centred government schemes, provision of financial support, providing remunerative prices for farm produce, organizing capacity building programmes, provision of subsidy on inputs, low interest loans for farming, creating legal awareness for benefit of women, intensification of farm women focused extension services and

improving transportation facilities for marketing of produce. The designed strategy for gender mainstreaming in agriculture consisted of three levels in which gender mainstreaming efforts should be focused viz., individual and family level, institutional and organizational level, policy and legislation level. Integration of the efforts at the proposed three levels would result in gender mainstreaming in agriculture.

Chapter – I

Introduction

Chapter I

INTRODUCTION

Agriculture contributes significantly to the Indian economy and accounted for 19.9 per cent of Gross Domestic Product (GDP) in 2020-21. Approximately 41.49 per cent of the workforce in 2020 were employed by agriculture and allied sectors which indicated that they continue to be India's mainstay livelihood source. Agriculture sector in India employed 80 per cent of all economically active women of whom 33 per cent were agricultural labour force and 48 per cent were self-employed farmers (Annual Report, 2020-21), while in developing nations on an average, women constituted 43 per cent of the agricultural workforce (FAO, 2011).

Women farmers played an increasingly important role in India's agricultural production, as evidenced by a growth in the number of female operational holders in successive agriculture censuses. In India, the share of women operational holders and area operated by them in agriculture was 13.87 per cent and 11.57 per cent respectively in 2015-16 compared to 12.79 per cent and 10.36 per cent in 2010-11 which implied that women's participation and involvement in farm managerial operations had increased (Agriculture Census Division, 2020). Women's contribution to agriculture is now acknowledged in the present scenario as the major workforce in the Indian agriculture and 'Rashtriya Mahila Kisan Divas' was commemorated to honour them.

Women farmers contributed to the rural economy's growth and played a key role in agricultural development which included main crop production, animal production, horticulture, post-harvest activities, agro/social forestry and fisheries etc. Women participated in farming activities in three different ways depending on their family's socioeconomic position and regional factors. They typically operated as paid labourers, cultivators on their own land and managers of certain areas of agricultural output by supervising labour and by participating in post-harvest operations (Lal and Khurana, 2011). They played a vital role in family, food security and survival despite living in extreme poverty, suffering gender inequalities and traditional role limitations.

Worldwide most women were engaged in non-mechanized and drudgery-driven farm operations. Women also encountered numerous challenges in agriculture along with their male counterparts like the uncertainty of the weather, climate change effects, unpredictable prices for produce, challenges in obtaining financing etc. In comparison to men, women lacked equal access to resources and opportunities and received comparatively less wages than men for the same type of work for the same amount of time. If women had the same access to productive resources as their male counterparts, productivity on their farms could increase by 20 per cent to 30 per cent, thereby an increase of 2.5 per cent to 4 per cent of total agricultural output in poor nations and a reduction in the number of hungry people worldwide by 12 per cent to 17 per cent. (FAO, 2011). Many women around the world believed that gender disparity added to the burden faced by them and that their contributions went unnoticed and underpaid to a major extent.

India, since independence began a journey towards gender equality and women's empowerment and Indian economic progress necessitated a greater focus on social and human development, notably women's development and empowerment. Indian Constitution's Preamble, Fundamental Rights, Fundamental Duties and Directive Principles had enshrined the principle of gender equality. Women's equality was guaranteed in the Constitution and the state was empowered to implement affirmative discriminatory measures in their favour. Even though legal reforms, human development and grassroots initiatives had made significant progress in women empowerment, a more concerted effort is needed to close the urban-rural divide and ensure that rural women have equal access to education, employment, healthcare and decision making as their male counterparts.

Indian laws, development strategies, plans and programmes had all aimed to advance women in many domains within the framework of democracy. There had been a noticeable shift in the approach to women's issues from welfare to development since the fifth five-year plan (1974-78). The National Commission for Women was established by an Act of Parliament in 1990 to protect women's rights and legal entitlements. In India, the eighth five-year plan (1992-1997) emphasized women's empowerment, particularly at the grassroots level through Panchayath Raj Institutions. The 73rd and 74th amendments to the Indian

Constitution (1993) provided for the reservation of seats for women in panchayats and municipalities, created a firm framework for female participation in local decision making.

India as well had ratified a number of international conventions and human rights instruments that pledge to ensure women's equality. One of the most significant was the ratification of the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) in 1993. The aspirations enshrined in the Constitution, legislation, policies, plans, programmes, related processes on the one hand and the situational reality of women's status in India on the other, remained vastly disparate. Gender disparity manifested itself in a variety of ways, the most visible of which was the continued decline in the female population ratio over the last few decades. Other aspects included were social stereotyping and violence on a domestic and societal level. In some sections of the country, discrimination against girl children, adolescent girls and women still exists.

Gender inequality stemmed from social and economic structures that were founded on both informal and formal norms and practices. As a result, women from weaker groups, the majority of whom live in rural areas and work in the informal, unorganized sector had insufficient access to education, health care and productive resources among other things. As a result, they were socially ostracized, destitute and marginalized. About 78 per cent of the farm women in India perceived gender discrimination (Corteva Agriscience, 2018). Gender-specific constraints faced by them reduced farm women's productivity and limited their contributions towards agricultural production, economic growth, wellbeing of their families, communities and country.

The persistent obstacles and economic constraints faced by farm women limited their further inclusion in agriculture. Despite significant contributions made by women in research, extension, education, finance, production, input supply, agro-processing and marketing, policymakers have often overlooked the productive role of women. The role of women was marginalized, undervalued and unrecognized. Administrators and policymakers had a propensity to see men as farmers and women as farmer's spouses emphasizing their supportive rather than

productive responsibilities (Samanta, 1994). Many hurdles to women's empowerment were ascribed to patriarchal and patrilineal traditions that were well ingrained in many societies. The most difficult challenge would be changing attitudes towards women as well as the measures taken for women's development.

Given the existing gendered agriculture situation and the fact that gender distinguishes the roles, responsibilities, resources, opportunities and restraints of men and women in agriculture, precise gender information is critical for recognizing women farmers' contributions to agriculture. Gender perspectives in development operations must be articulated which implied gender inclusion in agricultural development. The National Policy for the Empowerment of Women (NPEW) was formulated in 2001 to promote women's advancement, development and empowerment; besides, the policy also considered the commitments made in the ninth five-year plan and other sectoral policies which were related to women's empowerment. The tenth five-year plan (2002-2007) focused on empowering women by translating the lately adopted the National Policy for the Empowerment of Women (2001) into action, as well as assuring the survival, protection, development of women and children through a rights based approach.

One of the major policy goals of the National Policy on Farmers (NPF), 2007 was to mainstream the human and gender components in all farm policies and programmes. Gender mainstreaming programmes were promoted by the Ministry of Agriculture & Farmers Welfare's, Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) in order to improve their farming capacities and access to inputs, technologies and other resources. Gender concerns were addressed by the allocation of 30 per cent of funds to women in various main schemes/programs and development interventions as well as implementing pro-woman activities to enable women to be benefited from beneficiary oriented components of various programs/schemes and missions. Women's Self-Help Groups (SHGs) were formed, capacity building interventions were implemented and linked to micro credit, women's access to information was improved and their representation in decision making bodies at various levels was ensured.

The National Gender Resource Centre in Agriculture (NGRCA) in Extension Division served as a focal point for all gender related activities and issues both within and outside the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW). Gender mainstreaming in agricultural and associated sectors required addressing the gender dimension in agricultural policies, programmes and providing advocacy/advisory services to States/UTs to internalize gender specific initiatives. National Gender Resource Centre in Agriculture (NGRCA) aspired to establish effective functional ties with other pertinent departments, agencies and institutions for women's empowerment. As well compiled the best practices and success stories of 51 women farmers and agripreneurs into an e-book titled 'Inspiring stories of progressive women farmers' which aided extension officers and authorities at the state, district and block levels in informing women farmers about interventions and best practices, allowing them to benefit from the tailor-made provisions of various schemes and programmes.

Women farmers were included in various decision making bodies at the district and block level, such as the ATMA governing board and ATMA management committee at the district level and to be represented in Farmers Advisory Committees (FACs), according to the 2018 Agricultural Technology Management Agency (ATMA) scheme revised operational guidelines. Farm women Food Security Groups (FSGs) would be formed in each block at least twice a year to ensure household food and nutritional security with each group getting Rs. 10,000 in aid. The scheme funded the addition of one 'gender coordinator' to each state's team of specialized extension personnel. The role of the gender coordinator was to ensure that women farmers received the assistance they required, such as training, capacity building and extension. Since the program's inception in 2005-06, a total of 1,36,97,311 farm women or 24.56 percent of all benefited farmers had participated in farmer-oriented events such as exposure visits, training, demonstrations and kisan melas, with 3,23,893 women farmers benefited in 2020-21 by december 2020. (Annual Report, 2020-21).

Agriculture and off farm value chains witnessed women in important roles but in many countries, their contributions were underestimated or limited by prevailing societal norms or gender specific barriers. On a personal and societal

level, empowerment can be a powerful instrument for women to achieve upward social and economic mobility, as well as a source of equality and freedom. Empowerment was widely acknowledged and validated by psychological and other social science studies as crucial to development progress and stability, especially for poverty eradication. Women's empowerment was first discussed during the 'International Women's Conference' in Nairobi in 1985. Promoting gender equality and empowering women was one of the eight millennium development goals and gender equality was one of the seventeen sustainable development goals. Empowerment is a multifaceted social process and a multidimensional social outcome that involved individuals and groups gaining control over events in their lives.

Concept of empowerment of women

Dimensions of empowerment and models of empowering women varied across the regions depending on the situation of women. Empowerment of women can be promoted through development in varied key components of empowerment dimensions such as psychological, health, social, cultural, economic, political, legal and technological which were interconnected. Psychological empowerment was a multifaceted process that spanned beyond socio-economic or political considerations and manifested itself in women's psychological wellbeing, self-esteem, self-efficacy, sense of belonging and entitlement at the individual level. It influences women to gain positive attitudes and self confidence in order to deal with life's challenges.

Women are responsible for a variety of chores, including domestic work, child rearing and farm operations, all of which need higher physical strength and effort and they were typically left with little time for health care. Poverty, lack of information, less access to adequate health care and nutrition were all factors that impact their life. Women's health empowerment referred to their ability to have a greater voice in the decisions that influenced their health and lives. It emphasized on gender based health interventions, such as access to health services and women's needs.

Women gain a sense of autonomy and self confidence as they strive individually and collectively to strengthen social bonds, which is referred to as social empowerment. It is critical to create an environment that allowed women to participate effectively in decision making and express their social, economic and political rights. Critical interventions involving social institutions can be used to explicitly target women in order to ensure that they can actively participate in decision making. Women's participation in social groups can aid in the development of their knowledge, abilities, confidence, self perception and self help techniques for managing their finances.

Women's status and advancement in India have been influenced by culture, not only at home but also in society and at work. Gender identities and relationships are important parts of culture because they have an impact on how people live. Expectations concerning the attributes and behaviours appropriate for women and men, as well as the interactions between women and men which were set by culture. Cultural empowerment entails overcoming traditional attitudes and conventions that stifle and restrict women's personal growth. It entailed increasing social liberty while also opposing social constraints.

Women's economic empowerment referred to their ability to access, control family resources, contribute financially to support family and have the power to make and act on economic decisions. Women's economic empowerment improved their access to resources and opportunities such as jobs, financial services, skill development, market information, property and other productive assets. Economic empowerment of women as a right as well as a prerequisite for the long term development and achievement of the millennium development goals. Women's political empowerment referred to their participation in politics in order to derive a fair share from all the developmental initiatives and maintain democracy. It encouraged women to perceive themselves as leaders by encouraging them to participate actively in policy making, speak out against discrimination and violence against women and share the power of nation building to achieve gender equality.

In our society, prejudice towards women and gender based violence still existed. Uneven economic, social, political status and positions of women can be attributed to patriarchy. In some cases, ineffective laws, regulations and policies were sustained by deeply embedded societal stereotypes about women. The issue of women's subjugation was not adequately addressed. Women's legal empowerment referred to their ability to use legal and administrative processes and institutions to get access to resources, services and opportunities. It improved women's ability to exercise their rights, whether as individuals or as members of a community by access to land and other resources. It is vital that existing legislation be followed, enforced and that gender neutral laws be recognized.

Women's technological empowerment includes self-interest, decision making, resource management, investing, having access to information and improved technology and enabling its usage for the improvement of livelihoods. Farm women would be benefited from technological empowerment because they would have equal access to resources and opportunities as well as more authority to adopt sustainable practices and enhance farm production.

Need and importance of the study

In India, gender discrimination takes several forms. Women were often denied access to institutional support from banks, insurance companies, cooperatives and government institutions. Female farmers' viewpoints in India were frequently neglected due to patriarchal conventions and gender socialization and they struggled to build their identity at the grassroots level. In recent years, women's empowerment had been recognized as a significant aspect in determining their status.

Empowerment is a means of defining, challenging and overpowering barriers in women's life through which their ability to shape their life is improved. Women's sense of self-esteem and social identity as well as their readiness and capability to question their subordinate status and identity, their capacity to exercise strategic control over their own lives and renegotiate their relationships with those who matter to them and their ability to participate in society redesigning on an equal footing with men in ways that contribute to a more equitable and

democratic distribution of power and opportunities were all considered to be facets of empowerment (Kabeer, 2008).

Empowering women in agriculture requires a holistic approach that includes a comprehensive understanding of work participation, drudgery and gender issues and to take leadership positions in agricultural activities. Empowered women are more likely to double the developmental efforts and achieve inclusive agricultural growth. Empowerment encourages women to adopt positive attitudes, increase their involvement in agricultural decision making and farm operations which leads to increased farm productivity. Henceforth, the present study was taken up with the following objectives.

1.2 OBJECTIVES OF THE STUDY

The present research was contemplated with the ensuing objectives.

1. To study the profile characteristics of farm women.
2. To assess the magnitude of participation of farm women in farming.
3. To study the attitude of farm women towards farming.
4. To measure the extent of empowerment of farm women in agriculture.
5. To elicit the relationship between the profile characteristics with the attitude and empowerment of farm women.
6. To analyze the constraints faced by farm women and suggestions to overcome them.
7. To suggest a strategy for gender mainstreaming in agriculture.

1.3 SCOPE OF THE STUDY

Research and development efforts in the past mostly aimed at benefiting the farming community and uplifting women across the regions at various levels. However, very few were actually focused on farm women. Hence, an attempt was made to explore farm women's attitudes towards farming and the extent of empowerment of farm women in the Telangana state. The findings would be useful in understanding the characteristics of farm women and facilitate in selecting an apt approach to involve them in farming and interrelated development programmes for desired results.

The study also focused on understanding the magnitude of participation in various farming activities by farm women in the Telangana state. Alongside, it reflected upon the various farm operations which were handled alone by women, alone by men and jointly by men and women. It provided a prospect to identify the lacunae where gender friendly technologies were out of reach or yet to be developed. The scale developed to determine farm women's attitude towards farming would bring to light, the means to change farming to a more profitable profession and as well increase farm women's productivity.

Diverse factors for the cause of empowerment among farm women will be emphasized by the index developed in this study for measuring the extent of empowerment of farm women. Extension personnel may identify empowered farm women who can serve as contact farmers to influence, motivate other farm women for their betterment. The results paved way for identifying various profile characteristics of farm women which contributed to greater empowerment and a favourable attitude towards farming. Insight into various constraints experienced by farm women in various spheres of their life and suggestions which they offered, can aid in advocating better planning of measures and initiatives by the policymakers and the extension agents for their overall development.

The strategy suggested for gender mainstreaming in agriculture facilitates farm women to participate and benefit equally from development efforts, thereby promoting inclusion as a prominent workforce in farming. The efforts made for this study contribute to the existing body of research and theoretical understanding in the related areas for farm women's progress. The findings of this study may also serve as a guide for future researchers who may probe farm women in similar contexts.

1.4. LIMITATIONS OF THE STUDY

The study experienced limitation of resources specifically 'time' by the student researcher. Besides, the items included for research were restricted as it was not practicable to look into all areas within the stipulated time. Memory bias on the part of respondents cannot be ignored as an *ex post facto* research design was employed in the study. The findings of the study were conditioned to the

extent of provision of reliable and valid information by respondents which were dependent upon their verbal expressions, opinions, perceptions and whose behaviour and notions were less predictable. The research was confined to twelve mandals of three districts and to a sample of 240 respondents. Hence, findings should be interpreted with caution and generalized to areas where similar circumstances exist. However, regardless of these limitations, sincere efforts were made to keep the investigation complete and objective.

1.5. LAYOUT OF THE THESIS

The thesis was presented in five chapters as detailed below.

- Chapter I : 'Introduction' enclosed a brief account of need and importance, objectives, scope as well as limitations of the study.
- Chapter II : 'Review of literature' gave an account of related past studies to the present study.
- Chapter III : 'Material and methods' dealt with the methodology including the statistical tools of the study.
- Chapter IV : 'Results and discussion' presented findings and their interpretations for the study.
- Chapter V : 'Summary and conclusions' consisted of implications of the findings and suggestions for future research.

The literature cited and appendices were appended at the end.

Chapter – II

Review of Literature

Chapter II

REVIEW OF LITERATURE

Review of literature was indispensable as it provided a sturdy foundation for scientific research. It paved way for a better understanding of the study and spared ideas for the interpretations of the findings. Review for the present research was compiled and presented below in the subsequent subheadings.

- 2.1 Profile characteristics of farm women.
- 2.2 Magnitude of participation of farm women in farming.
- 2.3 Attitude of farm women towards farming.
- 2.4 Extent of empowerment of farm women.
- 2.5 Relationship between profile characteristics of farm women with the attitude towards farming.
- 2.6 Relationship between profile characteristics of farm women with the extent of empowerment of farm women.
- 2.7 Constraints faced by farm women.
- 2.8 Suggestions of farm women to overcome the constraints.
- 2.9 Conceptual model of the study.

2.1 PROFILE CHARACTERISTICS OF FARM WOMEN

2.1.1 Age

Alam *et al.* (2004) conveyed in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (75.50%) of rural women respondents were in middle aged category of 26 years to 50 years followed by young aged category of 18 years to 25 years (14.44%) and old aged category of above 50 years (10.00%).

Pallavi (2006) indicated in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that most (48.75%) of the tribal women respondents belonged to young age followed by middle age tribal women respondents (40.00%) and old age tribal women respondents (11.25%).

Swetha (2010) noticed in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that the majority (63.34%) of farm women respondents who were beneficiaries in on-farm demonstration in paddy were in middle-aged group of 31 years to 50 years followed by young farm women respondents (23.34%) of age 18 years to 30 years and old farm women respondents (13.32%) of age above 51 years.

Tayde and Chole (2010 b) observed in their study, 'Personal correlations of empowerment of women' that most (50.00%) of the women respondents who were beneficiaries of empowerment programme were in the middle aged group of 36 to 55 years followed by young aged women respondents (44.17%) up to 35 years and old aged women respondents (5.83%) of 56 years and above.

Upadhyay and Desai (2011) reported in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that the majority (60.83%) of farm women respondents who were engaged in animal husbandry were in middle-aged category (36 to 50 years). 22.50 per cent of farm women respondents were in old aged category (above 60 years) and 16.67 per cent of farm women respondents were in young aged category (up to 35 years).

Adedeji *et al.* (2012) revealed in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state, Nigeria' that most (46.00%) of the women farmer respondents involved in urban agriculture belonged to 31 years to 40 years age group followed by women farmer respondents of age 20 years to 30 years (30.00%), 41 years and above (16.00%) and less than 20 years age (8.00%).

Lahoti *et al.* (2012) specified in their study, 'Role of women in dairy farming' that the majority (64.00%) of the dairy farm women respondents were in the lower middle aged group of 31 years to 45 years followed by dairy farm women respondents of the upper middle aged group of 46 to 60 years (19.33%) and young aged dairy farm women respondents of age 18 years to 30 years (16.66%).

Chayal *et al.* (2013) stated in their study, 'Involvement of farm women in decision-making in agriculture' that the majority of the farm women respondents (52.50%) were in middle aged group (31 to 40 years). About 30.83 per cent of

farm women respondents were in young aged group (below 30 years) and 16.67 per cent of farm women respondents were in old aged group (above 40 years).

Rani (2014) identified in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (65.83%) of the women farmer respondents were in middle aged group of 36 to 55 years followed by young aged women farmer respondents (26.67%) of below 35 years and old aged women farmer respondents of 56 years and above (7.50%).

Reshma *et al.* (2014) conveyed in their study, 'Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities' that most (46.66%) of the farm women respondents who were beneficiaries of livestock development programme of BAIF were in the middle age group of 36 to 50 years followed by young aged farm women respondents (31.66%) up to 35 years and old aged farm women respondents (21.66%) of above 56 years.

Aghaee and Noorivandi (2015) indicated in their study, 'Professional empowerment of women wheat farmers in Dezful township of Iran' that one-third (33.50%) of the women wheat farmer respondents were in the age group of 22 years to 34 years followed by women wheat farmer respondents of age 35 years to 47 years (33.00%), 48 years to 60 years (26.50%), 61 years to 73 years (5.00%) and 74 years to 86 years (2.00%).

Devaki *et al.* (2015) mentioned in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that the majority (53.00%) of the livestock farm women respondents were in young aged group of 16 to 29 years followed by middle aged group (27.00%) of 29 to 42 years and old aged group (20.00%) of 42 to 55 years.

Kumari and Laxmikant (2015) noticed in their study, 'Role of farm women in agricultural activities' that the majority (53.33%) of the farm women respondents were in middle aged group (26 years to 50 years). About 30 per cent of farm women respondents were young (below 25 years) and 16.67 per cent of farm women respondents were old (above 50 years).

Bharali and Das (2016) observed in their study, 'A study on extent of involvement of rural women respondents in agro based enterprises' that more than half (52.92%) of the rural women respondents who were mostly engaged in both vegetable cultivation and livestock rearing were in middle aged category followed by rural women respondents in young aged category (34.58%) and old aged category (12.50%).

Raziyabanu (2016) reported in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that the majority (65.83%) of the farm women respondents belonged to middle aged group of 36 to 50 years followed by young aged farm women respondents of 20 to 35 years (20.00%) and old aged farm women respondents of above 50 years (14.17%).

Pal and Haldar (2016) revealed in their study, 'Participation and role of rural women in decision making related to farm activities: A study in Burdwan district of West Bengal' that 57 per cent of farm women respondents were in young aged category of 20 to 35 years. Middle aged farm women respondents (36 to 55 years) constituted 40 per cent and only 3 per cent of farm women respondents were in old aged category of 50 years and above.

Pooja *et al.* (2016) specified in their study, 'Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar' that the majority (68.00%) of the women farmer respondents belonged to middle aged group of 30 to 50 years followed by young aged women farmer respondents of 20 to 30 years (19.00%) and old aged women farmer respondents of above 50 years (13.00%).

Shilparani (2016) stated in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that most (47.22%) of the farm women respondents were in middle aged group of 30 to 50 years followed by young farm women respondents group of age up to 30 years (35.00%) and old aged farm women respondents group of age above 50 years (17.78%).

Sucharita and Bishnoi (2016) conveyed in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that the majority (54.00%) of farm women respondents were in middle aged category of 31 years to

40 years followed by farm women respondents in old age category of above 40 years age (25.00%) and young aged category up to 30 years age (21.00%).

Kavithaa and Rajkumar (2017) indicated in their study, 'Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamilnadu' that 65 per cent of women farmer respondents were middle aged followed by young women farmer respondents (21.67%) and old women farmer respondents (13.33%).

Patel *et al.* (2017) indicated in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that the majority (73.50%) of the dairy farm women respondents were in the middle aged category of 36 years to 50 years followed by old aged dairy farm women respondents (14.00%) of above 50 years and young aged dairy farm women respondents (12.50%) of less than 36 years.

Chetia *et al.* (2018) mentioned in their study, 'Involvement of rural women in farm and non-farm activities' that the majority of rural women respondents (86.66%) were in lower middle aged group followed by young aged rural women respondents (11.67%) and upper middle aged rural women respondents (1.67%).

Kumari (2018) noticed in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that the majority (65.92%) of the farm women respondents were in middle aged category (31 to 50 years). About 26.66 per cent of farm women respondents were in young aged category (up to 30 years) and 7.40 per cent of farm women respondents were in old aged category (above 50 years).

Saikia *et al.* (2018) observed in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that half (51.00%) of the rural women respondents were in lower middle-aged group of 36 to 49 years followed by rural women respondents in upper middle-aged group of 50 to 62 years (29.00%) and young aged group of 23 to 35 years (20.00%).

Shamna *et al.* (2018) reported in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal,

India' that most (47.50%) of the tribal farm women respondents were in middle aged group of 30 to 50 years followed by tribal farm women respondents in young aged group of below 30 years (32.50%) and old aged group of above 50 years (20.00%).

Ansari and Jantwal (2019) revealed in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that the majority (61.66%) of farm women respondents who were actively involved in agricultural activities belonged to middle age group (37 to 54 years) followed by 24.16 per cent of farm women respondents in old age category (more than 54 years) and 14.16 per cent of the farm women respondents in young age category (up to 37 years).

Imam (2019) specified in the study, 'Participation of farm women in agricultural activities and allied occupations' that 52.50 per cent of farm women respondents were in middle aged group followed by 32 per cent and 15.50 per cent of farm women respondents in young age and old age categories respectively.

Santhi and Kalirajan (2019) stated in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that most (46.67%) of the farm women respondents were in the middle age group followed by young aged farm women respondents (27.50%) and old aged farm women respondents (25.83%).

Sunitha *et al.* (2019) identified in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwarammandal of Rangareddy district, India' that more than half (53.33%) of the farm women respondents were of young age between 18 to 35 years followed by middle aged farm women respondents of age between 36 to 50 years (38.33%) and old aged farm women respondents of age above 50 years (8.33%).

2.1.2 Education

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (58.89%) of the rural women respondents had secondary level of education followed by primary level of

education (32.22%), both 'can sign only' (4.44%), higher secondary level of education (4.44%) and none of them were illiterate.

Pallavi (2006) conveyed in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that the majority (58.75%) of the tribal women respondents were illiterates followed by primary education (37.50%). Only a meagre (3.75%) percentage of the tribal women respondents had high school education.

Swetha (2010) mentioned in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that 26.67 per cent of farm women respondents who were beneficiaries in on-farm demonstration in paddy were illiterate followed by farm women respondents who were educated up to primary school (26.60%), can read and write (21.14%), middle school (12.26%), high school (10.00%) and college and above (3.33%).

Tayde and Chole (2010 b) noticed in their study, 'Personal correlations of empowerment of women' that 29.16 per cent of the women respondents who were beneficiaries of empowerment programme had middle school education followed by women respondents who were educated up to high school (27.50%), can only read and write (14.16%), illiterates (13.34%), primary schooling (12.50%) and graduate level education (3.34%).

Upadhyay and Desai (2011) observed in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that most (43.35%) of the farm women respondents who were engaged in animal husbandry had secondary education. 24.17 per cent, 15.83 per cent and 11.67 per cent of farm women respondents had higher secondary education, college education and primary education respectively. 5 per cent of farm women respondents were illiterates.

Adedeji *et al.* (2012) reported in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state, Nigeria' that 32 per cent of women farmer respondents involved in urban agriculture had secondary education followed by women farmer respondents with

no formal education (24.00%), tertiary education (20.00%), primary education (16.00%) and adult education (8.00%).

Girade and Shambharkar (2012) revealed in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities' that more than two fifths (42.50%) of the farm women respondents were educated up to high school followed by college level (24.17%), middle school (17.50%) and primary school (9.16%). Very few farm women respondents were illiterates (6.67%).

Lahoti *et al.* (2012) specified in their study, 'Role of women in dairy farming' that 35.33 per cent of dairy farm women respondents had primary education followed by secondary education (34.66%), higher secondary education (6.66%) and college education (2.00%). 21.33 per cent of dairy farm women respondents were illiterate.

Rani (2014) identified in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that nearly two fifths (36.67%) of women farmer respondents had high school education followed by women farmer respondents who were educated up to middle school (15.83%), primary school (15.00%) and college level (9.17%). About 3.33 per cent of women farmer respondents were functionally literate and 20 per cent of farm women were illiterate.

Aghaee and Noorivandi (2015) found in their study, 'Professional empowerment of women wheat farmers in Dezful township of Iran' that 32 per cent of women wheat farmer respondents had diploma and upper level of education followed by women wheat farmer respondents with guidance and high school level of education (28.00%), primary level of education (23.00%) and reading and writing (17.00%).

Devaki *et al.* (2015) conveyed in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that half (50.00%) of the livestock farm women respondents were illiterates followed by secondary education (26.00%), primary education (21.00%) and higher secondary education (3.00%). None of the livestock farm women respondents had collegiate education.

Kumari and Laxmikant (2015) indicated in their study, 'Role of farm women in agricultural activities' that the majority (54.44%) of the farm women respondents were illiterate. About 29.44 per cent of farm women respondents had primary education and the remaining 16.11 per cent of farm women respondents had middle and above level of education.

Raziyanu (2016) mentioned in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that most (46.67%) of the farm women respondents had secondary education followed by primary education (30.00%), higher education (15.00%) and graduate and above (5.83%). Very meager (2.50%) per cent of farm women respondents were illiterate.

Pal and Halder (2016) noticed in their study, 'Participation and role of rural women in decision making related to farm activities: A study in Burdwan district of West Bengal' that 35 per cent of farm women respondents were illiterate and 30 per cent of farm women respondents were functionally literate. 20 per cent, 10 per cent and 5 per cent of farm women respondents were educated up to primary, middle and high school level respectively. None of the farm women respondents had college education.

Pooja *et al.* (2016) observed in their study, 'Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar' that the majority (52.00%) of the women farmer respondents were illiterate followed by women farmer respondents with primary education (23.00%), read and write (14.00%), middle school (7.00%), high school (2.00%) and graduate and above (2.00%).

Shilparani (2016) reported in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that more than half (59.44%) of the farm women respondents had a medium level of education followed by farm women respondents with a low level of education (30.56%) and a high level of education (10.00%).

Sucharita and Bishnoi (2016) specified in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that 48 per cent of farm women respondents were illiterate and 22 per cent of farm women

respondents were functionally literate. 16 per cent, 9 per cent and 5 per cent of farm women respondents had primary education, middle education and collegiate education respectively.

Kavithaa and Rajkumar (2017) stated in their study, 'Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamil Nadu' that most of the (48.33%) of the women farmer respondents studied up to high school followed by women farmer respondents with primary school education (26.67%), both middle school education (10.00%) and higher secondary education (10.00%). About 5 per cent of women farmer respondents were illiterates.

Patel *et al.* (2017) identified in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that most (31.00%) of the dairy farm women respondents had primary level of education followed by 28.50 per cent with secondary level of education, 16.50 per cent with higher secondary education level of education and 2.50 per cent with graduate level of education. About 21.50 per cent of dairy farm women respondents were illiterates.

Bansal and Joshi (2018) found in their study, 'Profile characteristics of Farm Women Knowledge Groups (FWKGS)' that almost one fourth (24.00%) of the farm women respondents had middle school education followed by farm women respondents with primary education (22.00%), higher secondary passed (12.00%), up to 10th class (9.00%), graduate (8.00%), both can read and write (6.00%) and post graduate (6.00%). About 13 per cent of the farm women respondents were illiterate.

Chetia *et al.* (2018) noticed in their study, 'Involvement of rural women in farm and non-farm activities' that the majority (59.17%) of rural women respondents studied up to middle school followed by primary school (25.84%), high school (5.83%) and higher secondary education (5.00%). Illiterate rural women respondents constituted 4.16 per cent.

Kumari (2018) reported in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that most (46.66%) of the farm women respondents were educated up to

primary and middle school level of education. About 25.92 per cent of farm women respondents were illiterates and 20.74 per cent of them were educated up to high school. Very few were educated up to intermediate (5.18%) and graduate level (1.48%).

Saikia *et al.* (2018) observed in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that 31.5 per cent of rural women respondents were educated up to middle school followed by rural women respondents with primary school level education (26.50%), high school level education (17.50%) and college and above (9.00%). About 15.50 per cent of rural women respondents were illiterates.

Shamna *et al.* (2018) conveyed in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that the majority (65.00%) of tribal farm women respondents were illiterate followed by tribal farm women respondents with primary education (32.50%) and secondary education (2.50%).

Ansari and Jantwal (2019) indicated in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that most of the farm women respondents who were actively involved in agricultural activities (27.50%) were educated up to primary level followed by 24.16 per cent of illiterate farm women respondents. About 21.66 per cent, 19.16 per cent and 7.50 per cent of farm women respondents were educated up to middle school, high school and intermediate level and above respectively.

Santhi and Kalirajan (2019) stated in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that most (37.00%) of farm women respondents were educated up to middle level of education. About 17.50 per cent, 15 per cent and 9.17 per cent of farm women respondents were educated up to secondary education, primary education and collegiate level education. About 20.83 per cent of farm women respondents were illiterates.

Sunitha *et al.* (2019) mentioned in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwarammandal of

Rangareddy district, India' that most (31.67%) of the farm women respondents studied up to high school followed by intermediate (24.17%), middle school (17.50%), primary school (7.50%) and graduation and above (5.83%). About 13.33 per cent of farm women respondents were illiterates.

2.1.3 Family type

Pushpa (2009) revealed in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that the majority (53.33%) of farm women respondents belonged to nuclear family and the remaining (46.67%) farm women respondents belonged to joint family.

Chayal *et al.* (2013) conveyed in their study, 'Involvement of farm women in decision-making in agriculture' that the majority (65.83%) of the farm women respondents had nuclear families followed by joint families (34.17%).

Reshma *et al.* (2014) revealed in their study, 'Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities' that the majority (79.16%) of the farm women respondents who were beneficiaries of livestock development programme of BAIF belonged to nuclear family and the remaining (20.83%) belonged to joint families.

Singotiya *et al.* (2014) mentioned in their study, 'Role of tribal farm women in decision making towards agricultural operations' that the majority (57.14%) of the tribal farm women respondents belonged to joint family and the remaining (42.86%) belonged to nuclear families.

Devaki *et al.* (2015) observed in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that 59 per cent of livestock farm women respondents had nuclear families and 41 per cent of them had joint families.

Kumari and Laxmikant (2015) conveyed in their study, 'Role of farm women in agricultural activities' that 64.44 per cent of farm women respondents were in nuclear families while the remaining 36.66 per cent of them were in joint families.

Bharali and Das (2016) specified in their study, 'A study on extent of involvement of rural women in agro based enterprises' that the majority (79.17%) of rural women respondents who were mostly engaged in both vegetable cultivation and livestock rearing belonged to nuclear families followed by rural women respondents in joint families (12.50%) and extended families (8.33%).

Pal and Halder (2016) observed in their study, 'Participation and role of rural women in decision making related to farm activities: A study in Burdwan district of West Bengal' that 67 per cent of the farm women respondents were in nuclear families and the rest 33 per cent of the farm women respondents were in joint families.

Shilparani (2016) stated in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that the majority (73.89%) of farm women respondents belonged to the nuclear family and remaining (26.11%) farm women respondents belonged to joint families.

Sucharita and Bishnoi (2016) conveyed in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that 78 per cent of farm women respondents belonged to nuclear families and 22 per cent of them belonged to joint families.

Kavithaa and Rajkumar (2017) revealed in their study, 'Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamilnadu' that 80 per cent of women farmer respondents belonged to joint families and 20 per cent of them belonged to nuclear families.

Patel *et al.* (2017) indicated in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that the majority (68.50%) of the dairy farm women respondents were in joint families and remaining (31.50%) were in nuclear families.

Saikia *et al.* (2018) observed in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that the majority (65.50%) of rural women respondents belonged to nuclear families followed by rural women respondents in joint families (30.00%) and extended families (4.50%).

Shamna *et al.* (2018) noticed in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that the majority (67.50%) of the tribal farm women respondents belonged to nuclear families and the remaining (32.50%) belonged to joint families.

Imam (2019) mentioned in the study, 'Participation of farm women in agricultural activities and allied occupations' that the majority (69.00%) of the farm women respondents were from nuclear type of families while the remaining (31.00%) farm women respondents were from joint type of families.

Santhi and Kalirajan (2019) reported in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (87.50%) of the farm women respondents belonged to nuclear families and the remaining (12.50%) farm women respondents belonged to joint families.

2.1.4 Farming experience

Pushpa (2009) found in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that the majority (56.11%) of farm women respondents had high farming experience followed by medium farming experience (25.00%) and low farming experience (18.89%).

Singh (2011) observed in the study, 'A critical study on participation of rural women in agriculture activities in Hoshangabad district' that slightly more than two fifth (44.44%) of farm women respondents had medium farming experience followed by farm women respondents with low farming experience (30.56%) and high farming experience (25.00%).

Adedeji *et al.* (2012) reported in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state, Nigeria' that almost two fifths (38.00%) of women farmer respondents involved in urban agriculture had 4 to 7 years of farming experience followed by farming experience of 1 to 3 years (32.00%), 8 years and above (22.00%) and less than 1 year (8.00%).

Girade and Shambharkar (2012) specified in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities'' that the majority (70.84%) of the farm women respondents had medium level of farming experience between 12 to 27 years. About 18.33 per cent of farm women respondents had high level of farming experience of above 27 years and 10.83 per cent of the farm women respondents had low farming experience up to 11 years.

Saikia (2014) indicated in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that less than half (45.00%) of the youth farm women respondents had low level of farming experience followed by high farming experience (40.83%) and medium farming experience (34.17%).

Aghaee and Noorivandi (2015) identified in their study, 'Professional empowerment of women wheat farmers in Dezful township of Iran' that more than one sixth (36.50%) of the women wheat farmer respondents had farming experience of 12 to 23 years followed by women wheat farmer respondents with farming experience of 1 to 11 years (32.00%), 24 to 35 years (20.50%), 36 to 47 years (6.00%) and 48 to 60 years (5.00%).

Raziyabanu (2016) mentioned in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that more than half (51.66%) of the farm women respondents had high farming experience of above 15 years followed by medium farming experience of 6 to 14 years (34.17%) and low farming experience up to 5 years (14.17%).

Lavanya (2016) noticed in the study, 'Involvement of farm women in different farm enterprises: A critical analysis' that the majority (55.00%) of farm women respondents had medium farming experience of 10 to 20 years followed by farm women respondents with high farming experience of above 20 years (28.88%) and low farming experience of up to 10 years (16.11%).

Shilparani (2016) revealed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that most (42.78%) of farm women respondents had medium level of farming experience. 32.22 per cent and 25 per cent of the farm women respondents had low and high levels of farming experience respectively.

Sucharita and Bishnoi (2016) observed in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that low farming experience category and medium farming experience category each had 42 per cent of farm women respondents followed by farm women respondents in high farming experience category (16.00%).

Patel *et al.* (2017) reported in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that the majority (65.50%) of the dairy farm women respondents had medium experience followed by dairy farm women respondents with high experience (20.00%) and less experience (14.50%) in dairy farming.

Chauhan (2018) conveyed in the study, 'Participation of farm women in agricultural activities in Tikamgarh district (M.P.)' that 45.83 per cent of farm women respondents had medium farming experience followed by 27.50 per cent and 26.67 per cent of them with low and high farming experience respectively.

Saikia *et al.* (2018) indicated in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that more than half (51.50%) of the rural women respondents had medium experience in farming followed by low experience (34.00%) and high experience in farming (14.50%).

Ansari and Jantwal (2019) mentioned in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that more than half (51.66%) of the farm women respondents who were actively involved in agricultural activities belonged to the medium farming experience category (20 years to 37 years). About 32.50 per cent of the farm women respondents had low farming experience (up to 20 years) and remaining 15.83 per cent of the farm women respondents had high farming experience (more than 37 years).

Imam (2019) observed in the study, 'Participation of farm women in agricultural activities and allied occupations' that the majority (64.00%) of the farm women respondents had medium level of experience in farming followed by farm women respondents with low level of experience in farming (24.00%) and high level of experience in farming (12.00%).

Santhi and Kalirajan (2019) specified in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that half (50.00%) of the farm women respondents had medium farming experience of 13 to 24 years followed by low (33.33%) farming experience of 2 to 13 years and high (16.67%) farming experience of 24 to 35 years.

Sunitha *et al.* (2019) reported in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwarammandal of Rangareddy district, India' that 38.33 per cent of farm women respondents had experience below 10 years followed by farm women respondents with experience of 10 to 20 years (36.67%), 20 to 30 years (20.00%) and above 30 years (5.00%).

2.1.5 Land holding

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (66.67%) of rural women respondents had small farm size up to 0.99 hectares followed by medium farm size (21.11%) of 1 to 2.99 hectares and large farm size of 3 hectares and above (12.22%).

Swetha (2010) revealed in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that 40 per cent of farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium size of land holding (2.5 acres to 5 acres) followed by farm women respondents with marginal size of land holding of less than 2.5 acres (34.44%) and big size of land holding of above 5 acres (25.56%).

Tayde and Chole (2010 b) reported in their study, 'Personal correlations of empowerment of women' that most (47.50%) of the women respondents who were beneficiaries of empowerment programme were small farmers followed by marginal farmers (27.50%), semi-medium farmers (15.83%), landless (8.34%) and medium farmers (0.83%).

Upadhyay and Desai (2011) conveyed in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that 30 per cent of farm women respondents who were engaged in animal husbandry had medium sized

land holding followed by small (28.34%), marginal (21.66%) and big (20.00%) sizes of land holding.

Girade and Shambharkar (2012) found in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities' that most (31.67%) of the farm women respondents had semi-medium sized land holdings followed by small (30.00%), medium sized (27.50%) and marginal sized land holdings (9.17%). Very few farm women respondents (1.66%) were in possession of large sized land holdings.

Chayal *et al.* (2013) stated in their study, 'Involvement of farm women in decision-making in agriculture' that half (50.83%) of the farm women respondents had medium size of land holding followed by small (35.00%) and large (14.17%) sizes of land holding.

Rani (2014) noticed in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (55.00%) of women farmer respondents were marginal farmers followed by small farmers (39.17%) and big farmers (5.83%).

Saikia (2014) mentioned in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that 37.50 per cent, 34.17 per cent, 14.17 per cent, 12.50 per cent and 1.67 per cent of youth farm women respondents belonged to categories of small, semi medium, medium, marginal and big farmers respectively.

Devaki *et al.* (2015) identified in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that 56 per cent of livestock farm women respondents had marginal sized land holding followed by 33 per cent of landless livestock farm women respondents. About 10 per cent and 1 per cent of livestock farm women respondents had small sized land holding and large sized land holding respectively.

Kumari and Laxmikant (2015) indicated in their study, 'Role of farm women in agricultural activities' that 47.77 per cent of farm women respondents had marginal size land holding (less than one hectare). About 36.66 per cent of farm women respondents had small size land holding (less than 1 hectare to 2 hectares) and 15.55 per cent of farm women respondents were landless.

Bharali and Das (2016) found in their study, 'A study on extent of involvement of rural women in agro based enterprises' that the majority (55.83%) of rural women respondents who were mostly engaged in both vegetable cultivation and livestock rearing had marginal size of land holding followed by rural women respondents with small size of land holding (27.08%), semi-medium size of land holding (12.92%) and medium size of land holding (4.17%).

Raziyanu (2016) reported in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that most (46.67%) of the farm women respondents had medium size of land holding of 2.1 ha to 4 ha. followed by semi medium size of land holding of 4.1 ha to 10 ha (36.67%), small size of land holding of 1.1 ha to 2 ha (9.17%), large size of land holding of 10 ha and above (4.17%) and marginal size of land holding up to 1 ha (3.33%).

Pooja *et al.* (2016) specified in their study, 'Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar' that most (45.00%) of the women farmer respondents had marginal size of land holding and 33 per cent of women farmer respondents were landless. Women farmer respondents with both small size of land holding and medium size of land holding constituted 11 per cent each.

Sucharita and Bishnoi (2016) conveyed in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that the majority (61.00%) of farm women respondents had medium size of land holding of 5 to 10 acres followed by farm women respondents with small size of land holding of less than 5 acres (28.00%) and big size of land holding of above 10 acres (11.00%).

Patel *et al.* (2017) reported in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that the majority (53.50%) of dairy farm women respondents had marginal sized land holdings followed by dairy farm women respondents with small sized land holdings (30.50%), medium sized land holdings (12.50 %) and large sized land holdings (1.00%). About 2.50 per cent of dairy farm women respondents were landless.

Chetia *et al.* (2018) noticed in their study, 'Involvement of rural women in farm and non-farm activities' that 73.34 per cent of rural women respondents had marginal sized land holding followed by 22.50 per cent and 4.16 per cent of rural women respondents with small sized land holding and semi medium sized land holding respectively.

Kumari (2018) observed in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that 46.66 per cent of farm women respondents were marginal farmers (below 2.5 acres), 42.22 per cent were small farmers (2.5 to 5.0 acres) and 11.11 per cent were big farmers (above 5.0 acres).

Shamna *et al.* (2018) reported in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that the majority of tribal farm women respondents (65.00%) had marginal sized land holdings (below 2.5 acre) followed by landless farm women respondents (32.50%) and farm women respondents (2.50%) with small sized land holdings of 2.5 to 5 acres.

Ansari and Jantwal (2019) revealed in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that 69.16 per cent of farm women respondents who were actively involved in agricultural activities had land holding of less than one acre and 30.83 per cent of farm women respondents had less than 5 acres of land.

Sunitha *et al.* (2019) indicated in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwaramandal of Rangareddy district, India' that 35 per cent of farm women respondents had medium land holding followed by small (30.83%), marginal (19.17%) and large land holding (13.33%). About 1.67 per cent of farm women respondents were landless.

2.1.6 Annual income

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (53.33%) of the rural women

respondents had low annual income followed by rural women respondents with medium annual income (41.11%) and high annual income (5.56%).

Pushpa (2009) revealed in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that the majority (82.22%) of farm women respondents belonged to high annual income category followed by farm women respondents with low annual income category (17.78%).

Swetha (2010) noticed in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that most (42.22%) of the farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium annual income followed by farm women respondents with low annual income (34.44%) and high annual income (23.34%).

Tayde and Chole (2010 b) observed in their study, 'Personal correlations of empowerment of women' that the majority (54.18%) of the women respondents who were beneficiaries of empowerment programme were in medium annual income category followed by women respondents in high annual income (26.66%) and low annual income categories (19.16%).

Kumar (2011) conveyed in the study, 'An analytical study on women dairy entrepreneurs in Mandya district of Karnataka' had 40.83 per cent of dairy women entrepreneur respondents had high annual income followed by dairy women entrepreneur respondents with medium annual income (37.50%) and low annual income (21.67%).

Upadhyay and Desai (2011) conveyed in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that most (45.83 %) of the farm women respondents who were engaged in animal husbandry belonged to low income group. About 32.51 per cent of farm women respondents were in medium income group and 21.66 per cent of farm women respondents were in high income group.

Adedeji *et al.* (2012) stated in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state,

Nigeria' that the majority (52.00%) of women farmer respondents involved in urban agriculture had high annual income followed by moderate annual income (36.00%) and low annual income (12.00%).

Girade and Shambharkar (2012) noticed in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities' that the majority (51.66%) of the farm women respondents belonged to annual income group of 75,001 rupees to 1,50,000 rupees. About 26.67 per cent and 21.67 per cent of the farm women respondents had an annual income up to Rs. 75,000 and Rs. 1,50,000 and above respectively.

Bhairve (2013) reported in the study, 'A study on women's participation and decision making pattern in agriculture activities in Sehore district of M.P.' that 36.67 per cent of farm women respondents were in medium annual income group followed by 32.50 per cent and 30.83 per cent of farm women respondents in low annual income group and high annual income group respectively.

Khatun *et al.* (2014) revealed in their study, 'Participation potential of rural women in different homestead farm activities' that the majority (58.25%) of rural women respondents had low annual income followed by rural women respondents with very low annual income (22.33%), medium annual income (9.72%), high annual income (6.79%) and very high annual income (2.91%).

Rani (2014) indicated in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (75.84%) of the women farmer respondents had medium level of income followed by high income (13.33%) and low income levels (10.83%).

Saikia (2014) specified in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that 42.50 per cent of the youth farm women respondents belonged to medium annual income category followed by low annual income category (39.17%) and high annual income category (18.33%)

Singotiya *et al.* (2014) identified in their study, 'Role of tribal farm women in decision making towards agricultural operations'' that 45.71 per cent of tribal

farm women respondents had low annual income followed by tribal farm women respondents with medium annual income (30.48%) and high annual income (23.81%).

Kumari and Laxmikant (2015) conveyed in their study, 'Role of farm women in agricultural activities' that the majority (63.88%) of the farm women respondents belonged to medium income group. About 27.22 per cent of farm women respondents were in high income group and 8.88 per cent were in low income group.

Raziyabanu (2016) specified in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that the majority (64.17%) of the farm women respondents had medium income of Rs. 1,00,000 to Rs. 2,50,000 followed by high income of above Rs. 2,50,000 (25.83%) and low income up to Rs. 1,00,000 (10.00%).

Das (2017) indicated in the study, 'Restructuring women empowerment in agricultural innovation system' that the majority (64.00%) of women actors respondents who were associated with the agricultural innovation system in local situation had low family annual income followed by medium (32.50%) and high (3.50%) family annual income.

Kavithaa and Rajkumar (2017) conveyed in their study, 'Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamil Nadu' that 43.33 per cent of women farmer respondents were in medium annual income category followed by women farmer respondents in low annual income category (41.67%) and high annual income category (15.00%).

Shamna *et al.* (2018) stated in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that the majority (55.00%) of tribal farm women respondents were in medium annual income category followed by tribal farm women respondents in low annual income category (27.50%) and high annual income category (17.50%).

2.1.7 Mass media exposure

Pushpa (2009) revealed in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that 46.11 per cent of farm women respondents had medium mass media participation followed by low mass media participation (36.67%) and high mass media participation (17.22%).

Swetha (2010) reported in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that the majority (51.11%) of farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium mass media participation followed by farm women respondents with high mass media participation (32.22%) and low mass media participation (16.67%).

Upadhyay (2010) indicated in the study, 'A study on participation of dairy farm women in animal husbandry occupation' that exactly three-fifths (60.00%) of the dairy farm women respondents had medium level of exposure to mass media followed by dairy farm women respondents with high level of mass media exposure (22.50%) and low level of mass media exposure (17.50%).

Ashok (2011) stated in the study, 'Adoption of clean milk production practices followed by dairy farm women in Junagadh district' that the majority (66.87%) of dairy farm women respondents had medium mass media exposure followed by dairy farm women respondents categories with low mass media exposure (18.13%) and high mass media exposure (15.00%).

Kumar (2011) found in the study, 'An analytical study on women dairy entrepreneurs in Mandya district of Karnataka' that the majority (53.33%) of the dairy women entrepreneur respondents had television followed by radio (45.83%), subscription to newspapers (17.50%) and books/magazines (15.00%). It was also found that 37.50 per cent and 22.50 per cent of dairy women entrepreneur respondents viewed television regularly and occasionally respectively for agricultural information. About 40 per cent of dairy women entrepreneur respondents never viewed television. About 24.16 per cent and 7.50 per cent of dairy women entrepreneur respondents listened to radio regularly and occasionally respectively for agricultural information. About 68.33 per cent of dairy women

entrepreneur respondents never listened to radio. About 5 per cent and 7.50 per cent of dairy women entrepreneur respondents read books/magazines regularly and occasionally respectively for agricultural information. About 87.50 per cent of dairy women entrepreneur respondents never read books/magazines. About 13.33 per cent and 11.66 per cent of dairy women entrepreneur respondents read newspapers regularly and occasionally respectively for agricultural information. About 75 per cent of dairy women entrepreneur respondents never read newspapers.

Upadhyay and Desai (2011) specified in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that the majority (60.00%) of the farm women respondents who were engaged in animal husbandry had medium level of mass media exposure followed by high mass media exposure (22.50%) and low mass media exposure (17.50%).

Chouhan (2014) conveyed in the study, 'Role of farm women in decision making on vegetable cultivation in Tikamgarh district of Madhya Pradesh' that the majority (58.33%) of farm women respondents had low mass media exposure followed by medium mass media exposure (40.00%) and high mass media exposure (1.66%).

Rani (2014) conveyed in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that one third (40.00%) of the women farmer respondents had medium mass media exposure followed by high media exposure (38.33%) and low mass media exposure (21.67%).

Saikia (2014) observed in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that 34.17 per cent, 7.50 per cent, 4.16 per cent and 25 per cent of youth farm women respondents had regularly utilized television, radio, mobile messages and newspaper respectively. About 43.33 per cent, 11.67 per cent and 5.83 per cent of youth farm women respondents occasionally utilized television, mobile messages and radio respectively. About 75.00 per cent, 86.67 per cent, 84.17 per cent, and 38.33 per cent of youth farm women respondents never utilized newspaper, radio, mobile messages and television respectively.

Devaki *et al.* (2015) indicated in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that the majority (57.00%) of the livestock farm women respondents had low mass media exposure followed by livestock farm women respondents with high mass media exposure (43.00%). None of the livestock farm women respondents had medium mass media exposure.

Lavanya (2016) found in the study, 'Involvement of farm women in different farm enterprises: A critical analysis' that 42.22 per cent of farm women respondents had medium mass media participation followed by farm women respondents with low mass media participation (30.00%) and high mass media participation (27.77%).

Kumari (2018) mentioned in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that the majority (51.11%) of the farm women respondents had medium level of mass media utilization followed by low mass media utilization (27.40%) and high level of mass media utilization (21.48%).

Saikia *et al.* (2018) informed in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that almost half (49.50%) of the rural women respondents had medium mass media exposure followed by low (34.00%) and high mass media exposure (16.50%).

Shamna *et al.* (2018) reported in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that half (50.00%) of the tribal farm women respondents had high mass media exposure followed by low (32.00%) and medium mass media exposure (17.00%).

Ansari and Jantwal (2019) identified in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that 79.16 per cent and 61.66 per cent of farm women respondents who were actively involved in agricultural activities regularly used mobile phone and television respectively. About 35 per cent, 20.83 per cent and 14.16 per cent of farm women respondents occasionally used television, mobile phone and radio

respectively. About 85.33 per cent and 3.33 per cent of farm women respondents never used radio and television respectively.

Balamurugan and Nirosha (2020) specified in their study, 'Mass media exposure and information source utilization of farm women in groundnut production and post-harvest operation in Thiruvannamalai district' that the majority (59.16%) of farm women respondents had medium mass media exposure followed by farm women respondents with high mass media exposure (21.67%) and low mass media exposure (19.17%)

2.1.8 Social participation

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (55.56%) of the rural women respondents had medium level of organizational participation followed by rural women respondents with low (31.11%) and high categories of organizational participation (13.33%).

Mohapatra (2009) noticed in the study, 'Empowerment of farm women in Orissa' that 57.92 per cent of the farm women respondents had no membership in any of the local organization or groups followed by 37.08 per cent with ordinary membership and only 5 per cent were office bearers.

Swetha (2010) revealed in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that 41.11 per cent of farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium social participation followed by farm women respondents with low social participation (32.23%) and high social participation (26.66%).

Tayde and Chole (2010 b) reported in their study, 'Personal correlations of empowerment of women' that the majority (65.00%) of the women respondents who were beneficiaries of empowerment programme had medium level of social participation followed by women respondents with high social participation (18.34%) and low social participation (16.66%).

Kumar (2011) concluded in the study, 'An analytical study on women dairy entrepreneurs in Mandya district of Karnataka' that the majority (78.33%) of the dairy women entrepreneur respondents regularly participated in dairy cooperative societies followed by SHGs (63.33%), mahila mandal (10.83%), both gram panchayat (8.33%) and banks (8.33%) and other cooperative societies (5.83%). 21.67 per cent, 13.33 per cent, 11.67 per cent, 6.67 per cent, 4.16 per cent and 1.67 per cent of dairy women entrepreneur respondents occasionally participated in dairy cooperative societies, SHGs, banks, mahila mandal, other cooperative societies and gram panchayat respectively. About 90 per cent of dairy women entrepreneur respondents never participated in both gram panchayat and other cooperative societies followed by mahila mandal (82.50%), banks (80.00%) and SHGs (23.33%).

Upadhyay and Desai (2011) indicated in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that most (40.00%) of the farm women respondents who were engaged in animal husbandry had membership in one organization followed by no membership in organizations (29.17%), membership in more than one organization (20.83%) and holding position in one organization (10.00%).

Lahoti *et al.* (2012) stated in their study, 'Role of women in dairy farming' that the majority (52.00%) of the dairy farm women respondents had no social participation followed by dairy farm women respondents with low social participation (42.00%), medium social participation (5.33%) and high social participation (0.66%).

Singotiya *et al.* (2014) observed in their study, 'Role of tribal farm women in decision making towards agricultural operations' that the majority (63.81%) of respondents had no membership in any organization followed by tribal farm women respondents who were members in one organization (19.05%) and tribal farm women respondents who were members in more than one organization (17.24%).

Devaki *et al.* (2015) specified in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that the majority

(85.00%) of livestock farm women respondents had medium social participation followed by livestock farm women respondents with high social participation (8.00%) and low social participation (7.00%).

Dawane and Gore (2016) observed in their study, 'Economic empowerment of women through Self Help Groups (SHGs)' that the majority (63.33%) of women respondents who were members of SHGs had low social participation followed by medium social participation (29.17%) and high social participation (7.50%).

Pooja *et al.* (2016) noticed in their study, 'Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar' that 88 per cent of women farmer respondents had no social participation and the remaining 12 per cent of women farmer respondents were a member of one organization

Shilparani (2016) revealed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that more than half (57.22%) of the farm women respondents had a low level of organizational participation followed by high (26.67%) and medium (16.11%) levels of organizational participation.

Sucharita and Bishnoi (2016) found in their study, 'Factors affecting decision making of farm women in Nayagarh district of Odisha' that the majority (54.00%) of farm women respondents had low social participation followed by farm women respondents with medium social participation (32.00%) and high social participation (14.00%).

Patel *et al.* (2017) specified in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that most (47.00%) of the dairy farm women respondents had low social participation followed by dairy farm women respondents with medium (46.00%) and high (7.00%) level of social participation.

Chauhan (2018) conveyed in the study, 'Participation of farm women in agricultural activities in Tikamgarh district (M.P.)' that 37.50 per cent of farm women respondents had medium social participation followed by 35.83 per cent and 26.67 per cent of farm women respondents with high social participation and low social participation respectively.

Chetia *et al.* (2018) stated in their study, 'Involvement of rural women in farm and non-farm activities' that the majority (75.00%) of the rural women respondents were members of more than one organization and the remaining were a member of one organization (25.00%).

Shamna *et al.* (2018) identified in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that 45 per cent tribal farm women respondents had high social participation followed by tribal farm women respondents with medium social participation (32.50%) and low social participation (22.50%).

Ansari and Jantwal (2019) indicated in their study, 'Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand' that the majority of the farm women respondents who were actively involved in agricultural activities (73.33%) had low social participation, whereas 15.83 per cent had medium social participation and only 5.83 per cent of farm women respondents had high social participation.

Imam (2019) observed in the study, 'Participation of farm women in agricultural activities and allied occupations' that 62.50 per cent of the farm women respondents had medium social participation. About 23.50 per cent and 14 per cent of the farm women respondents had low and high social participation respectively

Sunitha *et al.* (2019) conveyed in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwarammandal of Rangareddy district, India' that the majority of farm women respondents regularly participated in self-help groups (81.67%) followed by anganwadi centre (49.17%), gram panchayat (28.33%), taluk panchayat (24.17%), farmers organization (21.67%), zilla panchayat (20.00%) and mahila mandal (9.17%). Farm women respondents occasionally participated in gram panchayat (51.67%), farmers organization (35.83%), taluk panchayat (30.83%), anganwadi centre (29.17%), zilla panchayat (28.33%), mahila mandal (25.83%) and self-help groups (13.33%). About 65 per cent, 51.66 per cent, 45 per cent, 42.50 per cent, 21.67 per cent, 20 per cent and 5 per cent of farm women respondents never participated in mahila

mandal, zilla panchayat, taluk panchayat, farmers organization, anganwadi centre, gram panchayat and self-help groups respectively.

2.1.9 Extension Contact

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that most (47.71%) of the rural women respondents had low extension media contact followed by rural women respondents with high (26.67%) and medium extension media contact (25.55%).

Pushpa (2009) conveyed in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that almost half (48.89%) of the farm women respondents had medium contact with extension agency followed by high contact with extension agency (35.00%) and low contact with extension agency (16.11%).

Swetha (2010) indicated in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that 38.88 per cent of farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium extension contact followed by farm women respondents with low extension contact (31.12%) and high extension contact (30.00%). About 38.88 per cent of farm women respondents had medium extension participation followed by farm women respondents with low extension participation (40.00%) and high extension participation (21.12%).

Ekatpure *et al.* (2011) mentioned in their study, 'Study of constraints faced by the farm women in production of vermicompost.' that the majority (56.67%) of the farm women respondents had medium level of extension agency contact followed by high extension agency contact (23.33%) and low extension agency contact (20.00%).

Singh (2011) noticed in the study, 'A critical study on participation of rural women in agriculture activities in Hoshangabad district' that 42 per cent of the farm women respondents had medium contact with extension agents while 34.03 per cent and 24.31 per cent of farm women respondents had high contact and low contact with extension agents respectively.

Upadhyay and Desai (2011) observed in their study, 'Participation of farm women in animal husbandry in Anand district of Gujarat' that the majority (65.83%) of the farm women respondents who were engaged in animal husbandry had medium level of extension contact followed by high (22.50%) and low level of extension contact (11.67%).

Rahul (2012) reported in the study, 'Participation of farm women in decision making process in relation to agriculture activities' that 62.50 per cent of the farm women respondents had medium level of extension contact while 20 per cent and 17.50 per cent of farm women respondents had high level and low level of extension contact respectively.

Bhairve (2013) specified in the study, 'A study on women's participation and decision making pattern in agriculture activities in Sehore district of M.P.' that more than two fifths (44.17%) of the farm women respondents had medium extension contact followed by farm women respondents with high extension contact (28.33%) and low extension contact (27.50%).

Chouhan (2014) stated in the study, 'Role of farm women in decision making on vegetable cultivation in Tikamgarh district of Madhya Pradesh.' that 80.83 per cent of the farm women respondents had medium extension contact whereas 11.67 per cent and 7.5 per cent of farm women respondents had high and low extension contact respectively.

Gulkari *et al.* (2014) identified in their study, 'Profile analysis of dairy farm women in adoption of scientific practices' that the majority (71.88%) of dairy farm women respondents had medium level of extension agency contact followed by low level of extension agency contact (15.62%) and high level of extension agency contact (12.50 %).

Rani (2014) conveyed in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that more than half (57.50%) of the women farmer respondents had medium extension contact followed by women farmer respondents with high extension contact (29.17%) and low extension contact (13.33%).

Singotiya *et al.* (2014) indicated in their study, ‘Role of tribal farm women in decision making towards agricultural operations’ that 39.05 per cent of tribal farm women respondents had low extension contact (monthly) followed by tribal farm women respondents with medium extension contact (fortnight) (34.29%), high extension contact (daily and weekly) (15.23%) and low extension contact (11.43%).

Devaki *et al.* (2015) mentioned in their study, ‘Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu’ that most (46.00%) of the livestock farm women respondents had high extension agency contact followed by livestock farm women respondents with low (42.00%) and medium (12.00%) level of extension agency contact.

Lavanya (2016) noticed in the study, ‘Involvement of farm women in different farm enterprises: A critical analysis’ that the majority (58.88%) of farm women respondents had high extension contact followed by farm women respondents with medium extension contact (23.88%) and low extension contact (21.66%).

Shilparani (2016) observed in the study, ‘A critical analysis of empowerment of farm women in eastern dry zone of Karnataka’ that the majority (65.00%) of the farm women respondents had medium level of extension contact followed by low (22.22%) and high levels of extension contact (12.78%).

Bansal and Joshi (2018) reported in their study, ‘Profile characteristics of Farm Women Knowledge Groups (FWKGS)’ that respondents regularly contacted village level extension worker (29.00%), NGO personnel (11.00%) and bank personnel (10.00%). They also noticed that the majority of the farm women respondents occasionally contacted NGO personnel (57.00%) followed by village level extension worker (54.00%), extension officer (49.00%), block personnel (48.00%) and bank personnel (44.00%). Majority of the farm women respondents never contacted block personnel (52.00%), followed by extension officer (51.00%), bank personnel (46.00%), NGO personnel (32.00%) and village level extension worker (17.00%). None of the farm women respondents contacted university personnel.

Chauhan (2018) found in the study, 'Participation of farm women in agricultural activities in Tikamgarh district (M.P.)' that 37.50 per cent of farm women respondents had medium extension participation followed by 29.17 per cent of farm women respondents with high extension participation and 33.33 per cent of farm women respondents with low extension participation.

Kumari (2018) revealed in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that the majority (50.37%) of the farm women respondents had medium level of extension participation followed by low (25.92%) and high level of extension participation (23.70%).

Shamna *et al.* (2018) indicated in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that 45 per cent tribal farm women respondents had high extension participation followed by tribal farm women respondents with low extension participation (35.00%) and medium extension participation (20.00%).

Santhi and Kalirajan (2019) conveyed in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (80.00%) of the farm women respondents had low extension agency contact. About 17.50 per cent of farm women respondents had high level of extension agency contact and 2.50 per cent of farm women respondents had medium extension agency contact.

Sunitha *et al.* (2019) identified in their study, 'Profile characteristics of farm women with reference to knowledge groups in Maheshwaramandal of Rangareddy district, India' that the majority of the farm women respondents had regular contacted community coordinator (SHGs) (68.33%) followed by anganwadi worker (58.33%), bank personnel (38.33%), both village level extension worker (28.33%) and farmers organizations (28.33%), extension officer (27.50%), agricultural extension officer (25.00%), block personnel (22.50%), NGOs personnel (11.67%) and university personnel (8.33%). Majority of the farm women respondents had occasionally contacted block personnel (66.67%), agricultural extension officer (62.50%), village level extension worker (61.67%),

farmers organizations (58.33%), extension officer (51.67%), bank personnel (44.17%), anganwadi worker (27.50%), community coordinator (SHGs) (25.00%), university personnel (23.33%) and NGOs personnel (16.67%). About 71.67 per cent, 68.33 per cent, 20.83 per cent, 17.50 per cent, 14.17 per cent, 13.33 per cent, 12.50 per cent, 10.83 per cent, 10 per cent, 6.67 per cent of farm women respondents never contacted NGOs personnel, university personnel, extension officer, bank personnel, anganwadi worker, farmers organizations, agricultural extension officer, block personnel, village level extension worker and community coordinator (SHGs) respectively.

2.1.10 Information sources utilization

Varma (1996) found in the study, 'A multi-dimensional analysis of self-employment among farm women' that the majority (51.67%) of the farm women respondents belonged to the low group and remaining (48.33%) of farm women respondents belonged to the high group of information source utilization.

Jagannath (2003) reported in the study, 'Adoption of food grain storage practices by the farm women and their training needs' that 37.06 per cent of farm women respondents had used more source of information while nearly similar proportion of farm women respondents had used less (31.76%) and medium (31.18%) sources of information.

Dhaduk (2004) indicated in the study, 'A study on reading behaviour, readership pattern and extent of utilization of farm literature by farm women of Junagadh district' that the majority (75.00%) of farm women respondents had utilized medium level of agricultural information published in farm literature followed by farm women respondents with low level of utilization (18.00%) and high level of utilization of agricultural information (7.00%).

Pallavi (2006) mentioned in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that half (50.00%) of the tribal women respondents had utilized medium sources of information followed by low (42.50%) and high (7.50%) sources of information utilization.

Sujina (2009) specified in the study, 'A study on change in work pattern of farm women and its consequences on farming in Madurai district' that half (50.80%) of the farm women respondents had medium information source utilization behaviour followed by high information source utilization behaviour (29.20%) and low information source utilization behaviour (20.00%)

Tayde and Chole (2010 b) conveyed in their study, 'Personal correlations of empowerment of women' that the majority (60.00%) of the women respondents who were beneficiaries of empowerment programme had medium utilization of information sources followed by women respondents with low (23.33%) and high (16.67%) levels of information sources utilization.

Singh (2011) noticed in the study, 'A critical study on participation of rural women in agriculture activities in Hoshangabad district' that 38.89 per cent of farm women respondents belonged to medium utilization of information sources followed by farm women respondents with low (32.64%) and high (24.87%) levels of information sources utilization.

Girade and Shambharkar (2012) observed in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities' that the majority (64.17%) of the farm women respondents were in medium category of sources of information use followed by low (22.50%) and high (13.33%) levels of sources of information use.

Shiroya (2014) pointed out in the study, 'A study on perception, decision making and participation of farm women in dairy occupation' that the majority (73.00%) of dairy farm women respondents had medium level of utilization of information sources followed by low level (21.00%) and high level of utilization of information sources (06.00 %).

Dawane and Gore (2016) observed in their study, 'Economic empowerment of women through Self Help Groups (SHGs)' that the majority (57.50%) of women respondents who were members of SHGs had medium use of sources of information followed by low use of sources of information (25.84%) and high use of sources of information (16.66%).

Sachan (2016) indicated in the study, 'Empowerment of Tharu farm women in tribal setting of Uttarakhand' that the almost half (49.50%) of tharu tribal farm women respondents had medium utilization of sources of information followed by high (39.50%) and low (11.00%) utilization of sources of information.

Patel *et al.* (2017) specified in their study, 'Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state' that the majority (75.50%) of the dairy farm women respondents used medium sources of information for obtaining information about dairy farming, while 14.50 per cent and 10 per cent of dairy farm women respondents used more and less sources of information respectively.

Shankarrao (2018) noticed in the study, 'Decision making behaviour of farm women about agriculture' that the majority (59.26%) of the farm women respondents used medium sources of information followed by low (23.70%) and high (17.04%) use of sources of information.

Vaghasiya (2018) reported in the study, 'Pattern of participation of farm women in agricultural activities and decision making in Rajkot district of Gujarat state' that the majority (61.48%) of farm women respondents had medium utilization of source of information followed by more utilization of source of information (27.40%) and less utilization of source of information (11.12%).

Imam (2019) revealed in the study, 'Participation of farm women in agricultural activities and allied occupations' that 63.50 per cent of the farm women respondents had medium information source utilization followed by 27.50 per cent of the respondents with low and 9 per cent farm women respondents with high information source utilization

Santhi and Kalirajan (2019) mentioned in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (50.83%) of the farm women respondents were in medium category of information sources utilization followed by low (44.17%) and high (5.00%) levels of information sources utilization.

Balamurugan and Nirosha (2020) observed in their study, 'Mass media exposure and information source utilization of farm women in groundnut production and post-harvest operation in Thiruvannamalai district' that the majority (50.83%) of farm women respondents had medium information sources utilization followed by farm women respondents with low information sources utilization (27.50%) and high information sources utilization (21.67%).

2.1.11 Creativity

Sangeetha (1997) reported in the study, 'Managerial behaviour of commercial banana growers in Thiruvananthapuram district' that 63 per cent of commercial palayankodan grower respondents had high creative skills followed by medium creative skills (29.00%) and low creative skills (7.00%).

Anitha (2003) revealed in the study, 'Empowerment of women entrepreneurs in Ranga Reddy district of Andhra Pradesh' that the majority (67.50%) of women entrepreneur respondents had high creativity followed by medium creativity (32.50%). None of the women entrepreneur respondents were in low creativity category.

Neelima (2005) noticed in the study, 'Creative potential and performance of self help groups in rural areas of Warangal district of Andhra Pradesh' that 36 per cent of women in non-traditional economic activities had medium creative potential followed by women respondents with high creative potential (34.00%) and low creative potential (30.00%) while the majority (72.00%) of traditional women respondents had low creative potential followed by women respondents with medium creative potential (20.00%) and high creative potential (8.00%).

Datt (2012) conveyed in the study, 'Dairy based innovations developed by farmers at field level: Case studies' that the 'originality scores of creativity' of selected farmer innovators was higher than 'fluency' and 'flexibility' scores of creativity. It was also observed that of the nine cases, total creativity score was high in four cases, medium in four cases and low in one case.

Devarakonda (2015) mentioned in the study, 'A study on generation of farmer innovations and re-inventions in Andhra Pradesh' that the majority

(51.83%) of farmer respondents were in high creativity category followed by medium (35.36%) and low categories of creativity (12.81%).

Mubeena (2017) observed in the study, 'A study on entrepreneurial behaviour of rural women of podupu laxmi ikya sangam in Kurnool district of Andhra Pradesh' that the majority (79.16%) of the rural women respondents had high level of creativity followed by medium (16.65%) and low (4.19%) levels of creativity respectively.

Raj (2018) found in the study, 'Entrepreneurial behaviour of lease land vegetable growers in Thiruvanthapuram district' that the majority (66.25%) of vegetable grower respondents had medium creativity followed by low creativity (17.50%) and high creativity (16.25%).

Jose (2020) revealed in the study, 'Entrepreneurial behaviour of farmer producer organization (FPO) members for livelihood security' that 65.83 percent of the farmer respondents had medium creativity followed by 15.83 percent of farmer respondents with low creativity and 18.33 percent of farmer respondents with high creativity.

Reshma (2020) found in the study, 'A multidimensional analysis of awardee farmers of department of agriculture development and farmers' welfare in southern Kerala' that the majority of awardee farmers respondents were in medium category of creativity followed by high creativity (17.14%) and low creativity (11.43%).

Parveen (2021) reported in the study, 'A study on value chain management in maize in Telangana state' that the majority (61.88%) of the maize growers respondents had low creative potential followed by medium creative potential (22.50%) and high creative potential (15.62%).

2.1.12 Achievement motivation

Chithra (2011) observed in the study, 'Impact of kudumbashree programme on rural woman in Kottayam district of Kerala' that nearly half (48.35%) of the Kudumbashree beneficiary respondents had medium level of achievement motivation followed by low (21.75%) and high (30.00%) level of achievement motivation.

George *et al.* (2012) shown in their study, 'Analysis of socio-personal profile of livestock based Self Help Group members of Thrissur district, Kerala' that nearly two-third (71.00%) of the SHG member respondents had medium achievement motivation followed by high (19.00%) and low (10.00%) achievement motivation.

Kiran *et al.* (2012 b) reported in their study, 'Entrepreneurial behaviour in rural women of Sultanpur district of Uttar Pradesh' that nearly three-fourth (74.50%) of the rural women respondents had medium level of achievement motivation followed by low (22.00%) and high (3.50%) level of achievement motivation.

Lakshmi (2013) found in the study, 'A critical analysis of farming performance of farm women in rice based farming system in Andhra Pradesh' that 52.80 per cent of farm women respondents had medium achievement motivation followed by farm women respondents with high achievement motivation (26.10%) and low achievement motivation (21.10%).

Ram *et al.* (2013) concluded in their study, 'Entrepreneurship behaviour of women entrepreneurs in Imphal of Manipur' that most (48.60%) of the women entrepreneur respondents were in the medium achievement motivation category followed by women entrepreneur respondents in low achievement motivation category (26.00%) and high achievement motivation category (25.40%).

Wankhade *et al.* (2013) indicated in their study, 'Entrepreneurial behaviour of vegetable growers' that the majority (78.00%) of vegetable growers respondents had medium level of achievement motivation followed by high (14.00%) and low (8.00%) achievement motivation.

Madhushree (2014) noticed in the study, 'Decision making pattern and achievement motivation of farm women under dry land condition in Tumkur district' that most (47.50%) of the farm women respondents had medium level of achievement motivation followed by 27.50 per cent of farm women respondents with low level of achievement motivation and 25 per cent of farm women respondents with high level of achievement motivation.

Rani (2014) mentioned in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that more than half (53.34%) of the women farmer respondents had medium achievement motivation followed by women farmer respondents with high achievement motivation (30.83%) and low achievement motivation (15.83%).

Reshma *et al.* (2014) stated in their study, 'Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities' that 47.50 per cent of farm women respondents who were beneficiaries of livestock development programme of BAIF had medium achievement motivation followed by farm women respondents with high achievement motivation (30.83%) and low achievement motivation (21.66%).

Saikia (2014) specified in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that 41.67 per cent of youth farm women respondents had medium level of achievement motivation followed by low level of achievement motivation (31.67%) and high level of achievement motivation (26.67%).

Thakur and Barman (2014) observed in their study, 'Factors influencing entrepreneurial behavior of women Self Help Group members formed under Swarnajayanti Gram Swarozgar Yojana in Jorhat district of Assam' that more than two-third (68.00%) of the SHG member respondents had medium achievement motivation followed by high (20.00%) and low (12.00%) achievement motivation.

Saikia (2015) conveyed in the study, 'Level of capacity and competitiveness building of farm women in Assam through extension services and its impact on their empowerment' that more than half (51.92%) of farm women respondents had medium level of achievement motivation followed by low level of achievement motivation (36.16%) and high level of achievement motivation (11.92%).

Nishitha (2016) indicated in the study, 'Decision making and participation of farm men and women in Sugarcane cultivation: A study in Mandya district' that 46.67 per cent of farm women respondents had medium level of achievement motivation followed by low level of achievement motivation (33.33%) and high level of achievement motivation (20.00%).

Shilparani (2016) noticed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that more than three fifths (63.89%) of the farm women respondents had medium level of achievement motivation followed by (20.00%) of the farm women respondents with low level and (16.11%) of the high level of achievement motivation respectively.

Supriya (2016) reported in the study, 'Decision making pattern and work participation of farm women in management of coffee plantation in Kodagu district' that 40 per cent of farm women respondents had high achievement motivation followed by 31.11 per cent and 28.89 per cent of farm women respondents with low and medium achievement motivation respectively.

Mubeena (2017) indicated in the study, 'A study on entrepreneurial behaviour of rural women of podupu laxmi ikya sangam in Kurnool district of Andhra Pradesh' that the majority (78.30%) of the 'podupu laxmi ikya sangam' women entrepreneurs respondents had medium level of achievement motivation followed by low (20.83%) and high (0.87%) levels of achievement motivation respectively.

Kavyashree (2018) revealed in the study, 'Decision making and participation of farm men and women in paddy cultivation: A study in Shivamogga district' that most (46.67%) of farm women respondents belonged to low achievement motivation category followed by medium (35.00%) and high (18.33%) categories of achievement motivation.

Imam (2019) mentioned in the study, 'Participation of farm women in agricultural activities and allied occupations' that more than half (53.50 %) of the farm women respondents had medium level of achievement motivation followed by 35.50 per cent and 14 per cent of the farm women respondents with high and low achievement motivation respectively

2.1.13 Scientific orientation

Nethravathi (2008) found in the study, 'Participation of farm women in post-harvest technologies of tomato in Kolar district' that the majority (59.17%) of farm women respondents had medium scientific orientation followed by low scientific orientation (22.50%) and high scientific orientation (18.33%).

Gnanasham (2009) reported in the study, 'Impact of dairy training programme on dairy farm women' that the majority (64.00%) of dairy farm women respondents had medium scientific orientation followed by high scientific orientation (20.00%) and low scientific orientation (16.00%).

Bhimrao (2011) revealed in the study, 'Involvement of rural women in paddy farm management' that the majority (63.33%) of farm women respondents had medium scientific orientation followed by high scientific orientation (25.00%) and low scientific orientation (11.67%).

Nimoda (2013) mentioned in the study, 'A study on information and training needs of farm women on crop production technology in Sehore district of Madhya Pradesh' that 36.36 per cent of farm women respondents had medium scientific orientation followed by farm women respondents with high scientific orientation (32.73%) and low scientific orientation (30.91%).

Chouhan (2014) identified in the study, 'Role of farm women in decision making on vegetable cultivation in Tikamgarh district of Madhya Pradesh' that more than half of the farm women respondents (55.84%) had medium scientific orientation followed by low scientific orientation (30.83%) and high scientific orientation (13.33%).

Pandey (2014) specified in the study, 'A study on an assessment of entrepreneurial management activities in relation to onion cultivation among the farm women in Rewa block of Rewa district (M.P)' that 45.83 per cent of farm women respondents had medium scientific orientation followed by farm women respondents with low scientific orientation (28.33%) and high scientific orientation (25.84%).

Rani (2014) stated in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (61.67%) of the women farmer respondents had medium scientific orientation followed by women farmer respondents with high scientific orientation (25.83%) and low scientific orientation (12.50%).

Singh (2015) conveyed in the study, 'A study on involvement of farm women in agricultural activities in Gwalior district of Madhya Pradesh' that almost

half (49.00%) of the farm women respondents had medium scientific orientation followed by high scientific orientation (22.50%) and low scientific orientation (20.50%).

Nishitha (2016) found in the study, 'Decision making and participation of farm men and women in Sugarcane cultivation: A study in Mandya district' that 46.67 per cent of farm women respondents had medium scientific orientation followed by low scientific orientation (31.67%) and high scientific orientation (21.66%).

Patel *et al.* (2016) mentioned in their study, 'Scientific orientation of tribal farm women and its relationship with their contribution in agriculture and animal husbandry' that the majority of the tribal farm women respondents had medium level of scientific orientation (74.50%) followed by high level (14.00%) and low level (11.50%) of scientific orientation.

Raghuwanshi (2016) reported in the study, 'A study on information and training needs of farm women on crop production technology in Vidisha district of Madhya Pradesh' that 35.83 per cent of farm women respondents had medium scientific orientation followed by high scientific orientation (34.17%) and low scientific orientation (30.00%).

Raziyabanu (2016) indicated in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that more than half (53.33%) of the farm women respondents had high scientific orientation followed by very high (22.50%), medium (20.84%) and low (3.33%) scientific orientation. None of the farm women respondents had very low scientific orientation.

Shilparani (2016) revealed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that the majority (65.56%) of the farm women respondents had medium level of scientific orientation followed by low (20.00%) and high level (14.44%) of scientific orientation.

Das (2017) specified in the study, 'Restructuring women empowerment in agricultural innovation system' that most of women actors respondents who were associated with the agricultural innovation system in local situation had high

scientific orientation (45.00%) followed by medium scientific orientation (42.50%) and low scientific orientation (12.50%).

Kumari (2018) stated in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that the majority (51.11%) of farm women respondents had medium level of scientific orientation followed by low level (31.11%) and high level (17.77%) of scientific orientation.

Kholiya (2019) conveyed in the study, 'A study on entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand' that the majority (77.50%) of farm women respondents had medium level of scientific orientation followed by low level (12.50%) and high level (10.00%) of scientific orientation.

2.1.14 Risk orientation

Kumari (2004) conveyed in the study, 'A study on tribal women entrepreneurs in high altitude tribal zone of Andhra Pradesh' that the majority (80.56%) of the tribal women entrepreneur respondents had medium risk orientation followed by high (10.56%) and low (8.88%) risk orientation.

Pallavi (2006) found in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that the majority (65.00%) of the tribal women respondents had medium risk orientation followed by high (22.50%) and low (12.50%) risk orientation.

Patel (2006) revealed in the study, 'Role of tribal farm women in agriculture development in integrated tribal development project area of Dahod district of Gujarat state' that the majority of the tribal farm women respondents (77.00%) had medium risk orientation followed by high risk orientation (12.00%) and low risk orientation (11.00%).

Nethravathi (2008) reported in the study, 'Participation of farm women in post-harvest technologies of tomato in Kolar district' that most (48.33%) of the farm women respondents possessed medium risk bearing ability followed by high risk bearing ability (35.00%) and low risk bearing ability (16.67%).

Pushpa (2009) specified in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that 48.33 per cent of farm women respondents had medium risk orientation followed by high risk orientation (27.78%) and low risk orientation (23.89%).

Swetha (2010) identified in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that 40 per cent of farm women respondents who were beneficiaries in on-farm demonstration in paddy had medium risk orientation followed by farm women respondents with low risk orientation (36.66%) and high risk orientation (23.34%).

Upadhyay (2010) noticed in the study, 'A study on participation of dairy farm women in animal husbandry occupation' that more than half (55.00%) of dairy farm women respondents had medium risk orientation followed by high risk orientation (25.83%) and low risk orientation (19.17%).

Ashok (2011) observed in the study, 'Adoption of clean milk production practices followed by dairy farm women in Junagadh district' that more than half (56.87%) of the dairy farm women respondents had medium risk orientation followed by almost equal per cent of dairy farm women respondents in low risk orientation category (21.88%) and high risk orientation category (21.25%).

Kumar (2011) concluded in the study, 'An analytical study on women dairy entrepreneurs in Mandya district of Karnataka' that the majority (59.16%) of the dairy women entrepreneur respondents had medium risk orientation followed by dairy women entrepreneur respondents with low risk orientation (23.34%) and high risk orientation (17.50%).

Ram *et al.* (2013) inferred in their study, 'Entrepreneurship behaviour of women entrepreneurs in Imphal of Manipur' that 48.60 per cent of women entrepreneur respondents had medium level of risk orientation followed by women entrepreneur respondents with high level of risk orientation (38.70%) and low level of risk orientation (12.70%).

Madhushree (2014) mentioned in the study, 'Decision making pattern and achievement motivation of farm women under dry land condition in Tumkur district' that the majority (60.83%) of farm women respondents belonged to high risk orientation category followed by medium risk orientation (22.50%) and low risk orientation (16.67%) categories.

Rani (2014) reported in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (60.00%) of the women farmer respondents had medium risk orientation followed by women farmer respondents with high risk orientation (29.17%) and low risk orientation (10.83%).

Reshma *et al.* (2014) revealed in their study, 'Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities' that the majority (76.66%) of farm women respondents who were beneficiaries of livestock development programme of BAIF had medium level of risk orientation followed by low (15.80%) and high (7.50%) level of risk orientation.

Saikia (2014) conveyed in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that most (34.17%) of the youth farm women respondents had medium level of risk orientation followed by low level of risk orientation (25.00%) and high level of risk orientation (21.37%).

Supriya (2016) specified in the study, 'Decision making pattern and work participation of farm women in management of coffee plantation in Kodagu district' that 41.11 per cent of farm women respondents had high risk bearing ability followed by 31.11 per cent and 27.78 per cent of farm women respondents with medium and low risk bearing ability respectively.

Das (2017) found in the study, 'Restructuring women empowerment in agricultural innovation system' that approximately half (49.00%) of the women actors respondents who were associated with the agricultural innovation system in local situation had medium risk preference followed by high risk preference (26.50%) and low risk preference (24.50%).

Kumari (2018) identified in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that most (45.92%) of the farm women respondents had medium level of risk orientation followed by low (29.62%) and high (24.44%) level of level of risk orientation.

Santhi and Kalirajan (2019) indicated in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (59.17%) of the farm women respondents had medium level of risk orientation followed by high (24.17%) and low (16.67%) level of level of risk orientation.

Vaghasiya (2019) noticed in the study, 'Pattern of participation of farm women in agricultural activities and decision making in Rajkot district of Gujarat state' that more than half (52.59 %) of farm women respondents had medium level of risk orientation followed by 25.93 per cent and 21.48 per cent of farm women respondents with high and low level of risk orientation respectively.

2.1.15 Economic orientation

Nethravathi (2008) reported in the study, 'Participation of farm women in post-harvest technologies of tomato in Kolar district' that 62.50 per cent of farm women respondents had medium economic orientation followed by low economic orientation (20.83%) and high economic orientation (16.67%).

Bhimrao (2011) revealed in the study, 'Involvement of rural women in paddy farm management' that the majority (68.33%) of rural women respondents had medium economic motivation followed by respondents with high economic motivation (20.84%) and low economic motivation (10.83%).

Kumar (2011) concluded in the study, 'An analytical study on women dairy entrepreneurs in Mandya district of Karnataka' that the majority (60.00%) of dairy women entrepreneur respondents had medium economic motivation followed by dairy women entrepreneur respondents with high economic motivation (23.34%) and low economic motivation (16.66%).

Chand (2012) conveyed in the study, 'A study on awareness and participation of tribal farm women in improved cattle management practices in Chhindwara district of Madhya Pradesh' that 38.18 per cent of farm women respondents had medium economic motivation followed by 32.73 per cent and 29.09 per cent of farm women respondents with high economic motivation and low economic motivation respectively.

Chouhan (2014) noticed in the study, 'Role of farm women in decision making on vegetable cultivation in Tikamgarh district of Madhya Pradesh' that 68.33 per cent of farm women respondents had medium economic motivation followed by low economic motivation (16.67%) and high economic motivation (15.00%).

Garg (2014) observed in the study, 'A study on role of farm women in decision making process in vegetable cultivation in Jabalpur block of Jabalpur district (M.P.)' that the majority (61.00%) of farm women respondents had medium economic motivation followed by high economic motivation (29.00%) and low economic motivation (20.00%).

Reshma *et al.* (2014) specified in their study, 'Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities' that the majority (64.16%) of farm women respondents who were beneficiaries of livestock development programme of BAIF had medium economic motivation followed by farm women respondents with high economic motivation (25.83%) and low economic motivation (10.00%).

Devaki *et al.* (2015) reported in their study, 'Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu' that most (42.00%) of the livestock farm women respondents had low economic motivation followed by livestock farm women respondents with high (41.00%) and medium (17.00%) level of economic motivation.

Singh (2015) identified in the study, 'A study on involvement of farm women in agricultural activities in Gwalior district of Madhya Pradesh' that the majority (53.00%) of farm women respondents had medium economic motivation followed by high economic motivation (24.50%) and low economic motivation (22.50%)

Nishitha (2016) mentioned in the study, 'Decision making and participation of farm men and women in Sugarcane cultivation: A study in Mandya district' that 40 per cent of farm women respondents had medium economic motivation followed by high economic motivation (35.00%) and low economic motivation (25.00%).

Raziyabanu (2016) stated in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that most (48.33 %) of the farm women respondents had high economic motivation followed by medium (22.50%), very high (19.17 %), low (10.00%) economic motivation. None of the farm women respondents was found with low economic motivation.

Shilparani (2016) reported in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that 62.22 per cent of the farm women respondents had medium level of economic motivation followed by low level (26.67%) and high level (11.11%) of economic motivation.

Supriya (2016) revealed in the study, 'Decision making pattern and work participation of farm women in management of coffee plantation in Kodagu district' that 47.78 per cent of farm women respondents had medium economic orientation followed by high economic orientation (35.56%) and low economic orientation (16.66%).

Das (2017) indicated in the study, 'Restructuring women empowerment in agricultural innovation system' that the majority (52.50%) of women actors respondents who were associated with the agricultural innovation system in local situation had high economic motivation followed by medium economic motivation (38.50%) and low economic motivation (9.00%).

Kavyashree (2018) conveyed in the study, 'Decision making and participation of farm men and women in paddy cultivation: A study in Shivamogga district' that most (43.33%) of farm women respondents belonged to medium economic motivation category followed by low (38.34%) and high (18.33%) categories of economic motivation.

Shamna *et al.* (2018) identified in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that 45 per cent of tribal farm women respondents had medium economic motivation followed by same per cent of tribal farm women respondents in both low economic motivation (27.50%) and high economic motivation (27.50%).

Santhi and Kalirajan (2019) specified in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (61.67%) of the farm women respondents had medium economic motivation. 28.33 per cent and 10 per cent of the farm women respondents had low economic motivation and high economic motivation respectively.

2.2 MAGNITUDE OF PARTICIPATION OF FARM WOMEN IN FARMING

Sarjerao (2007) observed in the study, 'Participation of farm women in agriculture enterprise' that the majority (71.88%) of farm women respondents had medium level of participation in farm operations followed by farm women respondents with low level of participation (16.25%) and high level of participation (11.87%) in farm operations.

Warkade (2010) conveyed in the study, 'A study on role of tribal farm women in decision making towards agricultural operations in Bichhia block of Mandla district, M.P.' that all the tribal farm women respondents (100.00%) were participating in the weeding and harvesting practices compared to other farm operations, followed by sowing of seed (85.00%), grain storage (83.33%), threshing (80.00%), use of manures (76.66%), quantity of seed (68.33%), selection of crop (56.66%), use of fertilizers (45.00 %), selection of varieties (43.33%), seed treatment and marketing (40.00%), irrigation (39.16%), plant protection measures (36.66%) and field preparation (30.00%).

Yadav (2010) indicated in the study, 'A study on women's participation and decision making pattern in agricultural activities in Sehore district of M.P.' that 35 per cent of farm women respondents had high level of participation in agricultural activities. 34.17 per cent and 30.83 per cent of farm women respondents had medium and low levels of participation in agricultural activities respectively.

Chauhan (2011) revealed in the study, 'Participation of the tribal farm women in crop management' that the highest participation of tribal farm women respondents was observed in sowing/transplanting (mean value=2.63) followed by stubble collection (mean value=2.51), clod crushing (mean value=2.40), manuring (mean value=2.02) and seedbed nursery/ preparation (mean value=1.32) in pre sowing and sowing operations. According to involvement in inter cultural operations by tribal farm women respondents, highest participation was observed in weeding (mean value=3.16), followed by gap filling, (mean value=2.22) application of fertilizer (mean value=2.14), bird scaring (mean value=1.69), irrigation (mean value=1.24), bunding (mean value=1.09) and hoeing with hand (mean value=1.07). Highest participation in harvesting and post-harvest operations by tribal farmwomen respondents was observed in nipping/picking and threshing (mean value=3.22) followed by harvesting (mean value=2.93), winnowing (mean value=2.34), storage (mean value=2.12), making threshing yard (mean value=1.93), bagging/packing (mean value=1.54) and marketing of agricultural produce (mean value=1.29).

Agarwal *et al.* (2013) found in their study, 'A study of agricultural activities performed by rural women and problems faced by them in Jammu district of Jammu and Kashmir state' that the majority of rural women respondents were involved in drying of grains followed by storage (92.60%), transplanting (85.30%), winnowing (84.60%), harvesting of crop and cutting of grass (78.60%), picking (77.30%) and sowing operations (74.60%).

Chayal *et al.* (2013) reported in their study, 'Involvement of farm women in decision-making in agriculture' that the major involvement of farm women respondents in decision making in agriculture was seen in harvesting (51.67%), preparation of field (40.83%), selection of crop (29.17%), selection of seed variety (28.33%), sowing method (24.17%), irrigation (23.33%), storage (20.00%), weeding (19.17%), manure/fertilizer application (12.50%), manure/fertilizer type (10.83%) and marketing of agriculture inputs and produce (9.17%).

Thakur (2013) mentioned in the study, 'A study on role of farm women in decision making process in vegetable cultivation in Panagar block of Jabalpur district (M.P.)' that cent per cent of the farm women respondents participated in

weeding on the farm followed by picking (85.00%), grain storage (97.27%), sowing of seed (89.09%), seed treatment (81.81%), gap filling (80.00%), plant protection measures (61.81%), selection of seed (54.45%), transportation (51.81%), use of fertilizer (09.90%), nursery management (43.63%), use of manure (40.00%), marketing (54.00%) and land preparation (20.00%).

Khatun *et al.* (2014) specified in their study, 'Participation potential of rural women in different homestead farm activities' that 59.22 per cent of rural women respondents had medium participation in vegetable cultivation followed by high participation (23.31%) and low participation (17.47%). They also found that 46.60 per cent of rural women respondents had medium participation in fruit tree cultivation followed by low participation (42.72%) and high participation (10.68%).

Rani (2014) stated in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the majority (75.83%) of women farmer respondents had medium level of participation followed by high (15.00%) and low level of participation (9.17%) in farm activities.

Kumari and Laxmikant (2015) indicated in their study, 'Role of farm women in agricultural activities' that there was cent per cent participation of farm women respondents in drying, cleaning, storage of grains and processing of produce. Farm women respondents' participation was also witnessed in harvesting (97.77%), winnowing (96.11%), transplanting (88.33%), seed sowing (84.44%), gap filling (82.22%), weeding (79.44%), animal care (78.33%), seed grading (76.66%), thinning (69.44%), threshing (54.44%), application of manure and fertilizer (42.27%) and land preparation (31.11%). Least participation of farm women respondents was seen in seed treatment (16.11%) and plant protection measures (8.88%).

Bharali and Das (2016) conveyed in their study, 'A study on extent of involvement of rural women in agro based enterprises' that 40.83 per cent rural women respondents who were mostly engaged in both vegetable cultivation and livestock rearing had high involvement in vegetable cultivation followed by rural women respondents with medium involvement (35.84%) and low involvement (23.33%) in vegetable cultivation.

Lavanya (2016) identified in the study, 'Involvement of farm women in different farm enterprises: A critical analysis' that the majority (56.66%) of farm women respondents had medium level of involvement in cotton crop enterprise activities followed by farm women respondents with high involvement (30.00%) and low involvement (13.33%).

Sachan (2016) found in the study, 'Empowerment of Tharu farm women in tribal setting of Uttarakhand' that the maximum (60.50%) Tharu tribal farm women respondents performed medium level of pre-harvest farm activities and remaining (39.50%) performed a high level of above farm activities.

Dudi and Meena (2017) noticed in their study, 'Participation and decision making pattern of farm women in agriculture' that more than half (53.57%) of the farm women respondents had high level of participation in agricultural operations followed by medium participation (30.73 %) and low participation (15.70 %).

Mishra and Gupta (2017) observed in their study, 'Relation between extent of participation and extent of knowledge of farm women in various farms practices' that there was medium participation (40.00%) of farm women respondents in various farm activities. About 37 per cent of farm women respondents had low participation and 23 per cent of farm women respondents had high participation in day-by-day activities.

Chauhan (2018) revealed in the study, 'Participation of farm women in agricultural activities in Tikamgarh district (M.P.)' that the majority (65.00%) of farm women respondents had medium extent of participation in agricultural activities followed by low (22.50%) and high (12.50%) extent participation in agricultural activities

Chetia *et al.* (2018) reported in their study, 'Involvement of rural women in farm and non-farm activities' that all rural women respondents always involved in farm activities such as transplanting, harvesting and winnowing. Majority of rural women respondents involved only sometimes for farm activities like applying manure and fertilizer (66.66%), nursery raising (52.50%), marketing of farm produce (51.66%), storage of grain (15.00%), irrigation or water management (14.16%), applying insecticides (10.83%), weeding (4.16%) and land preparation

(2.50%). Greater per cent of women never involved in farm activities such as land preparation (97.50%) followed by applying insecticides (89.17%), irrigation or water management (85.84%), storage of grain (65.83%), nursery raising (46.67%), applying manure and fertilizer (33.34%), marketing of farm produce (13.34%) and weeding (11.00%).

Kumari (2018) mentioned in the study, 'Role of farm women in agriculture and their involvement in decision making - A study in Deoria district of Uttar Pradesh' that of the various agricultural activities, the majority of farm women respondents regularly participated in grading and storage (82.22%) followed by weeding (77.03%), drying and cleaning of grains (74.81%), sowing operations (68.88%), shifting production to threshing floor (65.92%), land preparation (27.40%), irrigation (15.55%), manure application (13.33%), procurement of inputs (12.59%), plant protection measures (10.37%) and transportation and marketing (9.62%). Farm women respondents occasionally participated in land preparation (29.62%), irrigation (26.66%), manure application (23.70%), plant protection measures (22.96%), drying and cleaning of grains (21.48%), shifting production to threshing floor (17.77%), transportation and marketing (14.07%), grading and storage (12.59%), sowing operations (10.37%), procurement of inputs (8.88%) and weeding (8.14%). It was also revealed in the study that farm women respondents never participated in procurement of inputs (78.51%), transportation and marketing (76.29%), plant protection measures (66.66%), manure application (62.96%), irrigation (57.77%), land preparation (42.96%), sowing operations (20.74%), shifting production to threshing floor (16.29%), weeding (14.81%), drying and cleaning of grains (13.70%) and grading and storage (5.18%).

Saikia *et al.* (2018) indicated in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that the majority (60.75%) of rural women respondents had medium level of participation followed by low (21.25%) and high level participation (18.00%) in rice farming activities.

Shankarrao (2018) stated in the study, 'Decision making behaviour of farm women about agriculture' that four-fifths (82.96 per cent) of the farm women respondents had medium level of participation in agricultural activities, while 9.63

per cent had high and 7.41 per cent had low level of participation in agricultural activities.

Imam (2019) observed in the study, 'Participation of farm women in agricultural activities and allied occupations' that the majority (61.00%) farm women respondents had medium level of participation in various agricultural activities followed by 28.50 per cent of the farm women respondents with low level of and 10.50 per cent of the farm women respondents with high level of participation in various agricultural activities.

2.3 ATTITUDE OF FARM WOMEN TOWARDS FARMING

Seema (1986) indicated in the study, 'Role of farm women in decision making process of a farming community in Trivandrum district' that most (47.50%) of farm women respondents had high level of attitude towards farming while 20.83 per cent and 31.67 per cent of farm women respondents had medium and low levels of attitude towards farming respectively.

Varma (1996) noticed in the study, 'A multi-dimensional analysis of self-employment among farm women' that the majority of farm women respondents had favourable attitude towards self-employment in agriculture as more than half (55.00%) of the farm women respondents belonged to the high group and remaining (45.00%) of the farm women respondents belonged to the low group.

Roy (1999) observed in the study, 'Participation of farm women in post-harvest activities' that the 43.33 per cent of farm women respondents had moderately favourable attitude towards post harvest activities followed by 36 per cent, 10.67 per cent, and 10 per cent of farm women respondents with less favourable attitude, least favourable attitude and highly favourable attitude towards post harvest activities respectively.

Alam *et al.* (2004) reported in their study, 'Attitude of rural women towards homestead vegetable cultivation' that the majority (51.11%) of rural women respondents had moderately favourable attitude followed by an unfavourable attitude (34.44%) and favourable attitude (14.44%) towards homestead vegetable cultivation.

Itawdiya (2004) revealed in the study, 'Impact of 'Madhya Pradesh Women in Agriculture Programme' on knowledge and adoption of agricultural technology among farm women of Raisen district of Madhya Pradesh' that 33.33 per cent and 66.67 per cent of trained farm women respondents in milk production had low attitude and high attitude towards improved technology respectively while 22.22 per cent and 77.78 per cent of trained farm women respondents in seed production had low attitude and high attitude towards improved technology respectively.

Jasuja (2006) specified in the study, 'Scientific acceptability of traditional agricultural practices followed by farm women of Bikaner district, Rajasthan' that the majority (90.67%) of the farm women respondents had a favourable attitude towards traditional agricultural practices whereas 6 per cent of farm women respondents had unfavourable attitude and only 3.33 per cent of farm women respondents had the most favourable attitude towards traditional agricultural practices.

Fakoya (2007) stated in the study, 'Attitude of women farmers towards sustainable land management practices in South-Western Nigeria' that the maximum (63.80%) women farmers respondents had a neutral attitude towards sustainable management practices followed by a favourable attitude (31.20%) and an unfavourable attitude (5.00%) towards sustainable management practices.

Sagufta (2007) identified in the study, 'A study on adoption of dairy innovations by dairy farm women in Anand district' that the majority (60.83%) of dairy farm women respondents had moderately favourable attitude followed by less favourable attitude (21.67%) and highly favourable attitude (17.50%) towards dairy occupation.

Gnanasham (2009) found in the study, 'Impact of dairy training programme on dairy farm women' that the majority (54.00%) of dairy farm women respondents had moderately favourable attitude towards dairy farming followed by farm women respondents with highly favourable attitude (26.00%) and less favourable attitude (20.00%) towards dairy farming.

Vyas *et al.* (2010) conveyed in their study, 'Attitude scale construction for tribal women towards vermiculture technology' that the majority (79.03%) of

tribal women respondents had a favourable attitude towards vermiculture technology followed by a neutral attitude (12.22%) and a most favourable attitude (8.75%) towards vermiculture technology. None of the tribal women respondents had an unfavourable attitude or the most favourable attitude towards vermiculture technology.

Ashok (2011) indicated in the study, 'Adoption of clean milk production practices followed by dairy farm women in Junagadh district' that the majority (69.38%) of dairy farm women respondents had moderately favourable attitude towards dairy farming followed by highly favourable attitude (16.87%) and less favourable attitude (13.75%) towards dairy farming.

Adedeji *et al.* (2012) mentioned in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state, Nigeria' that the most (50.00%) of women farmer respondents involved in urban agriculture had a moderate (neutral) attitude towards urban agriculture followed by 34 per cent and 16 per cent of women farmer respondents with high (favourable) and low (unfavourable) attitudes respectively.

Chand (2012) noticed in the study, 'A study on awareness and participation of tribal farm women in improved cattle management practices in Chhindwara district of Madhya Pradesh' that 43.64 per cent of tribal farm women respondents were in the medium category of attitude towards improved dairy practices followed by 28.18 per cent and 28.18 per cent of farm women respondents in high and low categories of attitude towards improved dairy practices respectively.

Nimoda (2013) observed in the study, 'A study on information and training needs of farm women on crop production technology in Sehore district of Madhya Pradesh' that 40 per cent of farm women respondents had medium attitude towards improved practices followed by high attitude (31.82%) and low attitude towards improved practices (28.18%).

Sharma (2013) found in the study, 'A study on attitude of rural women towards agro based enterprise under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.)' that most (47.50%) of rural women respondents had moderately favourable attitude towards agro based enterprises

followed by less favourable attitude (28.33%) and highly favourable attitude (24.17%) towards agro based enterprises.

Khatun *et al.* (2014) reported in their study, 'Participation potential of rural women in different homestead farm activities' that the majority of rural women respondents (52.43%) had low attitude towards participation in vegetable cultivation followed by very low attitude (40.78%) and medium attitude (6.79%) towards participation in vegetable cultivation.

Saikia (2014) revealed in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that 38.33 per cent of youth farm women respondents belonged to the favourable attitude category while remaining 31.67 per cent were in most favourable attitude category and 30 per cent were in less favourable attitude category towards farm enterprises.

Saikia (2015) specified in the study, 'Level of capacity and competitiveness building of farm women in Assam through extension services and its impact on their empowerment' that the majority (53.34%) of farm women respondents had favourable attitude towards agricultural technology followed by not favourable attitude (36.33%) and highly favourable attitude (10.33%) attitude towards agricultural technology.

Nishitha (2016) stated in the study, 'Decision making and participation of farm men and women in Sugarcane cultivation: A study in Mandya district' that 48.33 per cent of farm women respondents belonged to the category of favourable attitude while 30 per cent belonged to more favourable attitude category and 21.67 per cent belonged to less favourable attitude category towards farming.

Raghuwanshi (2016) identified in the study, 'A study on information and training needs of farm women on crop production technology in Vidisha district of Madhya Pradesh' that 39.17 per cent of farm women respondents had medium attitude followed by 30.83 per cent with high attitude and 30 per cent with low attitude respectively towards improved practices.

Raziyabanu (2016) found in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that nearly two fifth (39.17%)

of farm women respondents had more favourable attitude followed by moderately favourable attitude (30.83%), less favourable attitude (17.50%), most favourable attitude (12.50%). No farm women respondent had least favourable attitude towards post-harvest management of fruits and vegetables.

Das (2017) conveyed in the study, 'Restructuring women empowerment in agricultural innovation system' that almost half (49.00%) of the women actors respondents who were associated with the agricultural innovation system in local situation had medium attitude towards agriculture followed by low (27.00%) and high (24.00%) attitude towards agriculture.

Kavithaa and Rajkumar (2017) indicated in their study, 'Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamilnadu' that the majority (65.00%) of the women farmer respondents had favourable (high) attitude towards backyard poultry farming. 16.70 per cent, 11.64 per cent of women farmer respondents had highly favourable (very high) attitude and neutral attitude respectively. About 6.66 per cent had unfavourable (low) attitude and none of the women farmer respondents displayed highly unfavourable (very low) attitude towards backyard poultry farming.

Kavyashree (2018) mentioned in the study, 'Decision making and participation of farm men and women in paddy cultivation: A study in Shivamogga district' that the majority (56.67%) of farm women respondents had favourable attitude towards paddy farming followed by farm women respondents with less favourable attitude (25.00%) and more favourable attitude (18.33%)

Sonam (2018) observed in the study, 'Sustainability of women mushroom growers and its impact on their livelihood' that the majority (73.33%) of mushroom grower women respondents had favourable attitude towards mushroom cultivation followed by most favourable attitude (15.00%) and least favourable attitude (11.67%) towards mushroom cultivation.

Santhi and Kalirajan (2019) reported in their study, 'Study the profile characteristics of farm women with reference to decision making behaviour' that the majority (55.83%) of the farm women respondents had more favourable attitude towards farming followed by favourable attitude (41.67%) and less favourable (2.50%) attitude towards farming.

Shah *et al.* (2019) revealed in their study, 'Development of a scale to measure farmer's attitude towards farming as an occupation' that most (45.00%) of tribal farm women respondents had favourable attitude towards farming as an occupation. About 36.50 per cent and 18.50 per cent of farm women respondents had less favourable attitude and highly favourable attitude towards farming respectively.

2.4 Extent of empowerment of farm women

Savitha (2005) reported in the study, 'Women empowerment and decision making in agriculture – An economic study in Mysore district, Karnataka' that the majority (60.00%) of women respondents who were members of 'sthree shakthi' group had high empowerment and remaining (40.00%) had low empowerment whereas 55.66 per cent and 44.44 per cent of women respondents who were 'sthree shakthi' group nonmembers had low empowerment and high empowerment respectively.

Choubey (2009) revealed in the study, 'A study on women empowerment through agricultural entrepreneurial activities of Self Help Groups (SHGs) in Jabalpur block of Jabalpur district (M.P.)' that 45.56 per cent of women respondents had medium level of economic empowerment whereas 32.22 and 22.22 per cent of women respondents had low and high levels of economic empowerment respectively through entrepreneurial activities of SHGs.

Tayde and Chole (2010 a) identified in their study, 'Empowerment appraisal of rural women in Marathwada region of Maharashtra state' that the majority (65.00%) of the rural women respondents belonged to medium empowerment category followed by low (20.00%) and high (15.00%) categories of empowerment. None of the rural women respondents belonged to very low and very high categories of empowerment.

Mahesh (2011) specified in the study, 'An assessment of status of empowerment of fisherwomen in coastal Karnataka' that the majority (76.66%) of women fish retailer respondents had medium empowerment followed by high empowerment (14.16%) and low empowerment (9.16%).

Rai (2011) noticed in the study, 'A study on empowerment of rural women under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.)' that 48.33 per cent of rural women respondents had medium empowerment followed by 30 per cent and 21.57 per cent of low and high empowerment respectively.

Kiran *et al.* (2012 a) found in their study, 'Empowerment of rural women in agriculture: A socio-psychological analysis' that the majority (78.50%) of rural women respondents were in medium category of empowerment followed by low (12.50%) and high (9.00%) categories of empowerment.

Pooja and Rathod (2013) conveyed in their study, 'Empowerment of rural women through the activities of mahila arthik vikas mahamandal' that the majority (58.33%) of the rural women respondents belonged to high empowerment category followed by rural women respondents with medium empowerment (26.66%) and low (15.00%) categories of empowerment.

Nair (2014) identified in the study, 'Empowerment of women through self help group' that 36.67 per cent, 18.33 per cent, 15.83 per cent, 15 per cent and 14.17 per cent of women member respondents of SHGs belonged to medium, high, low, very low and very high categories of empowerment respectively.

Aghaee and Noorivandi (2015) indicated in their study, 'Professional empowerment of women wheat farmers in Dezful township of Iran' that utmost important parts of professional empowerment include individual factors, communication and social factors, institutional and structural factors, and managerial and financial factors. They found that 48.50 per cent of women wheat farmer respondents had high situation of individual factors of professional empowerment followed by moderate (38.00%), very high (8.50%) and low (5.00%); 43.50 per cent of women wheat farmer respondents had moderate level of communication and social factors of professional empowerment followed by high (32.50%), low (14.00%), very high (7.00%) and very low (3.00%) levels of communication and social factors of professional empowerment. About 37 per cent of women wheat farmer respondents had moderate level of institutional and structural factors followed by high (25.50%), low (25.00%), very low (7.00%) and

very high (5.50%) levels of institutional and structural factors. About 36 per cent of women wheat farmer respondents had moderate level of managerial and financial factors followed by high (34.50%), low (18.50%), very high (6.00%) and very low (5.00%) level of managerial and financial factors.

Kethwal (2015) revealed in the study, 'A study on empowerment of farm women under self help groups in Ichhawar block of Sehore district in Madhya Pradesh' that 43.64 per cent of farm women respondents had medium level of overall empowerment through Self Help Groups followed by 36.36 per cent and 20 per cent of farm women respondents with high and low levels of overall empowerment respectively.

Kokate (2015) mentioned in the study, 'Empowerment of rural women in Kolhapur district of Maharashtra state' that the majority (58.33%) of the rural women respondents were in medium empowerment category followed by rural women respondents in low empowerment category (15.00%), high empowerment category (12.50%), very high empowerment category (8.33%) and very low empowerment category (5.84%).

Dawane and Gore (2016) observed in their study, 'Economic empowerment of women through Self Help Groups (SHGs)' that the majority (63.34%) of women respondents who were members of SHGs belonged to medium economic empowerment category followed by low (21.66%) and high (15.00%) categories of economic empowerment through SHGs.

Pradip (2016) stated in the study, 'Empowerment of rural women through National Rural Livelihoods Mission' that 53.33 per cent, 44.16 per cent and 2.50 per cent of rural women respondents were empowered as high, medium and low levels respectively through National Rural Livelihoods Mission (NRLM).

Roy (2016) revealed in the study, 'Empowerment of sub-marginal women farmers through livelihood enterprises. A critical analysis in Muzaffarpur district' that 40 per cent of sub marginal women farmer respondents associated with creative welfare society activities in experimental group had medium level of overall empowerment followed by 27.50 per cent and 12.50 per cent of women farmer respondents in high level and low level of overall empowerment categories

respectively. About 37.50 per cent of sub marginal women farmer respondents who were not directly associated with creative welfare society in control group had low level of overall empowerment followed by same per cent of sub marginal women farmer respondents in very low (27.50%) and medium (27.50 %) levels of overall empowerment.

Sachan (2016) found in the study, 'Empowerment of Tharu farm women in tribal setting of Uttarakhand' that 72 per cent, 88 per cent, 77 per cent, 56.5 per cent and 20 per cent of Tharu tribal farm women respondents had high level of psychological, cultural, social, economic and political empowerment respectively.

Shilparani (2016) noticed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that more than half (52.22%) of the farm women respondents had medium empowerment followed by farm women respondents with high empowerment (25.56%) and low empowerment (22.22%).

Bharti (2017) specified in the study, 'Empowerment of rural women through National Rural Livelihoods Mission in Rewa block of district Rewa (M.P.)' that 47.50 per cent of rural women respondents displayed low empowerment and 29.17 per cent and 23.33 per cent of rural women respondents displayed medium and high empowerment respectively.

Poonam (2018) revealed in the study, 'Status of women empowerment for enhancement of sustainable quality of life' that the majority (70.00%) of the women respondents had low level of social empowerment followed by medium (18.00%) and high (12.00%) levels of social empowerment. 66 per cent, 20 per cent and 14 per cent of women respondents had low, medium and high levels of economic empowerment respectively. Majority of the women respondents (67.50%) had low level of technological empowerment followed by medium (22.50%) and high (10.00%) levels of technological empowerment. About 60 per cent, 25 per cent and 15 per cent of women respondents had low, medium and high levels of political empowerment respectively whereas 65 per cent, 21 per cent and 14 per cent of women respondents had low, medium and high levels of legal empowerment respectively. More than half (55.00%) of the women respondents (70.00%) had low level of psychological empowerment followed by medium (28.50%) and high (16.00%) levels of psychological empowerment.

Chouhan (2019) found in the study, 'A study on empowerment of women members of Self Help Groups in Dhar district of Madhya Pradesh' that 45 per cent of women respondents showed medium empowerment through SHGs while 30.83 per cent and 24.17 per cent of women respondents displayed high and low levels of empowerment through SHGs.

2.5 RELATIONSHIP BETWEEN SELECTED PROFILE CHARACTERISTICS AND THE ATTITUDE OF FARM WOMEN.

Varma (1996) observed in the study, 'A multi-dimensional analysis of self-employment among farm women' that age and economic motivation had a negative significant relationship with attitude of farm women respondents towards self-employment in agriculture at 1 per cent level. Educational status, farm size, annual income, social contact, mass media contact, information source utilization, entrepreneurial behaviour, aspiration, self confidence, innovativeness, management orientation, participating in implementing decisions, risk orientation and knowledge had positive significant relationship with attitude of farm women respondents towards self-employment in agriculture at 1 per cent level. Occupation and farming experience had positive and negative non significant relationship with attitude of farm women respondents towards self-employment in agriculture respectively.

Roy (1999) reported in the study, 'Participation of farm women in post-harvest activities' that attitude of farm women towards post-harvest activities had positive relationship with age of the farm women respondents while education and farm size of the farm women respondents had negative relationship with attitude towards post-harvest activities. Social participation and annual income of the farm women respondents had no relationship with attitude towards post-harvest activities.

Sharma (2000) revealed in the study, 'A study on attitude and adoption of farm and home innovations by tribal farm women in Kundam block of Jabalpur district' that education, land holding, material possession, social participation, extension contact, economic motivation and knowledge had significant association whereas age, family type and size, farm power had no significant association with the attitude of tribal farm women respondents towards farm and home innovations.

Alam *et al.* (2004) found in their study, 'Attitude of rural women towards homestead vegetable cultivation' that rural women respondent's age and training experience had positive and significant correlation with their attitude towards homestead vegetable cultivation at 0.05 level of probability. Rural women respondent's academic qualification, farm size, cosmopolitaness, knowledge in vegetable cultivation, vegetable consumption had positive and significant correlation with their attitude towards homestead vegetable cultivation at 0.01 level of probability. Family size of rural women respondents had negative and significant correlation with their attitude towards homestead vegetable cultivation at 0.01 level of probability. Rural women respondent's annual family income, organizational participation and extension media contact had non-significant relationship with their attitude towards homestead vegetable cultivation.

Itawdiya (2004) revealed in the study, 'Impact of 'Madhya Pradesh Women in Agriculture Programme' on knowledge and adoption of agricultural technology among farm women of Raisen district of Madhya Pradesh' that there was a relationship between extent of knowledge of both trained farm women and untrained farm women in balanced fertilizers and milk production with attitude towards improved agricultural technology. It was also observed that there was a relationship between extent of knowledge of untrained farm women in seed production with attitude towards improved agricultural technology and that there was no relationship between extent of knowledge of trained farm women in seed production with attitude towards improved agricultural technology.

Jasuja (2006) explained in the study, 'Scientific acceptability of traditional agricultural practices followed by farm women of Bikaner district, Rajasthan' that age, education, social participation, economic motivation, achievement motivation, localite sources of information used by farm women respondents and experience of farm women in farming were positively and significantly associated with their attitude towards traditional agricultural practices at 1 percent level of significance, whereas, the caste, size of land holding, farm power possession, socio-economic status, irrigation potentiality and cosmopolite sources of information of the farm women respondents were negatively and significantly associated with the attitude of farm women respondents towards traditional agricultural practices at 1 percent level of significance.

Adedeji *et al.* (2012) reported in their study, 'Attitudes of women farmers towards urban agriculture in Somolu local government area of Lagos state, Nigeria' that there existed a significant relationship between age, marital status, access to loan, years of experience and education level of women farmer respondent's who were involved in urban agriculture with their attitude towards urban agriculture. It was also found that there was no significant relationship between women farmer respondent's annual income, access to labour, farm size and access to input with their attitude towards urban agriculture.

Sharma (2013) stated in the study, 'A study on attitude of rural women towards agro based enterprise under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.)' that education, family type, family income, length of experience, mass media use, social participation and economic motivation of farm women respondents had positive and significant relation with attitude at 5 per cent level of probability and age, caste, size of land holding, family size had negative non significant relation with the attitude of farm women respondents.

Saikia (2014) revealed in the study, 'Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district.' that annual income, social participation, management orientation, achievement motivation, risk orientation of youth farm women respondents showed positive and significant relationship with their attitude at 1 per cent level whereas credit orientation had positive and significant relationship with attitude at 5 per cent level. Age, education, land holding, farming experience, extension contact and mass media participation had positive non significant relation with attitude towards farm women respondents.

Raziyabanu (2016) found in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that education, cosmopolitaness, information seeking behaviour, economic motivation, management efficiency, market orientation, scientific orientation of farm women respondents showed positive and significant relationship with their attitude at 1 per cent level whereas annual income and deferred gratification had positive and significant relationship with attitude at 5 per cent level. Age and farming

experience of farm women respondents had negative and significant relationship with their attitude at 1 per cent level.

2.6 RELATIONSHIP BETWEEN SELECTED PROFILE CHARACTERISTICS AND THE EXTENT OF EMPOWERMENT OF FARM WOMEN

Bharathamma *et al.* (2006) indicated in their study, 'Empowerment of rural women through income generating activities' that there was highly positive significant association between empowerment of rural women respondents with their education, land holding, income of the family, social participation, mass media participation and trainings undergone. Age, marital status, caste, family type, family size and material possession had no association with empowerment of rural women respondents.

Pushpa (2009) revealed in the study, 'A study on extent of farm women empowerment in Chitradurga district of Karnataka' that land holding size, annual income, economic motivation, risk orientation, self-reliance, extension participation, participation in trainings, mass media participation and contact with extension agency of the farm women respondents were significantly positively correlated with empowerment at 1 per cent level and irrigation potential was positively correlated with empowerment at 5 per cent level. Farming experience of farm women respondents was negatively correlated with their empowerment at 5 per cent level

Tayde and Chole (2010 a) specified in their study, 'Empowerment appraisal of rural women in Marathwada region of Maharashtra state' that rural women respondent's education, social participation, cosmopolitaness and use of sources of information were significantly positively correlated with empowerment at 0.01 level of probability while age is significantly negatively correlated with empowerment at 0.01 level of probability. Marital status, occupation, land holding and annual income were significantly positively correlated with empowerment at 0.05 level of probability. Caste had negative non significant relationship and type of family displayed positive non significant relationship with the empowerment of rural women respondents.

Kiran *et al.* (2012 a) stated in their study, 'Empowerment of rural women in agriculture: A socio-psychological analysis' that there was significant and positive correlation between empowerment of farm women respondents' and education, land holding, position in the family, socio-politico participation, socio-economic status, occupation, sources of information utilized, value orientation, ability to coordinate farming activities, farm activities performed by women, decision making pattern and entrepreneurial behavior at 0.05 level of significance. Age, family type, annual income had positive no significant relation with empowerment of farm women respondents.

Pooja and Rathod (2013) specified in their study, 'Empowerment of rural women through the activities of mahila arthik vikas mahamandal' that rural women respondent's education, caste, land holding, family income, social participation showed positive and significant correlation with empowerment at 0.01 level of probability and family occupation showed the positive and significant correlation with rural women's empowerment at 0.05 level of probability. Size of family and extension participation displayed positive and non-significant relation with overall empowerment of the rural women respondents.

Aghaee and Noorivandi (2015) found in their study, 'Professional empowerment of women wheat farmers in Dezful township of Iran' that there was a significant relationship between women wheat farmer respondent's level of entrepreneurship, social participation, self-esteem, individual autonomy, creativity, income, leadership, planning, job skills, age, communication channels, number of household members, social status and professional empowerment at per cent 99 levels. Leadership, communication channels, job skills, social participation, planning, creativity and age of women wheat farmer respondents explained for 70.4 per cent changes in their professional empowerment.

Damodar *et al.* (2016) cited in their study, 'Relationship of personal, socio-economic and situational characteristics with the empowerment of rural women' that education, caste, family income, social participation and land holding showed positive and significant correlation with empowerment of rural women respondents at 0.01 level of probability. Family occupation showed the positive

and significant correlation with empowerment of rural women respondents at 0.05 level of probability. Size of family, extension participation had positively non-significant relationship and age, type of family had negatively non-significant relationship with overall empowerment of rural women respondents.

Sachan (2016) identified in the study, 'Empowerment of Tharu farm women in tribal setting of Uttarakhand' that psychological empowerment of Tharu tribal farm women respondents was positively associated to age, education, marital status, annual family income, source of information utilized, marketing facilities, value orientation, pre-harvest farm activities performed, child and money related decision-making pattern. Cultural empowerment of Tharu tribal farm women respondents was positively associated to marital status, from where they get input material, pre-harvest farm activities performed and money-related decision-making pattern. Age, education, non-agricultural material possession, marital status, position in the family, family size, social participation, child and money related decision-making pattern of Tharu tribal farm women respondents showed significant association with social empowerment. Economic empowerment of Tharu tribal farm women respondents was significantly associated to age, education, marital status, family type, family size, position in the family, social participation, annual family income, source of information utilization, value orientation, pre-harvest farm activities performed, home, child, money, farm and animal related decision making pattern. Age, education, material possession, family type, family size, marital status, position in the family, social participation, annual family income, source of information utilization, marketing facility, value orientation, farm activities performed and decision making pattern of Tharu tribal farm women respondents had significant association with political empowerment. Age, education, material possession, family type, family size, marital status, position in the family, social participation, annual family income, source of information utilization, distance of the place from where they get input material, marketing facility, value orientation, pre-harvest farm activities performed and child, money, socio-religious, animal and farm related decision making pattern of Tharu tribal farm women respondents had significant association with legal empowerment.

Shilparani (2016) found in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that farm women respondent's personal, socio-economic and psychological characteristics like age, education, farming experience, land holding, owning farm implement status, participation in training, extension participation, exposure to print media, exposure to electronic media, organizational participation, extension contact, scientific orientation, achievement motivation, level of aspiration and economic motivation was found to be significant at 1 per cent level and source of information was found to be significant at 5 per cent level with empowerment of farm women respondents.

Poonam (2018) conveyed in the study, 'Status of women empowerment for enhancement of sustainable quality of life' that education was positively significant at 5 per cent level with over all empowerment of farm women respondents. Years of experience, social empowerment, legal empowerment and technological empowerment had highly positive significant relation with over all empowerment of farm women respondents at 1 per cent level. Family type had positive non significant relation with over all empowerment of farm women respondents.

2.7 CONSTRAINTS FACED BY FARM WOMEN

Pallavi (2006) indicated in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that the major problems perceived by the tribal women respondents were poor marketing facilities (91.25%) followed by poor transport facilities (85.00%), lack of remunerative price (81.25%), insufficient loan amount (78.75%) and high cost of raw materials (77.50%).

Nain and Kumar (2010) mentioned in their study, 'A study of women participation and decision making in farm management' that the major constraints identified by the farm women respondents were non-availability of input in time (88.33 %), low price of produce (86.67 %), less involvement in decision making (76.67 %), lack of technical guidance (70.00%), lack of knowledge regarding modern practices (63.33 %), irregular and untimely rainfall (61.67 %), lack of marketing facilities (56.67 %), both lack of plant protection measures (45.00 %)

and lack of credit facilities (45.00 %). Lack of irrigation facilities (23.33 %) was perceived as least important constraint by the farm women respondents.

Swetha (2010) concluded in the study, 'Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project' that the majority of farm women respondents who were beneficiaries in on-farm demonstration in paddy perceived lack of participation of farm women (95.55%), pressure of household work (93.33%), time suitability (83.33%), restriction at home (71.11%), male dominance at home (68.88%) as the constraints faced by them.

Tiwari (2010) observed in the study, 'Economic and technological constraints facing farm women' that economic constraints faced by the farm women respondents were in the rank order as, agricultural inputs are very costly in the market (2.90 average score), irregular and costly supply of electricity (2.90 average score), subsidy on inputs not available to farmers (2.84 average score), high price of products in the market (2.82 average score), discouraging agricultural price policy of the government (2.81 average score), discrimination in remuneration/wage for women working in the field (2.65 average score), poor purchasing power of women farmers (2.31 average score) and migration of agricultural labourers from rural to urban places causing a labour scarcity in villages (1.93 average score). It was also found that technological constraints faced by the farm women were in the rank order as, government seed/fertilizer stores do not make the necessary inputs available at the right time or in the right quantities (2.91 average score), diesel generally disappears from the market when most needed (for irrigation/ threshing and other agricultural practices) (2.89 average score), technological skills are not developed through special training programmes (2.89 average score), viable and compatible technology is not available to farm women (2.84 average score), both adulteration of inputs has decreased the production and qualitative degradation of inputs like seed, fertilizer, IPM has adversely affected yield with 2.78 average score and eco-friendly technology is rarely available (2.60 average scores).

Warkade (2010) indicated in the study, 'A study on role of tribal farm women in decision making towards agricultural operations in Bichhia block of Mandla district, M.P.' that the majority (71.66%) of tribal farm women respondents reported male dominance in decision making in agriculture operations as a constraint followed by no knowledge about improved technology (65.00%), lack of education (54.16%), poor economic status of the family (48.33%), no management of time for farm and home activities (42.50%), lack of information about the solution to problems (40.83%).

Girade and Shambharkar (2012) stated in their study, 'Profile of farm women and constraints faced by them in participation of farm and allied activities' that the majority of farm women respondents (82.50%) faced burden of family work as a significant constraint. Lack of technical knowledge about farming activities (57.50%), health problems (50.00%), secondary status to women in decision making (45.83%), poor economic condition (41.67%), working under unfavourable conditions (40.00%), unfavourable social conditions for getting information from extension workers (29.17%), difficulties to spend more time for farm operations due to domestic work (25.00%), difficulties in performing certain agricultural operations as a woman (24.17%) and male dominated society (20.83%) were the other constraints faced by the farm women respondents while participating in farm and allied activities.

Rahul (2012) reported in the study, 'Participation of farm women in decision making process in relation to agriculture activities' that social/cultural norms (79.17%), lack of self confidence in decision (75.00%), dominance of other family members (69.17%), less contact with extension workers (60.00%), lack of technical know-how (58.33%), busy schedule due to house hold activities (50.83%) and poor educational background (41.67%) were the constraints faced by the farm women respondents.

Chayal *et al.* (2013) noticed in their study, 'Involvement of farm women in decision-making in agriculture' that the major social constraints against farm women respondent's involvement in farming decisions as low self-confidence of women in making farm decisions (75.83%), lack of knowledge about farming

(58.33%), the belief women are less informed than man and they are only subordinate to male counterparts (57.50%), illiteracy (52.50%), poor access to farm information (48.33%) and traditional cultural (37.50%).

Thakur (2013) indicated in the study, 'A study on role of farm women in decision making process in vegetable cultivation in Panagar block of Jabalpur district (M.P.)' that 80 per cent farm women respondents reported male dominance in decision making in vegetable operations followed by lack knowledge about improved technology (70.90%), lack of education (55.45%), poor economic status of the family (50.00%), no management of time for farm and home activities (49.09%), lack of information about the solution to problems (42.72%).

Rani (2014) observed in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that lack of lack of knowledge on latest technology (85.83%) was the major constraint faced by the majority of the women farmer respondents followed by male dominated families and societies (83.33%), non availability of time due to heavy house hold work (81.66%), prescribed roles of women (79.16%), lack of financial assistance (75.00%), lack of extension contact (74.16%), illiteracy of farm women (68.33%), lack of knowledge about farm accounting (66.66%), non-availability of suitable farm implements (65.00%) and lack of confidence among the members (60.00%), lack of interest to participate (58.33%) followed by non availability of extension personnel for consultation (54.16%), lack of pest and disease resistant varieties (51.66%), lack of field trips, demonstrations and exhibitions (47.50%), secondary status in decision making (40.00%), poor transport and market facilities (37.50%), being women it is difficult to perform certain operations (35.00%), lack of opportunity to attend meetings, exhibitions and demonstrations for getting information (33.34%), traditional belief (29.16%) and adverse climatic conditions (19.17%) were other constraints expressed by women farmer respondents.

Bhanotra *et al.* (2015) reported in their study, 'Role of rural women in decision making process regarding livestock management' that male dominance (mean value=4.90) followed by low payment for women labour (mean value=4.71), conventional belief system (mean value=3.29), lack of self

confidence (mean value=1.79), cultural norms information (mean value=1.50), poor control over resources (mean value=0.25), lack of social interaction (mean value=0.23), low education/knowledge (mean value=0.14), lack of awareness (mean value=0.05) and social conflicts (mean value=0.03) were the factors which inhibited participation of rural women respondents in different livestock production and management activities.

Lavanya (2016) revealed in the study, 'Involvement of farm women in different farm enterprises: A critical analysis' that the major agricultural constraints expressed by farm women respondents were difficulty in balancing work between household and enterprise activities (93.33%), followed by secondary status in decision making (90.00%), lack of knowledge of pest and diseases (73.33%), non-availability of labour (66.66%) and low self-confidence (60.00%).

Pooja *et al.* (2016) observed in their study, 'Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar' that dual role at farm and home was perceived to be the major constraint by 90 per cent of women farmer respondents. Male dominance (82.00%), lack of money/credit (76.00%), lack of decision-making power (67.00%), high cost (66.00%), poor contact with extension agent (63.00%), lack of improved tools specific for farm women (60.00%), illiteracy (55.00%), unavailability (54.00%), lack of knowledge and skill (49.00%), lack of land holding power (45.00%), difficulty in taking loans (30.00%) were other constraints perceived by the women farmer respondents.

Raziyanu (2016) in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' ranked the constraints faced by farm women respondents in post-harvest management of fruits and vegetables as shortage of labour for grading and harvest (84.16%), lack of sufficient farm produce for processing and value addition at commercial level due to low production and productivity (80.83%), reduction in quality and quantity of fruits and vegetables due to fluctuating weather condition (76.66%), spoilage due to disease and pest attack during storage (69.16%), lack of valid information about various market condition (61.67%), lack of scientific knowledge about different

post-harvest management practices (54.16%), difficulty in getting packaging material (49.16%), high cost of storage facilities (41.67%) and lack of training and proper guidance (38.33%).

Sachan (2016) found in the study, 'Empowerment of Tharu farm women in tribal setting of Uttarakhand' that very high majority of Tharu tribal farm women respondents (93.00%) perceived lack of education followed by lack of finance and control over natural and other resources (88.00%), overburdened with dual responsibilities (51.00%) as major constraints to their empowerment. Lack of proper training (33.50%), overburdened with dual responsibilities of managing household and economic activity (33.00%) and family restriction (8.00%) were other constraints to their empowerment.

Shilparani (2016) revealed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that neglecting the financial contributions made by women to her family (66.67%), the women in the family are not free to spend their income independently (62.78%), men often operates the bank account (54.44%), women have less control over the economic resources (47.22%) and dependable nature of women suppress them from empowerment (38.89%) as economic constraints faced by farm women respondents. Lack of communication skills (65.66%), lack of security hinders women to move from one place to other place (36.11%), lack of leadership skills (30.00%), lack of encouragement from the family to participate in the social organizations (23.33%), patriarchal society discourages women to take responsibilities (22.78%) and cultural and religious values are the barriers for women to make decisions related to personal factors (17.78%) constituted social constraints faced by them. Lack of women doctors in primary health centres avoid women to get the health services (71.11%), maintaining personal health and hygiene is not possible due to lack of basic infrastructure facilities (63.33%), women don't have access to nutritious food in different stages of maternal health (30.00%) and decisions related to personal health are limited in the family (22.78%) were the health constraints faced by farm women respondents. Political constraints faced by farm women include, women hesitate to contact the politician for solving the problems (78.33%), dual responsibility of maintaining farm and

home makes it impossible for women to actively participate in political activities (73.33%), male members avoid the women leaders to perform their duties freely (43.33%) and people of vested interest misguide or demotivate the women leader from taking independent decisions (28.89%). Lack of knowledge in the legal matters deprive women from seeking social justice (78.89%), women who approaches the police station is depicted as immoral person by the society (58.33%), complex legal procedure and bureaucracy discourages women to approach the law (30.00%), women simply accept the suppression of family members as she think that it is her fate (22.78%) were the legal constraints while fear of failure or being dishonored by the society is the barrier for women empowerment (60.00%), lack of self-confidence hinders the women empowerment (43.33%), women are emotionally exploited that hinder their right to empower (36.11%), lack of awareness about the women's potential for their empowerment (30.00%), shyness in women behaviour is the barrier for women empowerment (22.78%) and some of the traditions and customs have depicted women as the weaker section of the society (6.67%) are the psychological constraints faced by farm women respondents for empowerment.

Das (2017) in the study, 'Restructuring women empowerment in agricultural innovation system' ranked the problems faced by the majority of women actors respondents who were associated with the agricultural innovation system in local situation regarding their involvement in women led agricultural innovation system as limited market knowledge, limited knowledge and use of agronomic practices, insufficient infrastructure, difficulties in carrying major farm operations, insufficient gender-neutral government regulations and policies, social norms and customs, management of time between farm and home, limited access to resources and limited access to finance.

Chauhan (2018) in the study, 'Participation of farm women in agricultural activities in Tikamgarh district (M.P.)' revealed that farm women respondents faced constraints like lack of confidence (57.50%), higher time consumption for household work (54.17%), lack of family support (50.00%), lack of proper guidance (48.33%), lack of credit and capital, lack of marketing facilities (45.00%), lack of awareness (41.67%), high cost of farm material (39.17%), lack of knowledge about improved technology and lack of education (37.50%).

Saikia *et al.* (2018) specified in their study, 'Extent of participation of women farmers and their problems in rice production in Assam' that rural women respondents perceived lack of knowledge on plant protection (mean score=4.48) as a major constraint followed by lack of access to credit (mean score=4.31), lack of need based training (mean score=4.07), lack of women specific technology (mean score=4.00), high cost of fertilizers/ chemicals (mean score=3.53), poor economic conditions (mean score=3.36), less amount of cultivated land (mean score=3.08), lack of knowledge on seed storage (mean score=2.93), untimely supply of farm inputs (mean score =2.77) and lack of knowledge about processing (mean score=2.47) in cultivation of rice.

Shamna *et al.* (2018) stated in their study, 'Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India' that lack of education (88.10%) was the major constraint faced by tribal farm women respondents in agricultural activities followed by income derived is too little (85.70%), lack of child care facilities (83.00%) and lack of knowledge and skill (81.00%), lack of training (78.60%), doubts regarding the women capabilities (71.40%), loans are not sufficient (71.40%), family restriction (husband and elders) (61.90%), partiality of government officials (61.90%) conflicts with other workers (57.10%), caste system in the village (54.80%), ego problems of men folk (47.60%), lack of freedom to take decision (42.90%) and confining the role of women to household activities (40.50%).

Shankaarao (2018) revealed in the study, 'Decision making behaviour of farm women about agriculture' that the major constraints perceived by the farm women respondents in decision making behaviour in agricultural activities were maximum of time devotion of farm women in household work (70.37%) followed by dominancy of male while making decision in important agricultural activities (59.25%), lack of literacy among farm women (55.55%) and lack of cooperation among family members of farm women (51.85%). Other constraints were lack of adequate information about improved farm technology and its use while working (49.62%) and lack of risk taking ability among farm women in various farm activities (48.88%).

Malek and Sisodia (2019) reported in their study, 'Constraints faced by farm women in participation in agricultural activities in Udaipur district of Rajasthan, India' that constraints experienced by farm women respondents were in the rank order as dual responsibility of work at farm and household work (1.990 mean score), non-availability of suitable farm implements and machinery for women (1.896 mean score), lack of physical abilities to carry out some agricultural work (1.693 mean score), difficulties in some agricultural work (1.669 mean score), social barriers (1.527 mean score), lack of interest to participate in agricultural work (1.510 mean score), lack of female extension workers for imparting training to women (1.342 mean score), lack of experience about agricultural works (1.086 mean score), lack of extension contact (0.692 mean score), lack of specific skill for agricultural works (0.667 mean score), lack of knowledge about latest agricultural technology (0.523 mean score), lack of land holding power (0.357 mean score), lower consideration in decisions related to farming (0.325 mean score).

2.8 SUGGESTIONS OF FARM WOMEN TO OVERCOME CONSTRAINTS

Kumari (2004) identified in the study, 'A study on tribal women entrepreneurs in high altitude tribal zone of Andhra Pradesh' that the majority of the tribal women respondents expressed that provision of easy and adequate credit facilities, establishment of common work shed, provision of transportation facilities, provision of remunerative prices to products could solve their problems to some extent.

Pallavi (2006) found in the study, 'A study on empowerment of tribal women in Khammam district of Andhra Pradesh' that the suggestions expressed by the tribal women respondents for successful running of income generating activities were 'increase of loan amount' (95.00%) followed by 'providing marketing facilities' (88.75%), 'providing transportation facilities' (85.00%), 'provision of remunerative price to the products' (77.50%) and 'improve cooperation among the group members' (67.50%).

Sagufta (2007) identified in the study, 'A study on adoption of dairy innovations by dairy farm women in Anand district' that the major suggestions

made by the dairy farm women respondents to overcome the constraints associated with adoption of dairy innovations were ‘regular visits of veterinary doctor and extension specialist should be made available’ (rank i) followed by ‘loan/subsidy facility should be made available for construction of cattle shed and purchase of dairy animals’ (rank ii), ‘dairy co-operative society should develop the facility of preservation of vaccines/ semen’ (rank iii), ‘at least five members of dairy co-operative society should be trained to solve the primary problems of animal husbandry’ (rank iv) and ‘provision should be made for regular training to dairy farm women’ (rank V).

Sharma (2013) observed in the study, ‘A study on attitude of rural women towards agro based enterprise under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.)’ that the suggestions for enhancing the rural women attitude were ‘full support of family member’ (61.66%), ‘women must be literate’ (54.16%), ‘equal status in society’ (52.50%), ‘group members should have common needs and object’ (50.83%), ‘member should present timely in meetings’ (48.35%), ‘intervention of male should not be in rural women SHGs’ (45.00%), ‘dependency in decision making’ (43.33%), ‘coordination is must, among the members’ (42.50%), ‘frequent training should be imparted’ (40.00%), ‘easy bank loan procedure’ (37.50%).

Tiwari (2010) observed in the study, ‘Economic and technological constraints facing farm women’ that rural women respondents expressed ‘employment opportunities for the rural women should be generated at their doors’ (38.00%), ‘women need to be empowered with decision making rights’ (12.00%), ‘remuneration to men and women needed to be equalized with respect to the work they do’ (19.00%), ‘the migration of rural youth towards urban areas for jobs should be controlled’ (20.00%), ‘local products should be checked for export out of the local area to control the price of agriculture commodity’ (30.00%), ‘sufficient loans should be made conveniently available to women at a cheaper interest rate for agriculture and enterprise purposes’ (42.00%), ‘there should be a subsidy for rural women’ (25.00%) as remedial measures for overcoming economic constraints. It was also opined that rural women respondents conveyed ‘quality agricultural inputs be made sufficiently available at proper time’

(28.00%), 'training be organized for enhancement of technological knowledge and skill' (30.00%), 'diesel be made sufficiently available at reasonable cost during peak irrigation and threshing periods' (19.00%), 'sufficient electricity supply during peak irrigation and threshing periods' (23.00%), 'both diesel and electricity be supplied regularly and at reasonable cost as per requirement' (87.00%) as remedial measures for overcoming technical constraints.

Ashok (2011) revealed in the study, 'Adoption of clean milk production practices followed by dairy farm women in Junagadh district' the suggestions given by dairy farm women respondents as 'KMnO₄ solution should be made available at village level' (82.50%), 'subsidy should be provided for purchasing tools and implements required for clean milk production' (80.00%), 'veterinary doctor should visit timely in the village' (68.13%), 'provide timely technical knowledge regarding clean milk production' (56.88%) and 'regular training programmes should be conducted for clean milk production' (48.13%) to overcome the constraints faced by them in adoption of clean milk production practices.

Bandode (2012) in the study, 'A study on awareness and adoption of post harvest management practices in maize among the farm women in Khargone district, M.P.' documented the suggestions expressed by farm women respondents to overcome their constraints as, 'credit should be available easily and timely at low interest rate' (rank I) followed by 'technical advertisement and training should be given at time to time' (rank II), 'proper marketing system should be available in the area' (rank III), 'guidance should be given by extension personal at right time' (rank IV), 'lack of capital is important constraints hence, credit recovery should be easy' (rank V), 'technical information and literature should be given at time' (rank VI), 'the proper storage should be available' (rank VII), 'timely visits by extension personnel and specialist should be carry on' (rank VIII) and 'the agricultural inputs should be given at low price to the poor and small farmers' (rank IX).

Chand (2012) detailed in the study, 'A study on awareness and participation of tribal farm women in improved cattle management practices in Chhindwara

district of Madhya Pradesh' that the majority of tribal farm women respondents suggested 'fodder crop should be involved in cropping pattern throughout the year' (63.64%) followed by 'low price of feeding materials and other inputs' (60.91%), 'credit should be available easily and timely at low interest rate' (57.27%), 'improved breeds of cows and buffalo's calf should be provided through government personnel at cheap rate' (54.55%), 'timely advertisement through extension personnel and specialist should be provided in time' (50.00%), 'feeding material should be provided through cooperative society in the village at cheap rate' (47.27%), 'technical advertisement should be given through training and demonstrations' (45.45%), 'veterinary hospital and insemination center should be available near by the villages' (39.09%), 'technical information and literature should be provided in time' (36.36%) and 'proper marketing system of milk' (34.55%).

Rahul (2012) concluded in the study, 'Participation of farm women in decision making process in relation to agriculture activities' that farm women respondents suggested that 'more technical guidance regarding scientific farming should be given to farm women' (81.67%), 'training should be imparted at village level' (66.67%), 'more women exposure visit should be arranged' (62.50%), 'policy decision should be made for women empowerment' (51.67%), 'more women extension workers should be recruited' (30.83%) and 'government should initiate policies to motivate farm women' (29.17%) to overcome their constraints.

Bhairve (2013) expressed in the study, 'A study on women's participation and decision making pattern in agriculture activities in Sehore district of M.P.' the suggestions confronted by farm women respondents to overcome their constraints as 'there should be equity between family members' (rank I), 'proper work's training should be given' (rank II) and 'partial teaching facilities should be available after work' (rank III). All the four suggestions such as 'there should be proper inspiration for work', 'there should be family support and guidance', 'there should be cooperation in between family members', 'work preference should be given to farm women' were ranked fourth followed by 'should stop maximum time devotion in household work' (rank V), 'there should be normal behaviour in family during decision making process' (rank VI) and 'there should be no family pressure in decision process' (rank VII).

Machhliya (2014) found in the study, 'A study on role of farm women in decision making in relation to vegetable cultivation in Teonthar block of Rewa district (M.P.)' that the suggestions given by farm women respondents to overcome their constraints as, 'government should give emphasis for women empowerment' (rank I), 'providing proper guidance for taking decision to the women' (rank II), 'encouraging women to take decision' (rank III), 'training and demonstration should be conducted' (rank IV), 'providing information about the solutions to problems' (rank V), 'providing latest information about agricultural innovation' (rank VI), 'supply of inputs through cooperative society at village level' (rank VII), 'loan should be granted for vegetable cultivation' (rank VIII), and 'extension exposure' (rank XI).

Rani (2014) observed in the study, 'Managerial role of farm women in Chittoor district of Andhra Pradesh' that the suggestions to overcome the constraints in the managerial role of women farmer respondents were 'organizing training programmes on latest technology' (81.66%) followed by 'due importance must be given to women in their managerial role' (76.66%), 'making women aware of time management in home and farm activities' (73.33%), 'transformation of society through awareness programmes on gender issues' (71.16%), 'provision of more financial assistance before cropping season' (66.66%), 'intensification of functional literacy and adult education programmes' (65.00%), 'recruitment of female extension workers' (60.83%), 'organize adequate training programmes on farm accounting' (59.16%), 'development of suitable agricultural implements and machinery' (58.33%) 'developing confidence by added extension activities and contacts' (55.00%), 'conducting method and result demonstrations' (50.00%), 'arrangement for easy availability of inputs' (48.33%), 'provision of opportunities for training farm women' (46.66%), 'arrangement for field visits, demonstrations etc.' (45.00%), 'training provided on various improved practices like seed treatment' (43.33%), 'provide awareness on pest and disease incidence and its control' (41.66%), 'men folk should be motivated to encourage to take up farming' (39.16%), 'traditional beliefs should be avoided' (35.00%), 'providing more irrigation facilities' (31.66%) and 'provision of good market and transport facilities' (29.16%).

Raziyabanu (2016) ranked in the study, 'Attitude of farm women towards post harvest management of fruits and vegetables' that the suggestions given by the farm women respondents to overcome the constraints faced by them in post-harvest management practices as 'community storage facilities at village level should be provided' (88.33%), 'domestic processing and value addition unit should encourage through SHGs' (81.67%), 'equal access to information should promote among villagers through local extension worker' (75.00%), 'need for proper dissemination of market intelligence service' (65.00%), 'different post-harvest technologies should disseminate among fruits and vegetables growers' (53.33%), 'integrated and effective market system should develop between different regions' (41.67%) and 'farmers should be organized in cooperative for processing and value addition' (33.33%).

Shilparani (2016) conveyed in the study, 'A critical analysis of empowerment of farm women in eastern dry zone of Karnataka' that the suggestions offered by farm women respondents for empowerment were, 'to educate the women about personal hygiene by the asha volunteer, NGO and such other agencies' (81.67%), 'provide assured economic security' (77.78%), 'presence of female doctors in all primary health centres' (62.78%), 'support women to establish sustainable income generating activities' (62.22%), 'media should play a prime role in generating awareness among the women about their potentials' (59.44%), 'economic contribution of women should be recognized and appraised' (54.44%), 'legal aspects should be made more simple for easy access' (47.22 %), 'presence of help desk in all the banks to advice women about the transactions in the bank' (46.11%), 'generate the awareness about the importance of women health' (43.33%), 'improved transportation facility keeping in view the safety of women' (37.78%), 'family members should provide the moral support and improve the confidence at the problematic situations' (35.56 %), 'women should develop the confidence and positive attitude towards politics to solve her problem' (33.89%), 'land provided by the government should be registered in the name of women' (30.00%), 'men should share the responsibility of household activities with women' (28.89%), 'women should not lose her hope at the time of failure but try to review where the things have gone wrong' (26.67%), 'men should

encourage the women to participate in political activities' (26.11%), 'educate the women in such a way that it improves her self confidence' (25.00%), 'develop the scientific attitude and logical thinking in the society' (24.44%), 'strict implementation of women friendly law and early disposal of the cases' (23.89%), 'moral support from the family members to participate in social organization' (22.78%), 'government should frame such a policy which is gender sensitive and does not affects the interest of the women' (20.56%), 'women should have the faith in law' (20.00%), 'women should open up her mind to learn the new things' (12.78%) and 'women should ignore the thoughts of demotivating persons and should be cautious about them' (7.78%).

Shankarrao (2018) detailed in the study, 'Decision making behaviour of farm women about agriculture' that the suggestions expressed by farm women respondents as 'training programme should be organized for improved farm technology for farm women' (70.37%) followed by 'cooperation among family members while taking decision about farm activities' (59.26%), 'senior men members of family should motivate the farm women for work to build-up their confidence to take risk' (55.55%), 'senior women of family should support and guide farm women' (44.44%) and 'there should be friendly environment and interaction among the family members while taking decision' (37.04%).

Vaghasiya (2018) revealed in the study, 'Pattern of participation of farm women in agricultural activities and decision making in Rajkot district of Gujarat state' that the suggestions offered by farm women respondents to overcome constraints in participation in agricultural activities and decision making were 'due importance should be given to women in decision making' (97.04%), 'more female extension staff should be appointed' (94.81%), 'teaching and learning facilities should be available for women after work' (92.59%), 'there should be cooperation among the family members' (89.63%), 'family members should give support and guidance' (86.87%), 'there should be no family pressure during the decision making' (78.52%), 'transformation of society through awareness programmes on gender issues' (74.81%), 'women should be given knowledge about time management in farm and home activities' (71.85%), 'more skill oriented training should be organized for farm women' (68.15%), 'development of farm machinery

and implements suitable to farm women' (65.15%), 'information should be provided about the availability of latest input resources' (60.74%) and 'there should be normal behaviour among the family members during decision making process' (57.04%).

Imam (2019) concluded in the study, 'Participation of farm women in agricultural activities and allied occupations' that to overcome constraints in participation of farm women respondents in various agricultural activities and allied occupations, farm women respondents suggested 'the supply of roughages and concentrate feed should be made available at cheaper rates' (85.50%) followed by 'subsidy should be given for seeds, fertilizer, pesticides and other inputs' (81.00%), 'the information about marketing of farm products, dairy products, animals etc.' (78.50%), both 'low interest loan should be granted for agriculture and allied occupations' (77.50%) and 'loan/subsidy facilities should be made available for construction of cattle shed and purchase of dairy animals' (77.50%), 'skill oriented training programme for farm women' (77.00%), both 'government should be given emphasis for women empowerment' (74.50%) and 'supply of good quality of crossbred cows should be regular' (74.50%), 'extension exposure' (74.00%), 'provisions should be made for regular training of farm women' (71.00%), 'awareness about latest agricultural and allied occupation technologies' (68.00%), 'veterinary health care and health camp should be organized time to time' (66.50%), 'storage facilities should be available' (64.50%), 'at least five members of dairy cooperative society should be trained to solve the problems in animal husbandry' (64.00%), 'need of female extension worker' (62.50%), 'technical guidance regarding latest technology related to milk and milk processing should be provided' (57.50%), both 'giving information about availability of sources of inputs required' (56.50%) and 'supply of inputs through co-operative society at village level' (56.50%).

Purbia (2019) indicated in the study, 'A study on participation and decision making of farm women in *Bt.* Cotton cultivation in Rajsamand district of Rajasthan' that to overcome the constraints perceived by them, farm women respondents suggested 'extension exposure trips should be organized' (rank I) followed by 'development of farm machinery and implements suitable to farm

women' (rank II), 'supply of inputs through cooperative society at village level' (rank III), 'women should be given knowledge about time management in farm and home activities' (rank IV), 'providing information about the solution to problems' (rank V), 'encouraging the women to take decision' (rank VI), 'government should give emphasis for women empowerment' (rank VII), 'there should be no family pressure during the decision making' (rank VIII), 'transformation of society through awareness programmes on gender issues' (rank IX), 'more female extension staff should be appointed in the area' (rank X), 'timely loan should be granted for *Bt. Cotton* cultivation' (rank XI), 'teaching and learning facilities should be increased for women after work' (rank XII), 'family members should give support and guidance to the women' (rank XIII), 'due importance should be given to women in decision making' (rank XIV), 'there should be cooperation among the family members' (rank XV), 'more skill oriented training should be organized for farm women' (rank XVI), 'information should be provided about the availability of latest input resources' (rank XVII), 'self confidence of farm women should be improved by organizing special programmes' (rank XVIII) and 'market facilities for farm women should be improved' (rank XIX).

2.9 CONCEPTUAL MODEL OF THE STUDY

Conceptual model is a diagrammatic representation of outlining the dominant elements of a system and their interrelationships with respect to a criterion variable. Conceptual model was formulated based on experience and review of related studies for the present research. The variables included in the study were grouped into independent and dependent variables.

The independent variables were conceived as those variables those precede the others in the order of time and which were theoretically expected to lead or to be followed by certain other variables. In the present study factors related to profile characteristics of farm women were considered as independent variables. The dependent variable is that variable, which follows the independent variables in time. Fifteen independent variables were chosen based on the review of relevant literature and in consultation with the experts to examine the nature and extent of relationship with the dependent variables. Attitude of farm women towards

farming and extent of empowerment of farm women in agriculture were the dependent variables in the present study.

It was clear from the conceptual model that, attitude of farm women towards farming and extent of empowerment of farm women in agriculture were the function of selected independent variables. The relationship was diagrammatically represented in figure 2.1 which helped to derive hypothesis for empirical testing.

Research Hypothesis

Based on the objectives of the study and the theoretical framework, the following research hypotheses were formulated.

General Hypothesis-1

There will be a significant relationship between the selected independent variables of the farm women with attitude towards farming.

General Hypothesis -2

There will be a significant relationship between the selected independent variables of the farm women with the extent of empowerment of farm women in farming. The null and empirical hypothesis deduced from the general hypotheses with respect to independent and dependent variables of study were reported, tested and presented in the 'Results and Discussion'.

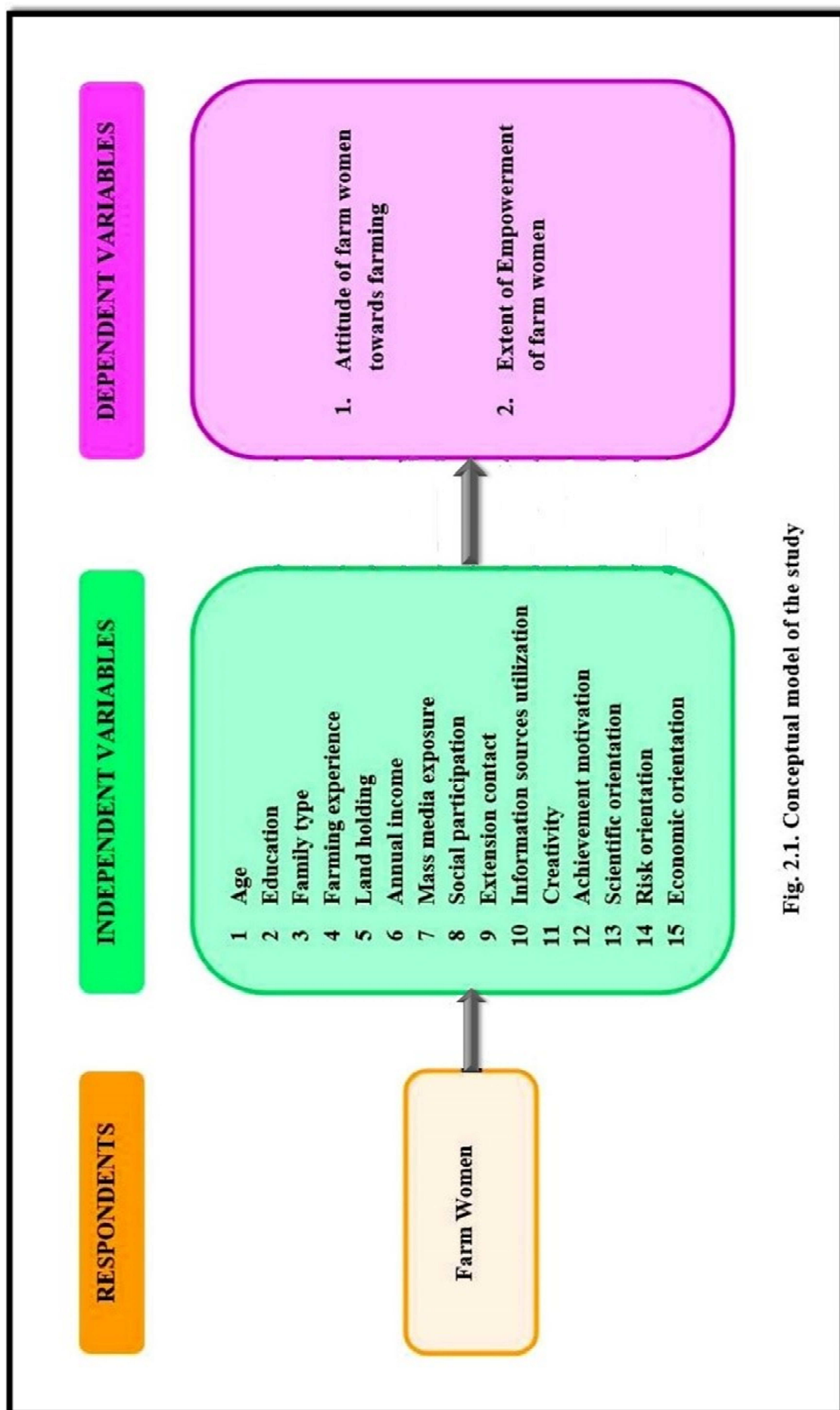


Fig. 2.1. Conceptual model of the study

Chapter – III

Material and Methods

Chapter III

MATERIAL AND METHODS

This chapter provided a glimpse of the study area, sampling method, variables and their measurement, data collection devices, statistical tools and techniques used in the analysis of data. The foremost objective of the study was assessing the attitude of farm women towards farming and extent of empowerment of farm women in the Telangana state. The details of research techniques and procedures followed were presented under the following headings.

- 3.1 Research design
- 3.2 Sampling procedure
- 3.3 Operationalization and empirical measurement of variables
- 3.4 Measurement of the magnitude of participation of farm women in farming
- 3.5 Constraints faced by the farm women and their suggestions to overcome the constraints
- 3.6 Devices and methods used for data collection
- 3.7 Statistical tools and procedures followed

3.1 RESEARCH DESIGN

An *ex post facto* research design was employed in the current investigation. Taking into account, the adaptability of the proposed design concerning the objectives of the study, nature of the variables, size of the respondents and phenomenon to be studied, the *ex post facto* design was selected as an appropriate research design to investigate the variables affecting the attitude of farm women towards farming and extent of empowerment of farm women. *Ex post facto* research design is a systematic empirical enquiry in which the independent variables have not been directly manipulated because they had already occurred or they were inherently not manipulable. *Ex post facto* studies can be devised to deduce theories, identify behavioral phenomenon and explore conditions under which a phenomenon occurs (Kerlinger, 1973).

3.2 SAMPLING PROCEDURE

In order to provide a vivid picture of the study area, details like the selection of districts, mandals, villages and respondents were presented herewith.

3.2.1 Locale of the study

The study was taken up in the Telangana state which is the 29th and youngest state in the Union of India and was born on 2nd June 2014. Telangana state was apportioned into three agro climatic zones which were Northern Telangana zone, Central Telangana zone and Southern Telangana zone based on geographical characteristics such as rainfall, temperature, nature of soils, etc. Purposive selection of the state was attributable to the familiarity of the researcher with the culture and local dialect of people in the state due to origin of the researcher from the same state. Therefore, rapport building with the respondents became less difficult and it promoted thorough personal observation and the results could also be beneficial for the state. Three agro climatic zones of the state were depicted in figure 3.1 and table 3.1.

3.2.2 Selection of the districts

The sample constituted a total of three districts. The districts with highest number of farm women in each agro climatic zone were chosen purposively for the study. The selected districts included 'Nizamabad' from 'Northern Telangana zone', 'Sangareddy' from 'Central Telangana zone' and 'Nalgonda' from 'Southern Telangana zone'. The list of selected districts was given in table 3.1 and figure 3.2.

3.2.3 Selection of mandals

The sample constituted a total of twelve mandals. Four mandals from each of the selected three districts were purposively chosen based on the highest number of farm women in the mandals of each of the three districts. The list of selected mandals was given in table 3.1 and figures 3.3 (a), 3.3 (b) and 3.3 (c).

3.2.4 Selection of villages

Two villages from each of the selected twelve mandals were selected by following a simple random sampling procedure. Thus, the sample constituted a total of twenty four villages. The list of selected villages was given in table 3.1 and figures 3.3 (a), 3.3 (b) and 3.3 (c).

3.2.5 Selection of respondents

Ten farm women were selected by a simple random sampling procedure from each of the selected villages. The list of farm women from selected villages was obtained from the concerned village officials. The sample constituted a total of 240 respondents. The distribution of respondents was shown in table 3.1 and figure 3.4. the entire sampling procedure was depicted in figure 3.4.

Operational definition of farm women

In this study the term ‘farm women’ was operationalized as the women who owned cultivated land and were actively engaged in the farming activities for their livelihood.

Table 3.1 Selection of districts, mandals, villages and respondents

State	Agro Climatic zone	District	Mandal	Village	No. of Respondents
T E L A N G A N A	Northern Telangana zone	Nizamabad	Bodhan	Amdapur	10
				Salooru	10
			Kotgiri	Potangal	10
				Ethonda	10
			Varni	Chintakunta	10
				Laxmapur	10
			Navipet	Kosli	10
				Binola	10
			Hathnoora	Govindarajulapalle	10
				Chintalcheru	10
	Central Telangana zone	Sangareddy	Sadasivpet	Atmakur	10
				Maddikunta	10
			Nyalkal	Renjinthall	10
				Dappur	10
			Jharasangam	Yelgoi	10
				Potpally	10
			Miryalaguda	Thungapahad	10
				Rudraram	10
			Gurrampode	Chamled	10
				Chepur	10
	Southern Telangana zone	Nalgonda	Nidamanur	Venigandla	10
				Mupparam	10
			Nalgonda	Annaparthi	10
				Dandampalle	10
	3	3	12	24	240

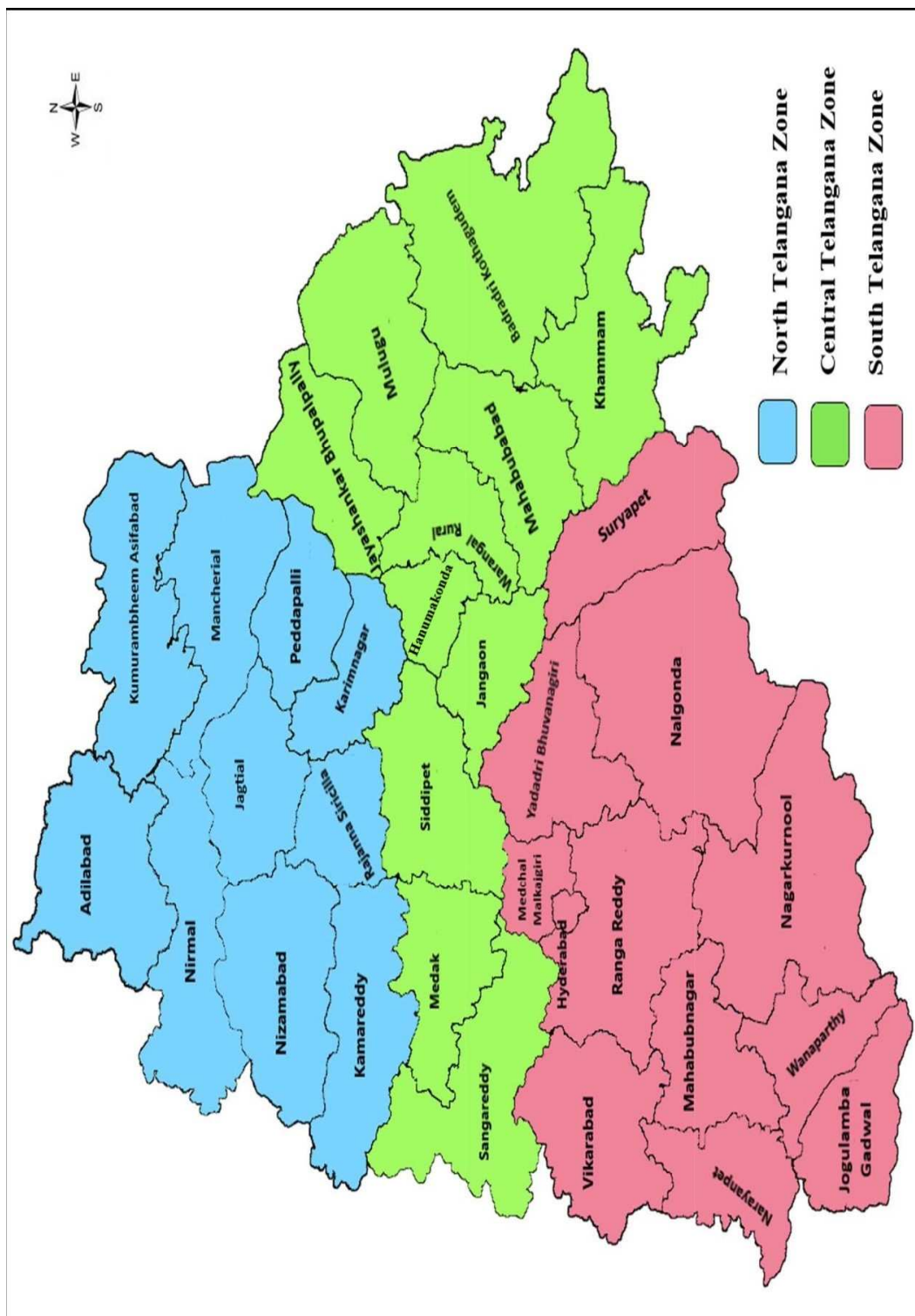


Figure 3.1. Map of Telangana State depicting three Agro Climatic Zones

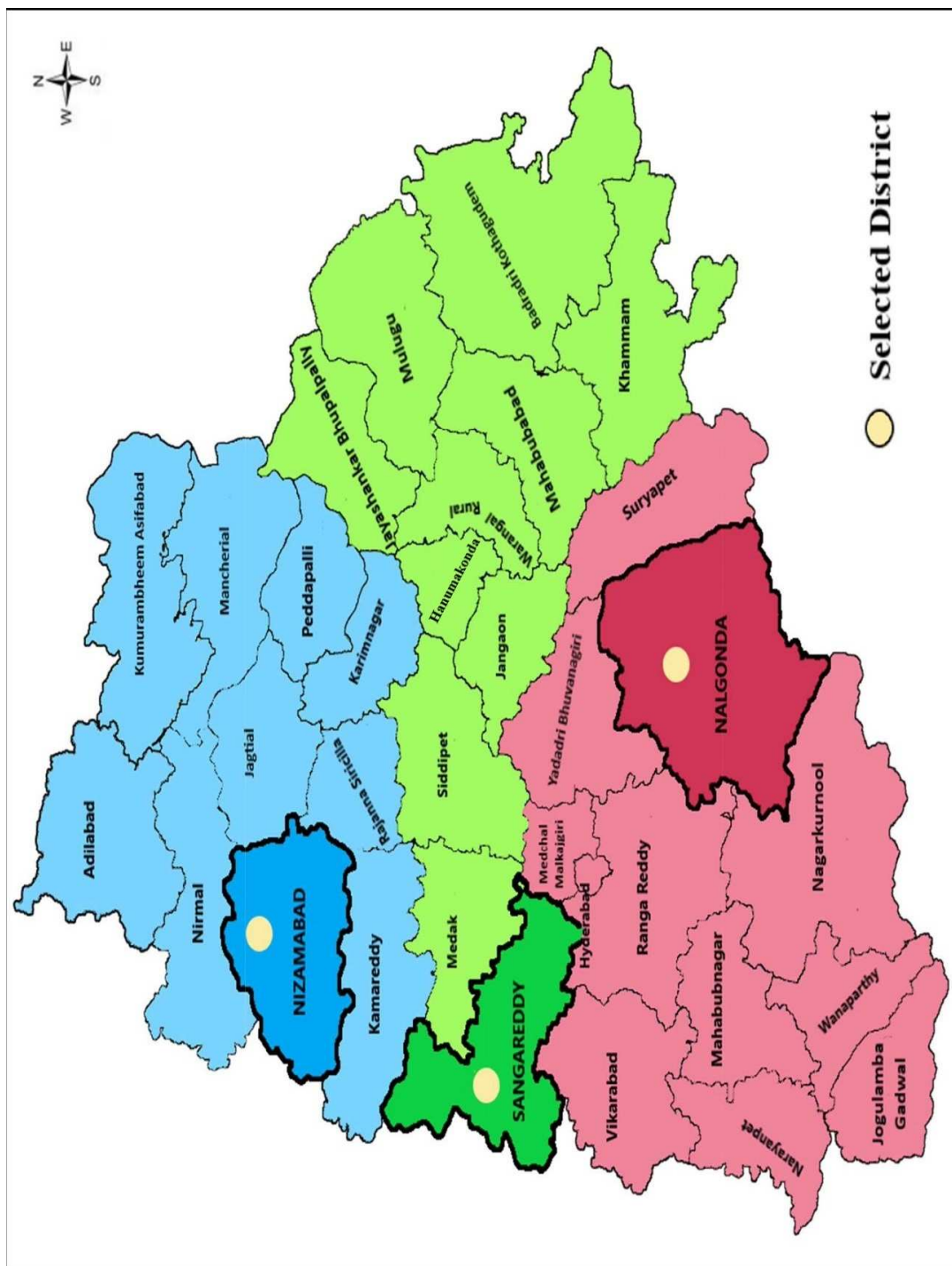


Figure 3.2. Map of Telangana state depicting selected districts

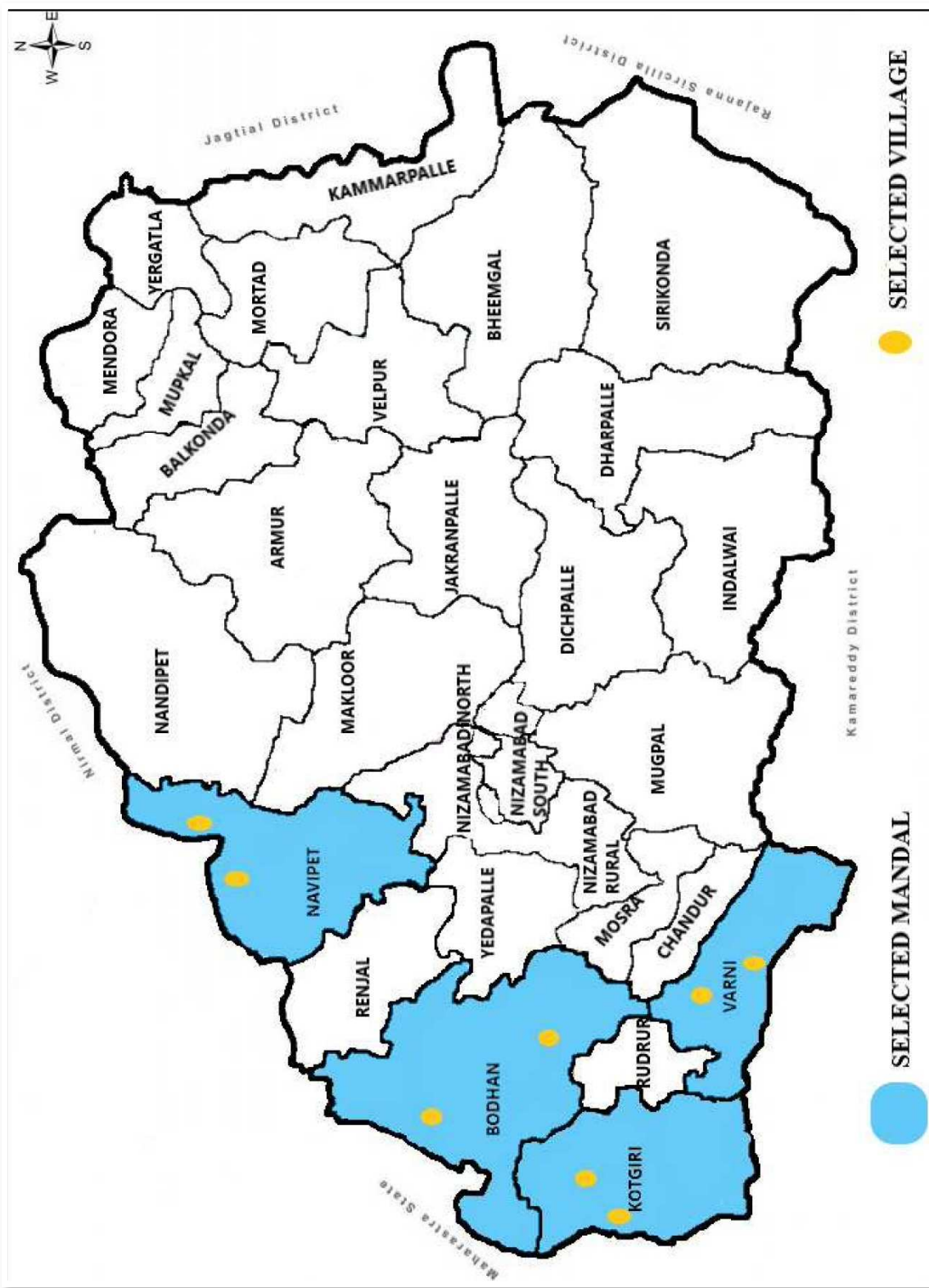


Figure 3.3 (a) Map of Nizamabad district depicting selected mandals and villages

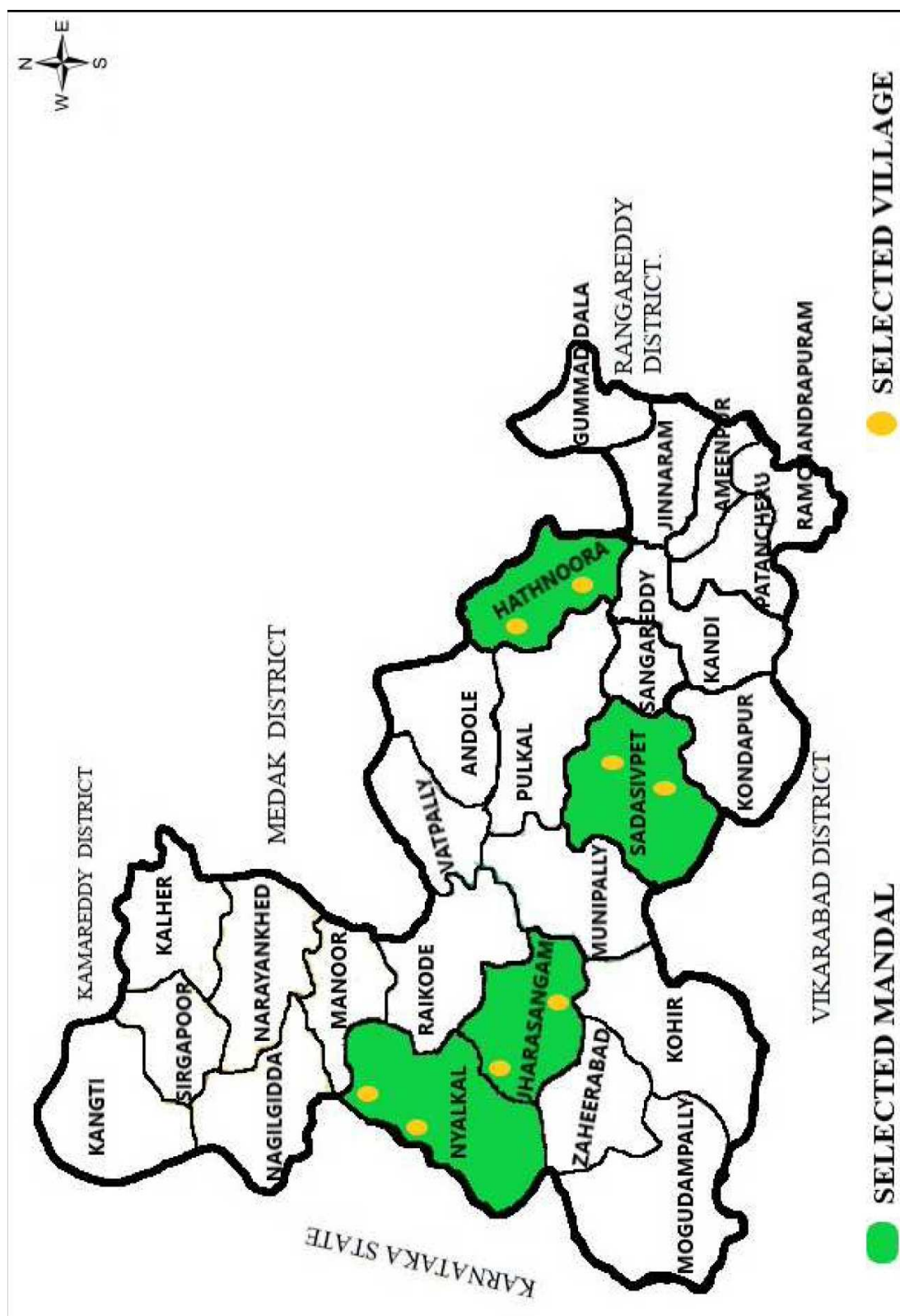


Figure 3.3 (b) Map of Sangareddy district depicting selected mandals and villages

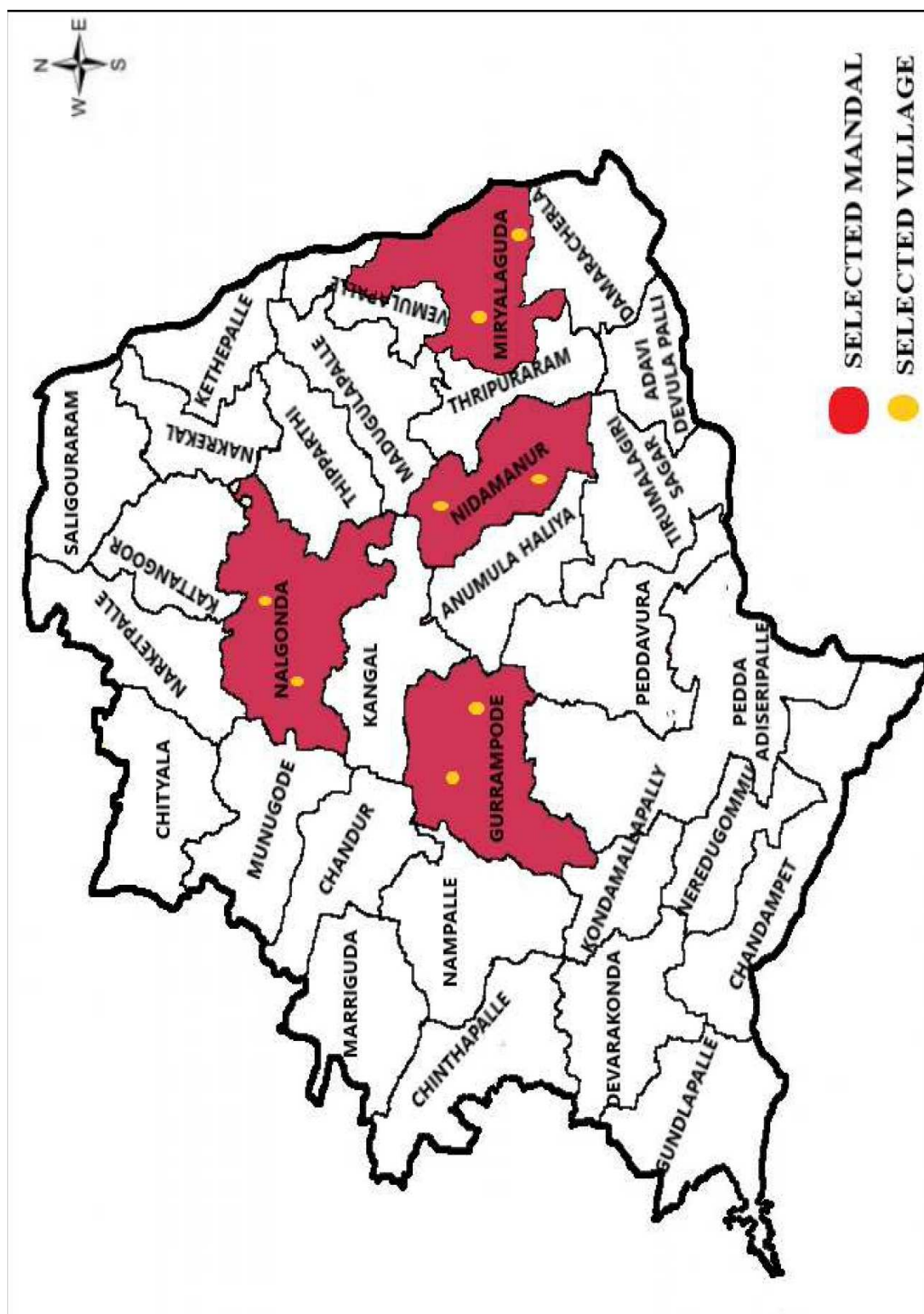


Figure 3.3 (c) Map of Nalgonda district depicting selected mandals and villages

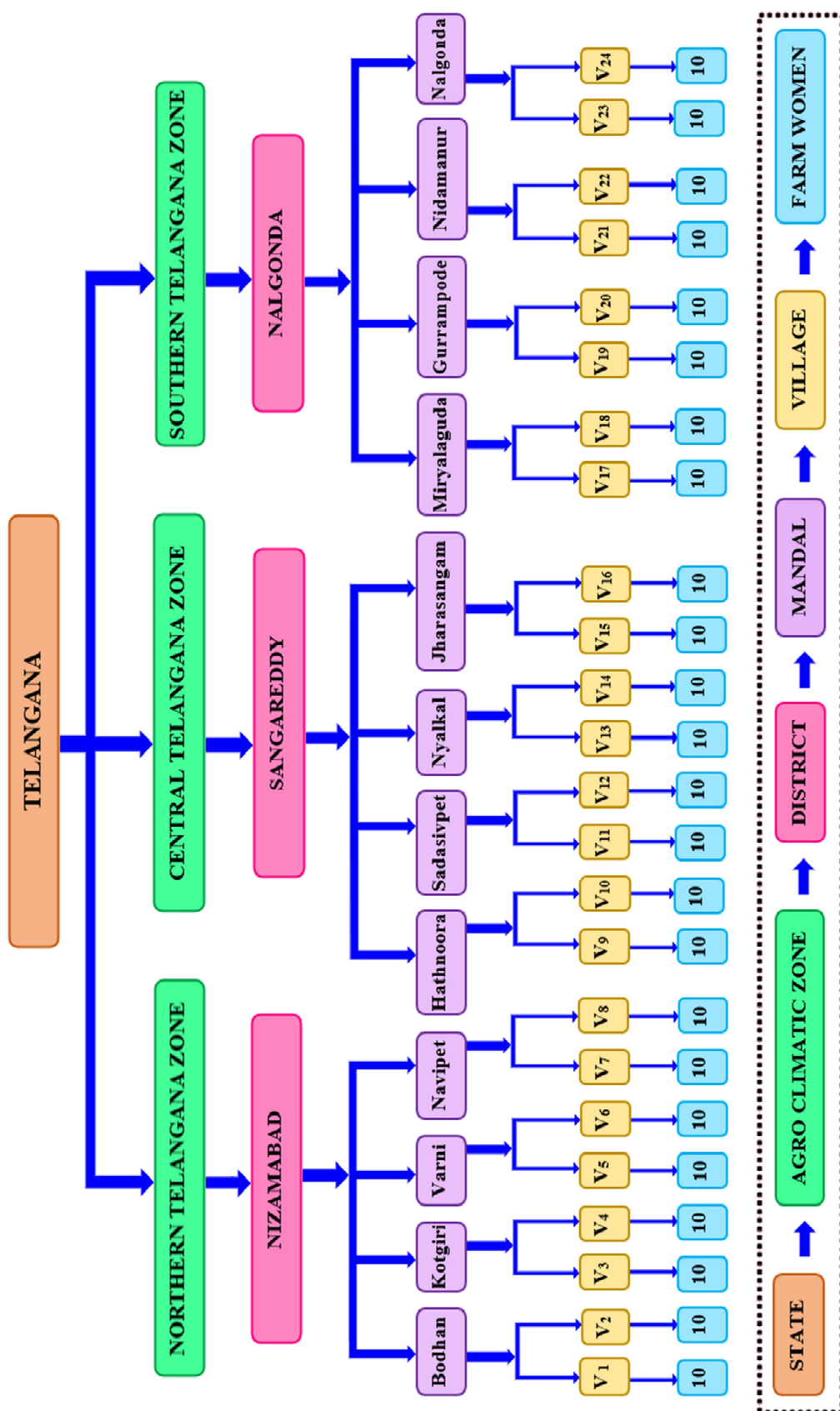


Fig. 3.4. Sampling procedure followed in the study

3.3. OPERATIONALIZATION AND EMPIRICAL MEASUREMENT OF VARIABLES

Variables with most significances to the present study were chosen based on consultation with experts; review of the literature and from the prior studies on the related theme areas. Therefore, the selected fifteen independent and two dependent variables and their empirical measurements were depicted in the table 3.2.

Table 3.2 Variables and their empirical measurement

S. No.	Variables	Empirical measurement
A.	Dependent variables	
1.	Attitude of farm women towards farming	Attitude scale was constructed
2.	Extent of empowerment	Empowerment index was constructed
B.	Independent variables	
1	Age	Chronological age of the respondents
2	Education	 Schedule was developed for the study
3	Family type	
4	Farming experience	
5	Land holding	
6	Annual income	
7	Mass media exposure	
8	Social participation	
9	Extension contact	
10	Information sources utilization	
11	Creativity	
12	Achievement motivation	Scale developed by Rani (1985) with suitable modifications was used.
13	Scientific orientation	Scale developed by Raja (1998) with suitable modifications was used.
14	Risk orientation	Scale developed by Supe (1969) with suitable modifications was used.
15	Economic orientation	A schedule was developed for the study

3.3.1 Operationalization and measurement of dependent variable ‘Attitude of farm women towards farming’

Attitude

Attitude was defined as “attitude as the degree of positive or negative effect associated with some psychological objects towards which people can differ in varying degrees.” (Thurstone, 1946).

3.3.1.1 Attitude of farm women towards farming

For the present study, ‘attitude of farm women towards farming’ was operationalized as, ‘the psychological disposition of the farm women about farming in varying degrees of favourableness or unfavourableness’.

3.3.1.2 Construction of scale to measure the ‘Attitude of farm women towards farming’

Likert’s method of summated rating scale was used for measuring attitude of farm women towards farming. The following steps were carried out to construct the attitude scale (Edwards, 1969 and Chandrakandan *et al.* 2000).

I. Definition of the universe

The first step in the scale construction was to define the general area of the universe of content. The class of all possible statements that could be made about a given psychological object is often called a ‘universe’. In the present study, all the possible statements about ‘attitude of farm women towards farming’ represented the universe.

II. Collection of statements

In this step, a number of statements about ‘attitude of farm women towards farming’ were gathered from books, magazines, newspapers, research articles, journals, academic attainments, expertise of intellectuals in extension, research, teaching, farmers and own experiences. From all these sources, a tentative list of 100 statements belonging to attitude of farm women towards farming were prepared keeping in view of the applicability of statements suited to the area of study.

III. Editing of statements

The 100 statements collected were carefully edited by using various informal criteria suggested by Thurstone and Chave, (1929), Likert, (1932), Wang, (1932), Bird, (1940), Edwards and Kilpatrick, (1948). The following criteria were used to edit the 100 draft statements.

- ◆ Avoided statements that refer to the past rather than to the present.
- ◆ Avoided statements that are factual or capable of being interpreted as factual.
- ◆ Avoided statements that may be interpreted in more than one way.
- ◆ Avoided statements that are irrelevant to the psychological object under consideration.
- ◆ Avoided statements that were likely to be endorsed by almost everyone or by almost no one.
- ◆ Selected the statements that were believed to cover the entire range of the affective scale of interest.
- ◆ Maintained the language of the statements simple, clear, and direct.
- ◆ Statements were made as short as possible, rarely exceeding 20 words.
- ◆ Each statement contained only one complete thought.
- ◆ Statements containing universals such as all, always, none and never often introduce ambiguity were avoided.
- ◆ Words such as only, just, merely and others of a similar nature were used with care and moderation was also carried out in writing statements.
- ◆ Almost all the, statements were framed in the form of simple sentences rather than in the form of compound or complex sentences.
- ◆ Avoided the use of words that may not be understood by those who are to be given the completed scale.
- ◆ Avoided the use of double negatives.

After editing the 100 statements using the above mentioned informal criteria, 40 statements were filtered out and 60 statements were retained, thus making a total of 60 statements.

IV. Testing the statements for relevancy

All the statements collected may not be relevant equally in measuring the attitude of farm women towards farming. Hence, the statements were subjected to scrutiny by judges to determine the relevancy and screening for inclusion in the final scale. For this purpose, the list of all the 60 statements was prepared in the form of questionnaire and were sent to 100 judges. The judges were requested to critically evaluate each statement for its relevancy to measure attitude of farm women towards farming. They were requested to give their responses on a three point continuum viz., 'most relevant', 'relevant' and 'least relevant' with scores 3, 2 and 1 respectively. They were also requested to add some more statements, if they feel important and also delete unrelated statements in the list.

The judges included the faculty and scientists working in Acharya N. G. Ranga Agricultural University, Guntur, Kerala Agricultural University, Thrissur, Professor Jayashankar Telangana State Agricultural University, Hyderabad, Extension Education Institute, Hyderabad, Extension Education Institute (North-East region), Assam, National Institute of Agricultural Extension Management (MANAGE), Hyderabad, Tamil Nadu Agricultural University, Coimbatore, University of Agricultural Sciences, Bengaluru and University of Agricultural Sciences, Dharwad.

The responses were obtained from 55 judges out of the 100 judges. The responses were subjected to Standard Normal Deviate test (z test). After giving the scores to the statements, 'z' values were calculated for each statement. Finally, the grand 'z' of all the 60 statements was obtained and ' $\bar{z}$ ' was calculated. All the statements with 'z' values above $\bar{z}$ (-0.0001) were selected as the scalable statements of attitude of farm women towards farming. The statements with 'z' values below ' $\bar{z}$ ' were eliminated. Thus, 37 statements out of 60 statements were selected through relevancy testing. The list of statements selected with their 'z' values was given in table 3.3.

Table 3.3 Selection of attitude statements based on relevancy test

S. No.	Statements	‘z’ value
1.	Farming will give less scope for higher education accessibility to our children. *	1.77 [#]
2.	I feel that my decision making skills improved after involving in farm activities.	1.71 [#]
3.	I do not want to continue in farming further. *	1.69 [#]
4.	I feel that large share of income is obtained from non-agricultural sources than through farming. *	1.54 [#]
5.	I don’t think farming support policies focus on farm women. *	1.46 [#]
6.	I feel that farming is the best venture for farm women as it makes them self-employed.	1.40 [#]
7.	As there is no other means of income, I am forced to do farming. *	1.38 [#]
8.	I feel that there is less opportunity for career development in farming particularly for women. *	1.38 [#]
9.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	1.32 [#]
10.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *	1.23 [#]
11.	I feel that practicing farming increased my self- reliance.	1.09 [#]
12.	I enjoy autonomy in farm production activities.	1.07 [#]
13.	I feel that men farmers can take up farming more effectively than farm women. *	1.01 [#]
14.	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *	0.92 [#]
15.	I will not encourage my children to be in farming. *	0.92 [#]
16.	I aspire to seek further knowledge and skills in farming.	0.86 [#]
17.	I became self-confident after taking up farming.	0.86 [#]
18.	I like farming as it is major source of income to my family since many generations.	0.86 [#]
19.	I like farming as it is related to our tradition and culture.	0.78 [#]
20.	I aspire to seek more entrepreneurial opportunities in farming.	0.78 [#]
21.	Farming can provide employment to majority of rural women.	0.78 [#]
22.	Farming has become more enjoyable and easier for women with the availability of gender friendly technologies.	0.78 [#]
23.	I feel more professional as I am getting equal respect and importance as given to men farmers.	0.63 [#]

Contd...

Table 3.3 Contd...

S. No.	Statements	‘z’ value
24.	I feel proud and satisfied to be as a part of profession which feeds the nation.	0.63 [#]
25.	I prefer to be in farming than as an employee.	0.47 [#]
26.	I am interested in motivating others to take up farming after reaping the benefits through farming.	0.47 [#]
27.	Women enjoy leadership position in farming.	0.40 [#]
28.	I prefer farming as it provides continuous income throughout the year.	0.39 [#]
29.	I enjoy the relationship with nature through farming.	0.32 [#]
30.	I feel that rural household wellbeing will be increased when women take up farming.	0.32 [#]
31.	Practicing farming helps in improving household amenities for farm women.	0.30 [#]
32.	Gender equality is ensured through participation of women in farming.	0.24 [#]
33.	Poverty can be reduced in rural areas when women take up income earning activities via farming.	0.16 [#]
34.	Farming alone cannot guarantee economic stability to families of women farmers. *	0.14 [#]
35.	I have experienced the benefits of team work by the activities carried out on farm along with others.	0.14 [#]
36.	I enjoy abundant opportunities in farming along with men farmers in farming.	0.14 [#]
37.	I am passionate towards farming.	0.14 [#]
38.	I feel farming as more profitable than other occupation.	-0.14
39.	Farming is seen as best occupational alternative for uneducated rural women.	-0.14
40.	I am determined to overcome any type of hardships in farming.	-0.14
41.	I have been enjoying higher income benefits after taking up farming.	-0.14
42.	I am self-driven to be more innovative in the ways of cultivation of crops.	-0.22
43.	Farm women are often neglected in the planning interventions pertaining to farming.	-0.22

Contd..

Table 3.3 contd...

S. No.	Statements	‘z’ value
44.	It is risky for a family to be solely dependent on farming for earning income. *	-0.30
45.	Booming non-farm occupational opportunities in urban areas are more attractive than farming to the farm women. *	-0.38
46.	I am willing to use all possible information sources for updating knowledge about farming.	-0.92
47.	My self-esteem increased as I support my family through farming profession.	-0.92
48.	I am motivated to be in farming as it makes me independent.	-1.07
49.	Women involving in farming achieve higher socio-economic standards for success in life.	-1.23
50.	I am willing to undergo training activities to improve my skills.	-1.38
51.	Participation of women in farming increases farm output.	-1.38
52.	I dislike farming as other enterprises are better for farm women. *	-1.38
53.	I feel that farming demands more drudgery and is energy sapping for farm women.	-1.38
54.	Farming leads to social and economic empowerment of women.	-1.46
55.	Practicing farming affects farm women prestige. *	-1.46
56.	Farming ensures more satisfaction than other professions as it provides food to people.	-1.54
57.	Supervising and taking part in activities on farm increases managerial ability of farm women.	-1.69
58.	Farming is the least prospective job for women. *	-1.77
59.	Investment required for farming is not affordable by farm women. *	-1.84
60.	Farm women lack access to information sources which make them difficult to survive in farming. *	-2.00

Note:- * Negative Statements

Statement with z value more than $\bar{z}$ value (-0.0001)

V. Treating the statements with Likert’s summated rating technique of scale construction

In this step, the 37 statements selected through relevancy test were given to 100 farm women in farming from a non sample area and were asked to indicate their responses on a five point continuum viz., strongly agree (SA), agree (A),

undecided (UD), disagree (DA) and strongly disagree (SDA) with '5', '4', '3', '2' and '1' respectively for positive statements and '1', '2', '3', '4' and '5' respectively for negative statements. After receiving the responses from the respondents, the sum of the scores of all statements given by each respondent was calculated and the respondents were arranged in descending order based on the sum of the scores obtained for all the statements.

The top 25 per cent of the respondents with the highest scores and the bottom 25 per cent of the respondents with the lowest scores were considered as criterion groups to evaluate individual statements. The middle 50 per cent of the respondents were deleted for further analysis. The top 25 per cent was considered as high group and bottom 25 per cent was considered as low group to calculate the critical ratio *i.e.*, 't' value for each statement. The calculated 't' value for each statement will measure the extent to which the statement differentiates between the respondents of high group and low group. The 't' values were calculated by using the formula suggested by Edwards (1969). The 't' value for each statement was calculated by using the formula.

$$t = \frac{(\bar{X}_H - \bar{X}_L)}{\sqrt{\sum (X_H - \bar{X}_H)^2 + \sum (X_L - \bar{X}_L)^2 / n(n-1)}}$$

where,

$\bar{X}_H$ = Mean score on a given statement for the high group

$\bar{X}_L$ = Mean score on a given statement for the low group

$$\sum (X_H - \bar{X}_H)^2 = \sum X_H^2 - \frac{\sum (X_H)^2}{n_H}$$

$$\sum (X_L - \bar{X}_L)^2 = \sum X_L^2 - \frac{\sum (X_L)^2}{n_L}$$

$$\bar{X}_H = \frac{\sum X_H}{n_H}$$

$$\bar{X}_L = \frac{\sum X_L}{n_L}$$

$$n = n_L = n_H$$

Table 3.4 Selection of final attitude statements based on ‘t’ values

S. No.	Statements	‘t’ value
1.	I aspire to seek further knowledge and skills in farming.	5.52 [#]
2.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	4.60 [#]
3.	Farming will give less scope for higher education accessibility to our children. *	4.26 [#]
4.	Poverty can be reduced in rural areas when women take up income earning activities via farming.	4.13 [#]
5.	I like farming as it is major source of income to my family since many generations.	3.95 [#]
6.	I aspire to seek more entrepreneurial opportunities in farming.	3.91 [#]
7.	I feel that farming is the best venture for farm women as it makes them self-employed.	3.56 [#]
8.	Farming can provide employment to majority of rural women.	3.34 [#]
9.	Gender equality is ensured through participation of women in farming.	3.22 [#]
10.	I feel that rural household wellbeing will be increased when women take up farming.	3.16 [#]
11.	As there is no other means of income, I am forced to do farming. *	3.00 [#]
12.	I prefer to be in farming than as an employee.	2.96 [#]
13.	I feel that there is less opportunity for career development in farming particularly for women. *	2.75 [#]
14.	Women enjoy leadership position in farming.	2.75 [#]
15.	I feel that men farmers can take up farming more effectively than farm women. *	2.45 [#]
16.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *	2.38 [#]
17.	I feel that practicing farming increased my self- reliance.	2.22 [#]
18.	Practicing farming helps in improving household amenities for farm women.	2.21 [#]
19.	I am interested in motivating others to take up farming after reaping the benefits through farming.	2.10 [#]
20.	I feel that large share of income is obtained from non-agricultural sources than through farming. *	1.94 [#]

Contd..

Table 3.4 contd...

S. No.	Statements	‘t’ value
21.	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *	1.93 [#]
22.	I don’t think farming support policies focus on farm women. *	1.81 [#]
23.	I feel more professional as I am getting equal respect and importance as given to men farmers.	1.86 [#]
24.	I became self-confident after taking up farming.	1.80 [#]
25.	I enjoy abundant opportunities in farming along with men farmers in farming.	1.51
26.	I enjoy the relationship with nature through farming.	1.37
27.	I do not want to continue in farming further. *	1.37
28.	I have experienced the benefits of team work by the activities carried out on farm along with others.	1.36
29.	I feel proud and satisfied to be as a part of profession which feeds the nation.	1.32
30.	I enjoy autonomy in farm production activities.	1.04
31.	I feel that my decision making skills improved after involving in farm activities.	0.95
32.	I like farming as it is related to our tradition and culture.	0.86
33.	Farming has become more enjoyable and easier for women with the availability of gender friendly technologies.	0.83
34.	Farming alone cannot guarantee economic stability to families of women farmers. *	0.65
35.	I will not encourage my children to be in farming. *	0.27
36.	I am passionate towards farming.	-1.27
37.	I prefer farming as it provides continuous income throughout the year.	-1.51

Note- * Negative Statements

The statement with ‘t’ values more than 1.75

After computing ‘t’ values for all the 37 statements, they were arranged in the order of highest ‘t’ value to lowest ‘t’ value. The statements with ‘t’ values more than 1.75 were selected for the final attitude scale. Thus, out of 37

statements, 24 statements with 't' value more than 1.75 were selected in the attitude scale and were presented in the table 3.4.

The final attitude scale to measure the attitude of farm women towards farming comprised of 24 statements, out of which 16 were positive statements and 8 were negative statements and were measured on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with 5, 4, 3, 2 and 1 respectively for positive statements and '1', '2', '3', '4' and '5' respectively for negative statements as depicted in the table 3.5.

Table 3.5 Scale to measure attitude of farm women towards farming

S. No.	Statement	SA	A	UD	DA	SDA
1.	I aspire to seek further knowledge and skills in farming.	5	4	3	2	1
2.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	5	4	3	2	1
3.	Farming will give less scope for higher education accessibility to our children. *	1	2	3	4	5
4.	Poverty can be reduced in rural areas when women take up income earning activities via farming.	5	4	3	2	1
5.	I like farming as it is major source of income to my family since many generations.	5	4	3	2	1
6.	I aspire to seek more entrepreneurial opportunities in farming.	5	4	3	2	1
7.	I feel that farming is the best venture for farm women as it makes them self-employed.	5	4	3	2	1
8.	Farming can provide employment to majority of rural women.	5	4	3	2	1
9.	Gender equality is ensured through participation of women in farming.	5	4	3	2	1
10.	I feel that rural household wellbeing will be increased when women take up farming.	5	4	3	2	1

Contd..

Table 3.5 contd...

S. No.	Statement	SA	A	UD	DA	SDA
11.	As there is no other means of income, I am forced to do farming. *	1	2	3	4	5
12.	I prefer to be in farming than as an employee.	5	4	3	2	1
13.	I feel that there is less opportunity for career development in farming particularly for women. *	1	2	3	4	5
14.	Women enjoy leadership position in farming.	5	4	3	2	1
15.	I feel that men farmers can take up farming more effectively than farm women. *	1	2	3	4	5
16.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *	1	2	3	4	5
17.	I feel that practicing farming increased my self- reliance.	5	4	3	2	1
18.	Practicing farming helps in improving household amenities for farm women.	5	4	3	2	1
19.	I am interested in motivating others to take up farming after reaping the benefits through farming.	5	4	3	2	1
20.	I feel that large share of income is obtained from non-agricultural sources than through farming. *	1	2	3	4	5
21.	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *	1	2	3	4	5
22.	I don't think farming support policies focus on farm women. *	1	2	3	4	5
23.	I feel more professional as I am getting equal respect and importance as given to men farmers.	5	4	3	2	1
24.	I became self-confident after taking up farming.	5	4	3	2	1

* Negative Statements

VI. Testing the reliability of the scale

A scale is reliable when it will consistently produce the same results when applied on the same sample (Goode and Hatt, 1952). For testing the reliability, split half method was employed. The attitude scale of 24 statements was distributed to thirty farm women in farming of non sample area for their responses.

After getting back the responses, the scale was divided into two halves, all odd statements into one half and all even statements into another. Then the coefficient of reliability was calculated between the two halves. The correlation coefficient for both the sets was worked out. The correlation coefficient ($r=0.80$) was significant at 0.01 level indicating the attitude scale was highly suitable for administration to the farm women in farming.

VII. Testing the validity of the scale

The validity of the scale on attitude of farm women towards farming was obtained through content validity by taking the judges opinion. The statements selected for the scale were evaluated individually and as a whole by the judges. These were again checked by experts in Acharya N.G. Ranga Agricultural University for their relevance and coverage. As the content of the attitude scale was borne out by the method of collecting statements within the universe of attitude of farm women towards farming, it was reasonably assumed that the scale, 'attitude of farm women towards farming' had content validity. The final standardized scale to measure attitude of farm women towards farming (Table 3.5.) was used for the present research.

3.3.1.3. Administration of the attitude scale to measure 'attitude of farm women towards farming'

Attitude of farm women towards farming was measured with the help of five point scale evolved for the study. The final scale selected with 24 statements was administered to the 240 sampled farm women in farming. They were requested to provide responses to each statement in terms of their own degree of agreement or disagreement on a five point continuum. Each statement of scale was provided with five point continuum viz., strongly agree (SA), agree (A), undecided (UD),

disagree (DA), strongly disagree (SDA) with scores of '5', '4', '3', '2' and '1' respectively for positive statements and '1', '2', '3', '4' and '5' respectively for negative statements. The total score of the respondent on the scale was obtained by summing up the scores of all the statements in the scale. The possible minimum and maximum score was 24 and 120. The respondents were grouped into the following three categories based on the scores obtained by each of them duly following mean and standard deviation.

S. No.	Category	Score
1.	Less favourable attitude	Below (Mean-SD)
2.	Moderately favourable attitude	Between (Mean $\pm$ SD)
3.	Highly favourable attitude	Above (Mean + SD)

3.3.2 Operationalization and measurement of dependent variable, 'Extent of empowerment of farm women in agriculture'.

3.3.2.1 Operationalization of empowerment of farm women

In this study, 'empowerment of a farm woman' was operationalized as, 'a multi-dimensional and interlinked process which paves way for a woman to define, challenge and overcome barriers while also increasing her ability to shape her life'.

3.3.2.2 Construction of an index for measurement of 'extent of empowerment of farm women in agriculture'.

An index is defined as a technique of totaling or reducing a single composite series data on a number of distinct, but related variables expressed in different units of measurement (Hooda, 2001). It is a device which facilitates comparison of the level of magnitude of a group of related variables under two or more situations.

Situations requiring comparison may refer to either

- i) changes occurring over a time
- ii) the difference (s) between two or more places and
- iii) the variations between similar categories of objects or subjects such as persons, groups of persons, organization etc.

An index was constructed to measure the extent of empowerment of farm women in agriculture'. Based on extensive review of literature and in consultation

with the extension experts, various dimensions of empowerment were identified. The multi-dimensional aspect of empowerment consisted of following five broad areas of dimensions i.e., psychological, socio-cultural, economic, politico-legal and professional which contributed to empowerment of a farm woman.

A number of statements about 'empowerment of a farm woman' was gathered from books, magazines, newspapers, research articles, journals, expertise of intellectuals in extension, research, teaching and own experiences. From all these sources, a tentative list of 100 statements belonging to empowerment of farm women and which indicate the empowerment dimensions were gathered and constructed. These statements were administered to 30 farm women in non-sample area with identical situation. 59 statements which were most relevant, unambiguous, sensible, simple, easy to answer and suitable to all categories of respondents were retained for measuring the empowerment of farm women. Of the 59 statements, psychological dimension consisted of 6 statements, socio-cultural dimension consisted of 18 statements, economic dimension consisted of 8 statements, politico-legal dimension consisted of 6 statements and professional dimension consisted of 21 statements.

The procedure for measurement of the five dimensions of empowerment i.e., psychological, socio-cultural, economic, politico-legal and professional alongside the extent of empowerment of farm women was explained in the sections given below.

a. Psychological dimension of empowerment

Psychological dimension of empowerment of farm women was operationalized as, 'the extent of psychological wellbeing, self-esteem, self-efficacy, sense of inclusion and entitlement of farm woman'. This dimension was quantified by a set of 6 statements. These statements were measured on a three point continuum i.e., 'Yes', 'Undecided' and 'No' with scores of '2', '1' and '0' respectively. Farm women were asked to give their responses for statements in the psychological dimension of empowerment. Summation of scores of all the statements gave the score for the psychological dimension of empowerment of each farm woman. The range of scores attainable for psychological dimension of empowerment was between 0 and 12.

Psychological empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The psychological empowerment index score ranges from 0 to 100. Farm women were categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less psychological empowerment	Below (Mean-SD)
2.	Medium psychological empowerment	Between (Mean $\pm$ SD)
3.	High psychological empowerment	Above (Mean + SD)

b. Socio-cultural dimension of empowerment

Socio-cultural dimension of empowerment of farm women was operationalized as, ‘extent of freedom of mobility, unrestricted personal decision making, access to education and social spaces, self-identity in family and society’. This dimension was quantified by a set of 18 statements. These statements were measured on a three point continuum i.e., ‘Yes’, ‘Undecided’ and ‘No’ with scores of ‘2’, ‘1’ and ‘0’ respectively. Farm women were asked to give their responses for statements in the socio-cultural dimension of empowerment. Summation of scores of all the statements gave the score for the socio-cultural dimension of empowerment of each farm woman. The range of scores attainable for socio-cultural dimension of empowerment was between 0 and 36.

Socio-cultural empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The socio-cultural empowerment index score ranges from 0 to 100. Farm women were categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less socio-cultural empowerment	Below (Mean-SD)
2.	Medium socio-cultural empowerment	Between (Mean $\pm$ SD)
3.	High socio-cultural empowerment	Above (Mean + SD)

c. Economic dimension of empowerment

Economic dimension of empowerment of farm women was operationalized as, ‘extent of control over income, access and control of resources of family and contribution to family support’. This dimension was quantified by a set of 8 statements. These statements were measured on a three point continuum i.e., ‘Yes’, ‘Undecided’ and ‘No’ with scores of ‘2’, ‘1’ and ‘0’ respectively. Farm women were asked to give their responses for statements in the economic dimension of empowerment. Summation of scores of all the statements gave the score for the economic dimension of empowerment of each farm woman. The range of scores attainable for economic dimension of empowerment was between 0 and 16.

Economic empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The economic empowerment index score ranges from 0 to 100. Farm women were categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less economic empowerment	Below (Mean-SD)
2.	Medium economic empowerment	Between (Mean $\pm$ SD)
3.	High economic empowerment	Above (Mean + SD)

d. Politico-legal dimension of empowerment

Politico-legal dimension of empowerment of farm women was operationalized as, ‘extent of knowledge about legislation and political system, awareness and advocacy about one’s own rights’. This dimension was quantified

by a set of 6 statements. These statements were measured on a three point continuum i.e., ‘Yes’, ‘Undecided’ and ‘No’ with scores of ‘2’, ‘1’ and ‘0’ respectively. Farm women were asked to give their responses for statements in the politico-legal dimension of empowerment. Summation of scores of all the statements gave the score for the politico-legal dimension of empowerment of each farm woman. The range of scores attainable for politico-legal dimension of empowerment was between 0 and 12.

Politico-legal empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The politico-legal empowerment index score ranges from 0 to 100. Farm women were categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less politico-legal empowerment	Below (Mean-SD)
2.	Medium politico-legal empowerment	Between (Mean $\pm$ SD)
3.	High politico-legal empowerment	Above (Mean + SD)

e. Professional dimension of empowerment

Professional dimension of empowerment of farm women was operationalized as, ‘extent of self-interest, decision making, management of resources to strive better in farming’. This dimension was quantified by a set of 21 statements. These statements were measured on a three point continuum i.e., ‘Yes’, ‘Undecided’ and ‘No’ with scores of ‘2’, ‘1’ and ‘0’ respectively. Farm women were asked to give their responses for statements in the professional dimension of empowerment. Summation of scores of all the statements gave the score for the professional dimension of empowerment of each farm woman. The range of scores attainable for professional dimension of empowerment was between 0 and 42.

Professional empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The professional empowerment index score ranges from 0 to 100. Farm women are categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less professional empowerment	Below (Mean-SD)
2.	Medium professional empowerment	Between (Mean $\pm$ SD)
3.	High professional empowerment	Above (Mean + SD)

Extent of empowerment of farm women was quantified by the 59 statements listed under various identified dimensions of empowerment i.e., psychological (6 statements), socio-cultural (18 statements), economic (8 statements), politico-legal (6 statements) and professional (21 statements), which had contributed to empowerment of a farm woman. The responses given by farm women for these statements were measured on a three point continuum i.e., ‘Yes’, ‘Undecided’ and ‘No’ with scores of ‘2’, ‘1’ and ‘0’ respectively. Summation of scores of all the statements gave the score for the empowerment of each farm woman. The range of scores attainable for empowerment was between 0 and 118.

Empowerment index score for each farm woman was derived by using the formula

$$= \frac{\text{Individual obtained score}}{\text{Maximum attainable score}} \times 100$$

The empowerment index score ranges from 0 to 100. Farm women are categorized into three categories based on mean and standard deviation as follows.

S. No.	Category	Score
1.	Less empowerment	Below (Mean-SD)
2.	Medium empowerment	Between (Mean $\pm$ SD)
3.	High empowerment	Above (Mean + SD)

3.3.3 Operationalization and empirical measurement of independent variables

3.3.3.1 Age (X₁)

Age was operationalized as, ‘the chronological age of a farm woman in completed years at the time of the interview’. The respondents were grouped into young, middle and old age groups based on the number of their completed years. The number of respondents under each category was obtained through frequency and percentage analysis.

S. No.	Category	Years	Score
1.	Young age	35 years and below	1
2.	Middle age	36 to 55 years	2
3.	Old age	56 years and above	3

3.3.3.2 Education (X₂)

Education was operationalized as, ‘the formal education received by a farm woman and was measured by using a schedule developed for the study’. The farm women were categorized into seven groups based on their educational status as shown below. The number of respondents under each category was obtained through frequency and percentage analysis.

S. No.	Category	Score
1.	Illiterate	1
2.	Functionally literate	2
3.	Primary school	3
4.	Middle school	4
5.	High school	5
6.	Intermediate	6
7.	Graduation and above	7

3.3.3.3 Family type (X₃)

Family type was operationalized as, ‘the type of the family i.e., joint family and or nuclear family possessed by a farm woman’. Joint family consists of more

than a single pair of married couple and their offspring living together. Nuclear family consists of single pair of married couple and their unmarried children. The number of respondents under each category was obtained through frequency and percentage analysis

S. No.	Category	Score
1.	Nuclear family	1
2.	Joint family	2

3.3.3.4 Farming experience (X₄)

Farming experience was operationalized as, ‘the number of years of experience gained by a farm woman in farming at the time of investigation’. The respondents were grouped into three categories using mean ($\bar{X}$) and standard deviation (SD) based on their farming experience.

S. No.	Category	Score
1.	Low farming experience	Below (Mean-SD)
2.	Medium farming experience	Between (Mean $\pm$ SD)
3.	High farming experience	Above (Mean + SD)

3.3.3.5 Land holding (X₅)

It was operationalized as, ‘the total number of hectares of land possessed by a farm woman at the time of inquiry’. The respondents were grouped on the basis of the land holdings possessed and operated by them. The standard classification as per ‘All India report on number and area of operational holdings’ was followed (Agriculture Census Division, 2014).

S. No.	Category	Area of land (Ha.)
1.	Marginal	Below 1.0 Hectare
2.	Small	1.0 to < 2.0 Hectare
3.	Semi-Medium	2.0 to < 4.0 Hectare
4.	Medium	4.0 to < 10.0 Hectare
5.	Large	10.0 Hectare and above

3.3.3.6 Annual income (X₆)

It was operationalized as, ‘the total income earned by a farm woman’s family throughout the year from various sources’. A score of ‘1’ was given to an amount of one thousand rupees earned by the respondent and her family. The respondents were categorized into three categories using mean and standard deviation based on the scores obtained.

S. No.	Category	Score
1.	Low annual income	Below (Mean-SD)
2.	Medium annual income	Between (Mean $\pm$ SD)
3.	High annual income	Above (Mean + SD)

3.3.3.7 Mass media exposure (X₇)

Mass media exposure was operationalized as, ‘the degree to which a farm woman was exposed or contacted the different mass media sources for the benefit of her profession’ and it was measured with the help of a schedule developed for the study. The extent of exposure was measured with a score of ‘2’ for ‘regularly’, ‘1’ for ‘occasionally’ and ‘0’ for ‘never’. Summation of scores of all the items gave the score of mass media exposure for each farm woman. Range of scores for this variable were ‘0’ to ‘10’. The respondents were grouped into three categories using mean and standard deviation based on the obtained scores.

S. No.	Category	Score
1.	Low mass media exposure	Below (Mean-SD)
2.	Medium mass media exposure	Between (Mean $\pm$ SD)
3.	High mass media exposure	Above (Mean + SD)

3.3.3.8 Social participation (X₈)

Social participation was operationalized as, ‘the degree of involvement of farm women in a number of formal organizations either as a member or as an office bearer and was measured with the help of a schedule developed for the study’. The individuals were scored based on the participation in various social organizations and also by the extent of participation in the past six months. A score of ‘2’ was given for regular participation in meetings of the organization, ‘1’ score was for

occasional participation in meetings of the organization and ‘0’ score for nil attendance for meetings of the organization. The total score of each respondent was arrived by adding all the scores. Range of scores for this variable were ‘0’ to ‘20’.

S. No.	Category	Score
1.	No membership in any organization	0
2.	Membership in one organization	1
3.	Office bearer in an organization	2

The respondents were grouped into three categories using mean and standard deviation based on the scores obtained.

S. No.	Category	Score
1.	Low social participation	Below (Mean-SD)
2.	Medium social participation	Between (Mean $\pm$ SD)
3.	High social participation	Above (Mean + SD)

3.3.3.9 Extension contact (X₉)

Extension contact was operationalized as, ‘the degree and the frequency of contact maintained by the farm women with different extension agencies’. The degree of extension contact of the respondents was measured with the help of a schedule developed for the study. The individuals were scored based on the number of extension agencies contacted and also the extent of contact. The extent of extension contact was measured with a score of ‘2’ for ‘regular’, ‘1’ for ‘occasional’ and ‘0’ for ‘never’. The total score of each respondent was arrived by adding the scores obtained. Range of scores for this variable were ‘0’ to ‘14’. The respondents were grouped into three categories by using mean and standard deviation.

S. No.	Category	Score
1.	Low extension contact	Below (Mean-SD)
2.	Medium extension contact	Between (Mean $\pm$ SD)
3.	High extension contact	Above (Mean + SD)

3.3.3.10 Information sources utilization (X_{10})

Information sources utilization was operationalized as, ‘the extent of utilization of information from various sources by farm women for farm and allied activities’. It was measured with the help of a schedule developed for the study. The individuals were scored based on the number of information sources contacted and also the extent of utilization of information obtained from these sources. It was measured with a score of ‘3’ for high information utilization, ‘2’ for medium information utilization, ‘1’ for less information utilization and ‘0’ for no utilization of information. The total score of each respondent was arrived by adding the scores obtained. Range of scores for this variable were ‘0’ to ‘42’. The respondents were grouped into three categories by using mean and standard deviation.

S. No.	Category	Score
1.	Low information sources utilization	Below (Mean-SD)
2.	Medium information sources utilization	Between (Mean $\pm$ SD)
3.	High information sources utilization	Above (Mean + SD)

3.3.3.11 Creativity (X_{11})

Creativity was operationalized as, ‘farm women’s ability to appraise and sense problems along with openness to divergent and innovative thinking’ and was measured with the help of a schedule developed for the study. Schedule which consisted of 5 statements was developed by reviewing relevant literature. The scale consisted of 5 statements of which 4 statements were positive and 1 statement was negative. The responses given were rated on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with scores ‘5’, ‘4’, ‘3’, ‘2’, ‘1’ respectively for positive statements and ‘1’, ‘2’, ‘3’, ‘4’, ‘5’ respectively for negative statements. The total score was computed for each respondent by summing up the scores of all the statements. The maximum and minimum possible scores were 25 and 5 respectively. Then the respondents were grouped into three categories based on mean and standard deviation.

S. No.	Category	Score
1.	Low creativity	Below (Mean-SD)
2.	Medium creativity	Between (Mean $\pm$ SD)
3.	High creativity	Above (Mean + SD)

3.3.3.12 Achievement motivation (X_{12})

Achievement motivation was operationalized as, ‘a desire for excellence for farm women to attain a sense of personal accomplishment’. The scale developed by Rani (1985) with suitable modifications was adopted for this study. The scale consisted of 8 statements of which 6 statements were positive and 2 statements were negative. The responses given were rated on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with scores ‘5’, ‘4’, ‘3’, ‘2’, ‘1’ respectively for positive statements and ‘1’, ‘2’, ‘3’, ‘4’, ‘5’ respectively for negative statements. Total score for a respondent was obtained by summing up the score of all statements. The maximum and minimum possible scores were 40 and 8 respectively. The respondents were categorized into low, medium and high based on mean and standard deviation.

S. No.	Category	Score
1.	Low achievement motivation	Below (Mean-SD)
2.	Medium achievement motivation	Between (Mean $\pm$ SD)
3.	High achievement motivation	Above (Mean + SD)

3.3.3.13 Scientific orientation (X_{13})

Scientific orientation was operationalized as, ‘the degree to which farm women were oriented towards scientific practices in farming’. Scale developed by Raja (1998) was used in this study with some modifications. Scientific orientation has six statements out of which one statement was negative and five statements were positive. The responses given were rated on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with scores ‘5’, ‘4’, ‘3’, ‘2’, ‘1’ respectively for positive

statements and '1', '2', '3', '4', '5' respectively for negative statements. Total score for a respondent was obtained by summing up the score of all statements. The maximum and minimum possible scores were 30 and 6 respectively. The respondents were categorized into low, medium and high based on mean and standard deviation.

S. No.	Category	Score
1.	Low scientific orientation	Below (Mean-SD)
2.	Medium scientific orientation	Between (Mean $\pm$ SD)
3.	High scientific orientation	Above (Mean + SD)

3.3.3.14 Risk orientation (X_{14})

Risk orientation was operationalized as, 'the degree to which farm women were oriented towards risk and uncertainty with courage to face the problems in existence'. This was measured by the scale developed by Supe (1969) with suitable modifications. The scale consisted of six statements of which the one statement was negative and five statements were positive. The responses given were rated on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with scores '5', '4', '3', '2', '1' respectively for positive statements and '1', '2', '3', '4', '5' respectively for negative statements.

The score obtained for all statements were summed up to get individual respondent's risk orientation score. The maximum and minimum possible scores were 6 and 30. The respondent's risk orientation was classified on the basis of mean and standard deviation.

S. No.	Category	Score
1.	Low risk orientation	Below (Mean-SD)
2.	Medium risk orientation	Between (Mean $\pm$ SD)
3.	High risk orientation	Above (Mean + SD)

3.3.3.15. Economic orientation (X_{15})

Economic orientation was operationalized as, ‘the degree to which farm women were oriented towards achieving maximum profits from farming’. This was measured by the schedule developed for the study. The scale consisted of 8 statements of which one statement was negative and seven statements were positive. The responses given were rated on a five point continuum viz., strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with scores ‘5’, ‘4’, ‘3’, ‘2’, ‘1’ respectively for positive statements and ‘1’, ‘2’, ‘3’, ‘4’, ‘5’ respectively for negative statements. The score obtained for all statements were summed up to get individual respondent’s economic orientation score. The maximum and minimum possible scores were 8 and 40. The respondent’s economic orientation was classified based on mean and standard deviation.

S. No.	Category	Score
1.	Low economic orientation	Below (Mean-SD)
2.	Medium economic orientation	Between (Mean $\pm$ SD)
3.	High economic orientation	Above (Mean + SD)

3.4 MAGNITUDE OF PARTICIPATION OF FARM WOMEN IN FARMING

Magnitude of participation of farm women in farming was operationalized as, ‘the involvement of farm women in various activities of farming’. In order to assess the magnitude of participation of farm women in farming, a schedule on activities in farming was developed taking into consideration review from related studies and in consultation with the experts from the field of agronomy and department of agricultural extension of S.V. Agricultural College, Tirupati. The schedule composed of 17 items. The response of the farm women was recorded on a three-point continuum as ‘full participation’, ‘partial participation’ and ‘no participation’ and scores, ‘2’, ‘1’, ‘0’ respectively. The scores of all the items were added to compute total participation score of each farm woman. The minimum and

maximum possible scores were 0 and 34 respectively. The terms ‘full participation’, ‘partial participation’ and ‘no participation’ were operationally defined as follows.

Full participation: Actual performance of activities in agriculture by farm women without any assistance by others.

Partial participation: Performance of agricultural activities by farm women wherein assistance was provided by others.

No participation: Non-performance of activities of farm women in farming.

Based on the participation scores farm women were grouped into three categories by using mean and standard deviation as follows.

S. No.	Category	Score
1.	Less participation	Below (Mean-SD)
2.	Medium participation	Between (Mean $\pm$ SD)
3.	High participation	Above (Mean + SD)

3.5 CONSTRAINTS FACED BY THE FARM WOMEN AND THEIR SUGGESTIONS TO OVERCOME THE CONSTRAINTS.

In the current investigation, constraint was operationalized as, ‘the obstacles as perceived by the farm women in various spheres of their lives’. Accordingly with the consultation of experts, review of literature, interaction with farm women while pretesting of schedule, a total of 34 constraints were identified and grouped into three categories viz., socio personal, economic and technological/on farm constraints. Farm women were asked to give their response for each constraint and the responses were totaled up to get frequency and percentage for each constraint. The constraints in each category were given a ranking based on the descending order of their frequencies.

‘Suggestion’ was operationalized as, ‘the requirements expressed by the farm women in order to fulfill their needs’. An open-ended schedule was developed to measure the suggestions. The suggestions as expressed by the

respondents were keenly observed and framed into 10 major suggestions. They were measured using frequency and percentage. Finally, the suggestions were ranked from one to ten based on the descending order of frequencies obtained.

3.6 DEVICES AND METHODS USED FOR DATA COLLECTION

3.6.1 Interview schedule

Taking into consideration, the scope, objectives and variables included in the study, interview schedule was found to be the most suitable tool to collect data from the respondents. Structured and comprehensive interview schedule was developed in consultation with experts in the field of agricultural extension. Items included in the interview schedule were most relevant, unambiguous and sensible questions, duly avoiding inappropriate items and were suitable to all categories of respondents and which were simple and easy to answer.

The interview schedule was presented in seven sections, A, B, C, D, E and F. Section A gathered general information of the farm women; Section B contained profile characteristics of respondents while section C collected information on participation of farm women in farm activities. Section D obtained data pertaining to attitude of farm women towards farming. Section E had information about extent of empowerment of respondents and section F garnered constraints faced by the farm women and the suggestions elicited by them.

3.6.2 Pretesting of interview schedule

Before giving a final shape to the interview schedule, the schedule was pretested with 30 farm women who were actively participating in agricultural operations in non-sample area with identical situation.

3.6.3 Establishing rapport

Necessary rapport with the respondents was very important step in the present research study. First few days were devoted to get acquainted with the respondents selected for the study with the help of extension personnel, village secretaries and local leaders. Later informal visit to the respondents was done. In the light of difficulties encountered during pretesting, the interview schedule was modified and made suitable in consultation with scientists and officials. The final

interview schedule prepared with suitable modifications was appended in 'appendices'.

3.6.4 Method of data collection

The field investigation was carried out during the year 2017. The data was collected by administering the structured interview schedule to the respondents. The questions were asked in local language *i.e.*, Telugu. The farm women in farming were personally interviewed by the researcher which helped in getting firsthand information and gave an opportunity to personally observe the respondents. The response of each respondent was recorded in the interview schedule with due care. Every effort was made to check and cross check the data collected from all the sample respondents. Friendly atmosphere was maintained during the interview to see that the respondents were at ease and expressed their opinions freely, fairly and frankly.

3.6.5 Preparation of report

The data collected through interview schedule was coded, tabulated, analyzed and presented in tables to make the findings meaningful and easily understandable.

3.6.6 Data analysis procedure

The data collected from all the respondents were coded and tabulated. Then the data were subjected to different statistical tests keeping in view the objectives of the study. The findings emerged out of the data analysis were interpreted, discussed and necessary inferences and conclusions were drawn.

3.7 STATISTICAL TOOLS AND PROCEDURES FOLLOWED

Entire analysis of data was carried out using Microsoft Office Excel and SPSS software. The following statistical tests and measures were used for the analysis of the data.

3.7.1 Arithmetic mean ($\bar{X}$)

3.7.2 Standard deviation (σ)

3.7.3 Standard Normal Deviate Test (z test)

3.7.4 Frequency and percentage

3.7.5 Pearson's correlation coefficient (r)

3.7.6 Multiple Linear Regression Analysis

3.7.7 Chi-square test for independence of attributes (χ^2)

3.7.1 Arithmetic Mean ($\bar{X}$)

This was used to compare the respondents in respect of their dependent variable. The arithmetic mean is the sum of scores divided by the number of respondents.

$$\bar{x} = \frac{\sum x}{n}$$

where,

$$\bar{x} = \text{Mean}$$

$$\sum x = \text{Sum of scores}$$

$$n = \text{Number of respondents}$$

3.7.2 Standard Deviation (σ)

It is positive square root of the mean of the squared observation taken from arithmetic mean. It was used to find out the variation in the score in the dependent variable and for categorization of respondents.

$$\sigma = \sqrt{\frac{1}{n} \left(\sum x^2 - \frac{(\sum x)^2}{n} \right)}$$

where ,

$$\sigma = \text{Standard Deviation}$$

$$\sum x^2 = \text{Sum of squares of observations}$$

$$[\sum x]^2 = \text{Square of sum of 'x' values}$$

$$n = \text{Number of observations}$$

3.7.3 Standard Normal Deviate Test (z test)

This test was computed to identify the statements that were relevant to the attitude of farm women towards farming. The formula used for the purpose was given below

$$\bar{z} = \frac{\sum z_i}{n}$$

$$z_i = \frac{x_i - \bar{x}}{\sigma}$$

where,

x_i = Score for i^{th} statement

$\bar{x}$ = Mean score of all statements

n = Number of statements

σ = Standard deviation calculated on x_i values

3.7.4 Frequency and Percentage

Frequency and percentages were used to know the distribution pattern of respondents according to objectives of study. Percentages were used for standardization of sample size by calculating the number of individuals who would be under a given category, if the total number of cases were hundred. Frequency was represented by ‘f’ and percentage was represented by ‘%’ in the results of the study.

3.7.5 Pearson’s correlation co-efficient (r)

It was calculated to test the relationship between certain independent variables and dependent variable. The formula used for the calculation of co-efficient of correlation is given below. The ‘r’ calculated value was compared with ‘r’ table value for (n-2) degree of freedom. If the ‘r’ calculated value was greater than or equal to ‘r’ table value, then the null hypothesis was rejected, otherwise it was accepted and conclusions were drawn accordingly.

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\sum x^2 - \frac{(\sum x)^2}{n}} \sqrt{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

where,

r = Coefficient of correlation between x and y

$\sum x$ = Sum of scores of variables x

Σy	=	Sum of scores of variables y
Σx^2	=	Sum of squares of variables x
Σy^2	=	Sum of squares of variables y
$(\Sigma x)^2$	=	Squares of sum of variables x
$(\Sigma y)^2$	=	Squares of sum of variables y
Σxy	=	Sum of scores of variables x
n	=	Size of the sample

The 'r' calculated value was verified for its significance to use 'r' table value for 5 percent level of significance and 1 percent level of significance at (n-2) degrees of freedom. When the 'r' calculated value was equal or greater than the table value, the relationship between the selected variables was considered significant, otherwise it was considered as non-significant.

3.7.6 Multiple Linear Regression Analysis

It was defined as the average expected change in the dependent variable to a unit change in each independent variable put together. It was used to study the combined effect of selected independent variables over dependent variables. It provides amount of relation among two or more predicted variables and the single criterion variable. The regression co-efficient b may be interpreted as the change in Y corresponding to a unit increase in X when all the other variables are held constant. The multiple linear coefficient 'R' is the highest possible constant between least squares of the independent variables and the squares of the independent variables and the observed dependent variable and R^2 is the portion of the variation on the criterion variable.

The regression equation may be written as

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_kx_k$$

where,

a = intercept

b_1 = the partial regression coefficient represents the amount of change in Y that can be associated with a unit change in x_1 , the remaining independent variables held constant

X_k = k^{th} independent variable for $k=1, 2, 3 \dots k$

3.7.7 Chi-square test for independence of attributes (χ^2)

Chi square is a statistical test used to test the association between two categorical variables. The Chi-square statistic (χ^2) used for the study was as below

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

where,

O_i = Observed frequencies

E_i = Expected frequencies

n = Number of cells (or classes)

Chapter – IV

Results and Discussion

Chapter IV

RESULTS AND DISCUSSION

This chapter emphasized the findings of the investigation with reference to the objectives of the study. The data obtained were put through statistical analysis and meaningful conclusions were drawn based on the results. They were presented under different headings as follows.

- 4.1 Profile characteristics of farm women.
- 4.2 Magnitude of participation of farm women in farming.
- 4.3 Attitude of farm women towards farming.
- 4.4 Extent of empowerment of farm women in agriculture.
- 4.5 Relationship between profile characteristics of farm women with the attitude and empowerment of farm women.
- 4.6 Constraints faced by farm women and suggestions to overcome them.
- 4.7 Strategy for gender mainstreaming in agriculture.
- 4.8 Empirical model of the study

4.1. PROFILE CHARACTERISTICS OF FARM WOMEN

Profile characteristics of farm women were of sheer significance to understand their influence on the attitude towards farming and empowerment. Study on selected profile characteristics of farm women was detailed as follows.

4.1.1. Age

Table 4.1 and figure 4.1 depicted that a little more than half of the respondents (50.83%) belonged to the middle aged category followed by respondents in the young aged category (26.25%) and in the old aged category (22.92%). Nizamabad district constituted majorly of middle aged respondents (53.75%) followed by young aged respondents (25.00%) and old aged respondents (21.25%). Almost half (47.50%) of the respondents in the Sangareddy district were middle aged followed by young aged respondents (30.00%) and old aged respondents (22.50%). Respondents' age distribution in the Nalgonda district was in the decreasing order of middle aged group (51.25%) followed by old aged group

(25.00%) and young aged group (23.75%). Chi-square test of independence values ($\chi^2 = 1.233$ and $p = 0.873$) revealed that the age distribution of farm women was not related to the region and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

Table 4.1 Distribution of farm women based on their age

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Young age	20	25.00	24	30.00	19	23.75	63	26.25
2.	Middle age	43	53.75	38	47.50	41	51.25	122	50.83
3.	Old age	17	21.25	18	22.50	20	25.00	55	22.92
Total		80	100	80	100	80	100	240	100
Mean Age = 41		SD = 12.19		$\chi^2 = 1.233$		$p = 0.873$			

Results depicted that middle aged farm women dominated in all three districts of study. Individual's behaviour was influenced by their age which exposed them to a variety of experiences over time and determined women's competence, decision making ability, employment preference and attitude.

Middle aged women had adequate physical strength, shrewdness and practicality to handle a variety of farm tasks efficiently. They were more enthusiastic, yearned for more experience and knowledge with an impetus for development. They had the potential to make use of available resources for agricultural sustenance since they shared equal responsibility for taking care of a family, either alone or in alongside with the men in their families, in terms of income generation, child upbringing and elderly care. Young aged farm women were in less number compared to middle aged women in all the three districts because young women might had spent the requisite amount of time completing their education and they might not be inclined towards engaging in farm work at early stages due to their little or no responsibilities.

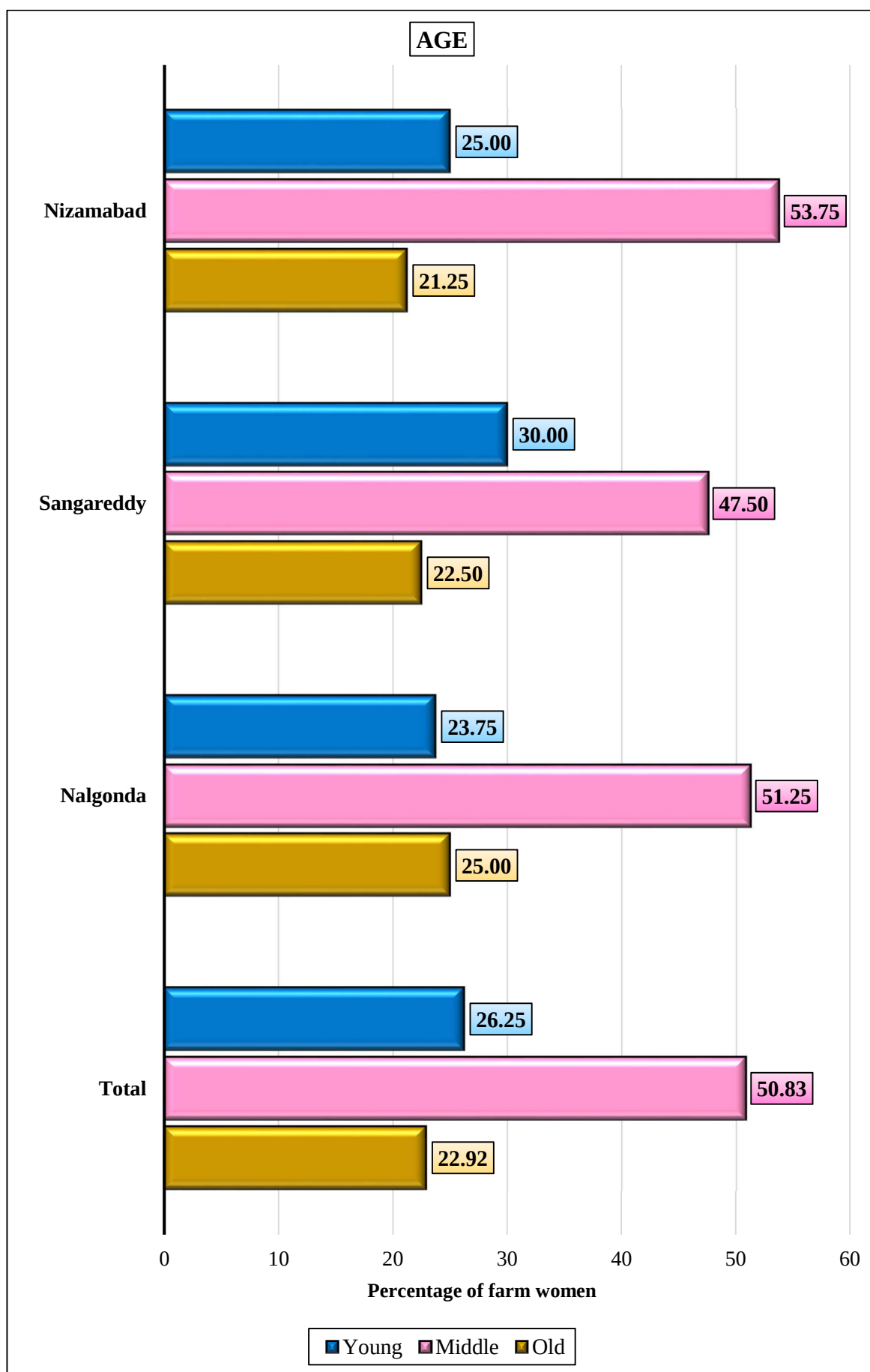


Fig. 4.1. Distribution of farm women based on their age

In Nalgonda district, old aged farm women respondents were more in number compared to young aged respondents in contrast to their distribution in Nizamabad and Sangareddy districts due to proximity and well connectivity of the Nalgonda district by road and railways to the state's capital. Therefore, farm women experienced more accessibility to higher educational institutions. Therefore, more younger women were engaged in education and as a result Nalgonda district constituted more respondents of middle age and old age.

As women's physical endurance to execute various farm operations declined as their age progressed, age became a deciding factor in the retainment of old women in the farm. As the elders in the family become older, younger generations assumed responsibility for meeting the family's requirements and earning income. Hence, the old aged group of farm women respondents was found to be smaller than the other age groups in Nizamabad and Sangareddy districts.

Extension service providers should inspire younger women to pursue careers in agriculture because it is the country's mainstay and a lucrative profession when practiced in the right way. Focusing on the widespread dissemination and access to drudgery reduction tools and equipment on farms can help lessen women's physical efforts while also encouraging elderly farm women to stay in farming and enhance their efficacy.

Similar findings were noticed by Alam *et al.* (2004), Swetha (2010), Tayde and Chole (2010 b), Chayal *et al.* (2013), Rani (2014), Reshma *et al.* (2014), Kumari and Laxmikant (2015), Bharali and Das (2016), Raziyanu (2016), Pooja *et al.* (2016), Shilparani (2016), Kavithaa and Rajkumar (2017), Chetia *et al.* (2018), Kumari (2018), Shamna *et al.* (2018), Imam (2019) and Santhi and Kalirajan (2019).

4.1.2 Education

Table 4.2 and figure 4.2 depicted that almost two fifths (35.00%) of farm women were illiterate followed by farm women with primary school level of education (16.67%), high school level of education (15.83%), functionally literate (12.50%), middle school level of education (9.58%), intermediate level of education (6.25%) and graduation and above level of education (4.17%).

Table 4.2 Distribution of farm women based on their education

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Illiterate	28	35.00	32	40.00	24	30.00	84	35.00
2.	Functionally Literate	10	12.50	12	15.00	8	10.00	30	12.50
3	Primary School	13	16.25	12	15.00	15	18.75	40	16.67
4	Middle school	9	11.25	8	10.00	6	7.50	23	9.58
5	High school	12	15.00	11	13.75	15	18.75	38	15.83
6	Intermediate	5	6.25	3	3.75	7	8.75	15	6.25
7	Graduation and above	3	3.75	2	2.50	5	6.25	10	4.17
Total		80	100	80	100	80	100	240	100
$\chi^2 = 6.586$		$\rho = 0.884$							

Similar trend of education status of farm women was observed in Nizamabad district wherein almost two fifths (35.00%) of farm women were illiterate followed by farm women with primary school level of education (16.25%), high school level of education (15.00%), functionally literate (12.50%), middle school level of education (11.25%), intermediate level of education (6.25%) and graduation and above the level of education (3.75%).

Two fifths (40.00%) of farm women in Sangareddy district were illiterate followed by equal percentage of farm women who were functionally literate (15.00%) and primary school literates (15.00%), high school (13.75%), middle school (10.00%), intermediate level (3.75%) and graduation and above level of education (2.50%). Illiterate (30.00%) category of respondents in Nalgonda district were followed by equal percentage of farm women with primary school level of education (18.75%) and high school level of education (18.75%), functionally literate (10.00%), intermediate level of education (8.75%), middle school level of education (7.50%) and graduation and above level of education (6.25%).

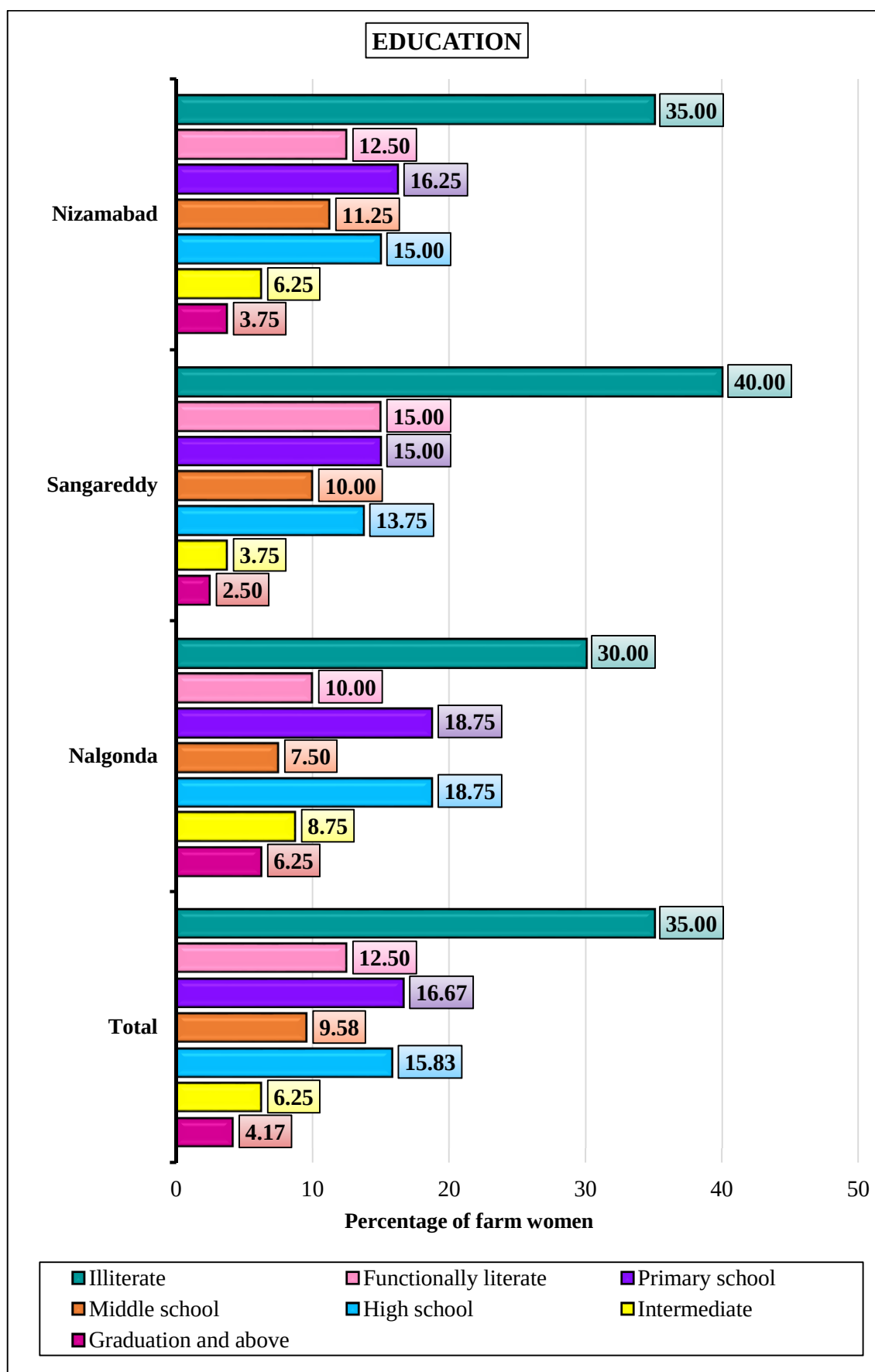


Fig. 4.2 Distribution of farm women based on their education

Chi-square value ($\chi^2 = 6.586$) and $p = 0.884$ validated that there was no significant association between region and education of farm women and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

The findings illustrated that across all education levels, the illiterate category had the highest number of respondents which reflected a presence of less positive attitude toward women's education in society. It could also be ascribed to lack of financial support for women's higher education, as a result of their poor socio-economic status, rural social setting and inadequate educational facilities and also unwillingness to realize the necessity of formal education for their girl children.

Education broadens a person's horizons of knowledge and aids in the application of sound logic to decisions and actions. Thus, education enlightens an individual and gifts them with the ability to make sensible decisions in their lives when provided with different choices and the capability for earning a livelihood. Developmental efforts should be focused more on persuading people to support women's education which enables them to become independent and self-reliant than becoming equipped with merely basic education.

Similar findings were noticed by Pallavi (2006), Swetha (2010), Devaki *et al.* (2015), Kumari and Laxmikant (2015), Pal and Haldar (2016), Pooja *et al.* (2016), Sucharita and Bisnoi (2016) and Shamna *et al.* (2018).

4.1.3 Family type

Table 4.3 and figure 4.3 indicated that more than half (57.92%) of farm women were living in nuclear families and remaining farm women (42.08%) were living in joint families. Majority (61.25%) of the respondents in Nizamabad district had nuclear families and the remaining respondents (38.75%) had joint families. In Sangareddy district, 55 per cent and 45 per cent of respondents belonged to nuclear families and joint families respectively.

The same trend was seen in Nalgonda district wherein majority (57.50%) of farm women were in nuclear families and the rest of the respondents (42.50%) were in joint families. Chi-square value (0.650) and p value (0.723) confirmed that there was no significant association between region and farm women's family type and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

Table 4.3. Distribution of farm women based on their family type

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Nuclear	49	61.25	44	55.00	46	57.50	139	57.92
2.	Joint	31	38.75	36	45.00	34	42.50	101	42.08
Total		80	100	80	100	80	100	240	100
$\chi^2 = 0.650$						$p = 0.723$			

Individual goals had shifted in today's rapidly changing societies resulting in the conventional joint family arrangement giving way to nuclear families. Nuclear families were in abundance due to the influence of urban growth, land fragmentation, family financial restrictions and migration from native rural places for better possibilities. Nuclear families were favoured by respondents because of their perception that they offer a higher quality of life than joint families as there were fewer mouths to feed. As a result, larger proportion of farm women respondents were in nuclear families. Family type had a greater impact on farm women's decision making ability. Women in nuclear families had more autonomy and decision making power, empowering them to deal with a variety of life situations on their own. Similar findings were noticed by Pushpa (2009), Chayal *et al.* (2013), Reshma *et al.* (2014), Devaki *et al.* (2015), Kumari and Laxmikant (2015), Bharali and Das (2016), Pal and Haldar (2016), Shilparani (2016), Sucharita and Bisnoi (2016), Saikia *et al.* (2018), Shamna *et al.* (2018), Imam (2019) and Santhi and Kalirajan (2019).

4.1.4 Farming experience

It was obvious from the table 4.4 and figure 4.4 that about three fifths (60.00%) of farm women had medium level of farming experience followed by low level of farming experience (22.08%) and high level of farming experience (17.92%).

Majority (63.75%) of farm women in Nizamabad district had medium level of farming experience followed by farm women with low level of farming experience (21.25%) and high level of farming experience (15.00%). More than half (57.50%) of the respondents in Sangareddy district possessed medium level of farming experience followed by respondents with low level of farming experience (25.00%) and high level of farming experience (17.50%) whereas in Nalgonda district, 58.75 per cent, 21.25 per cent and 20 per cent of respondents belonged to categories of medium, high and low levels of farming experience respectively.

Chi-square (19.088) and ρ value (1.00) inferred that there was no significant association between region and farm women farming experience and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

Table 4.4. Distribution of farm women based on their farming experience

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	17	21.25	20	25.00	16	20.00	53	22.08
2.	Medium	51	63.75	46	57.50	47	58.75	144	60.00
3.	High	12	15.00	14	17.50	17	21.25	43	17.92
	Total	80	100	80	100	80	100	240	100
Mean = 23.70		SD= 13.03		$\chi^2 = 19.088$		$\rho = 1.00$			

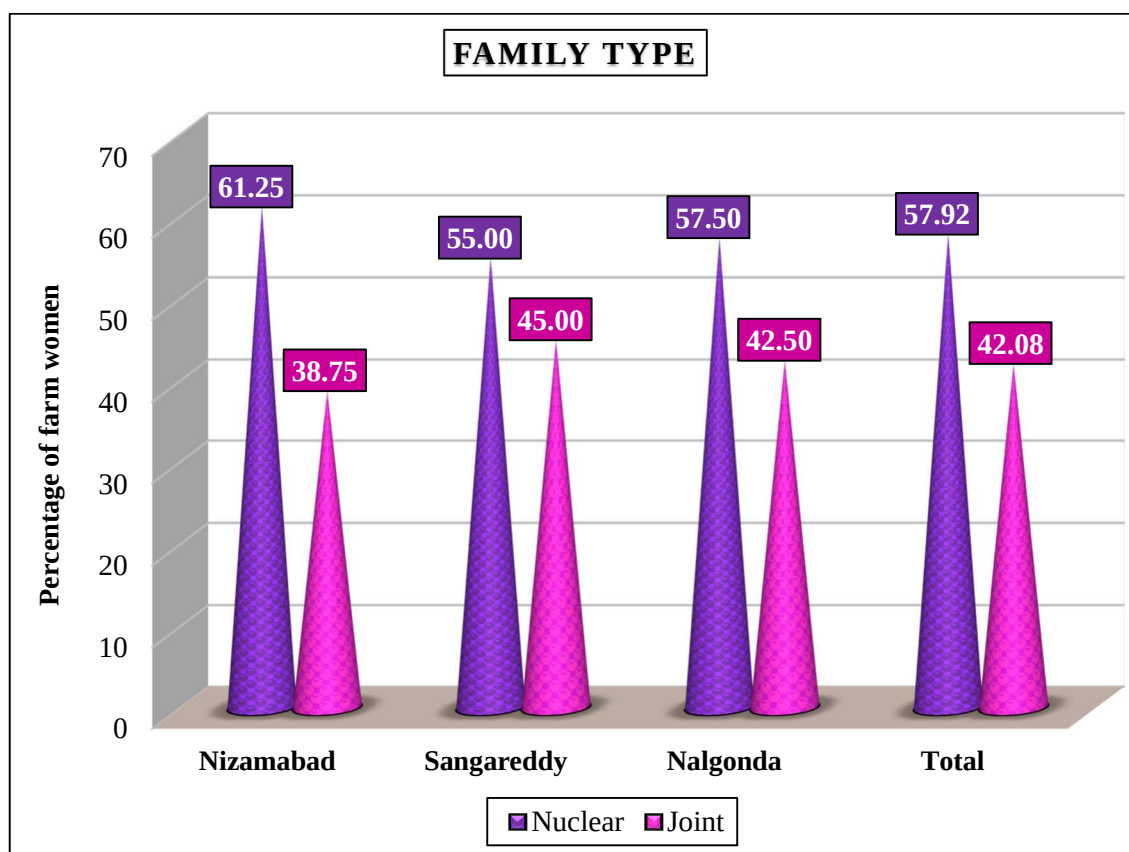


Fig. 4.3. Distribution of farm women based on their family type

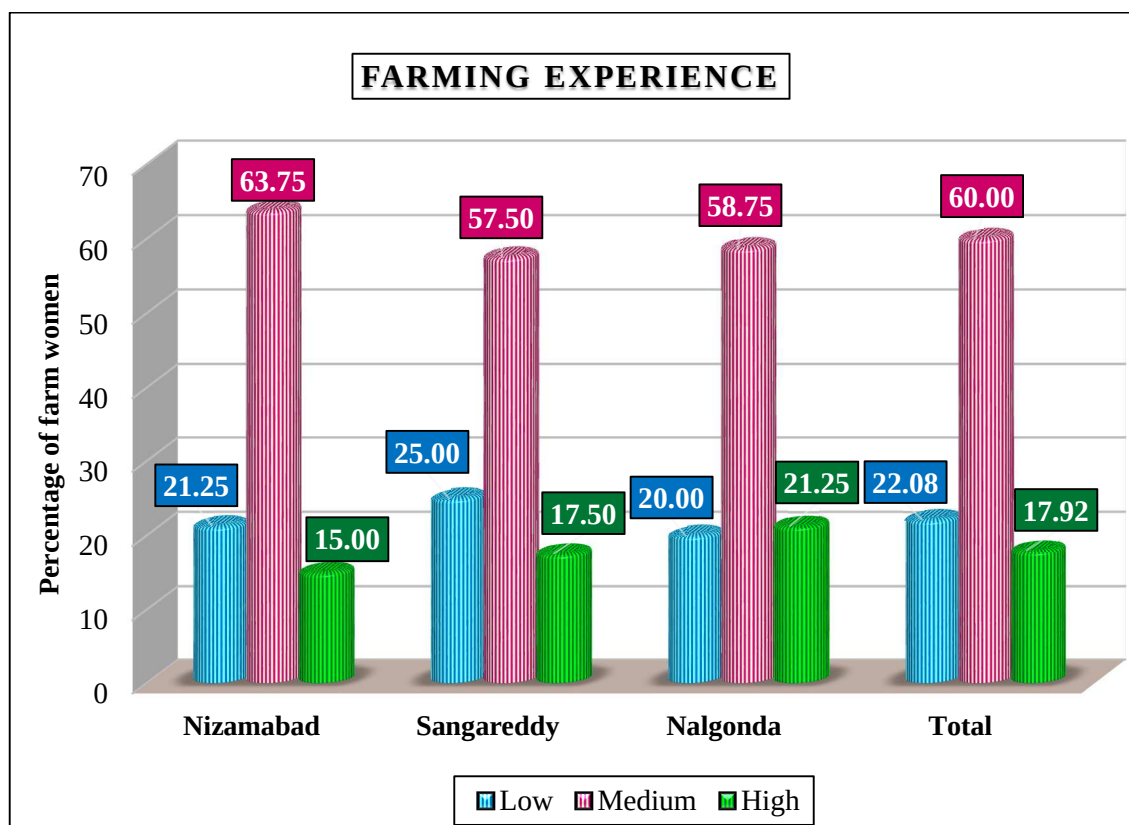


Fig. 4.4. Distribution of farm women based on their farming experience

Farm women's age and to a lesser extent, their educational status also, influenced their farming experience. Farming experience was measured by the age at which they initially began farming. Majority of respondents in the study area were in the middle age group, hence, they tend to have medium farming experience.

Younger women who might have completed a suitable level of education began working on farm owing to their family financial demands making up the category of respondents with low farming experience, along with the women who turned to farming for support when their families had faced financial hardships. As a result, respondents with low farming experience were significantly less in number than those with medium farming experience.

High farming experience indicated that a woman had been in farming for a long time and they might have been retiring from farm work eventually due to their deteriorating physical strength as they had grown older. Henceforth, respondents with high farming experience category were less in number than the other categories in Nizamabad and Sangareddy districts. But then again in Nalgonda district, respondents with high farming experience were more in number because of the presence of more old age respondents in the study area.

Experience offers an individual with varied lessons on farm which could make them gain an insight about various technologies which might be suited to their available resources. Extensionists should focus and guide individuals with medium to higher experience in reaping benefits from farming and then, it would reassure younger generations to take up farming.

Similar findings were noticed by Singh (2011), Shilparani (2016), Chauhan (2018), Saikia *et al.* (2018), Ansari and Jantwal (2019), Imam (2019) and Santhi and Kalirajan (2019)

4.1.5 Land holding

Table 4.5 and figure 4.5 showed that half of the farm women respondents (50.417%) had marginal size of land holding followed by farm women with small sized land holding (34.167%), semi-medium sized land holding (10.416%), medium sized land holding (3.750%) and large sized land holding (1.250%). Similar trend of farm women distribution based on land holding was noticed in all the three districts.

Almost half of the farm women respondents (48.75%) were in possession of marginal size of land holding followed by farm women with small sized land holding (38.75%), semi-medium sized land holding (7.50%), medium sized land holding (3.75%) and large sized land holding (1.25%) in Nizamabad district. Whereas in Sangareddy district, 43.75 per cent of respondents owned marginal size of land holding followed by respondents with small sized land holding (35.00%), semi-medium sized land holding (15.00%), medium sized land holding (5.00%) and large sized land holding (1.25%).

Table 4.5. Distribution of farm women based on their land holding

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Marginal	39	48.75	35	43.75	47	58.75	121	50.417
2.	Small	31	38.75	28	35.00	23	28.75	82	34.167
3.	Semi-Medium	6	7.50	12	15.00	7	8.75	25	10.416
4	Medium	3	3.75	4	5.00	2	2.50	9	3.750
5	Large	1	1.25	1	1.25	1	1.25	3	1.250
	Total	80	100	80	100	80	100	240	100
$\chi^2 = 48.958$ $\rho = 0.355$									

Nearly three fifths of farm women (58.75%) had marginal sized land holding followed by farm women with small sized land holding (28.75%), semi-medium sized land holding (8.75%), medium sized land holding (2.50%) and large sized land holding (1.25%) in Nalgonda district.

The chi-square value (48.958) and ρ value (0.355) depicted that there was no significant association between region and farm women possession of land holdings and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

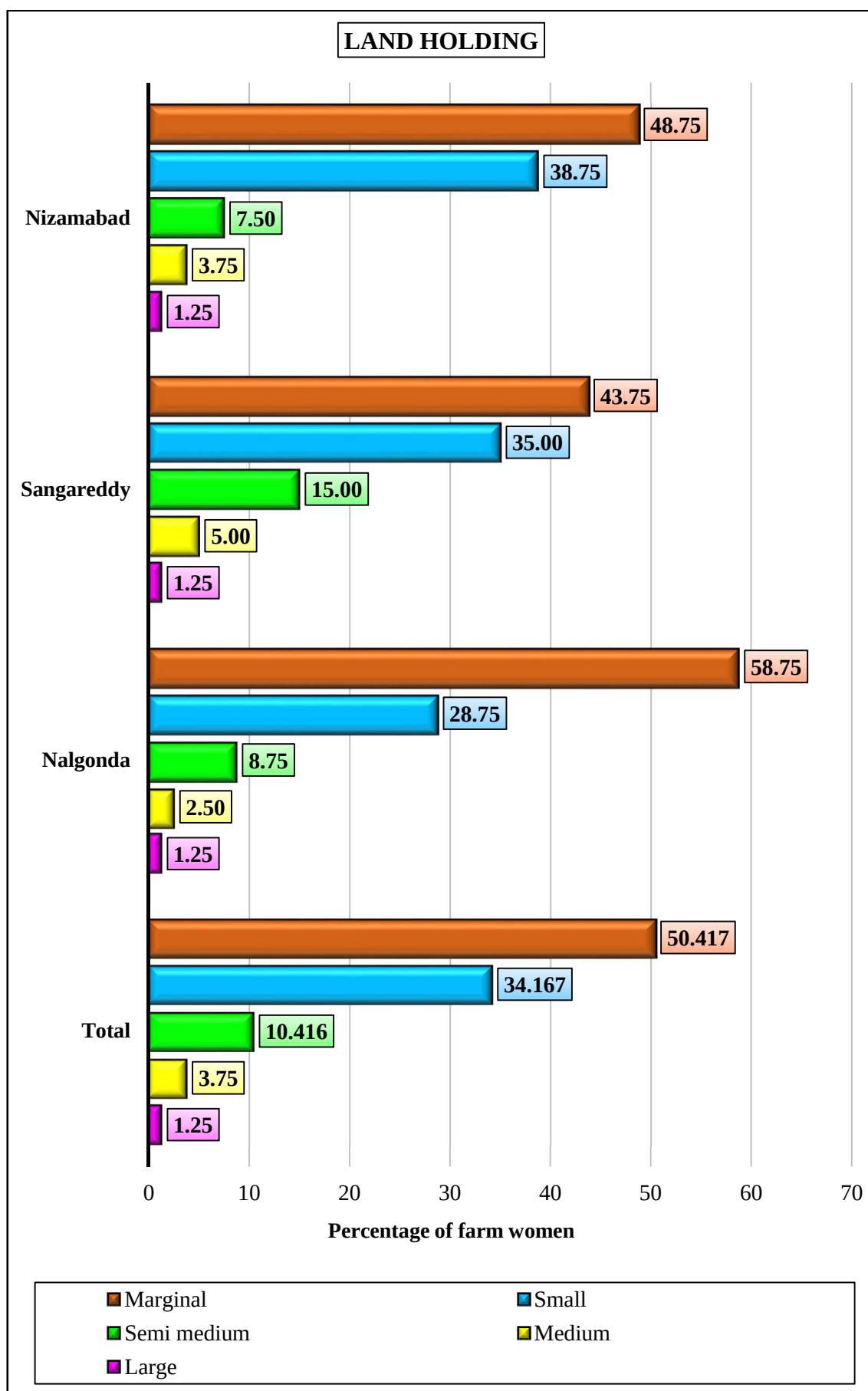


Fig. 4.5. Distribution of farm women based on their land holding

Most of the respondents were marginal farmers and small farmers which demonstrated the long term impact of fragmented land holdings on most households. Increased number of nuclear households due to dispersal of joint families resulted in distribution of farm land among the family members. In few cases, the respondents' landholdings were reduced as a result of the sale of agricultural land in crisis situations for family needs. Farming was the sole source of income for illiterate farm women who owned less land and had no other alternative for livelihood.

Respondents with larger size of land holdings and sufficient earnings from multiple sources might had better access to higher education facilities for their offspring, which in turn increased their children's employment opportunity in other domains. As a result, lesser farm women were observed in the categories of semi-medium, medium and large landholdings. It was also noticed that respondents whose families had relied on agriculture for generations chose farming over other options of livelihood regardless of the size of the landholding.

Large farm holdings motivate individual to be technologically empowered allowing them to use more advanced and current technologies on the farm. Regardless of the size of the farm, implementing appropriate upgraded technology on the farm can help farm women improve their standard of life, which in turn empowers them socioeconomically.

Similar findings were reported by Rani (2014), Devaki *et al.* (2015), Bharali and Das (2016), Pooja *et al.* (2016), Patel *et al.* (2017), Chetia *et al.* (2018) and Kumari (2018)

4.1.6 Annual income

Table 4.6 and figure 4.6 inferred that most of farm women families (43.34%) earned medium annual income followed by farm women families with low annual income (32.08%) and high annual income (24.58%). Identical pattern of distribution of respondents based on annual income earned by their families was depicted in all the three districts. In Nizamabad district, 42.50 per cent of respondent families earned medium level of annual income followed by 32.50 per cent of respondents with low annual income and 25 per cent of respondents with

high annual income. In Sangareddy district, 43.75 per cent, 28.75 per cent and 27.50 per cent of respondent families earned medium, low and high annual income respectively while in Nalgonda district, 43.75 per cent, 35 per cent and 21.25 per cent of respondent families earned medium, low and high annual income respectively.

Chi-square value (216.751) and p value (0.257) revealed that there was no significant association between region and annual income of farm women families and it implied that there were independent of each other. It indicated that there was sufficient evidence to conclude that the observed distribution was same as the expected distribution.

Majority of farm women were in medium annual income category because most of them had marginal and small land holdings coupled with efforts put forth by respondent families to gain income through subsidiary occupations for catering to needs of family. Extent of owned land holding by the respondent had a direct impact on their income and in some cases their educated offspring had also contributed to family income through employment. Few respondents who were members of SHGs had enhanced their income through petty shops and alternate forms of self-employment together with farming.

Table 4.6. Distribution of farm women based on their annual income

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	26	32.50	23	28.75	28	35.00	77	32.08
2.	Medium	34	42.50	35	43.75	35	43.75	104	43.34
3.	High	20	25.00	22	27.50	17	21.25	59	24.58
	Total	80	100	80	100	80	100	240	100
Mean Score = 301.19		SD = 168.22		$\chi^2 = 216.751$		$p = 0.257$			

Illiterate women with marginal landholdings worked alongside their families on the farm for practically all farm operations as they couldn't afford paid labour. They also lacked financial resources to invest in alternate self-employment for income generation. Thus, they remained in low annual income category. As the

respondents with higher educational status and land holdings were less in number, they were reflected in less number in high annual income category. Income was a major contributor in determining peoples' socio-economic status in society which affects their attitudes and played a role in empowerment process. Individual's financial status had a direct impact on their decision making process. It permits for the development of infrastructure, inputs and technology adoption, as well as aspirations and goals of individuals and families.

Similar findings were observed by Swetha (2010), Bhairve (2013), Saikia (2014), Kavithaa and Rajkumar (2017) and Shamna *et al.* (2018).

4.1.7 Mass media exposure

Table 4.7 and figure 4.7 projected that nearly half (45.00%) of farm women had medium mass media exposure followed by farm women with high mass media exposure (28.33%) and low mass media exposure (26.67%). Similar trend was noticed in all three districts of study. Approximately half (45.00%) of the respondents in Nizamabad district had medium mass media exposure followed by high mass media exposure (28.75%) and low mass media exposure (26.25%) whereas in Sangareddy district more than two fifths (41.25%) of the respondents had medium mass media exposure followed by farm women with high mass media exposure (30.00%) and low mass media exposure (28.75%).

Table 4.7. Distribution of farm women based on their mass media exposure

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	21	26.25	23	28.75	20	25.00	64	26.67
2.	Medium	36	45.00	33	41.25	39	48.75	108	45.00
3.	High	23	28.75	24	30.00	21	26.25	68	28.33
	Total	80	100	80	100	80	100	240	100
Mean = 4.25 SD = 2.72 $\chi^2 = 21.528$ $p = 0.043$									

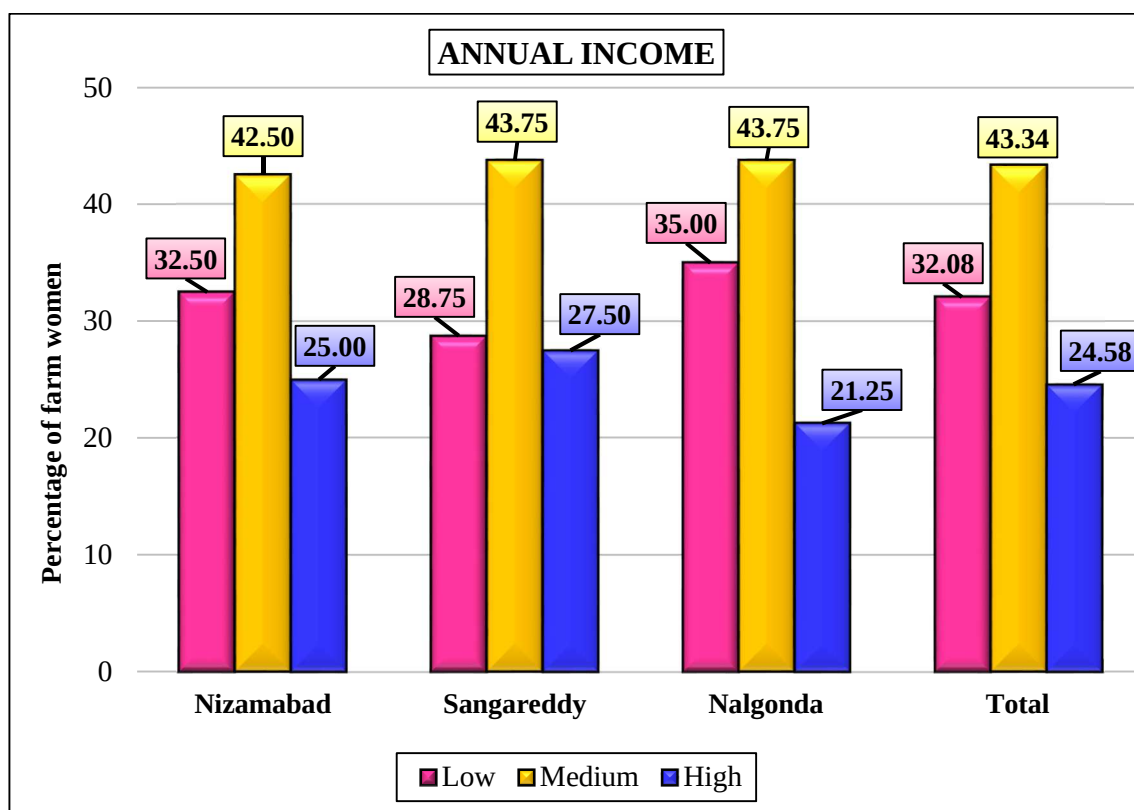


Fig. 4.6. Distribution of farm women based on their annual income

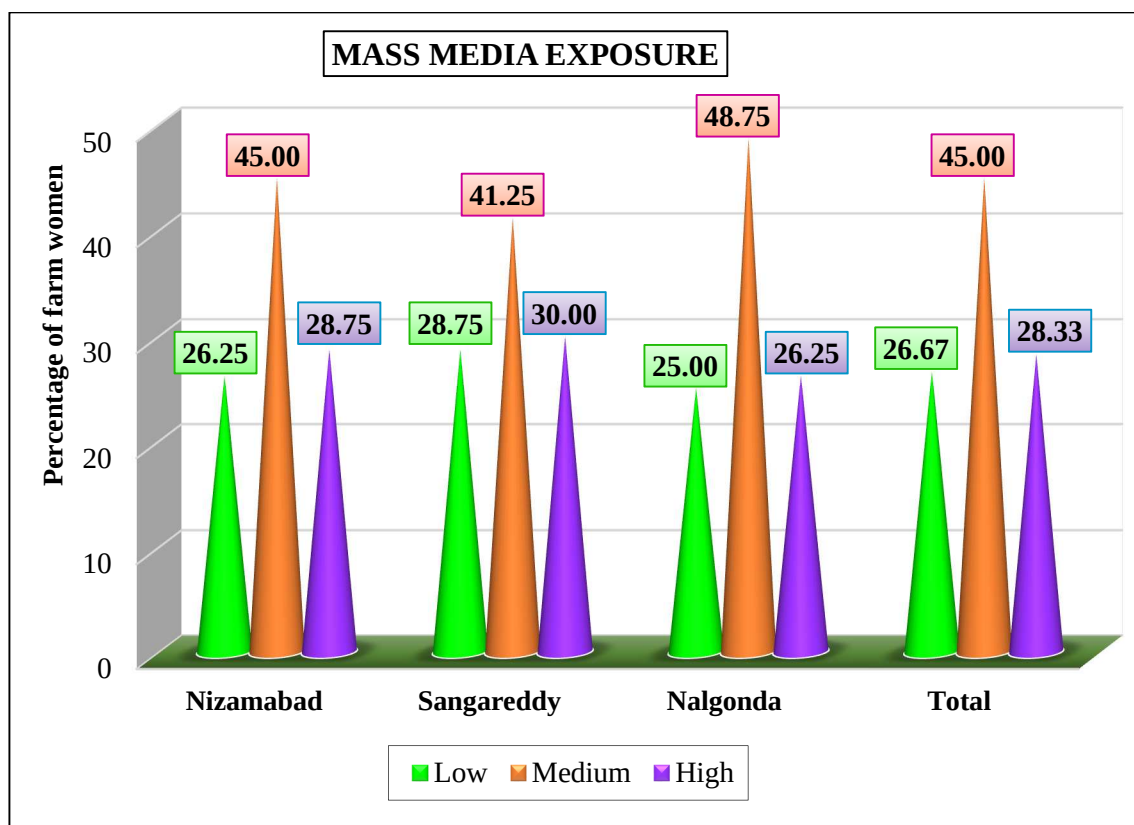


Fig. 4.7. Distribution of farm women based on their mass media exposure

Roughly half (48.75%) of farm women had medium mass media exposure followed by farm women with high mass media exposure (26.25%) and low mass media exposure (25.00%) in Nalgonda district. Chi-square value (21.528) and p value (0.043) indicated that there was a significant association between region and farm women mass media exposure and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

As most of the respondents were illiterate and were in medium annual income group, majority of respondents had medium mass media exposure. Illiterate farm women had less exposure to newspaper, farm magazines and internet. Information disseminated through the newspaper, farm magazines and internet were communicated to the illiterate farm women through the educated family members. Educated farm women had more exposure to farm magazines and internet while uneducated farm women had preference to radio and television.

Younger farm women preferred modern day media such as the internet, whereas older farm women preferred radio listening. Younger and middle aged farm women in joint families listened to the radio and watched television for agricultural information alongside the family's elders. Farm women with low annual income had more exposure to radio due to lower purchasing power but farm women with medium and high annual income had exposure to a variety of mass media such as television, newspaper subscriptions, magazines and internet usage on mobile phones.

Mass media aided in cost effective and rapid dissemination of information and improved technologies. They were proven to be effective in providing emergency information in the event of a pest outbreak or unfavourable weather conditions that affected farming. Although no feedback would be generated for information delivered to originate sources through mainstream media, yet, they could affect attitude and motivate many in farming in segregated rural areas through effective audio and visual transmission of technologies. When extension service providers properly use the mass media, they could influence people's attitude towards farming, as well as encourage younger generations to pursue farming as a career.

Similar findings were witnessed by Swetha (2010), Upadhyay (2010), Upadhyay and Desai (2011), Rani (2014) and Balamurugan and Nirosha (2020).

4.1.8 Social participation

Table 4.8 and figure 4.8 projected that 37.50 per cent of farm women had medium social participation followed by high social participation (33.33%) and low social participation (29.17%). In Nizamabad district, 36.25 per cent, 32.50 per cent and 31.25 per cent of farm women respondents had medium, high and low social participation respectively.

Almost two fifths (38.75%) of farm women in Sangareddy district were in medium social participation category followed by farm women in high social participation category (31.25%) and low social participation category (30.00%). In Nalgonda district, 37.50 per cent, 36.25 per cent and 26.25 per cent of farm women had medium, high and low social participation respectively. There was significant association between region and social participation of farm women based on chi-square value (30.244) and p value (0.017) and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Majority of the women were in medium social participation category as almost half of the farm women respondents were illiterate and had low self confidence in interacting with others. Only those women with a reasonable degree of education and a reasonable size of land holding were interested in participating in social institutions because they were aware of benefits acquired through social participation. Educated women were familiar with the working pattern of a variety of social institutions and were also involved in their management. Illiterate farm women with less land holdings were not oriented towards social participation due to existing social norms and taboos in rural areas, as well, they did not perceive the benefits of team work and necessity of participating in social organizations.

Table 4.8. Distribution of farm women based on their social participation

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	25	31.25	24	30.00	21	26.25	70	29.17
2.	Medium	29	36.25	31	38.75	30	37.50	90	37.50
3.	High	26	32.50	25	31.25	29	36.25	80	33.33
	Total	80	100	80	100	80	100	240	100
Mean = 9.09 SD = 3.39 $\chi^2 = 30.244$ $\rho = 0.017$									

Individual participation in social activities broadens one's frontiers of knowledge, promotes social mobility, builds self confidence, and improves logical decision making. Farm women's active participation in social organizations aids them in overcoming psychological hurdles through mutual support and assistance, increases their access to information and financial institutions and fosters leadership development. Farm women who involve in social institutions might be portrayed as contact farmers and these farm women could serve as motivators and opinion agents for other farm women, as well as could aid in the diffusion of agricultural technology. Similar findings were seen by Tayde and Chole (2010 b), Devaki *et al.* (2015) and Chauhan (2018).

4.1.9 Extension contact

It was apparent from table 4.9 and figure 4.9 that above two fifths (44.58%) of farm women had medium extension contact followed by low extension contact (29.58%) and high extension contact (25.84%). Two fifths (40.00%) of the respondents in Nizamabad district had medium extension contact followed by low extension contact (31.25%) and high extension contact (28.75%) whereas in Sangareddy district more than two fifths (47.50%) of the respondents had medium extension contact followed by farm women with low extension contact (30.00%) and high extension contact (22.50%). In Nalgonda district, 46.25 per cent of farm women had medium extension contact while 27.50 per cent and 26.25 per cent of farm women had low extension contact and high extension contact respectively.

The chi-square value (24.317) and p value (0.018) denoted that there was a significant association between region and extension contact of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.9. Distribution of farm women based on their extension contact

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	25	31.25	24	30.00	22	27.50	71	29.58
2.	Medium	32	40.00	38	47.50	37	46.25	107	44.58
3.	High	23	28.75	18	22.50	21	26.25	62	25.84
	Total	80	100	80	100	80	100	240	100
Mean = 8.05		SD = 2.39		$\chi^2 = 24.317$		$p = 0.018$			

Majority of farm women were in the medium extension contact category as they had medium annual income and were able to use the information and technologies shared by extension professionals. Because half of the respondents had marginal or small land holdings, they were less likely to use extension services and as a result, respondents with low extension contacts outnumbered those with higher extension contacts. It could possibly be due to the presence of more male extension service providers with whom men from the farm women's family had interacted and farm women might not had direct extension contact.

Extension agents act as bridge between the researcher and farm women. Most farm women who were enthusiastic in farming met with various extension service providers on a regular basis to collect necessary information and clarify facts and knowledge about farm operations as needed. Farm women with a good level of education, larger land holdings and social participation were reliant on extension services to boost farm output. As a result, there were fewer respondents in the higher extension contact category.

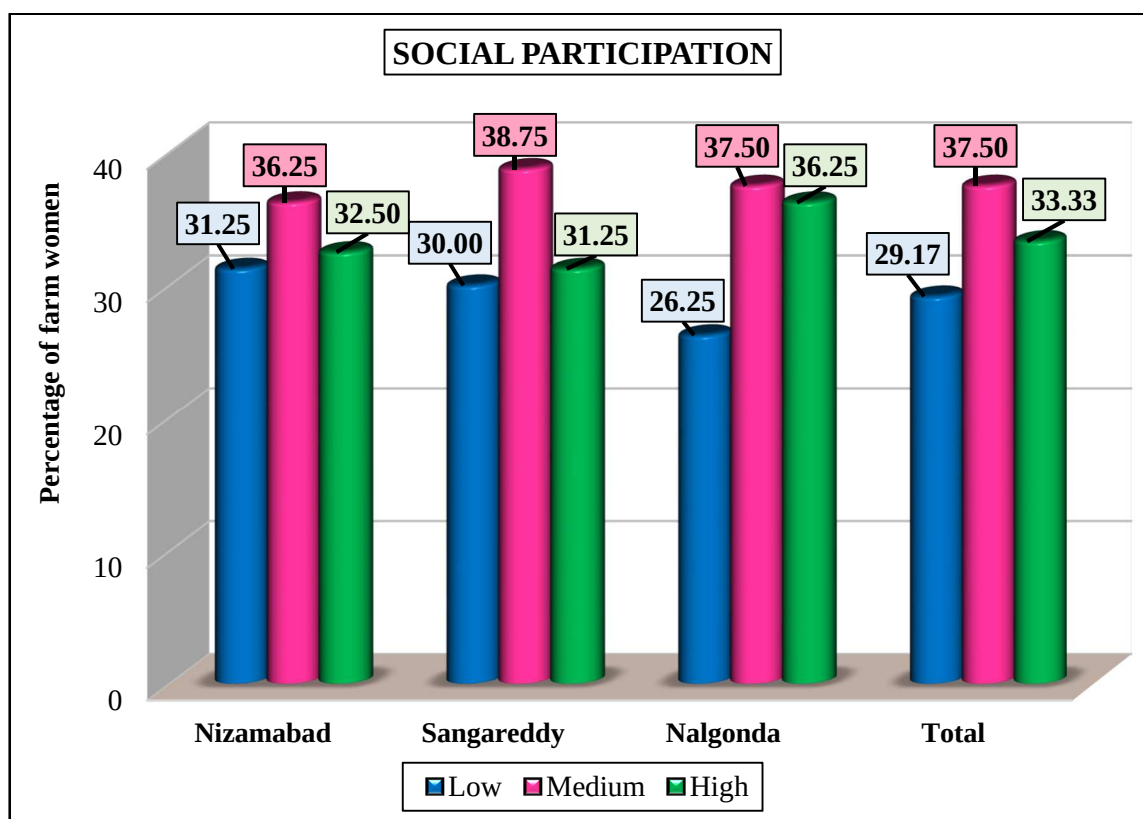


Fig. 4.8. Distribution of farm women based on their social participation

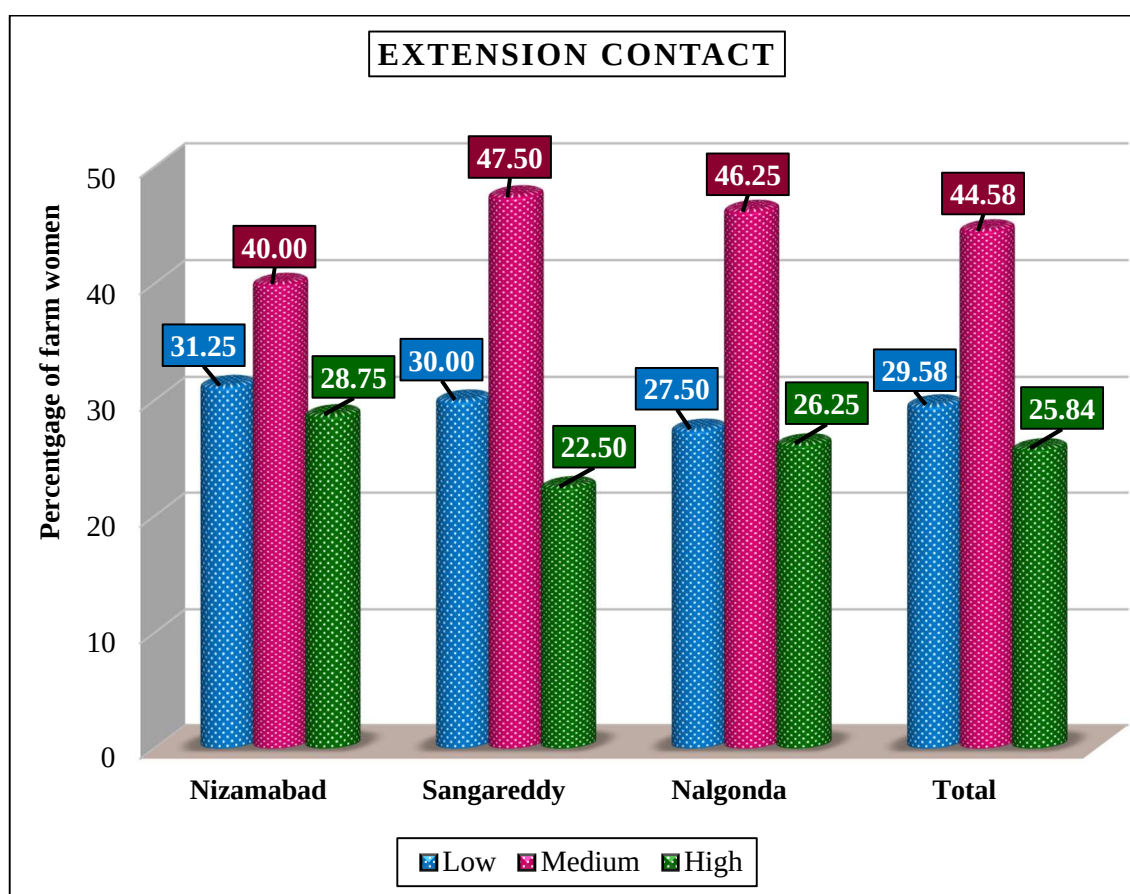


Fig. 4.9. Distribution of farm women based on their extension contact

Farm women must be included as an inclusive stakeholder in farming alongside male farmers by the extension experts. When men and women together from a farming household interact with extension agents, they could clarify facts, share their perspectives and could more likely adopt improved technology. Once the benefits of improved technologies were seen on the farm and benefitting the farm households, others in their community would be encouraged to adopt improved technologies, thereby serving the purpose of extension.

Similar findings were seen by Swetha (2010), Gulkari *et al.* (2014), Shilparani (2016) and Kumari (2018).

4.1.10. Information sources utilization

It was evident from table 4.10 and figure 4.10 that 43.33 per cent of farm women had medium information sources utilization followed by high information sources utilization (30.42%) and low information sources utilization (26.25%). In Nizamabad district, 41.25 per cent of farm women had medium information sources utilization followed by high information sources utilization (32.50%) and low information sources utilization (26.25%).

More than two fifths (41.25%) of farm women had medium information sources utilization while 30 per cent and 28.75 per cent of farm women had high information sources utilization and low information sources utilization respectively in Sangareddy district. In Nalgonda district, 47.50 per cent, 28.75 per cent and 23.75 per cent of farm women had medium, high and low information sources utilization respectively.

The chi-square value (89.233) and p value (0.001) meant that there was a significant association between region and information sources utilization by farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution. Similar findings were perceived by Sujina (2009), Sachan (2016), Patel *et al.* (2017) and Vaghasiya (2018).

The majority of farm women relied on family, friends, relatives and personal localite agents for information and utilized the information shared by their

reliable contacts. As a result, majority of the farm women had medium information sources utilization. Farm women with medium to large land holdings and higher annual incomes were more likely to make extensive use of information from various sources in order to increase farm yields through the use of new technologies and they might have constituted higher information sources utilization category. Due to lower productivity on smaller farms and less cash to invest in improved technologies, farm women with fewer land holdings and lower annual incomes had fewer opportunity to use the information they received on the farm and were in lower information sources utilization category.

Table 4.10. Distribution of farm women based on their information sources utilization

S. No.	Category	Nizamabad (n=80)		Sangareddy (n=80)		Nalgonda (n=80)		Total (n=240)	
		f	%	f	%	f	%	f	%
1.	Low	21	26.25	23	28.75	19	23.75	63	26.25
2.	Medium	33	41.25	33	41.25	38	47.50	104	43.33
3.	High	26	32.50	24	30.00	23	28.75	73	30.42
	Total	80	100	80	100	80	100	240	100
Mean = 21.91		SD = 8.37		$\chi^2 = 89.223$		$p = 0.001$			

Agricultural technology when communicated through appropriate channels, would reach majority of farm women and also increases the scope of information utilization by the farm women. Extension professionals with better understanding of effective communication channels and awareness about trusted sources of information by farm families would be able to persuade a large number of farm women to use greater amount of information about improved agricultural technologies.

4.1.11. Creativity

Summary of the table 4.11 and figure 4.11 projected that above half (52.92%) of farm women respondents had medium creativity followed by high (26.67%) and low creativity (20.42%). In Nizamabad district, 47.50 per cent of respondents had medium creativity followed by respondents with high creativity

(28.75%) and low creativity (23.75%). Majority (55.00%) of respondents in Sangareddy district were in medium creativity group followed by respondents in high creativity group (25.00%) and low creativity group (20.00%) while in Nalgonda district, 56.25 per cent of respondents were in medium creativity group followed by respondents in high creativity group (26.25%) and low creativity group (17.50%).

Chi-square value (43.575) and ρ value (0.017) revealed that there was significant association between region and creativity of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.11. Distribution of farm women based on their creativity

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1.	Low	19	23.75	16	20.00	14	17.50	49	20.42
2.	Medium	38	47.50	44	55.00	45	56.25	127	52.92
3.	High	23	28.75	20	25.00	21	26.25	64	26.67
	Total	80	100	80	100	80	100	240	100
Mean = 13.19 SD = 5.80 $\chi^2 = 43.575$ $\rho = 0.017$									

Women possessed the innate talent of creativity which could be visible through their handling of multiple tasks simultaneously with much ease. Majority of the farm women were in medium creativity category as most of them were middle aged individuals who bore the tight schedule of handling dual responsibilities at home and on farm.

Younger farm women with more inherent energy and passion demonstrated greater creativity in task completion and they might had formed a higher creativity group. Individuals' physical strength and cognition declined as they age and they accomplish their tasks moderately without much creative potential. Hence, old aged farm women might had been in lower creativity group.

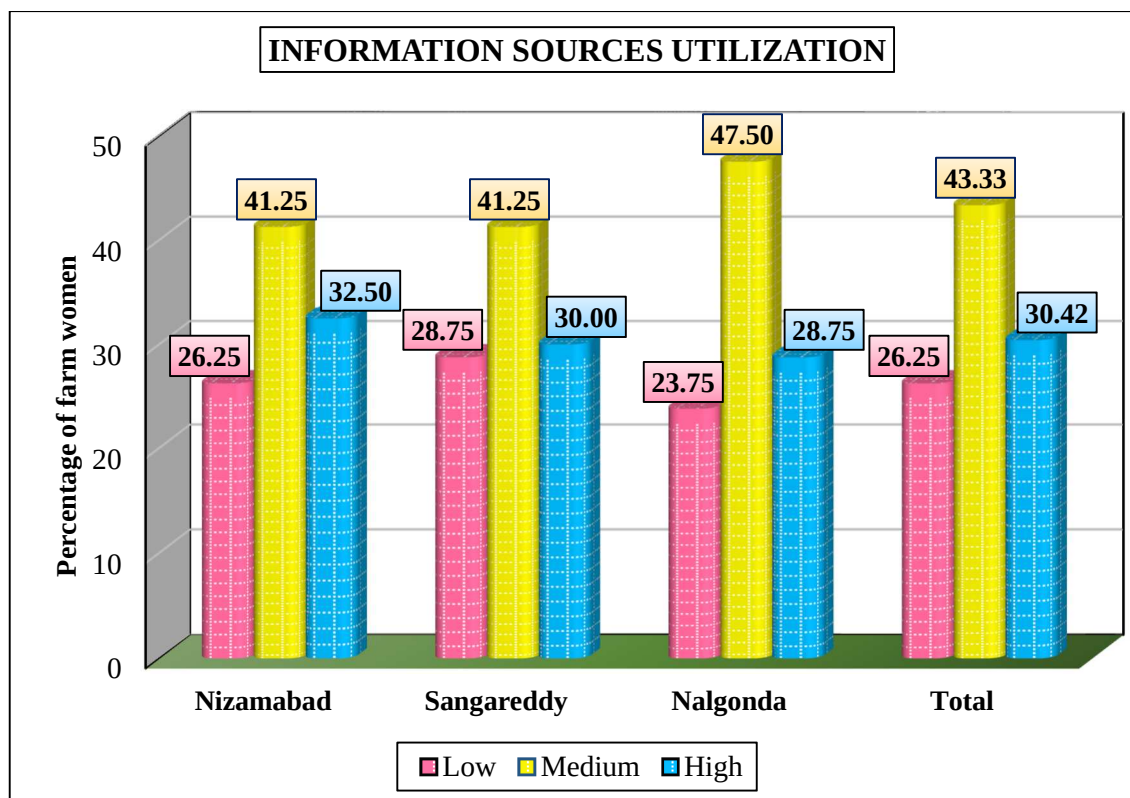


Fig. 4.10. Distribution of farm women based on their information sources utilization

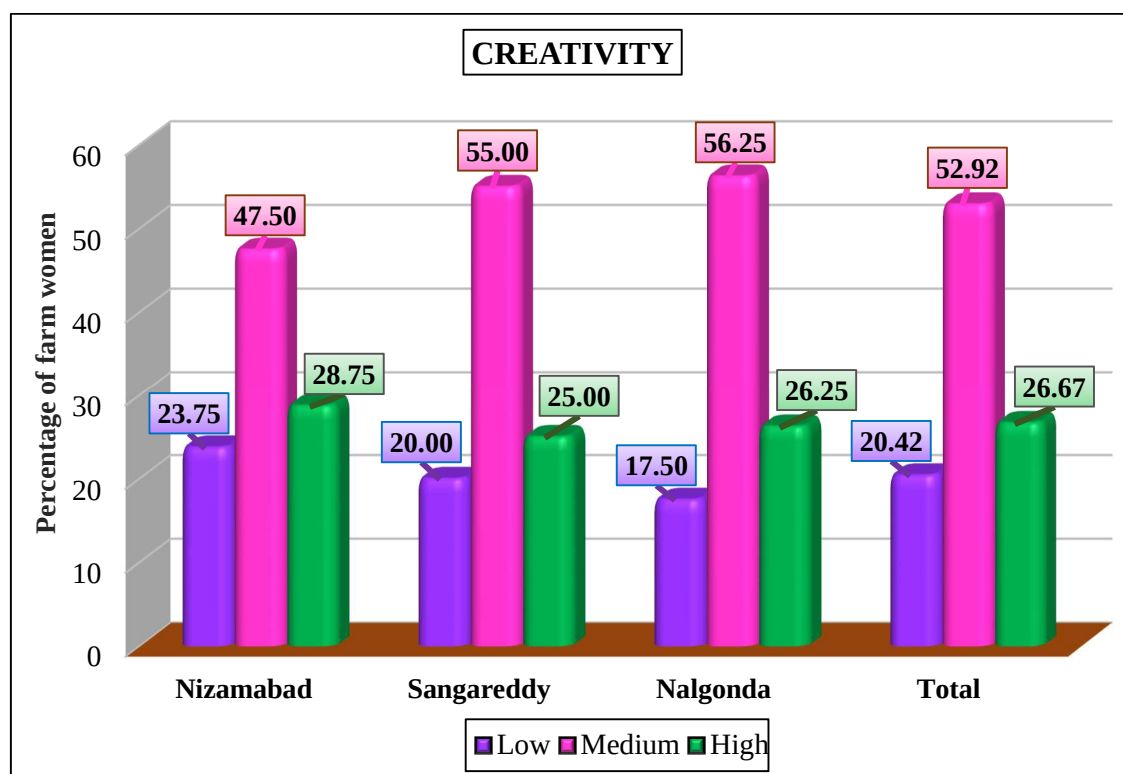


Fig. 4.11. Distribution of farm women based on their creativity

A distinguishing ability of creative people was their capacity to make better use of available resources in order to produce more output with less effort. For their own benefit, creative people could frequently invent and simplify difficult processes. Creative farm women when given enough information and exposed to new technologies, they would strive to test and implement them on their farms, which could lead to improvisation as well as advertising, dissemination and adoption of the technology by others.

Similar findings were supposed by Neelima (2005) and Reshma (2020).

4.1.12. Achievement motivation

Table 4.12 and figure 4.12 projected that less than half (44.58%) of farm women respondents had medium achievement motivation followed by farm women respondents with high achievement motivation (30.42%) and low achievement motivation (25.00%).

Identical trend was observed in all the three districts of the study. In Nizamabad district, 46.25 per cent of farm women had medium achievement motivation followed by 28.75 per cent and 25 per cent of farm women with high achievement motivation and low achievement motivation respectively.

Around two fifths (42.50%) of respondents in Sangareddy district had medium achievement motivation followed by respondents in high achievement motivation category (30.00%) and low achievement motivation category (27.50%) while in Nalgonda district, 45 per cent of farm women had medium achievement motivation followed by farm women in high achievement motivation category (32.50%) and low achievement motivation category (22.50%).

Chi-square value (80.872) and p value (0.001) shown that there existed a significant association between region and achievement motivation of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.12. Distribution of farm women based on their achievement motivation

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1.	Low	20	25.00	22	27.50	18	22.50	60	25.00
2.	Medium	37	46.25	34	42.50	36	45.00	107	44.58
3.	High	23	28.75	24	30.00	26	32.50	73	30.42
	Total	80	100	80	100	80	100	240	100
Mean = 22.63 SD = 9.48 $\chi^2 = 80.872$ $\rho = 0.001$									

Majority of farm women belonged to middle aged group and had medium annual income, mass media exposure, social participation, extension contact, information source utilization and creativity. Middle aged farm women could not devote more time to their goals due to their responsibilities at home and on the farm, yet they sought to improve their situation. Farm women with larger land holdings and higher income were be able put their resources to better use, which allowed them to achieve more on a personal and farm level and therefore might had been in the higher achievement motivation category. Illiterate farm women with less land and income might had been in a lower achievement motivation category because they were not goal driven due to lack of resources and opportunities.

Depending on their priorities and personal, socioeconomic conditions, individuals have varying amounts of success drive. Farm women with higher achievement motivation might be more driven to adopt improved technology in order to boost farm productivity and earn more money in order to improve their living standards. Farm women with these superior traits should be identified by extension service providers to disseminate the technologies since they would be easily interested and motivated towards newer advantageous technologies and might possess the positive mindset to adopt them. Similar findings were supposed by George *et al.* (2012), Lakshmi (2013), Wankhade *et al.* (2013), Rani (2014), Reshma *et al.* (2014), Thakur and Barman (2014) and Imam (2019).

4.1.13. Scientific orientation

Table 4.13 and figure 4.13 showed that 50 per cent of farm women had medium scientific orientation followed by 27.08 per cent of farm women in high scientific orientation category and 22.92 per cent of farm women in low scientific orientation category. In Nizamabad district, 47.50 per cent of farm women had medium scientific orientation followed by 28.75 per cent and 23.75 per cent of farm women were in high scientific orientation category and low scientific orientation category respectively.

About half (50.00%) of the farm women respondents in Sangareddy district were in medium scientific orientation category followed by farm women in high scientific orientation category (27.50%) and low scientific orientation category (22.50%). More than half (52.50%) of the respondents in Nalgonda district had medium scientific orientation followed by respondents in high scientific orientation category (25.00%) and low scientific orientation category (22.50%).

Chi-square value (84.262) and p value (0.001) explained that there was significant association between region and scientific orientation of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.13. Distribution of farm women based on their scientific orientation

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1.	Low	19	23.75	18	22.50	18	22.50	55	22.92
2.	Medium	38	47.50	40	50.00	42	52.50	120	50.00
3.	High	23	28.75	22	27.50	20	25.00	65	27.08
	Total	80	100	80	100	80	100	240	100
Mean = 20.40		SD = 5.66		$\chi^2 = 84.262$		$p = 0.001$			

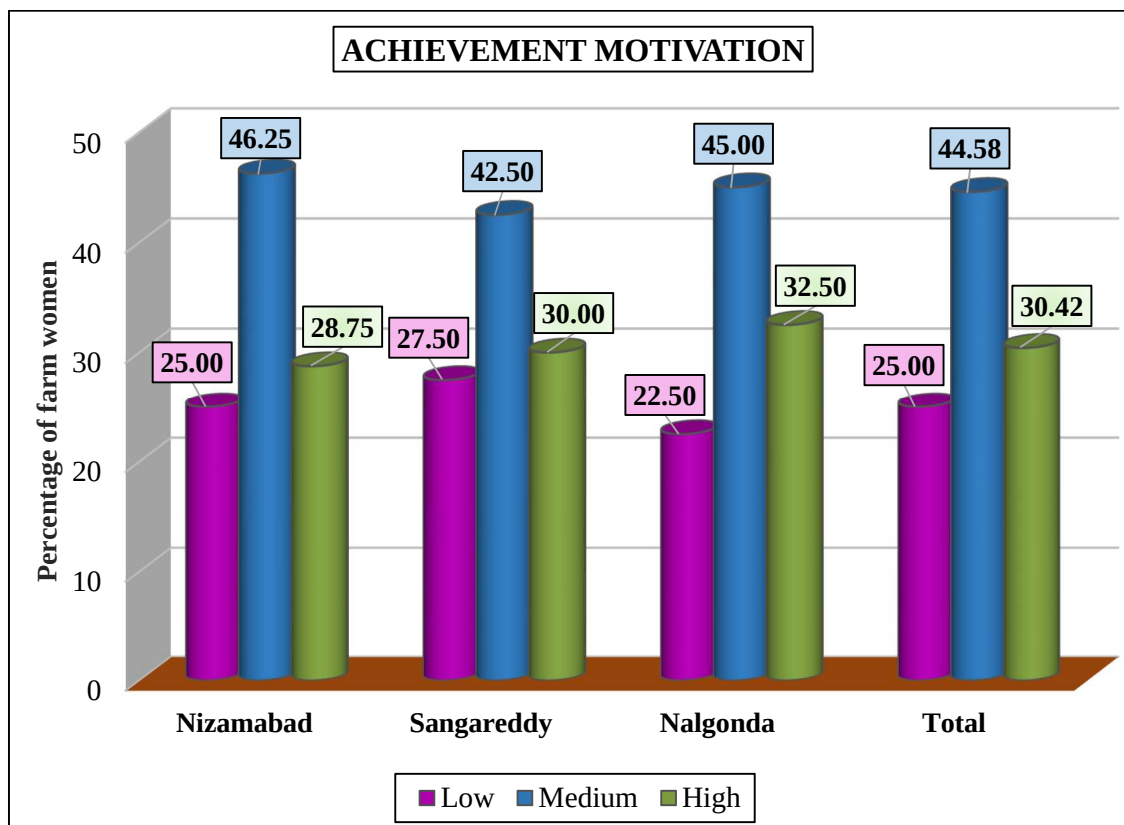


Fig. 4.12. Distribution of farm women based on their achievement motivation

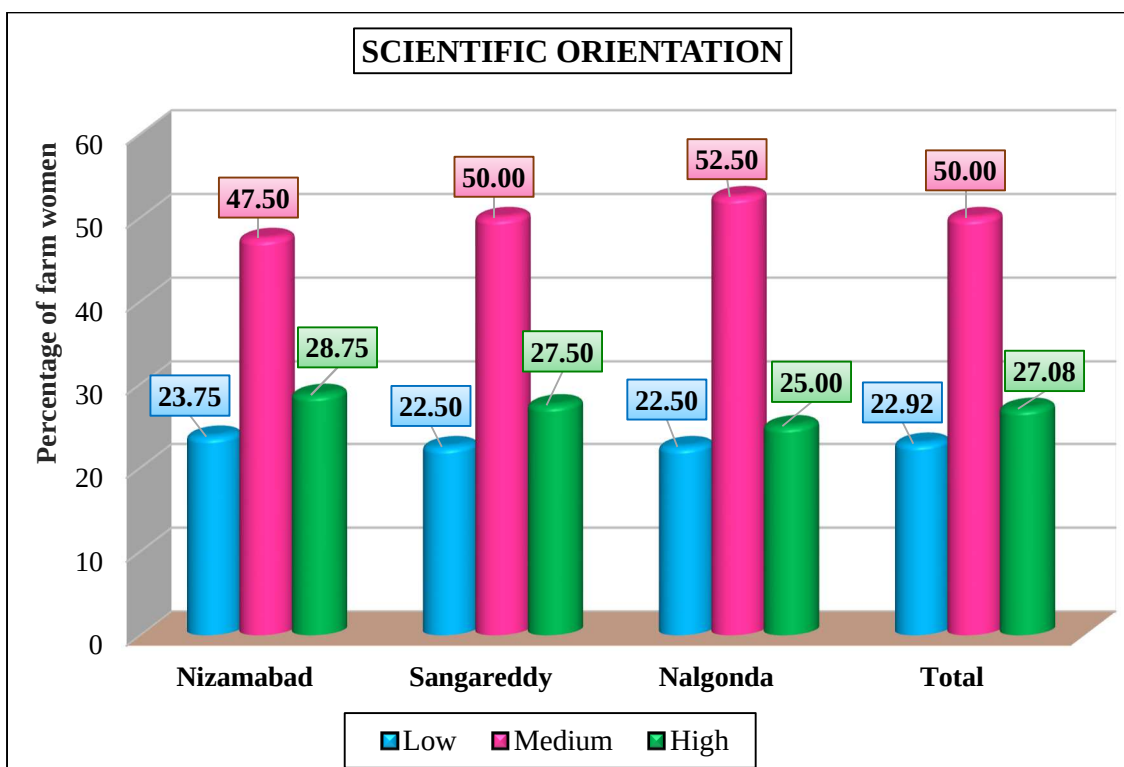


Fig. 4.13. Distribution of farm women based on their scientific orientation

Majority of farm women had fair level of education and medium level of mass media exposure and extension contact. Hence, they were more receptive to scientific methods and technologies and constituted medium scientific orientation category of respondents. Farm women with large land holdings had a better chance of implementing scientific techniques because such medium efforts on large farms might yield higher yields. Farm women with lesser land holding might had lower scientific orientation as they might had perceived that putting in more effort to implement newer scientific procedures would only result in fewer additional outputs.

Individuals might not be oriented towards changing their established way of farming with a skeptical mindset. Increased extension contact with farm women might influence their negative or neutral attitudes to change to positive attitude towards scientific techniques and could motivate them to adopt them on farm and realize higher returns on farm.

Similar findings were noticed by Gnanasham (2009), Bhimrao (2011), Nimoda (2013), Rani (2014), Singh (2015), Patel *et al.* (2016), Raghuwanshi (2016) and Raziyanu (2016).

4.1.14 Risk orientation

Table 4.14 and figure 4.14 depicted that most (46.25%) of farm women had medium risk orientation followed by farm women with high risk orientation (29.58%) and low risk orientation (24.17%). Approximately half (47.50%) of the respondents in Nizamabad district had medium risk orientation followed by respondents in high risk orientation category (31.25%) and low risk orientation category (21.25%).

Sangareddy district constituted 43.75 per cent of respondents with medium risk orientation followed by 28.75 per cent of respondents in low risk orientation category and 27.50 per cent of respondents in high risk orientation category. Roughly half (47.50%) of the respondents in Nalgonda district had medium risk orientation followed by respondents in high risk orientation category (30.00%) and low risk orientation category (22.50%).

Chi-square value (85.274) and p value (0.001) meant that there existed a significant association between region and risk orientation of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.14. Distribution of farm women based on their risk orientation

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1.	Low	17	21.25	23	28.75	18	22.50	58	24.17
2.	Medium	38	47.50	35	43.75	38	47.50	111	46.25
3.	High	25	31.25	22	27.50	24	30.00	71	29.58
	Total	80	100	80	100	80	100	240	100
Mean = 19.18		SD = 5.75		$\chi^2 = 85.274$		$p = 0.001$			

In all three districts of the study, the majority of farm women were in the medium risk orientation category which indicated that they believed farming could be subjected to adverse conditions such as unpredictable weather and pest attacks and that they were unwilling to take higher risks on their farms which could affect their returns on farms. Farm women in Nizamabad district had a higher number of individuals in the higher risk orientation category than in the lower risk orientation category due to the existence of sufficient irrigation facilities, which was efficiently put to use by farm women.

In the Nalgonda district, more educated farm women were observed who had the courage and self confidence to engage in greater risk oriented practices on the farm, outnumbering those with a lower risk orientation. Sangareddy district had a higher percentage of illiterate farm women, as well as cultivating more fruit crops, thus they were less willing to take risks because it might pose a significant negative impact on their farm produce if things went wrong. As a result, farm women with a lower risk orientation were more in number than those with a higher risk orientation.

Fully informed farm women about the benefits of scientific and improved technologies, would change their attitudes and believe that those technologies had been extensively tested and proven and do not pose a significant risk. Increased extension services could clarify the doubts of the farming community and could increase the positive attitude towards improved technologies.

Similar findings were reported by Kumari (2004), Pallavi (2006), Patel (2006), Nethravathi (2008), Pushpa (2009), Upadhyay (2010), Ram *et al.* (2013), Rani (2014), Das (2017), Santhi and Kalirajan (2019) and Vaghasiya (2019).

4.1.15 Economic orientation

The data pertaining to table 4.15 and figure 4.15 exposed that most (44.17 %) of farm women had medium economic orientation followed by farm women with high economic orientation (29.58%) and low economic orientation (26.25%). In Nizamabad district, 42.50 per cent of farm women had medium economic orientation followed by 31.25 per cent and 26.25 per cent of farm women with high economic orientation and low economic orientation respectively.

Around two fifths (41.25%) of respondents in Sangareddy district had medium economic orientation followed by respondents in high economic orientation category (30.00%) and low economic orientation category (28.75%) while in Nalgonda district, 48.75 per cent of farm women had medium economic orientation followed by farm women in high economic orientation category (27.50%) and low economic orientation category (23.75%).

Table 4.15. Distribution of farm women based on their economic orientation

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1.	Low	21	26.25	23	28.75	19	23.75	63	26.25
2.	Medium	34	42.50	33	41.25	39	48.75	106	44.17
3.	High	25	31.25	24	30.00	22	27.50	71	29.58
	Total	80	100	80	100	80	100	240	100
Mean = 23.04 SD = 10.01 $\chi^2 = 89.585$ $p = 0.001$									

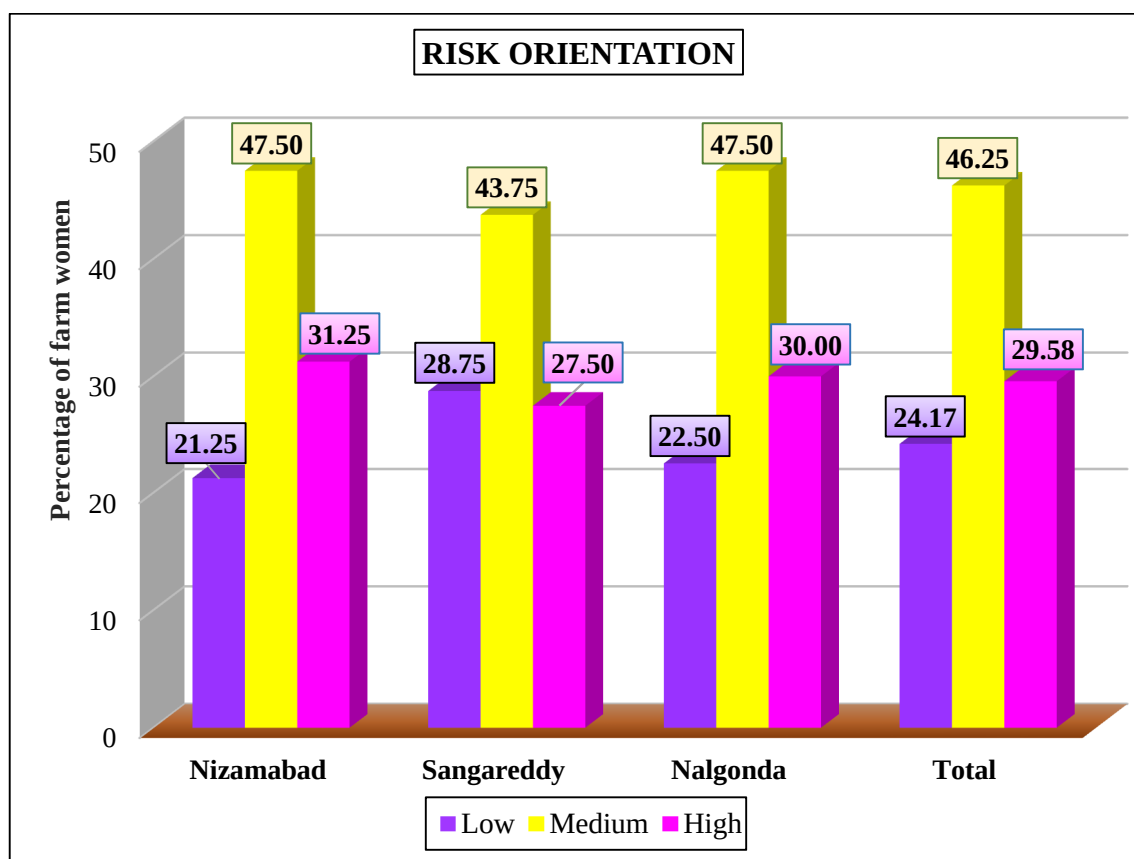


Fig. 4.14. Distribution of farm women based on their risk orientation

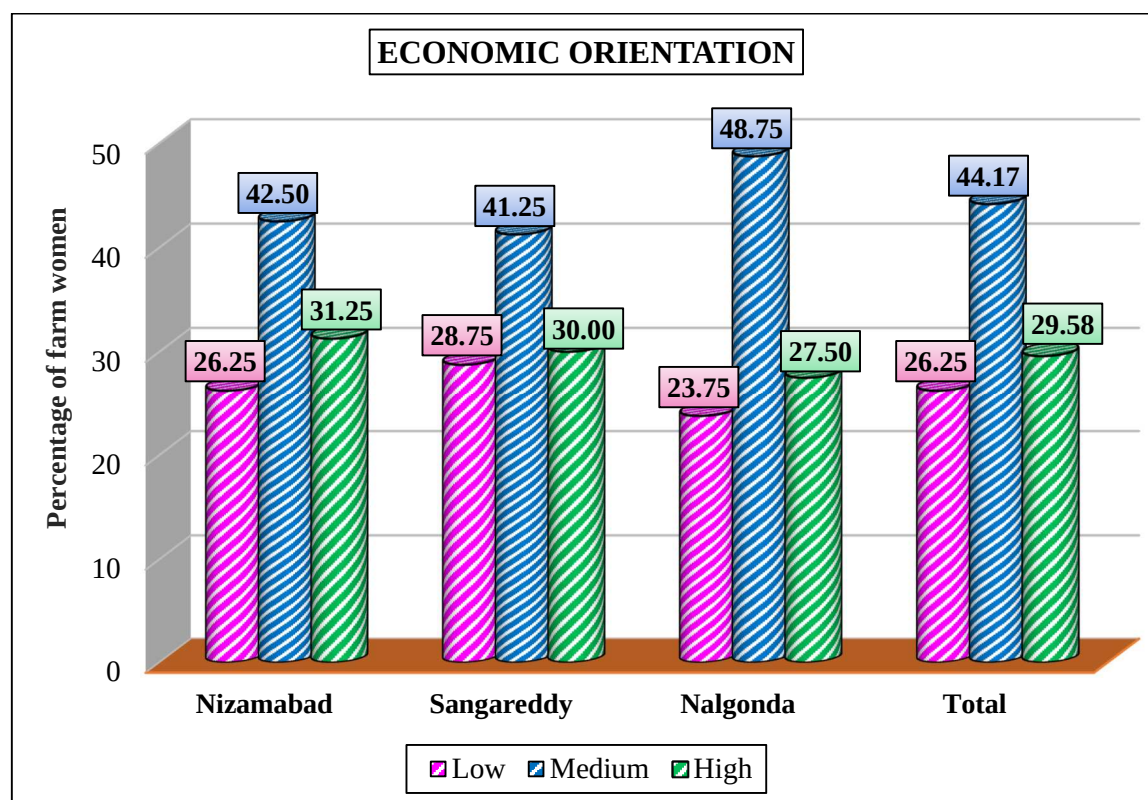


Fig. 4.15. Distribution of farm women based on their economic motivation

Chi-square value (89.585) and p value (0.001) denoted that there existed a significant association between region and economic orientation of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Due to the availability of medium level resources, farm women's efforts to improve their economic status were successful to a medium level and as the trend continued, farm women limited their efforts to a reasonable level with the majority of farm women falling into the medium economic orientation category.

Farm women with more resources had taken advantage of every opportunity to boost their income and improve their standard of living. As a result, they were next in number to individuals with medium economic orientation. Lower economic orientation category could have included illiterate poor rural women with limited means.

Extension personnel should concentrate on expanding farm women's revenue-generating opportunities, which could benefit them by financially empowering them and also motivate them to practice farming in a better way than the past.

Similar findings were reported by Kumari (2004), Pallavi (2006), Patel (2006), Nethravathi (2008), Pushpa (2009), Upadhyay (2010), Ram *et al.* (2013), Rani (2014), Das (2017), Santhi and Kalirajan (2019) and Vaghasiya (2019).

4.2 MAGNITUDE OF PARTICIPATION OF FARM WOMEN IN FARMING

The data pertaining to table 4.16 and figure 4.16 disclosed that more than two fifths (42.08%) of farm women had medium participation in farming followed by high participation (31.25%) and low participation (26.67%) in farming. In Nizamabad district, 41.25 per cent of farm women constituted medium participation category followed by 33.75 per cent and 25 per cent of farm women in high participation and less participation categories in farming respectively.

Two fifths (40.00%) of the farm women respondents in Sangareddy district had medium participation followed by farm women respondents in categories of high participation (31.25%) and less participation (28.75%) in farming. Above two fifths (45.00%) of the respondents had medium participation followed by high participation (28.75%) and low participation (26.25%) in farming in Nalgonda district.

Chi-square value (32.461) and ρ value (0.037) denoted that there existed a significant association between region and farm women participation in farming and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.16. Distribution of farm women based on their magnitude of participation in farming

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less participation	20	25.00	23	28.75	21	26.25	64	26.67
2	Medium participation	33	41.25	32	40.00	36	45.00	101	42.08
3	High participation	27	33.75	25	31.25	23	28.75	75	31.25
	Total	80	100	80	100	80	100	240	100
Mean = 18.48		SD = 4.73		$\chi^2 = 32.641$		$\rho = 0.037$			

Farm women participation in various farm activities was affected by their age, knowledge and skills in farming, access to resources such as farm machinery, agricultural labour etc. Most of the farm women were middle aged with medium farming experience, owned marginal, small land holdings. Hence, majority of farm women took part in farm operations along with their family members and therefore had medium participation in farm activities. Farm women who were educated and had adequate resources like large land holdings might have involved in more farm operations either by physically accomplishing or managing and supervising on their farms. Hence, they might be in the category of higher participation of farm activities.

Farm women who were younger in age might be facing difficulty in performing all farm activities due to their lesser experience in farming. Old age farm women might have had less physical strength and might not have involved in all farm activities. Hence, they might be in the category of less participation of farm activities. Similar findings were reported by Khatun *et al.* (2014), Rani (2014), Lavanya (2016) and Shankarrao (2018).

Farm women participate in different operations on their farms, either alone, with family members, with family members and agricultural labourers as well as supervise and manage farm activities. In order to assess the involvement of farm women in various farm activities, schedule developed for the study as detailed in chapter III was used and the results were presented in table 4.17.

It was inferred from the table 4.17 that majority of farm women had full participation in farming activities i.e., thinning (75.42%), weeding (74.58%), transplantation (73.33%), nursery management (72.50%) and sowing operations (65.00%), plant protection measures (37.08%), buying of inputs viz., seed, fertilizers, plant protection chemicals (34.17%), application of herbicides (31.67%) and post-harvest operations (25.83%).

Very meagre per cent of farm women had full participation in farm activities like irrigation (8.33%), application of fertilizers (6.67%), harvesting (5.83%), levelling of field (5.42%), equal percentage in land preparation and ploughing of field (5.00%), buying of farm machinery/farm tools (2.08%) and marketing (1.25%).

Partial participation of farm women in farm activities was observed majorly in irrigation (75.83%), application of fertilizers (72.92%), buying of farm machinery/farm tools (63.75%), post-harvest operations (59.58%), buying of inputs viz., seed, fertilizers, plant protection chemicals (58.33%), plant protection measures (58.75%), application of herbicides (57.92%) and harvesting (50.83%).

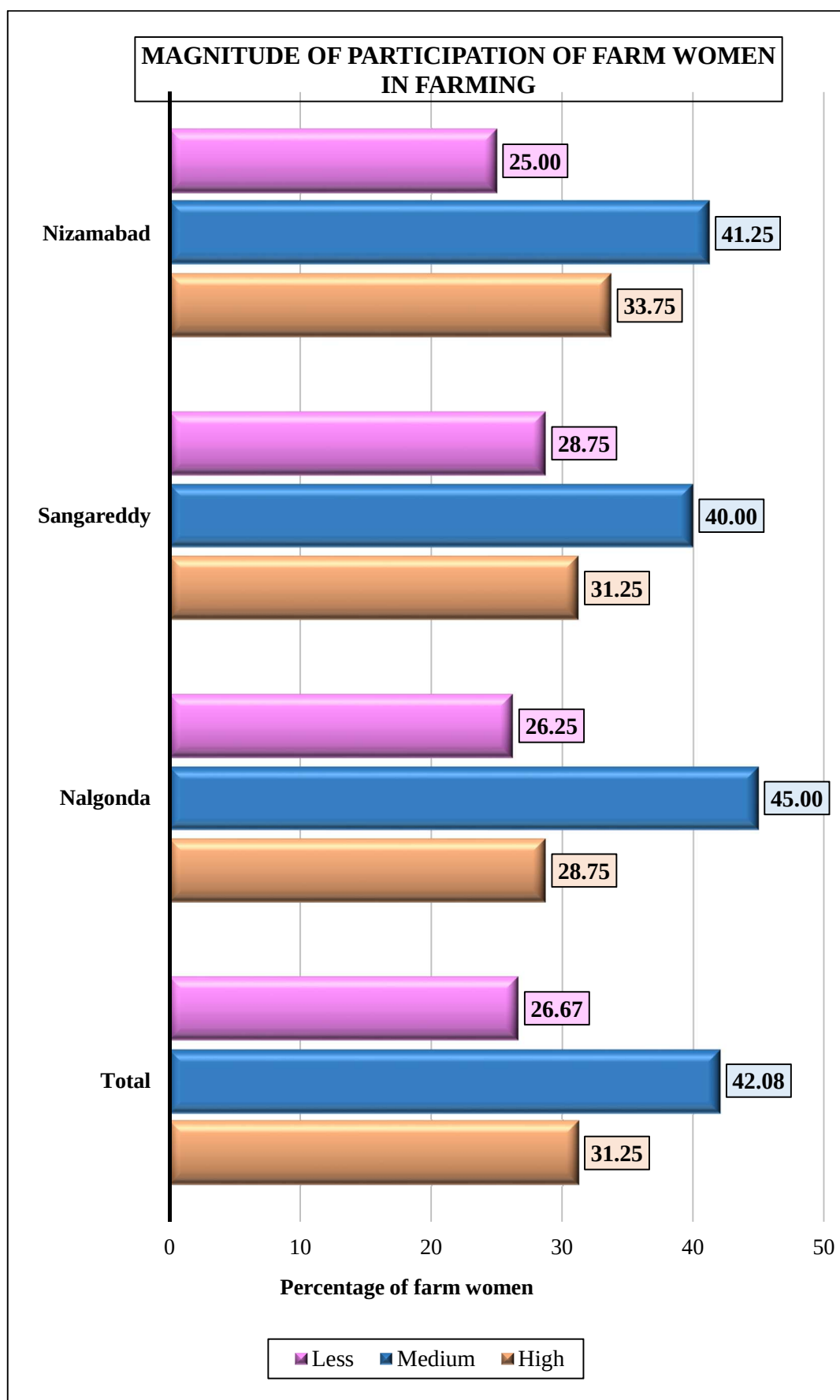


Fig. 4.16. Distribution of farm women based on their magnitude of participation in farming

Other farm activities in which partial participation of farm women was noticed were levelling of land (45.83%), ploughing of field (42.50%), land preparation (40.42%), marketing (35.42%), sowing operations (32.08%), nursery management (27.08%), weeding (25.42%), transplantation (25.00%) and thinning (24.17%).

Farm activities in which no participation of farm women was observed majorly was marketing (63.33%), land preparation (54.58%) and ploughing of field (52.50%). Other farm activities in which no participation of farm women was witnessed was levelling of field (48.75%), harvesting (43.33%), buying of farm machinery/farm tools (34.17%), application of fertilizers (20.42%), irrigation (15.83%), post-harvest operations (14.58%), application of herbicides (10.42%), buying of inputs viz., seed, fertilizers, plant protection chemicals (7.50%).

Very meagre per cent of farm women had no participation in plant protection measures (4.17%), sowing operations (2.92%), transplantation (1.67%) nursery management (0.42%), thinning (0.42%) and nil in weeding.

Mean score of all farming activities was computed, in order to assess the different farm activities where farm women's contribution would be high. All farming activities were ranked based on the descending order of their obtained mean scores and were presented in table 4.17 and figure 4.17.

It was inferred from the table 4.17 that both weeding and thinning activities had the highest mean score and were ranked first followed by both nursery management and transplantation (rank-II), sowing operations (rank-III), plant protection measures (rank-IV), buying of inputs viz., seed, fertilizers, plant protection chemicals (rank-V), application of herbicides (rank-VI), post-harvest operations (rank-VII), irrigation (rank-VIII), application of fertilizers (rank-IX), buying of farm machinery/farm tools harvesting (rank-X), harvesting (rank-XI), levelling of field (rank-XII), ploughing of field (rank-XIII), land preparation (rank-XIV) and marketing (rank-XV).

It was deduced from table 4.17 that both weeding and thinning activities on farm with mean score 1.75 were performed by majority of farm women and few men farmers and were ranked first among different farming activities. Weeding

and thinning activities were largely performed manually by farm women because majority of farm women were marginal and small farmers and power-driven farm implements were less favoured for these operations.

Nursery management and transplantation with mean score 1.72 were both ranked second and were performed by majority of farm women. Nursery management and transplantation were time consuming and difficult tasks that were usually performed by farm women. Farm women were not oriented towards using farm machinery for transplantation because of the lesser size of their landholdings.

Most women were involved in sowing operations (mean score=1.62) and was ranked third in all farm activities. Sowing operations were carried out manually by women along with men and also farm machinery were not preferred for marginal and small sized land holdings.

Plant protection measures were ranked fourth (mean score=1.33) and was carried out by slightly smaller per cent of farm women. Plant protection measures were majorly carried out with plant protection equipment that was too heavy to manage for women. As a result, a lower percentage of women participated fully in plant protection measures and women frequently worked along with men to carry out plant protection measures.

Buying of inputs (seed, fertilizers, plant protection chemicals) was ranked fifth (mean score=1.27) which indicated that slightly fewer women were involved in purchase of inputs. Most of the women might involve in decision making about purchase of inputs and very few farm women actually venture out of house to purchase farm inputs.

Application of herbicides was ranked sixth (mean score=1.21) and was carried out to some extent by fewer farm women. Few farm women only could spray herbicides because it required a lot of physical work and it was mainly done by men or agricultural labour.

Post-harvest operations (mean score=1.11) were ranked seventh and was done by only one fourth of farm women fully. Farm women tended to supervise post harvest operations than actually physically participating in them.

Table 4.17. Distribution of farm women based on their participation in farming activities

S. No.	Activity	Full participation		Partial participation		No participation		Mean Score	Rank
		f	%	f	%	f	%		
1.	Land Preparation	12	5.00	97	40.42	131	54.58	0.50	XIV
2.	Ploughing of field	12	5.00	102	42.50	126	52.50	0.53	XIII
3.	Levelling of field	13	5.42	110	45.83	117	48.75	0.57	XII
4.	Buying of inputs (seed, fertilizers, plant protection chemicals)	82	34.17	140	58.33	18	7.50	1.27	V
5.	Buying of farm machinery/ farm tools	5	2.08	153	63.75	82	34.17	0.68	X
6.	Sowing operations	156	65.00	77	32.08	7	2.92	1.62	III
7.	Nursery management	174	72.50	65	27.08	1	0.42	1.72	II
8.	Transplantation	176	73.33	60	25.00	4	1.67	1.72	II
9.	Weeding	179	74.58	61	25.42	0	0.00	1.75	I
10.	Thinning	181	75.42	58	24.17	1	0.42	1.75	I
11.	Irrigation	20	8.33	182	75.83	38	15.83	0.93	VIII
12.	Application of herbicides	76	31.67	139	57.92	25	10.42	1.21	VI
13.	Application of fertilizers	16	6.67	175	72.92	49	20.42	0.86	IX
14.	Plant protection measures	89	37.08	141	58.75	10	4.17	1.33	IV
15.	Harvesting	14	5.83	122	50.83	104	43.33	0.63	XI
16.	Post-harvest operations	62	25.83	143	59.58	35	14.58	1.11	VII
17.	Marketing	3	1.25	85	35.42	152	63.33	0.38	XV

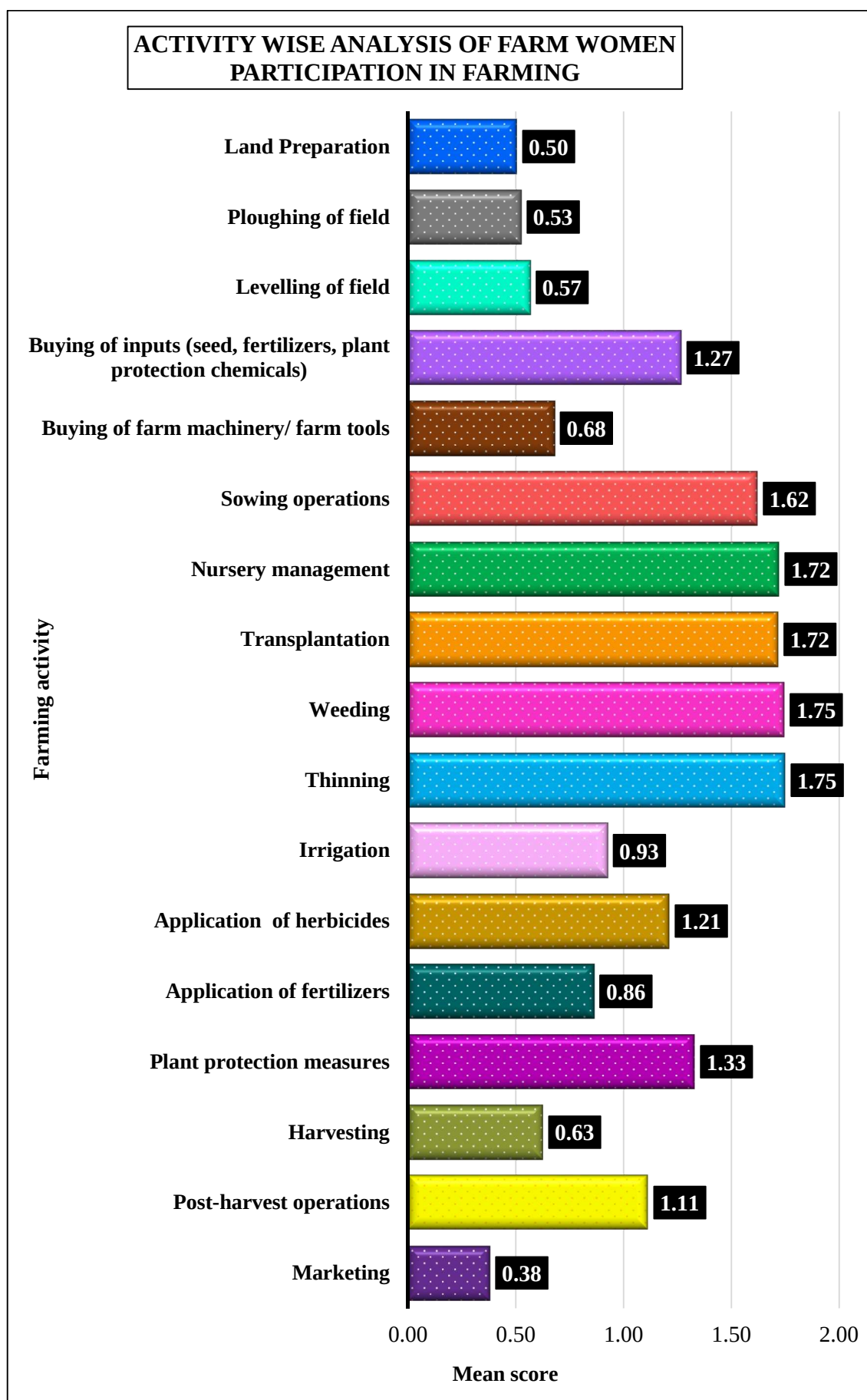


Fig. 4.17. Activity wise analysis of farm women participation in farming

Irrigation was ranked eighth (mean score=0.93) and most of the cases, irrigation to crop was carried out by men in farming household. Hence, there was very little participation of farm women.

Application of fertilizers was ranked ninth (mean score=0.86) and was carried out by slightly fewer farm women. Based on the land holding owned by the farming household, men or agricultural labour tended to perform the activity of application of fertilizers.

Buying of farm machinery/farm tools was ranked tenth (mean score=0.68). Farm women might involve in decision making about purchase of farm machinery/farm tools but the financial transactions and other procedures would be handled by men.

Harvesting was ranked eleventh with a mean score of 0.63. Harvesting is a major farm activity wherein farm machinery was used and agricultural labour were involved. Hence, respondents' actual physical work on this activity was less.

Levelling of field with twelfth rank (mean score=0.57) and ploughing of field with thirteenth rank (mean score=0.53) was majorly performed by men or agriculture labour wherein farm machinery were used.

Land preparation was ranked fourteenth (mean score=0.50) and very few farm women were involved in managing and carrying out that farm operation with the members of household or agricultural labour.

Marketing was ranked fifteenth (mean score=0.38) wherein majority of women were involved in decision making of marketing the produce and slightly fewer farm women were involved in sale of produce at village markets.

4.3. ATTITUDE OF FARM WOMEN TOWARDS FARMING

It was obvious from the table 4.18 and figure 4.18 that more than two fifths (46.25%) of farm women had moderately favourable attitude followed by highly favourable (30.00%) and less favourable attitude (23.75%) towards farming. Identical trend of results was observed in the sample of the three districts selected for the study.

About half (51.25%) of the farm women in Nizamabad district had moderately favourable attitude followed by farm women with highly favourable (27.50%) and less favourable attitude (21.25%) towards farming. In Sangareddy district, 47.50 per cent of farm women had moderately favourable attitude followed by 28.75 per cent and 23.75 per cent of farm women in highly favourable and less favourable attitude towards farming respectively.

Two fifths (40.00%) of the respondents in Nalgonda district had moderately favourable attitude followed by respondents with highly favourable attitude (33.75%) and less favourable attitude (26.25%) towards farming respectively.

Chi-square value (148.931) and p value (0.049) explained that there was a significant association between region and attitudinal disposition of farm women towards farming and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.18. Distribution of farm women based on their attitude towards farming

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less favourable attitude	17	21.25	19	23.75	21	26.25	57	23.75
2	Moderately favourable attitude	41	51.25	38	47.50	32	40.00	111	46.25
3	Highly favourable attitude	22	27.50	23	28.75	27	33.75	72	30.00
	Total	80	100	80	100	80	100	240	100
Mean = 68.10		SD = 21.90		$\chi^2 = 148.931$		$p = 0.049$			

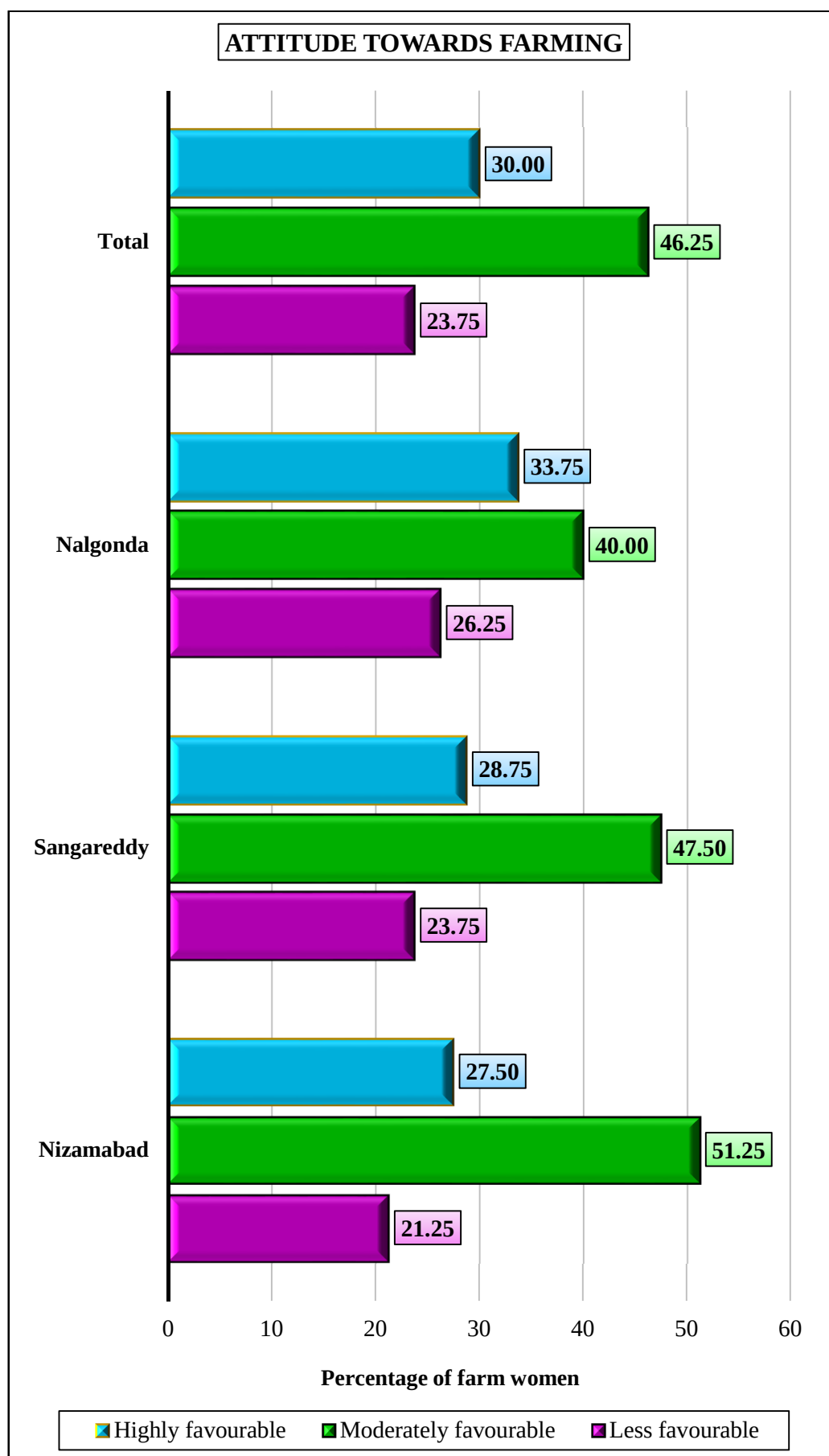


Fig. 4.18. Distribution of farm women based on their attitude towards farming

Similar findings were reported by Gnanasham (2009), Ashok (2011), Chand (2012), Nimoda (2013), Nishitha (2016), Raghuwanshi (2016) and Sonam (2018).

Attitude is a prerequisite for involving in an activity and it determines the choices made by an individual, thereby influencing the outcomes of an activity or a process. Farm women are indispensable in farming and their contribution towards agriculture is priceless. Hence, determining their attitude towards farming would aid in knowing the priorities, challenges and pattern of participation of women in farming.

From the table 4.18, it was evident that almost near to half of the respondents had moderately favourable attitude towards farming. Majority of respondents had medium annual income which displayed that they might have reaped moderate level of profits from farming which was also influenced by the resources available to them. Hence, they were in the category of moderately favourable attitude towards farming.

Farm women who might have experienced higher returns from farming as they had semi-medium to large land holdings, it was assumed that they were holding a positive notion towards farming. They might have had the advantage of owning a large farm to allow for the cost-effective adoption of new technologies and proper utilization of all available resources. Because they possessed larger land holdings, adverse weather and pest infestations might not have had an impact on their farming income. Thus, they had having highly favourable attitude towards farming.

As most of the farm women had marginal and small land holdings, they might not be able to derive greater profits from farming and also due to fewer resources accessible for their agricultural activities. In case of any price fluctuations and adverse weather conditions or pest infestations, they might have faced financial crisis. Such farm women might have been in the category of less favourable attitude towards farming.

The attitudinal disposition of farm women towards farming was clearly explained by analyzing each statement in terms of its favourableness or unfavourableness by the farm women towards farming and the same was presented

in table 4.19 and figure 4.19. All the 24 statements in the scale were presented in table 4.19 as per their rank orders of high favourableness to less favourableness as felt by the farm women towards farming.

It was obvious from the table 4.19 that the statement number '1' was ranked first with highest mean score (3.89) in its favourableness towards farming by majority of farm women. Women's role in farming had changed drastically from being merely as a farmer's wife to rising as an independent farmer with an ability to take part in decision making of farm operations and managing and supervising the farms. Women were recognized as an active part of farming profession as numerous activities on farm were performed by them. Hence, majority of respondents perceived, women to be unavoidable in farming which depicted their importance in farming.

The mean score of second statement (3.71) with second rank revealed that, majority of the farm women had more favourableness towards enriching their knowledge and skills. As women had the equal responsibility along with the men of their household in increasing their farm productivity, farm women were inclined towards learning further skills and developing their knowledge as well as to equip themselves with improved practices and technologies in farming.

The mean score of third statement (3.63) with third rank implied that farm women irrespective of their educational and socio-economic status could always perform farm operations and earn their livelihood. Farming as a prime source of their income, might have aided women to gain financial independence and become self-reliant, making it more favourable profession.

The fourth statement with mean score (3.45) revealed that irrespective of the livelihood opportunities available for rural women, farming had always been the main source of income for the majority of rural women. Rural women earned income through farming as agricultural labourers and owners on farm and also through agro based enterprises. Thus, the statement was ranked fourth in its favourableness towards farming by most farm women.

Table 4.19. Statement wise analysis of attitude of farm women towards farming

Statement No.	Statement	Mean score	S.D.	Rank
1.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	3.89	1.34	1
2.	I aspire to seek further knowledge and skills in farming.	3.71	0.98	2
3.	I feel that practicing farming increased my self- reliance.	3.63	1.39	3
4.	Farming can provide employment to majority of rural women.	3.45	1.36	4
5.	I aspire to seek more entrepreneurial opportunities in farming.	3.21	1.45	5
6.	I feel that there is less opportunity for career development in farming particularly for women*.	3.13	1.48	6
7.	I feel that large share of income is obtained from non-agricultural sources than through farming. *	3.06	1.58	7
8.	I prefer to be in farming than as an employee.	2.99	1.27	8
9.	I feel that farming is the best venture for farm women as it makes them self-employed.	2.91	1.37	9
10.	I feel that rural household wellbeing will be increased when women take up farming.	2.85	1.48	10
11.	I like farming as it is major source of income to my family since many generations.	2.82	1.60	11
12.	I became self-confident after taking up farming.	2.75	1.53	12
13.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *	2.70	1.48	13
14.	I feel more professional as I am getting equal respect and importance as given to men farmers.	2.68	1.39	14

Contd..

Table 4.19. (cont.).

Statement No.	Statement	Mean score	S.D.	Rank
15.	As there is no other means of income, I am forced to do farming. *	2.60	1.45	15
16.	Women enjoy leadership position in farming.	2.57	1.38	16
17.	Farming will give less scope for higher education accessibility to our children. *	2.53	1.45	17
18.	I don't think farming support policies focus on farm women. *	2.49	1.54	18
19.	Gender equality is ensured through participation of women in farming.	2.44	1.30	19
20.	Poverty can be reduced in rural areas when women take up income earning activities via farming.	2.41	1.11	20
21.	I am interested in motivating others to take up farming after reaping the benefits through farming.	2.40	1.40	21
22.	Practicing farming helps in improving household amenities for farm women.	2.38	1.41	22
23.	I feel that men farmers can take up farming more effectively than farm women. *	2.30	1.35	23
24.	I believe that a higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *	2.25	1.38	24

The fifth statement with mean score (3.21) implied that farming provides farm women with a variety of income-generating opportunities, including agro-processing businesses, value-added products and small-scale agribusiness initiatives such as floriculture, sericulture, and apiculture, as well as export-oriented farm products. Witnessing the abundant entrepreneurial opportunities offered by farming, it was ranked fifth in its favourableness towards farming by farm women.

The sixth statement (mean score=3.13) was comprehended by most of the farm women as a highly unfavourable statement towards farming. Male

dominance in many activities on farm, lack of control over assets and less access to productive resources and also unavailability of gender friendly technologies might had contributed to farm women's perception of farming as a difficult venture.

The seventh statement (mean score=3.06) was perceived to be highly unfavourable towards farming by majority of farm women. Lack of prediction in market prices, uncertain weather conditions and limitations of productivity on farm due to inadequate resources might had rendered less remuneration from farming which contributed to farm women's perception that farming as not a prime source for income generation.

The eighth statement with (mean score=2.99) was perceived to be favourable towards farming by most of the farm women. Farming as the country's mainstay of livelihood and as a profession which provided food to people might be preferred as a noble profession by farm women and encouraged them to be in farming rather than being an employee.

The ninth statement (mean score=2.91) was favoured by most farm women as farming provided them with self-employment. Farm women who might had higher aspirations and who were willing to take the opportunity of venturing into avenues of self-employment might had seen farming as an suitable choice of their profession.

The tenth statement (mean score=2.85) was perceived to be moderately favourable by most of the farm women. Farming is a profession where it provided an opportunity for the entire family to be engaged in activities on farm. When women from the farming household in rural areas participate in farming activities, the efforts would be doubled and income from farming would be multiplied. Thus, entire household wellbeing would be attained.

The eleventh statement (mean score=2.82) revealed that farming as a traditional occupation to many families since many generations had an impact on the attitudes of the offspring of the farming families. It generated a liking among the younger generations of farm families as the source of their livelihood to their families since generations.

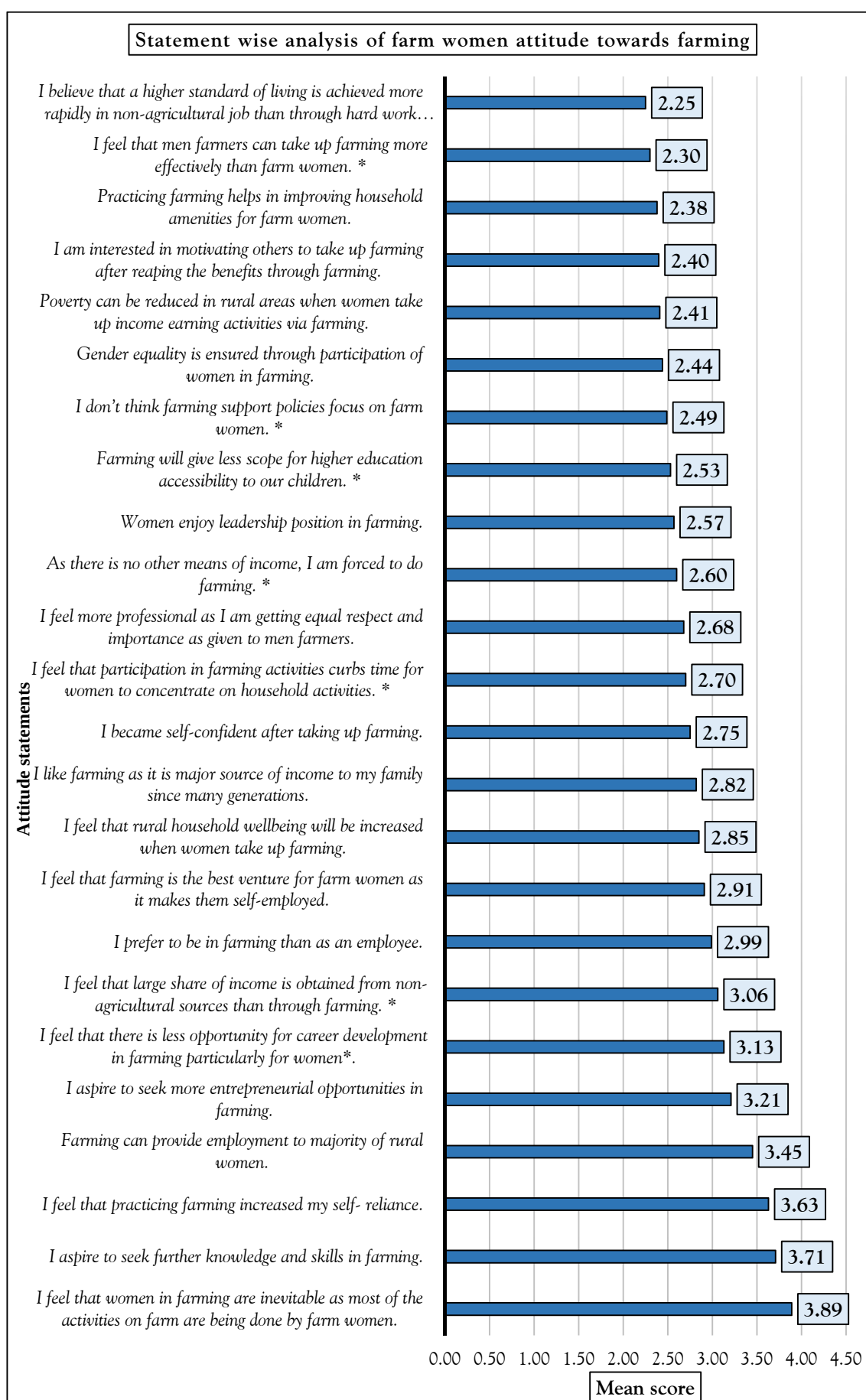


Fig. 4.19. Statement wise analysis of farm women attitude towards farming

The twelfth statement (mean score=2.75) depicted that involving in farming made farm women to be self-reliant, improvise in decision making, promote creative thinking and rational judgement by ways of participating, managing and supervising activities on farm. Thus, women witnessed themselves as becoming self-confident after engaging in farming.

The thirteenth statement (mean score=2.70) was ascertained to be moderately unfavourable towards farming by most farm women as farm women perceived farming activities to be engaged for long duration with strenuous physical efforts. Activities on farm doesn't specify definite work hours in a day as other professions and therefore conflicted with the time for household activities and reduced the time for domestic activities.

The fourteen statement (mean score=2.68) implied that recognition of women in farming in the present days had generated a positive notion for women about themselves in farming. Inclusion of farm women in various extension and development activities related to agriculture might had garnered respect and importance to women farmers and developed a sense of professionalism in farming among farm women.

The fifteen statement (mean score=2.60) was opined to be moderately unfavourable towards farming by the respondents. Most of the illiterate respondents with poor economic status had opted for farming as their livelihood choice. Contrary to them, educated farm women with adequate resources perceived farming to be a good choice as they could venture into agri related businesses. Providing adequate support and enhancing skills and knowledge of farm women could change their undesirable perspective towards farming.

The sixteenth statement (mean score=2.57) revealed that dominance of women in many activities on farm was witnessed now a days where women not only participated in farm operations but also earned the proficiency of managing, supervising farm operations and also venturing into agri business. Many women were being recognized and praised for their efforts in farming as innovators and progressive farmers.

The seventeenth statement (mean score=2.53) was regarded as moderately unfavourable towards farming by the farm women. Farming population lived in rural areas where there might be less access to higher educational institutions compared to urban areas. Income from farming might not be adequate to afford higher education for children of farm women who might had less land holding.

The eighteenth statement (mean score=2.49) was perceived to be moderately unfavourable towards farming by farm women. Farming support policies and development programmes focused on farmers and agriculture as a whole with less emphasis on gender related needs in farming viz., providing extension support, marketing facilities etc. Awareness to farm women about various agriculture development initiatives and mobilizing their participation in various development programmes could decrease their negative perception.

The nineteenth statement (mean score=2.44) was perceived to be moderately favourable towards farming. Women when played equal roles in farming alongside men, gender gap would be reduced and farm women would be included as active participants on farm ensuring gender equality.

The twentieth statement (mean score=2.41) was perceived to be slightly favourable towards farming. Farming was a profession wherein definite education status was not mandatory and even women from poor households could learn the skills and earn income through activities on farm reducing the poverty in rural areas.

The twenty first statement (mean score=2.40) was perceived to be slightly favourable towards farming by farm women. Women who reaped the benefits through farming either by household nutritional wellbeing through kitchen gardening, income earning through value addition products sale, higher standard of living through commercial farming might had been interested in encouraging others to pursue farming.

The twenty second statement (mean score=2.38) was found to be slightly favourable towards farming by farm women who utilized the diverse income generating opportunities of farming might had experienced higher income from farming and might had helped them to access improved household amenities.

The twenty third statement (mean score=2.30) was perceived to be slightly unfavourable towards farming by farm women as younger and old aged women might had felt men farmers to be more efficient in farm operations due to lack of adequate farm experience and physical strength to perform strenuous activities on farm.

The twenty fourth statement (mean score= 2.25) was revealed to be slightly unfavourable towards farming by farm women. Earning from farming was affected by external factors viz weather conditions, market prices, resources etc. Thus, farming might provide income and food but continuous fixed income was not guaranteed by farming when traditional cultivation practices were followed. Hence, farm women might had the notion that nonfarm profession might provide them rapid increase in standard of living.

4.4. EXTENT OF EMPOWERMENT OF FARM WOMEN IN AGRICULTURE

It was obvious from the table 4.20 and figure 4.20 that majority (52.50%) of farm women had medium empowerment followed by high empowerment (25.00%) and less empowerment (22.50%). Nizamabad district constituted majorly of respondents with medium empowerment (53.75%) followed by high empowerment (26.25%) and less empowerment (20.00%).

More than half (52.50%) of the respondents in the Sangareddy district were in medium empowerment category followed by same per cent of respondents in the high empowerment (23.75%) and less empowerment (23.75%) categories. In Nalgonda district, 51.25 per cent, 25 per cent and 23.75 per cent of farm women were in medium, high and less empowerment categories respectively. Chi-square value (152.186) and p value (0.044) explained that there was a significant association between region and empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.20. Distribution of farm women based on their extent of empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less empowerment	16	20.00	19	23.75	19	23.75	54	22.50
2	Medium empowerment	43	53.75	42	52.50	41	51.25	126	52.50
3	High empowerment	21	26.25	19	23.75	20	25.00	60	25.00
	Total	80	100	80	100	80	100	240	100
Mean=48.21		SD=18.26		$\chi^2 = 152.186$		$p = 0.044$			

Similar findings were reported by Mahesh (2011), Kethwal (2015), Shilparani (2016) and Chouhan (2019).

Majority of the respondents were in medium category of empowerment as most of the farm women had medium annual income, medium mass media exposure, medium extension contact, medium information sources utilization, medium creativity, medium achievement motivation, medium scientific orientation, medium risk orientation and medium economic orientation. Farm women wherein most of them were middle aged had small and marginal land holdings.

Extension personnel and village workers should identify the areas where farm women were struggling and take up activities to minimize their problems. Increased extension services and capacity building programmes could improve farm productivity and increase income of farm women wherein they would be empowered to have better standard of living and provide higher education to their children.

Psychological empowerment of farm women

It was obvious from the table 4.21 and figure 4.21 that majority (55.83%) of farm women had medium psychological empowerment followed by high psychological empowerment (23.33%) and less psychological empowerment (20.83%). More than half (56.25%) of the respondents in Nizamabad district had

medium psychological empowerment followed by respondents in high psychological empowerment category (23.75%) and less psychological empowerment category (20.00%).

Sangareddy district constituted 55 per cent of respondents with medium psychological empowerment followed by 23.75 per cent of respondents in less psychological empowerment category and 21.25 per cent of respondents in high psychological empowerment category. Majority (56.25%) of the respondents in Nalgonda district had medium psychological empowerment followed by respondents in high psychological empowerment category (25.00%) and less psychological empowerment category (18.75%).

Chi-square value (19.629) and ρ value (0.033) explained that there was a significant association between region and psychological empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.21. Distribution of farm women based on their psychological empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less psychological empowerment	16	20.00	19	23.75	15	18.75	50	20.83
2	Medium psychological empowerment	45	56.25	44	55.00	45	56.25	134	55.83
3	High psychological empowerment	19	23.75	17	21.25	20	25.00	56	23.34
	Total	80	100	80	100	80	100	240	100
Mean = 53.51 SD = 15.14 $\chi^2 = 19.629$ $\rho = 0.033$									

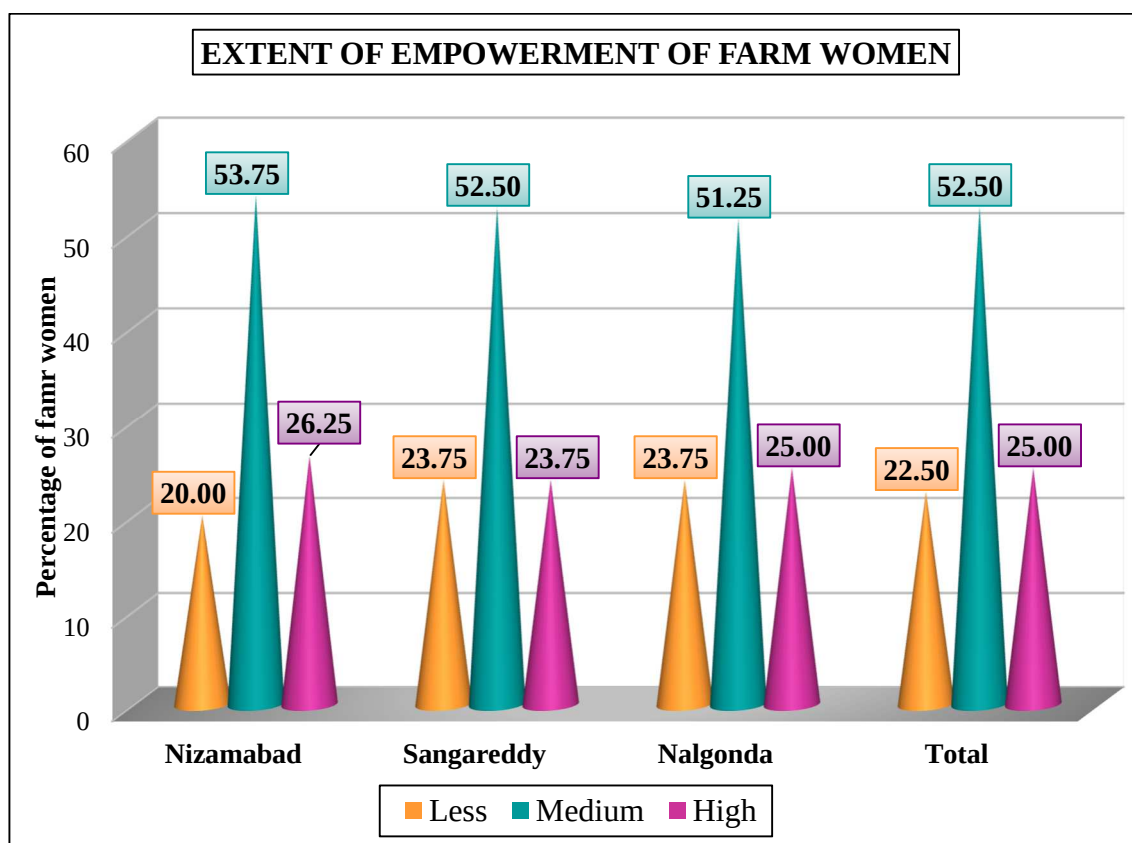


Fig. 4.20. Distribution of farm women based on their extent of empowerment

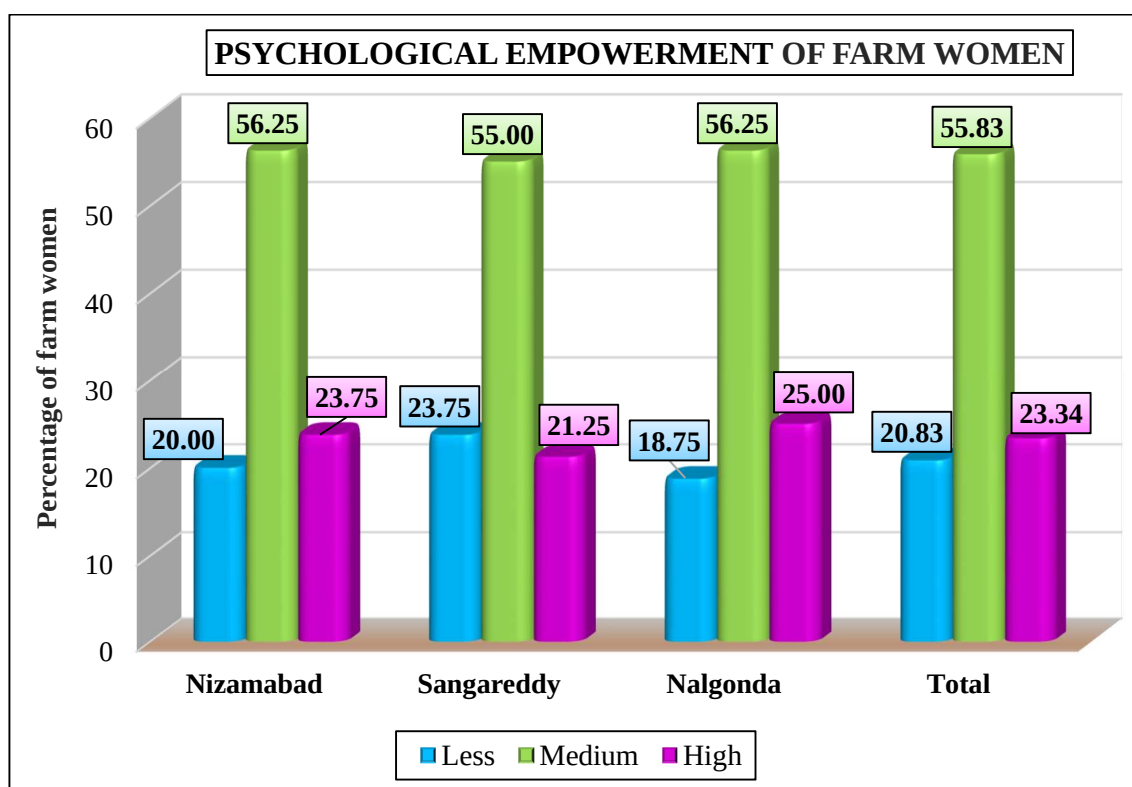


Fig. 4.21. Distribution of farm women based on their psychological empowerment

It can be inferred from the table 4.21 that majority of the farm women had medium psychological empowerment as most of the farm women were middle aged and might be managing both farm and home. As most of the farm women were illiterate and had primary school level of education, they might be having medium self confidence and awareness on their emotional intelligence. It could also be attributable to their socio economic conditions, as most of them had medium annual income, marginal and small land holdings.

Psychological wellbeing of farm women plays an important role in contribution to their family wellbeing and farm efficiency. It can be enhanced by adequate counselling through village health services and sharing of farm women domestic burden by their family members would give them personal time to care about their needs.

Socio-cultural empowerment of farm women

It is apparent from the table 4.22 and figure 4.22 that majority (52.08 %) of farm women had medium socio-cultural empowerment followed by high socio-cultural empowerment (25.42%) and less socio-cultural empowerment (22.50%). In Nizamabad district, 50 per cent of farm women were in medium socio-cultural empowerment category followed by farm women in high socio-cultural empowerment category (27.50%) and less socio-cultural empowerment category (22.50%).

In Sangareddy district, 50 per cent, 26.25 per cent and 23.75 per cent of farm women had medium, high and less socio-cultural empowerment respectively while in Nalgonda district, 56.25 per cent, 22.50 per cent and 21.25 per cent of farm women had medium, high and less socio-cultural empowerment respectively.

Chi-square value (57.941) and p value (0.020) revealed that there was significant association between region and socio-cultural empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

It could be noticed from table 4.22 that majority of farm women had medium socio-cultural empowerment which could be due to existing social norms and traditions in the village. Most of the farm women had lesser education and it would have affected their self confidence and interaction with others. Women can be empowered through women groups wherein they get required help and support to overcome their social and psychological barriers.

Table 4.22 Distribution of farm women based on their socio-cultural empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less socio-cultural empowerment	18	22.50	19	23.75	17	21.25	54	22.50
2	Medium socio-cultural empowerment	40	50.00	40	50.00	45	56.25	125	52.08
3	High socio-cultural empowerment	22	27.50	21	26.25	18	22.50	61	25.42
	Total	80	100	80	100	80	100	240	100
Mean=50.51 SD=20.15 $\chi^2 = 57.941$ $p = 0.020$									

Economic empowerment of farm women

It is obvious from the table 4.23 and figure 4.23 that approximately half (48.33%) of farm women had medium economic empowerment followed by high economic empowerment (27.50%) and less economic empowerment (24.17%). Half (50.00%) of the farm women respondents in Nizamabad district had medium economic empowerment followed by respondents in high economic empowerment category (27.50%) and less economic empowerment category (22.50%).

Sangareddy district constituted 43.75 per cent of respondents with medium economic empowerment followed by 30 per cent of respondents in high economic empowerment category and 26.25 per cent of respondents in low economic

empowerment category. Majority (51.25%) of the respondents in Nalgonda district had medium economic empowerment followed by respondents in high economic empowerment category (25.00%) and less economic empowerment category (23.75%).

Chi-square value (27.326) and p value (0.017) explained that there was a significant association between region and economic empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Table 4.23. Distribution of farm women based on their economic empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less economic empowerment	18	22.50	21	26.25	19	23.75	58	24.17
2	Medium economic empowerment	40	50.00	35	43.75	41	51.25	116	48.33
3	High economic empowerment	22	27.50	24	30.00	20	25.00	66	27.50
	Total	80	100	80	100	80	100	240	100
Mean=44.27		SD=15.12		$\chi^2 = 27.326$		$p = 0.017$			

Majority of the farm women were in medium economic empowerment category as majority of farm women had marginal and small land holdings and medium annual income. Extension personnel should focus on increasing income generating sources for women through capacity building programmes which could increase the economic empowerment status of women.

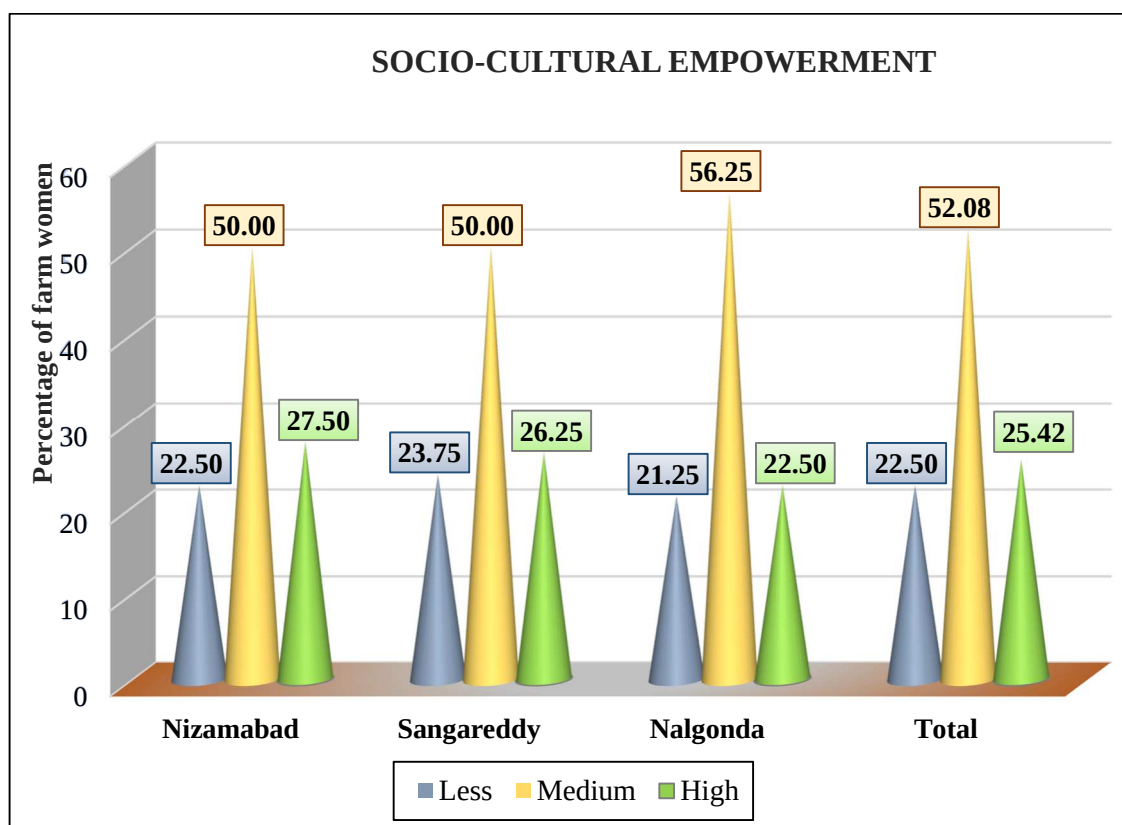


Fig. 4.22. Distribution of farm women based on their socio-cultural empowerment

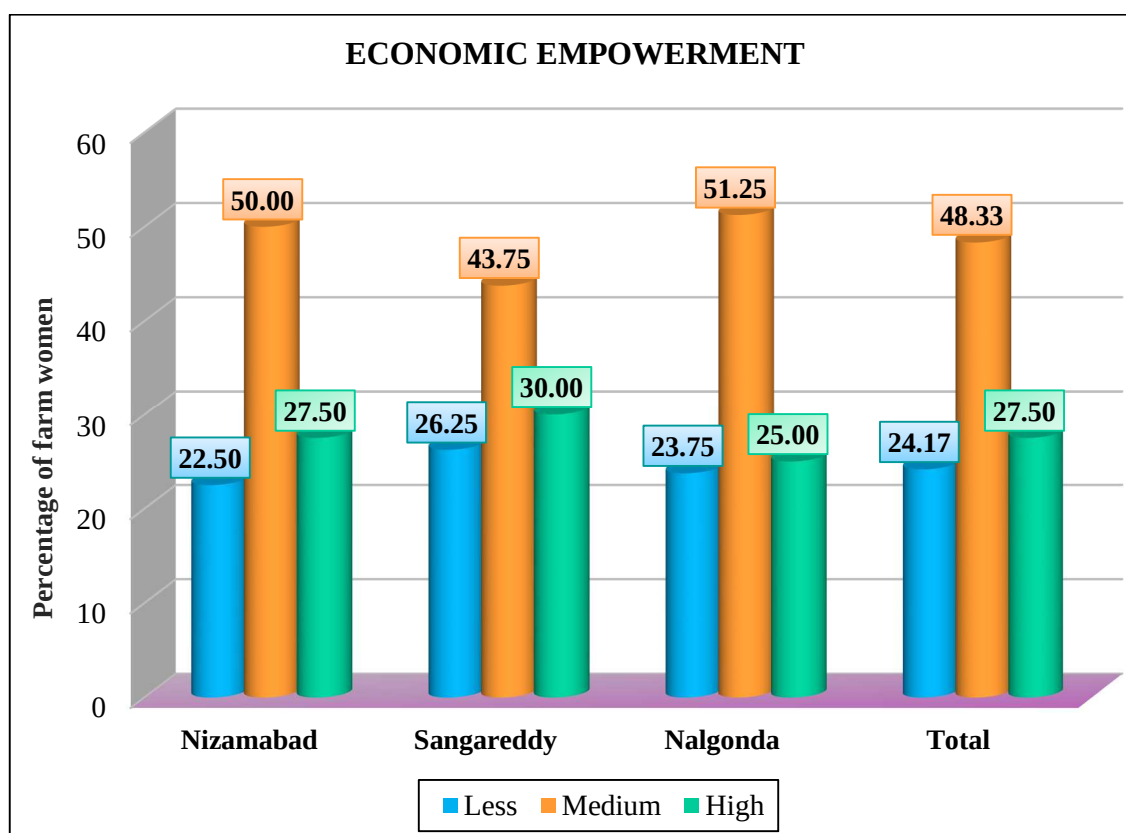


Fig. 4.23. Distribution of farm women based on their economic empowerment

Politico legal empowerment of farm women

It is obvious from the table 4.24 and figure 4.24 that more than two fifths (42.92%) of farm women had medium politico legal empowerment followed by farm women with less politico legal empowerment (30.00%) and high politico legal empowerment (27.08%). Similar pattern was noticed in all three districts of the study.

Table 4.24. Distribution of farm women based on their politico-legal empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less politico-legal empowerment	23	28.75	25	31.25	24	30.00	72	30.00
2	Medium politico-legal empowerment	35	43.75	35	43.75	33	41.25	103	42.92
3	High politico-legal empowerment	22	27.50	20	25.00	23	28.75	65	27.08
	Total	80	100	80	100	80	100	240	100
Mean=53.54		SD=23.39		$\chi^2 = 25.194$		$p = 0.014$			

Most of the farm women (43.75%) in Nizamabad district had medium politico legal empowerment followed by farm women in less politico legal empowerment category (28.75%) and high politico legal empowerment category (27.50%). Sangareddy district constituted 43.75 per cent of respondents with medium politico legal empowerment followed by 31.25 per cent of respondents in less politico legal empowerment category and 25 per cent of respondents in high politico legal empowerment category. In Nalgonda district, 41.25 per cent, 30 per cent and 28.75 per cent of farm women had medium, less and high politico legal empowerment respectively. Chi-square value (25.194) and p value (0.014)

explained that there was a significant association between region and politico legal empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution.

Most of the farm women were in medium politico-legal empowerment category as most of the farm women had lesser education and lesser awareness about political institutions and legal services, NGOs and women groups could create awareness about required knowledge related to politico-legal aspects to reduce gender discrimination.

Professional empowerment of farm women

It is obvious from the table 4.25 and figure 4.25 that more than two fifths (42.08%) of farm women had medium professional empowerment followed farm women with high professional empowerment (30.83%) and less professional empowerment (27.08%). Similar pattern was noticed in all three districts of the study.

Table 4.25. Distribution of farm women based on their professional empowerment

S. No.	Category	Nizamabad		Sangareddy		Nalgonda		Total	
		f	%	f	%	f	%	f	%
1	Less professional empowerment	22	27.50	23	28.75	20	25.00	65	27.08
2	Medium professional empowerment	32	40.00	32	40.00	37	46.25	101	42.08
3	High professional empowerment	26	32.50	25	31.25	23	28.75	74	30.84
	Total	80	100	80	100	80	100	240	100
Mean=44.71		SD=19.70		$\chi^2 = 78.476$		$p = 0.006$			

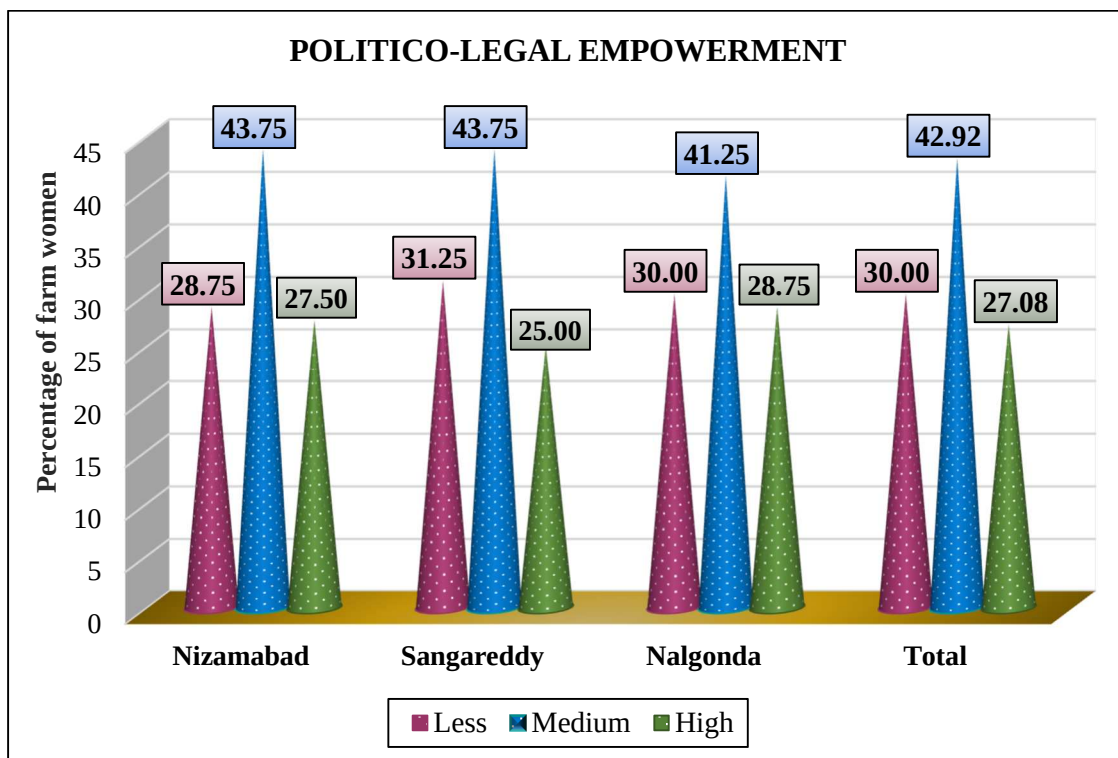


Fig. 4.24. Distribution of farm women based on their politico-legal empowerment

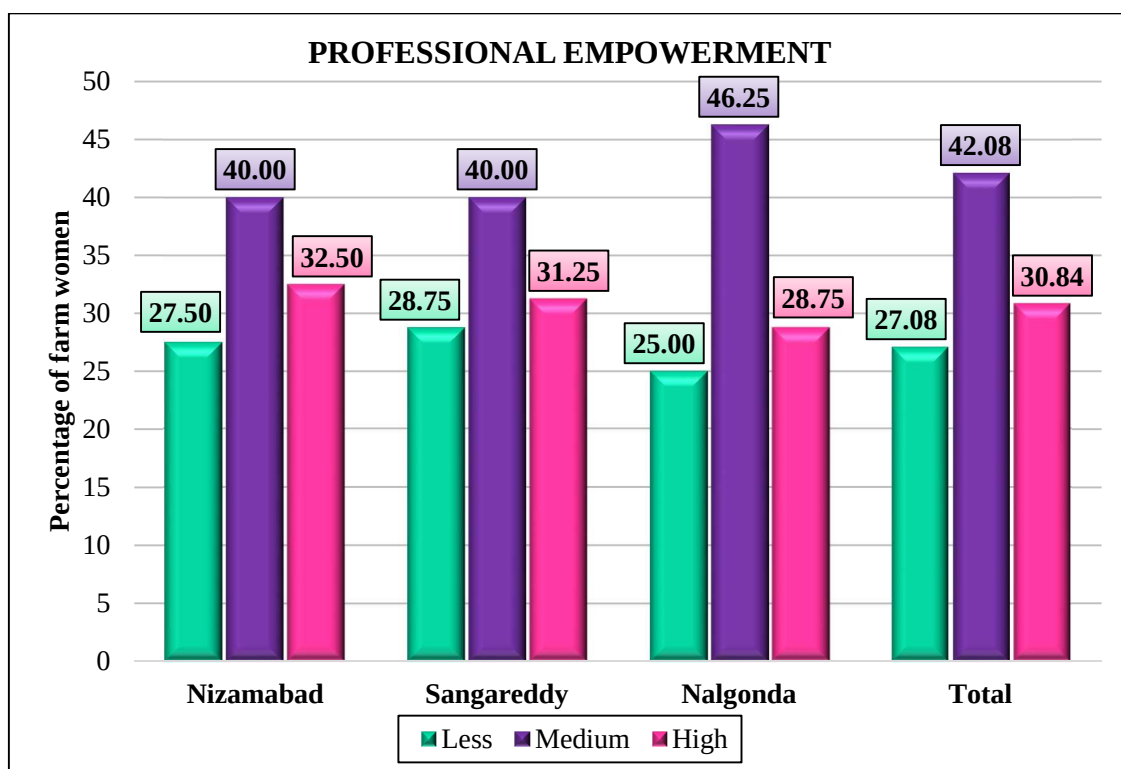


Fig. 4.25. Distribution of farm women based on their professional empowerment

Most of the farm women (40.00%) in Nizamabad district had medium professional empowerment followed by farm women in high professional empowerment category (32.50%) and less professional empowerment category (27.50%). Sangareddy district constituted 40 per cent of respondents with medium professional empowerment followed by 31.25 per cent of respondents in high professional empowerment category and 28.75 per cent of respondents in less professional empowerment category. In Nalgonda district, 46.25 per cent, 28.75 per cent and 25 per cent of farm women had medium, high and less professional empowerment respectively.

Chi-square value (78.476) and p value (0.006) explained that there was a significant association between region and professional empowerment of farm women and it implied that there were dependent upon each other. It indicated that there was sufficient evidence to conclude that the observed distribution was not the same as the expected distribution. Most of the farm women were in medium professional empowerment category as majority of them were illiterate, had marginal and small land holding and medium information source utilization and medium extension contact. Capacity building programmes, access to gender friendly tools and income generating interventions for farm women would empower farm women professionally.

4.5. RELATIONSHIP BETWEEN THE PROFILE CHARACTERISTICS OF FARM WOMEN WITH THE ATTITUDE AND EMPOWERMENT OF FARM WOMEN

In order to study the nature of relationship between the profile characteristics and the attitude farm women towards farming and extent of empowerment of farm women, correlation coefficients (r) were computed and the values, necessary inferences drawn were presented below in consequent headings.

4.5.1. Relationship between the profile characteristics of farm women with their attitude towards farming

Correlation coefficients (r) computed to study the nature of relationship between the profile characteristics and the attitude farm women towards farming and the values were presented in table 4.26 and figure 4.26.

The relationships between the independent variables and attitude of farm women towards farming were tested by null hypothesis and empirical hypothesis.

Null hypothesis

There will be no relationship between the independent variables and attitude of farm women towards farming.

Empirical hypothesis

There will be significant relationship between the independent variables and attitude of farm women towards farming.

If the calculated co-efficient of correlation value (r) between independent and dependent variables was more than the table value of ' r ' at 0.01 or 0.05 level of significance, then the null hypothesis was rejected and empirical hypothesis was accepted.

4.5.1.1 Age Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = -0.107$) between age and attitude of the respondents was more than the table value of ' r ' at 0.05 level of significance. Hence, it could be inferred that there was a negative and non significant relationship between age and attitude of the farm women towards farming.

The reason for non significance between age and attitude of farm women towards farming was that farm women were holding different attitudes towards farming accordingly to their socio economic conditions and family opinions irrespective of their age. Similar findings were confronted by Sharma (2013)

4.5.1.2 Education Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.650$) between education and attitude of the respondents was less than the table value of ' r ' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between education and attitude of the farm women towards farming.

The possible reason might be that educated women were more interested in farming as they had the awareness knowledge and skills about various

technologies and had zeal and enthusiasm towards making farming as their profitable career. Similar findings were observed by Varma (1996), Sharma (2000), Alam *et al.* (2004), Jasuja (2006), Adedeji *et al.* (2012), Sharma (2013), Raziyanu (2016).

4.5.1.3 Family type Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.262$) between family type and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between family type and attitude of the farm women towards farming.

The reason might be that women in joint families benefitted from suggestions and continuous support from elders and other family members, which could have provided them with a broader picture of their experiences regarding ups and downs in farming, knowledge about benefits from farming and could have developed a positive attitude towards farming. Similar findings were noticed by Sharma (2013).

4.5.1.4 Farming experience Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = -0.162$) between farming experience and attitude of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, it could be inferred that there was a negative and significant relationship between farming experience and attitude of the farm women towards farming.

It was inferred that as farming experience increases, less favourable towards farming might be seen among the farm women. The possible reason could be that farm women who were in farming for a longer duration of time might have experienced the difficulties and adversities in farming and might have developed a negative attitude towards farming. Similar findings were reported by Raziyanu (2016).

4.5.1.5 Land holding Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.525$) between land holding and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between land holding and attitude of the farm women towards farming.

The possible reason might be that as the land holding is larger, farm women might get the opportunity of applying diverse improved technologies on farm and might had witnessed more returns on farms. It could also be due to the reason that larger land holdings might not give more impact on the economic status on the family in case of lesser crop yields.

Similar findings were revealed by Varma (1996), Sharma (2000) and Alam *et al.* (2004).

4.5.1.6 Annual income Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.851$) between annual income and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between annual income and attitude of the farm women towards farming.

It could be inferred that as the annual income of the farm women's family is higher, they could invest in more improved technologies on farm and could obtain higher returns which might had lead to increase in favourable attitude towards farming.

Similar findings were noticed by Varma (1996), Sharma (2013), Saikia (2014), and Raziyabanu (2016).

4.5.1.7 Mass media exposure Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.734$) between mass media exposure and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence,

it could be inferred that there was a positive and significant relationship between mass media exposure and attitude of the farm women towards farming.

Farm women when experience more mass media exposure, they could gain knowledge about various beneficial farming technologies and it could have contributed towards positive attitude towards farming.

Similar findings were observed by Varma (1996) and Sharma (2013).

4.5.1.8 Social participation Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.702$) between social participation and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between social participation and attitude of the farm women towards farming.

As farm women social participation increases, they might have the chances of more sources of information, support and help of other farm women in solving their problems on farm which could have resulted in increasing favourable attitude towards farming.

Similar findings were reported by Varma (1996), Sharma (2000), Jasuja (2006), Sharma (2013) and Saikia (2014).

4.5.1.9 Extension contact Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.305$) between extension contact and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between extension contact and attitude of the farm women towards farming.

It could be due to the reason that more extension contact increases access and services to improved technologies on farm and also increases the problem solving opportunities on farm which could have lead to the positive attitude towards farming.

Similar findings were found by Sharma (2000).

4.5.1.10 Information sources utilization Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.669$) between information sources utilization and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between information sources utilization and attitude of the farm women towards farming. Farm women when utilized the information from various sources to a higher extent for farming benefit, it could have increased the farm output and could have offered higher returns on farms which could have led to increase in positive attitude towards farming. Similar findings were presented by Varma (1996) and Jasuja (2006).

4.5.1.11 Creativity Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.688$) between creativity and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between creativity and attitude of the farm women towards farming. Creative farm women might have made difficult farm activities simple and could solve problematic situations on farm. Thus, farm women with higher creativity might have had positive attitude towards farming.

4.5.1.12 Achievement motivation Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.250$) between achievement motivation and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between achievement motivation and attitude of the farm women towards farming. Farm women with higher achievement motivation might have felt the need to excel in farming. They might have been prepared to face any situations and overcome them, thus, increasing the favourable attitude towards farming. Similar findings were documented by Jasuja (2006) and Saikia (2014).

4.5.1.13 Scientific orientation Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r=0.318$) between scientific orientation and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between scientific orientation and attitude of the farm women towards farming. It might be due to the reason that farm women with higher scientific orientation applied scientific practices and modern technologies on farm and might had benefitted from them. Thus, having positive attitude towards farming. Similar findings were stated by Raziyanu (2016).

4.5.1.14 Risk orientation Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r = 0.335$) between risk orientation and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between risk orientation and attitude of the farm women towards farming. It might be due to the reason that farm women with higher risk orientation might had been oriented towards facing any difficulties on farm but continue in farming due to passion towards farming. Similar findings were specified by Varma (1996) and Saikia (2013).

4.5.1.15 Economic orientation Vs Attitude of farm women towards farming

From the table 4.26 and figure 4.26, it was evident that co-efficient of correlation ($r=0.289$) between economic orientation and attitude of the respondents was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between economic orientation and attitude of the farm women towards farming. It could be due to the reason that farm women who had higher economic orientation were motivated towards increasing their income through farm and its allied enterprises, thus, they might had the positive attitude towards farming. Similar findings were found by Sharma (2000), Jasuja (2006), Sharma (2013) and Raziyanu (2016).

Table 4.26. Relationship between profile characteristics and attitude of farm women towards farming

n=240

S. No.	Variable	'r' value
X ₁	Age	-0.107 ^{NS}
X ₂	Education	0.650**
X ₃	Family type	0.262**
X ₄	Farming experience	-0.162*
X ₅	Land holding	0.525**
X ₆	Annual income	0.851**
X ₇	Mass media exposure	0.734**
X ₈	Social participation	0.702**
X ₉	Extension contact	0.305**
X ₁₀	Information sources utilization	0.669**
X ₁₁	Creativity	0.688**
X ₁₂	Achievement motivation	0.250**
X ₁₃	Scientific orientation	0.318**
X ₁₄	Risk orientation	0.335**
X ₁₅	Economic orientation	0.289**

* Significant at 5% level of probability

** Significant at 1% level of probability

NS Non significant

In order to determine the combined effect of all selected independent In order to determine the combined effect of all selected independent variables in explaining the variation of attitude of farm women towards farming, Multiple Linear regression analysis was carried out. The computed coefficient of determination (R^2) value and partial regression coefficient (b) values with their corresponding 't' values were presented in table 4.27. The R^2 and 'b' values were tested statistically for their significance.

Dependent variable

Y₁ Attitude of farm women towards farming

Independent variables

X₁: Age

X₂: Education

X₃: Family type

X₄: Farming experience

X₅: Land holding

X₆: Annual income

X₇: Mass media exposure

X₈: Social participation

X₉: Extension contact

X₁₀: Information sources utilization

X₁₁: Creativity

X₁₂: Achievement motivation

X₁₃: Scientific orientation

X₁₄: Risk orientation

X₁₅: Economic orientation

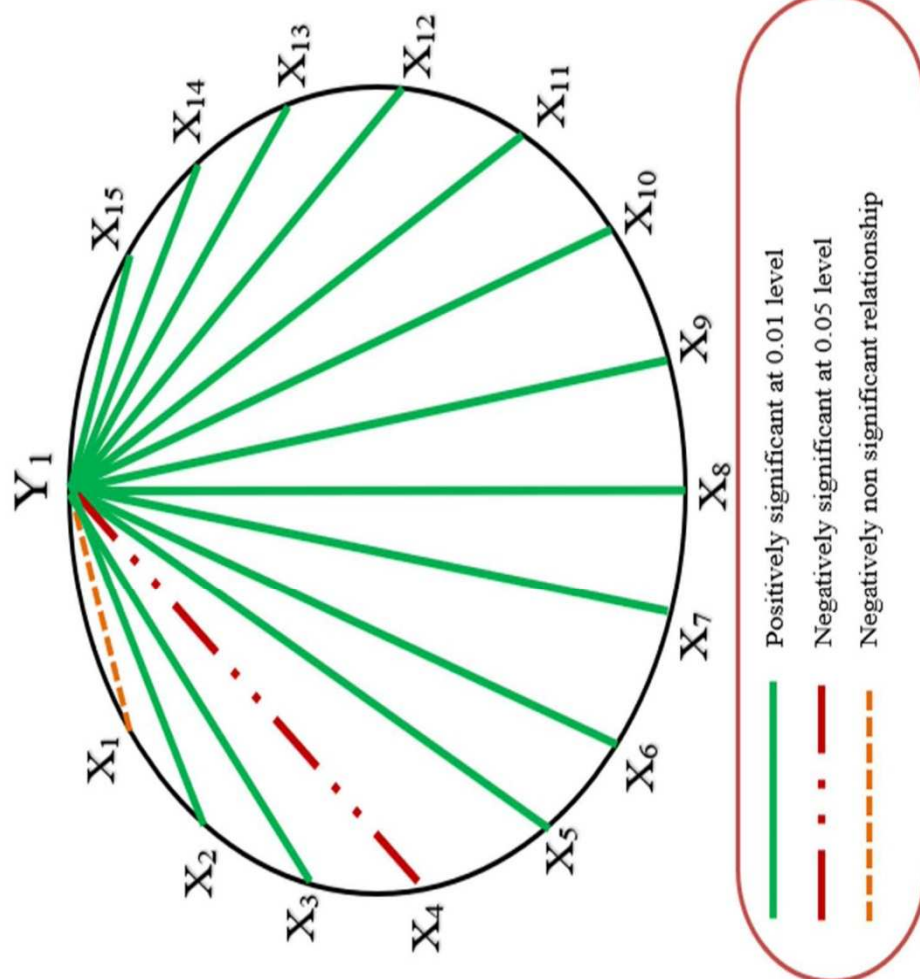


Fig. 4.26. Relationship between profile characteristics and attitude of farm women towards farming

Table.4.27. Multiple Linear Regression analysis of independent variables with the attitude of farm women towards farming

S. No.	Variable	Std. Error	'b' values	't' values	Sig.
X ₁	Age	0.282	-0.202	-1.285 ^{NS}	0.200
X ₂	Education	0.715	0.439	7.185**	0.000
X ₃	Family type	1.386	-0.042	-1.346 ^{NS}	0.180
X ₄	Farming experience	0.273	0.403	2.477*	0.014
X ₅	Land holding	0.778	-0.245	-5.632**	0.000
X ₆	Annual income	0.008	0.883	15.285**	0.000
X ₇	Mass media exposure	1.008	0.013	0.108 ^{NS}	0.914
X ₈	Social participation	0.895	0.268	1.936 ^{NS}	0.054
X ₉	Extension contact	0.471	0.042	0.810 ^{NS}	0.419
X ₁₀	Information sources utilization	0.395	-0.393	-2.600**	0.010
X ₁₁	Creativity	0.568	0.072	0.480 ^{NS}	0.632
X ₁₂	Achievement motivation	0.635	0.167	0.609 ^{NS}	0.543
X ₁₃	Scientific orientation	0.253	0.057	0.867 ^{NS}	0.387
X ₁₄	Risk orientation	0.444	-0.048	-0.412 ^{NS}	0.681
X ₁₅	Economic orientation	0.625	-0.177	-0.619 ^{NS}	0.537

$R^2 = 0.843$

* Significant at 5% level of probability

** Significant at 1% level of probability

NS Non significant

The data portrayed in table 4.27 revealed that the coefficient of determination R^2 value was significant. The R^2 value of 0.843 depicted that all the fifteen independent variables combinedly explained about 84.30 per cent of variation in the attitude of farm women towards farming. The partial regression coefficients revealed that the independent variables viz., education, farming experience, land holding, annual income, and information sources utilization were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in attitude of farm women towards farming.

4.5.2. Relationship between the profile characteristics of farm women with the empowerment of farm women

Correlation coefficients I computed to study the nature of relationship between the profile characteristics and the extent of empowerment of farm women and the values were presented in table 4.28 and figure 4.27.

The relationships between the independent variables and extent of empowerment of farm women were tested by null hypothesis and empirical hypothesis.

Null hypothesis

There will be no relationship between the independent variables and extent of empowerment of farm women.

Empirical hypothesis

There will be significant relationship between the independent variables and extent of empowerment of farm women.

If the calculated co-efficient of correlation value I between independent and dependent variables was more than the table value of 'r' at 0.01 or 0.05 level of significance, then the null hypothesis was rejected and empirical hypothesis was accepted.

4.5.2.1 Age Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = -0.290$) between age and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a negative and significant relationship between age and extent of empowerment of farm women.

The possible reason might be as age of the farm women increases their physical strength and efficiency in performing various activities decreases, therefore it might had lead less empowerment of old aged farm women.

Similar findings were specified by Tayde and Chole (2010 a).

Table.4.28. Relationship between profile characteristics and extent of empowerment of farm women in farming

S. No.	Variable	'r' value
X ₁	Age	-0.290**
X ₂	Education	0.886**
X ₃	Family type	0.052 ^{NS}
X ₄	Farming experience	-0.353**
X ₅	Land holding	0.450**
X ₆	Annual income	0.624**
X ₇	Mass media exposure	0.780**
X ₈	Social participation	0.794**
X ₉	Extension contact	0.333**
X ₁₀	Information sources utilization	0.760**
X ₁₁	Creativity	0.766**
X ₁₂	Achievement motivation	0.325**
X ₁₃	Scientific orientation	0.405**
X ₁₄	Risk orientation	0.399**
X ₁₅	Economic orientation	0.355**

* Significant at 5% level of probability

** Significant at 1% level of probability

NS Non significant

4.5.2.2 Education Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.886$) between education and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between education and extent of empowerment of farm women.

Educated women had higher aspirations and enthusiasm coupled with more mass media exposure which resulted in increase in the levels of empowerment along with the education status.

Similar findings were notified by Bharathamma *et al.* (2006), Tayde and Chole (2010 a), Kiran *et al.* (2012), Pooja and Rathod (2013), Damodar *et al.* (2016), Shilparani (2016) and Poonam (2018).

4.5.2.3 Family type Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.052$) between family type and extent of empowerment of farm women was more than the table value of 'r' at 0.05 level of significance. Hence, it could be inferred that there was a positive and non significant relationship between family type and extent of empowerment of farm women.

Farm women in different types of families experienced varied situations in their life which was not affected by the type of family in which they lived. Hence family type of farm women did not have significant relationship with the extent of empowerment of farm women. Similar findings were reported by Bharathamma *et al.* (2006), Kiran *et al.* (2012) and Poonam (2018).

4.5.2.4 Farming experience Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = -0.353$) between farming experience and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a negative and significant relationship between farming experience and extent of empowerment of farm women.

Farm women might had experienced various difficulties in farming as the farming experience increased and also it denoted that they experienced lesser physical strength and interest in performing activities. Hence, there might be less empowerment as farming experience increases. Similar findings were revealed by Pushpa (2009).

4.5.2.5 Land holding Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.450$) between land holding and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it

could be inferred that there was a positive and significant relationship between land holding and extent of empowerment of farm women.

Larger land holding provides more returns from the farm and that when farm women utilize resources in an efficient way by practicing modern technologies on farm, gain more income and higher socio economic standards. Hence, larger land holdings empowers farm women

Similar findings were noticed by Bharathamma *et al.* (2006), Pushpa (2009), Tayde and Chole (2010 a), Kiran *et al.* (2012), Pooja and Rathod (2013), Damodar *et al.* (2016) and Shilparani (2016).

4.5.2.6 Annual income Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.624$) between annual income and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between annual income and extent of empowerment of farm women.

As farm women earns higher annual income, they might be motivated to venture into new areas of income generation, experience good financial status and standard of living, provide higher education to their children, thus empowering farm women.

Similar findings were presented by Bharathamma *et al.* (2006), Pushpa (2009), Tayde and Chole (2010 a), Pooja and Rathod (2013), Aghaee and Noorivandi (2015) and Damodar *et al.* (2016).

4.5.2.7 Mass media exposure Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.780$) between mass media exposure and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between mass media exposure and extent of empowerment of farm women.

Higher mass media exposure provides farm women greater access to information sources, thereby empowering women by increasing their knowledge and skills about the farming and also about worldly affairs.

Findings were in line with Bharathamma *et al.* (2006) and Pushpa (2009).

4.5.2.8 Social participation Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.794$) between social participation and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between social participation and extent of empowerment of farm women.

Higher social participation provides farm women greater access to information sources, mutual help and increased access to financial institutions, thereby, increasing the empowerment status.

Similar findings were found by Bharathamma *et al.* (2006), Pushpa (2009), Tayde and Chole (2010 a), Pooja and Rathod (2013), Aghaee and Noorivandi (2015), Damodar *et al.* (2016) and Shilparani (2016).

4.5.2.9 Extension contact Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.333$) between extension contact and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between extension contact and extent of empowerment of farm women.

Increased extension contact, increases farm women access to superior technologies which would increase farm output, thereby increase in income. Increased income benefits farm women socio economically and might improve their empowerment status.

Similar findings were found by Pushpa (2009) and Shilparani (2016).

4.5.2.10 Information sources utilization Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r=0.760$) between information sources utilization and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between information sources utilization and extent of empowerment of farm women.

Increased information sources utilization increases greater problem solving, identifying new technologies, gaining of awareness and knowledge which might result in higher empowerment status. Similar findings were reported by Tayde and Chole (2010 a) and Kiran *et al.* (2012).

4.5.2.11 Creativity Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r=0.766$) between creativity and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between creativity and extent of empowerment of farm women.

Higher creativity individuals usually have better problem solving skills and might have greater efficiency in performing tasks, thus empowerment level might be higher for farm women with higher creative skills. Similar findings were noticed by Aghaee and Noorivandi (2015).

4.5.2.12 Achievement motivation Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r=0.325$) between achievement motivation and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between achievement motivation and extent of empowerment of farm women.

Farm women with higher achievement motivation tend to be more motivated and try to excel in their tasks which might lead to increasing their level of empowerment. Similar findings were observed by Shilparani (2016).

4.5.2.13 Scientific orientation Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.405$) between scientific orientation and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between scientific orientation and extent of empowerment of farm women.

Farm women who have more scientific orientation might have higher empowerment as they put effort to practice scientific technologies, increase their farm productivity, thereby by the income earned through the farming, increase their socio economic standards. Similar findings were revealed by Shilparani (2016).

4.5.2.14 Risk orientation Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.399$) between risk orientation and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between risk orientation and extent of empowerment of farm women.

Farm women with higher risk orientation would exhibit exploring varied avenues for income generation and increasing farm productivity which might be implied as being empowered and having greater potential to face risks in life. Similar findings were reported by Pushpa (2009).

4.5.2.15 Economic orientation Vs Extent of empowerment of farm women

From the table 4.28 and figure 4.27, it was evident that co-efficient of correlation ($r = 0.355$) between economic orientation and extent of empowerment of farm women was less than the table value of 'r' at 0.01 level of significance. Hence, it could be inferred that there was a positive and significant relationship between economic orientation and extent of empowerment of farm women. Farm

women with more economic orientation would venture new investments for increasing the income and use it for improving their farm resources and meet family needs. Higher income might empower women to raise their standard of living. Similar findings were noticed by Pushpa (2009) and Shilparani (2016).

In order to determine the combined effect of all selected independent variables in explaining the variation of extent of empowerment of farm women in farming, Multiple Linear regression analysis was carried out. The computed coefficient of determination (R^2) value and partial regression coefficient (b) values with their corresponding 't' values were presented in table 4.29.

Table.4.29. Multiple Linear Regression analysis of independent variables with the extent of empowerment of farm women

S. No.	Variable	Std. Error	'b' values	't' values	Sig.
X ₁	Age	0.202	0.073	0.545 ^{NS}	0.586
X ₂	Education	0.511	0.846	16.187**	0.000
X ₃	Family type	0.990	-0.091	-3.405**	0.001
X ₄	Farming experience	0.195	0.106	0.759 ^{NS}	0.449
X ₅	Land holding	0.556	-0.067	-1.800 ^{NS}	0.073
X ₆	Annual income	0.005	0.204	4.131**	0.000
X ₇	Mass media exposure	0.720	-0.137	-1.284 ^{NS}	0.201
X ₈	Social participation	0.639	0.281	2.374*	0.018
X ₉	Extension contact	0.336	-0.024	-0.544 ^{NS}	0.587
X ₁₀	Information sources utilization	0.282	-0.279	-2.154*	0.032
X ₁₁	Creativity	0.406	0.285	2.214*	0.028
X ₁₂	Achievement motivation	0.454	-0.525	-2.227*	0.027
X ₁₃	Scientific orientation	0.181	0.109	1.945 ^{NS}	0.053
X ₁₄	Risk orientation	0.317	-0.103	-1.027 ^{NS}	0.305
X ₁₅	Economic orientation	0.447	0.433	1.770 ^{NS}	0.078

$R^2 = 0.885$

* Significant at 5% level of probability

** Significant at 1% level of probability

NS Non significant

Dependent variable

Y_2 Extent of empowerment of farm women

Independent variables

X_1 : Age

X_2 : Education

X_3 : Family type

X_4 : Farming experience

X_5 : Land holding

X_6 : Annual income

X_7 : Mass media exposure

X_8 : Social participation

X_9 : Extension contact

X_{10} : Information sources utilization

X_{11} : Creativity

X_{12} : Achievement motivation

X_{13} : Scientific orientation

X_{14} : Risk orientation

X_{15} : Economic orientation

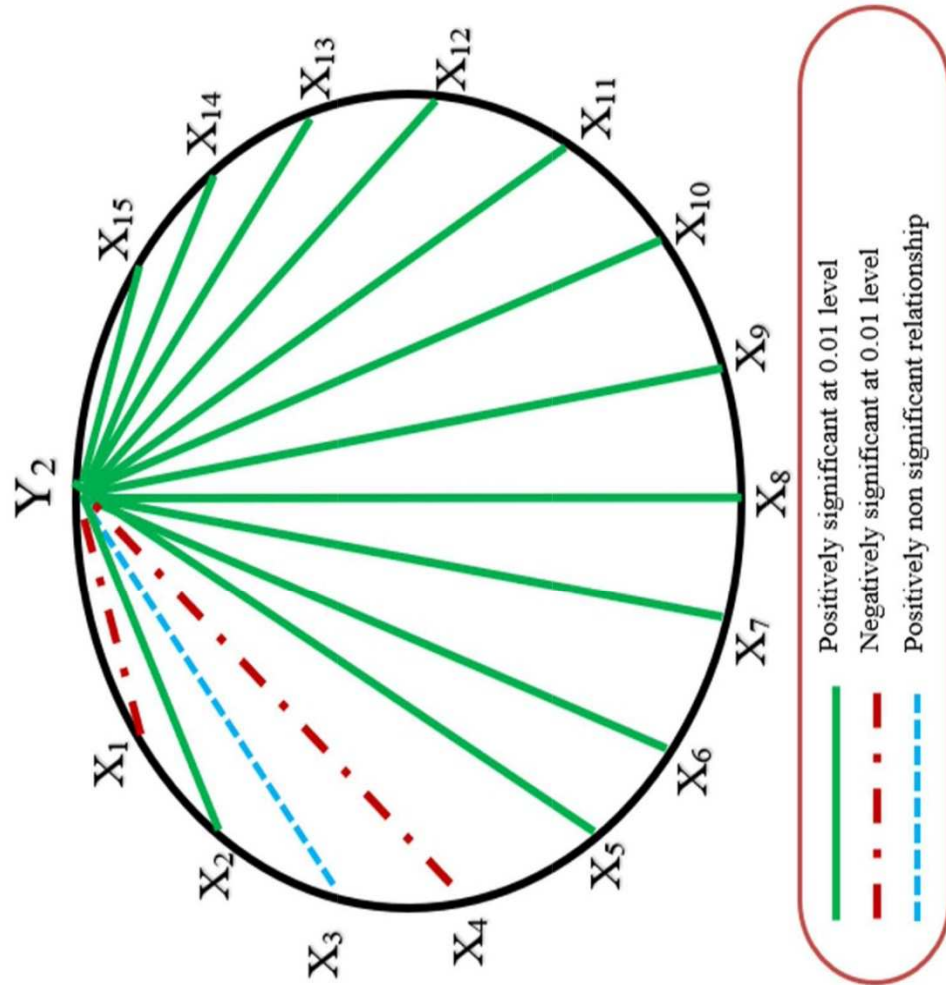


Fig. 4.27. Relationship between profile characteristics and extent of empowerment of farm women

The R^2 and 'b' values were tested statistically for their significance. The data portrayed in table 4.29 revealed that the coefficient of determination R^2 value was significant. The R^2 value of 0.885 depicted that all the fifteen independent variables combinedly explained about 88.50 per cent of variation in the extent of empowerment of farm women. The partial regression coefficients revealed that the independent variables viz., education, family type, annual income, social participation, information sources utilization, creativity and achievement motivation were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in extent of empowerment of farm women.

4.6. CONSTRAINTS FACED BY FARM WOMEN AND SUGGESTIONS TO OVERCOME THEM

In this objective, the constraints perceived by the farm women and the suggestions expressed by farm women to overcome their constraints were noticed and portrayed as below.

4.6.1. Constraints faced by farm women

Constraints faced by farm women were classified into three major categories which were socio-personal, economic and technological/on farm constraints and were presented in table 4.30 and figures 4.28 (a), 4.28 (b) and 4.28 (c).

Table 4.30 indicated that among socio-personal constraints, majority of the farm women perceived 'being woman, it is difficult to perform certain farm operations' (89.17%) 'lack of control over use of income' (81.67%), 'male dominated society' (71.67%), 'lack of ownership of assets (land and farm machinery/tools)' (67.52%), 'illiteracy' (64.58%), 'dependency on others' (63.33%) and 'secondary status in decision making' (57.92%) as major constraints.

Most of the farm women perceived 'health problems' (45.83%), 'lack of decision making power' (42.08%), 'lack of adequate time to work on farm due to domestic work' (40.00%), 'low self-confidence' (37.50%) and 'family and social conflict' (35.00%) as other socio-personal constraints in their lives.

The economic constraints faced by farm women were, 'discouraging agricultural price policy' (72.92%), 'poor economic condition' (63.75%), 'discrimination in payment of wages' (63.75%), 'lack of credit' (57.08%), 'costly agricultural inputs' (49.58%), 'difficulty in getting loans' (35.83%) and 'unavailability of subsidy on inputs' (34.58%).

With regard to technological/on farm constraints faced by the farm women 'non access to gender friendly technologies'(74.58%), 'lack of technical knowledge about improved farming activities' (73.75%), 'unavailability of inputs at right time and right quantities' (70.00%), 'unavailability of farm machinery at right time' (69.58%), 'lack of Information and Communication Technologies' (ICT's) (68.33%), 'lack of awareness about gender friendly technologies' (66.25%), 'lack of training programmes', 'poor or non-access to information sources' (60.00%), 'lack of irrigation' (56.25%), 'scarcity of labour' (55.42%), 'small size of land holding' (50.83%) were major constraints. 'Inadequate extension services (48.75%), 'lack of direct extension contact' (39.17%), 'diminishing support from government for farm women' (35.83%) and 'qualitative degradation of inputs' (22.08%) were other technological/on farm constraints faced by the farm women.

Similar findings were witnessed by Nain and Kumar (2010), Tiwari (2010), Warkade (2010), Girade and Shambharkar (2012), Chayal *et al.* (2013), Thakur (2013), Rani (2014), Pooja *et al.* (2016), Chauhan (2018) and Shankaarao (2018).

'Being woman, it is difficult to perform certain farm operations' with first rank was perceived by 89.17 per cent of farm women as a major socio personal constraint. Farm women with less physical strength compared to men farmers often depended on men or agricultural labourers for more physically demanding tasks in farming. They also perceived that their lack of enough strength in handling different agricultural tools and implements was restricting their efficiency in farming.

'Lack of control over use of income' (rank II) was deemed to be major constraint by most of the farm women (81.67%). Women in many households were not entitled to use and spend their self-earned income as well as family revenue

for various family requirements due to the existing patriarchal society. Because of their lower educational background, men did not perceive women as capable of handling family financial concerns. As a result, many women felt deprived of their financial liberty at home and at work.

‘Male dominated society’ was witnessed by 71.67 per cent of farm women and it was ranked third in the socio-personal constraints. Since generations, a patriarchal structure had prevailed in society and women were considered as second to males in their homes, denied equal access to education as their male siblings, lacked asset ownership, financial autonomy and faced restrictions that hampered their social mobility.

‘Lack of ownership of assets (Land and farm machinery/tools)’ (rank IV) was perceived as a constraint by 67.50 per cent of farm women. Many women do not have the ownership of land or machinery even though they are equal contributors on their farm. Women were not granted property alongside the male siblings in a household because as when they marry eventually, they become members of another household. In marital households, males hold the legal ownership of assets as the heads of the family due to existing patriarchal society. In some instances, women were given ownership of assets but in reality, that was not much beneficial to them and they did not have the autonomy of sale or further development of those assets.

‘Illiteracy’ with fifth rank was perceived as a constraint by 64.58 per cent of farm women. Farm women had less access to education because farming dependent households live in rural areas with few or no educational facilities or due to poor economic condition or due to the belief held by their parents that women do not need education. In certain circumstances, women have been denied access to higher education because their parents were unwilling to send their daughters away from home for study due to a traditional mindset. Illiteracy harmed women by limiting their knowledge, hindering them from making rational decisions and making them feel inferior to males. It also prevented them from actively participating in financial transactions and having social mobility.

Table 4.30. Constraints faced by farm women

S. No.	Constraints	f	%	Rank
I.	Socio personal constraints			
1.	Being woman, it is difficult to perform certain farm operations	214	89.17	I
2.	Lack of control over use of income	196	81.67	II
3.	Male dominated society	172	71.67	III
4.	Lack of ownership of assets (Land and farm machinery/tools)	162	67.52	IV
5.	Illiteracy	155	64.58	V
6.	Dependency on others	152	63.33	VI
7.	Secondary status in decision making	139	57.92	VII
8.	Health problems	110	45.83	VIII
9.	Lack of decision-making power	101	42.08	IX
10.	Lack of adequate time to work on farm due to domestic work	96	40	X
11.	Low self confidence	90	37.5	XI
12.	Family and social conflict	84	35	XII
II.	Economic constraints			
1.	Discouraging agricultural price policy	175	72.92	I
2.	Poor economic condition	153	63.75	II
3.	Discrimination in payment of wages	153	63.75	II
4.	Lack of credit	137	57.08	III
5.	Costly agricultural inputs	119	49.58	IV
6.	Difficulty in getting loans	86	35.83	V
7.	Unavailability of subsidy on inputs	83	34.58	VI
III.	Technological/ on farm constraints			
1.	Non access to gender friendly technologies	179	74.58	I
2.	Lack of technical knowledge about improved farming activities	177	73.75	II
3.	Unavailability of inputs at right time and right quantities	168	70	III
4.	Unavailability of farm machinery at right time	167	69.58	IV

Contd...

Table 4.30. Cont...

S. No.	Constraints	f	%	Rank
5.	Lack of Information and Communication Technologies	164	68.33	V
6.	Lack of awareness about gender friendly technologies	159	66.25	VI
7.	Lack of training programmes	144	60	VII
8.	Poor or non-access to information sources	144	60	VII
9.	Lack of irrigation	135	56.25	VIII
10.	Scarcity of labour	133	55.42	IX
11.	Small size of landholding	122	50.83	X
12.	Inadequate extension services	117	48.75	XI
13.	Lack of direct extension contact	94	39.17	XII
14.	Diminishing support from government for farm women	86	35.83	XIII
15.	Qualitative degradation of inputs	53	22.08	XIV

‘Dependency on others’ (rank VI) was perceived as a constraint by 63.33 per cent of farm women. Farm women were subjected to subordination at home as males were head of the households. Furthermore, women with lower levels of education had to rely on others for financial transactions. Women depended on men for tasks which exert more physical strength. Traditional mindset prevailing in society restricts social participation of women which further forces them to be dependent on others.

‘Secondary status in decision making’ (rank VII) was experienced by 57.92 per cent of farm women. Women’s thoughts and decisions were often dismissed by other family members. Despite the fact that women manage all household affairs, their decisions were simply considered for a second opinion only with a preconception that they were not deemed to be of high quality or appropriate for the situation due to various reasons like they lack of education and awareness of external events.

‘Health problems’ (rank VIII) was experienced by 45.83 per cent of farm women. Farm women reside in rural areas where adequate health care facilities might not be easily accessible. Women generally have several responsibilities at

home and on the farm, leaving them with little time to care for their health. Women sometimes suffer from health problems as a result of exhausting work at home and strenuous physical strain by work on the farm.

‘Lack of decision making power’ (rank IX) was experienced by 42.08 per cent of farm women. As a gesture of protection, women were frequently dominated by other family members and decisions were made on their behalf, particularly for young and elderly women. Women were denied autonomy in various financial and familial matters and they often lacked decision making power when final decision making authority was vested with the elders.

‘Lack of adequate time to work on farm due to domestic work’ (rank X) was experienced by 40 per cent of farm women. Along with working on the field, farm women must also manage domestic work, children raising and elderly care and household affairs. Many farm women have less support and assistance from other family members, resulting in insufficient time to carry out farm tasks.

‘Low self confidence’ was ranked eleventh in socio-personal constraints and was experienced by 37.50 per cent of farm women. Farm women viewed themselves to have less awareness and knowledge and had low self-confidence due to lack of proper education and higher social participation.

‘Family and social conflict’ was ranked twelfth in socio-personal constraints and was experienced by 35 per cent of farm women. Some of the farm women experienced familial conflicts due to varied reasons like male dominance and disagreements between family members about various farm and financial affairs. They also encountered difficulty in a few occasions as a result of their social position.

‘Discouraging agricultural price policy’ (rank I) was perceived to be major economic constraint by 72.92 per cent of farm women. The majority of farm women thought agricultural pricing was unremunerative and unsatisfactory because most of them had marginal or small land holdings and the crop harvested from these holdings was limited and the income earned on the farm was insufficient to meet all of the farm women family needs.

‘Poor economic condition’ (rank II) was perceived to be major economic constraint by 63.75 per cent of farm women. Majority of farm women had marginal and small land holdings and a moderate level of income from varied sources. Farm women believed that they lacked the financial resources to expand their farming operations and invest in other sources of revenue and their poor financial situation prevented their children from pursuing higher education.

‘Discrimination in payment of wages’ (rank II) was perceived to be one of the major economic constraint by 63.75 per cent of farm women. In farm operations, men and women were paid differently for the same type of work for same duration of time because women were prejudiced to be less productive. As a result, farm women frequently experienced disparity in payment of wages as men were paid more than women.

‘Lack of credit’ (rank III) was perceived to be major economic constraint by 57.08 per cent of farm women. Most farm women sought financial credit for domestic and agricultural purposes due to their poor socioeconomic status. They frequently struggled to obtain loans for farm activities due to a shortage of sources of finance lending institutions at lower interest rates.

‘Costly agricultural inputs’ (rank IV) was perceived to be major economic constraint by 49.58 per cent of farm women. As most farm women had poor economic background, their purchasing power was limited and were not able to afford agricultural inputs such as seed, fertilizers and pesticides which they thought to be expensive.

‘Difficulty in getting loans’ (rank V) was experienced by 35.83 per cent of farm women. Due to lengthy procedural formalities, small and marginal land holdings and illiteracy, farm women experienced difficulty in getting loans. ‘Unavailability of subsidy on inputs’ (Rank VI) was experienced by 34.58 per cent of farm women. Farm women were not able to afford farm inputs owing to their poor economic level. As subsidy was unavailable for all farm inputs, they were forced to forego such farm inputs.

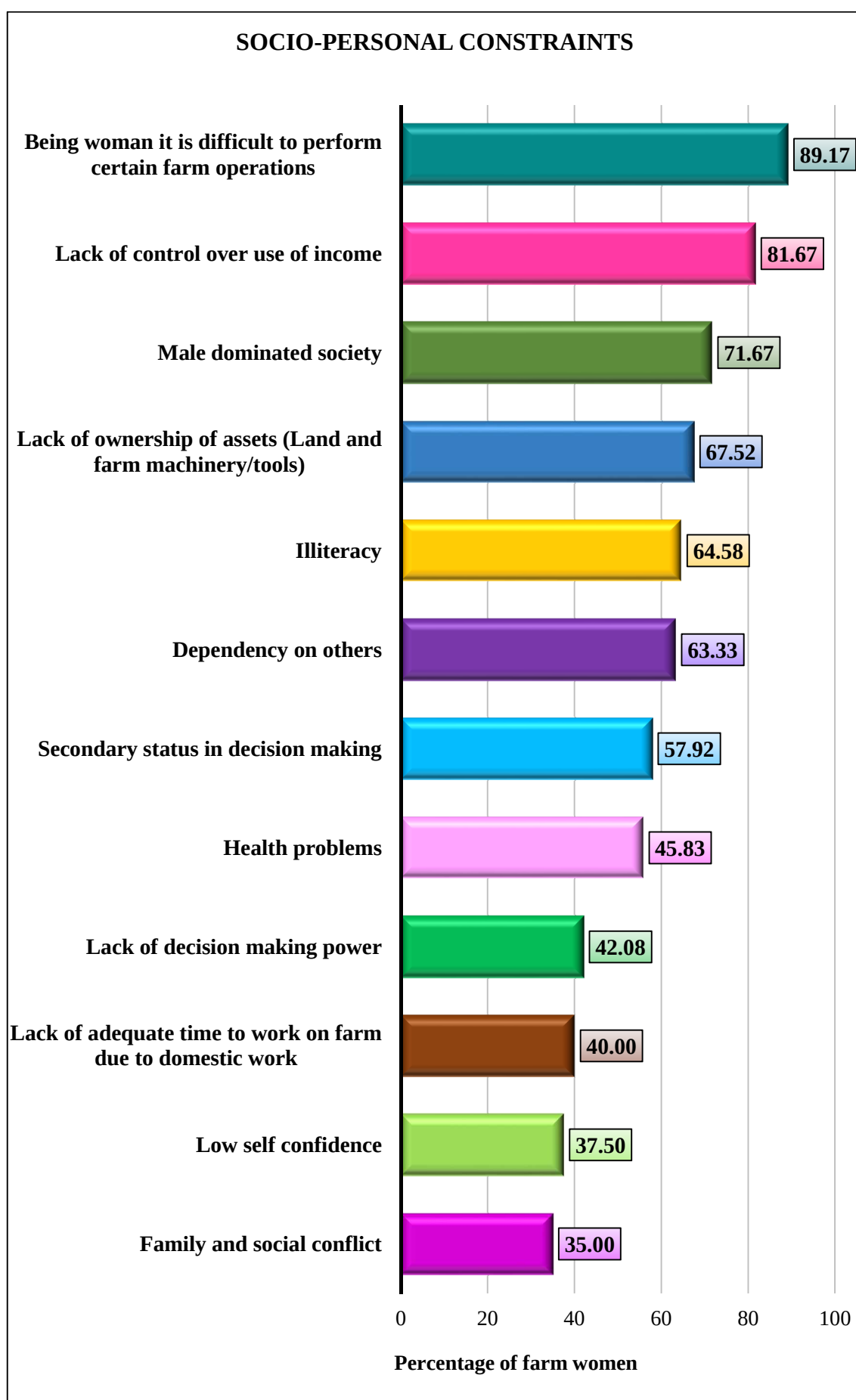


Fig. 4.28 (a) Socio-personal constraints faced by farm women

‘Non access to gender friendly technologies’ (rank I) was perceived to be major technological/on farm constraint by 74.58 per cent of farm women. Due to the fact that the majority of farm women live in rural regions and have limited access to extension services compared to male farmers, gender-friendly tools and technologies were not accessible to them. As the majority of agricultural operations needed a lot of physical strength which was difficult for farm women, the lack of gender-friendly technologies in their immediate vicinity was a big constraint to their farm performance.

‘Lack of technical knowledge about improved farming activities’ (rank II) was perceived to be major technological/on farm constraint by 73.75 per cent of farm women. Farm women had moderate extension contact and had less knowledge about improved farming practices due to less exposure to capacity building programmes.

‘Unavailability of inputs at right time and right quantities’ (rank III) was perceived to be major technological/on farm constraint by 70 per cent of farm women. Due to increased demand, most farm women encountered a lack of farm inputs for purchase before the start of the cropping season. They also experienced a shortage of farm machinery for critical farm activities.

‘Unavailability of farm machinery at right time’ (rank IV) was perceived to be major technological/on farm constraint by 69.58 per cent of farm women. Farm machinery availability shortages during critical stages of crop had a significant impact on farm operations and farm women who did not own farm machinery had to pay more on engaging farm machines.

‘Lack of Information and Communication Technologies’ (rank V) was perceived to be major technological/on farm constraint by 68.33 per cent of farm women. As majority of agricultural families live in rural areas in addition to most farm women being uneducated, they were unable to use ICTs to learn about new technology.

‘Lack of awareness about gender friendly technologies’ (rank VI) was perceived to be major technological/on farm constraint by 66.25 per cent of farm women. As a result of Illiteracy and insufficient extension services, farm women

had little or no awareness about various available gender friendly tools and technologies.

‘Lack of training programmes’ (rank VII) was perceived to be major technological/on farm constraint by 60 per cent of farm women. Farm women perceived a dearth of training programmes that were tailored to their specific needs and timely requirements as women and owners of small farms.

‘Poor or non-access to information sources’ (rank VII) was perceived to be major technological/on farm constraint by 60 per cent of farm women. Illiteracy of farm women coupled with a lack of active social participation and inadequate access to extension services resulted in a scarcity of information about new farm technologies which ultimately obstructed higher yields on farms.

‘Lack of irrigation’ (rank VIII) was perceived to be major technological/on farm constraint by 56.25 per cent of farm women. Irrigation shortages frequently resulted in poorer yields and decreased farm income, making it difficult for farm women to make ends meet.

‘Scarcity of labour’ (rank IX) was perceived to be major technological/on farm constraint by 55.42 per cent of farm women. Due to migration of agricultural labour from rural areas to urban areas for better sources of livelihood, labour shortage was experienced specifically in peak crop seasons which resulted in delays in conducting critical farm tasks on time.

‘Small size of land holding’ (rank X) was perceived to be major technological/on farm constraint by 50.83 per cent of farm women. The size of the land holding had a huge impact on how different technologies were used on the farm and income from smaller land holdings was limited which was a major constraint to many farm women.

‘Inadequate extension services’ (rank XI) was perceived to be major technological/on farm constraint by 48.75 per cent of farm women. Many farm women had less access to extension services, particularly during peak crop seasons and also because extension service providers focused more on male farmers than farm women.

‘Lack of direct extension contact’ (rank XII) was experienced by 39.17 per cent of farm women. Extension service providers mostly focus on farmers as a

whole, with farm women sometimes being left out and neglected. Due to their lower social participation, they lacked direct extension contact in the majority of situations and had to rely on their male counterparts for agricultural information.

‘Diminishing support from government for farm women’ (rank XIII) was experienced by 35.83 per cent of farm women. Farm women believed that the government gave little or no financial assistance and farm women oriented capacity building initiatives as well as specific marketing facilities for their produce were not adequate.

‘Qualitative degradation of inputs’ (rank XIV) was experienced by 22.08 per cent of farm women. Few farm women experienced low quality farm inputs specifically seeds. With much difficulty credit needed for farm inputs was gathered and when inputs quality was degraded, farm women not only experience monetary loss but also critical time for certain farm operations.

Many of the constraints experienced by farm women could be eliminated or their magnitude can be decreased by adequate interventions at family and societal level. Encouraging access to education for women will provide farm women with more decision making power and boosts their self-confidence. It also empowers farm women to be self reliant and have control over their earnings. In addition to boosting farm women’s access to extension services, extension workers should focus on wider diffusion of gender-friendly technologies and increasing access to gender-friendly technologies to improve farm women’s productivity.

Emphasis on increasing the favourable attitude of farm women towards improved agricultural technologies would render higher income even on smaller sized farms, improving the living conditions of farm women’s families. Farm women should be given more prominence in government support for farmers in order to keep the empowered women working in agriculture.

4.6.2. Suggestions of the farm women to overcome their constraints

As major contributors on farm alongside men, farm women expressed suggestions to overcome the constraints faced by them. Suggestions were ranked in the descending order of the frequencies obtained and were depicted in table 4.31 and figure 4.29.

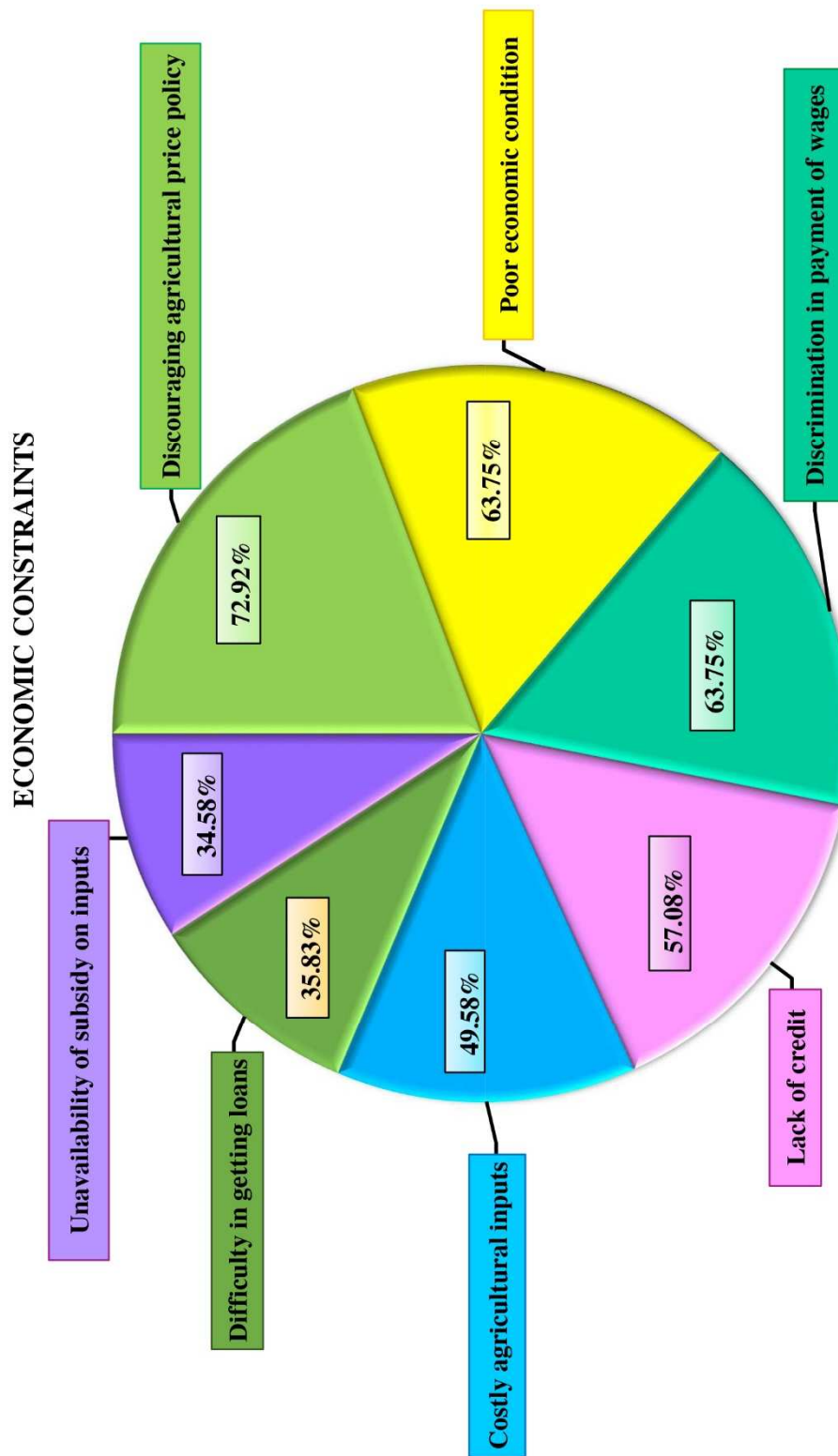


Fig. 4.28 (b) Economic constraints faced by farm women

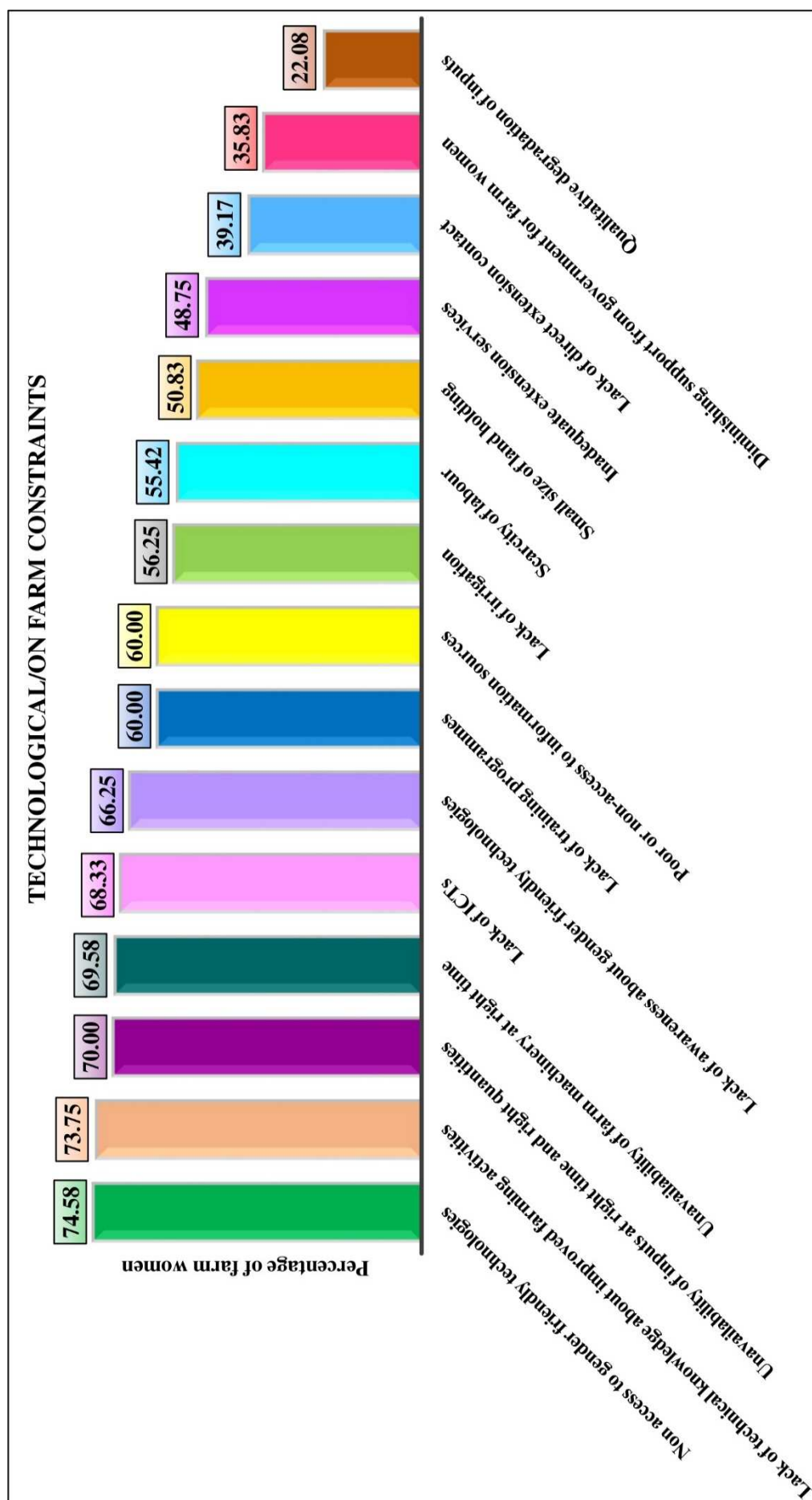


Fig. 4.28 (c) Technological/On farm constraints faced by farm women

Table 4.31 shown that majority of farm women suggested that ‘increasing access to gender friendly technologies (74.58%, rank I) followed by ‘intensification of farm women centered government schemes and programmes’ (70.00%, rank II), ‘provision of financial support to take up income generating activities for women (67.08%, rank III), providing remunerative prices for farm produce (62.50%, rank IV), organizing capacity building programmes for farm women (60.00, rank V), provision of subsidy on inputs (59.58%, rank VI), low interest loans for farming (53.75%, rank VII), creating legal awareness for benefit of women (47.50%, rank VIII), intensification of farm women focused extension services (45.00%, rank XI), and improving transportation facilities for marketing of produce (38.75%, rank X).

Similar findings were reported by Bandode (2012), Machhliya (2014), Rani (2014) and Imam (2019).

Farm women might had experienced difficulty in performing farm operations due to heavy farm tools and implements. Women who might not had proficiency to use the farm machinery might had resorted to manual work for possible farm activities. Increased access to gender friendly tools and technologies might reduce the burden of heavy work on farm and would increase the farm women’s efficiency.

Farm women might be expecting more farm women centered programmes which would aid them in providing finance, access to information and better marketing facilities. Farm women might be motivated in raising their standard of living by earning higher income through various avenues wherein they lacked initial financial investment and sincerely hoped for external financial support.

Farm women who were majorly owners of marginal and small land holdings might had perceived increased remunerative prices for produce would increase profits on their farms. Farm women were motivated towards building up of knowledge and skill to perform more efficiently in farm activities, thereby increasing their farm returns.

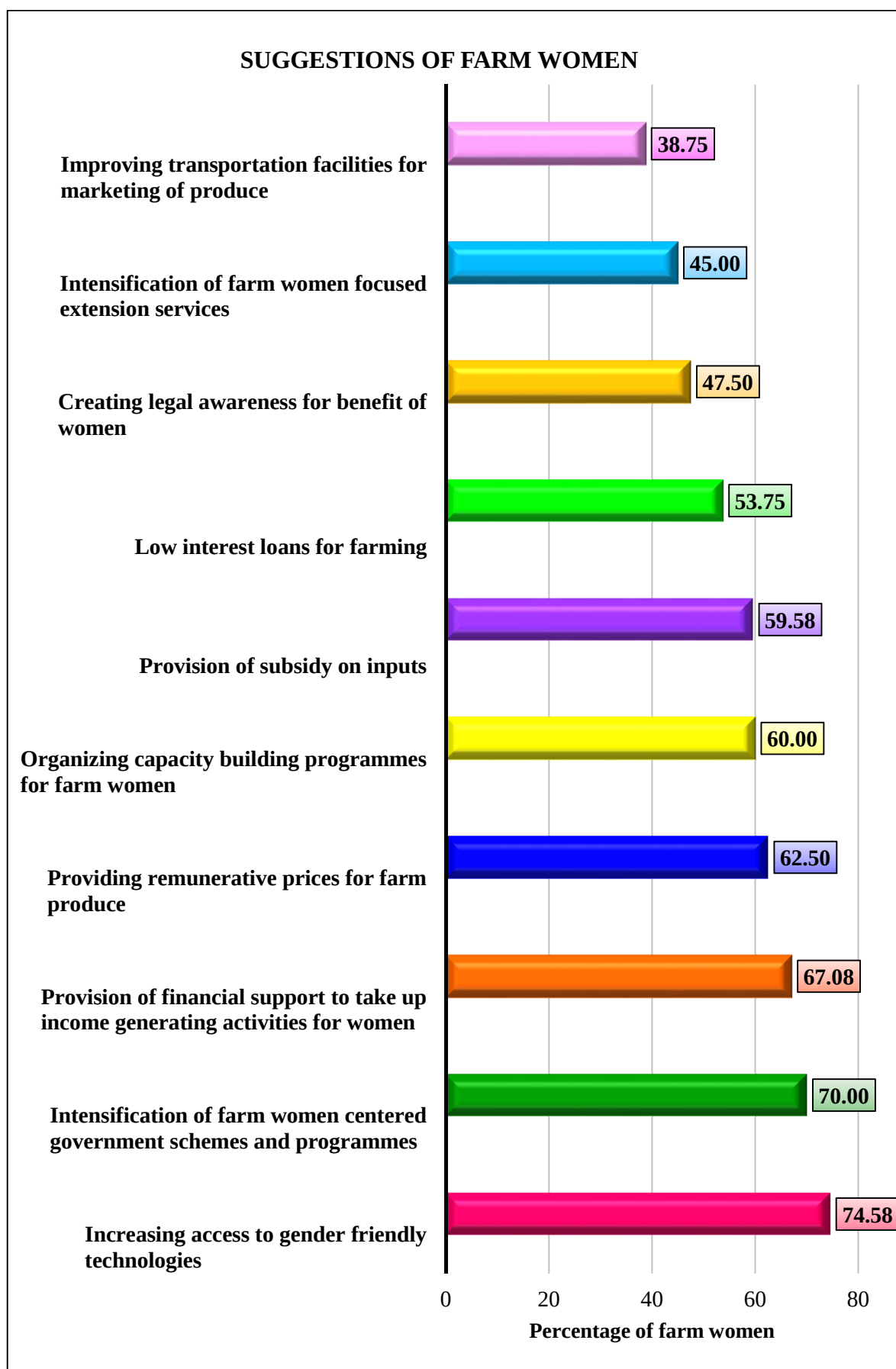


Fig. 4.29. Suggestions of farm women to overcome their constraints

Table 4.31. Suggestions of farm women to overcome their constraints

S. No.	Suggestions	f	%	Rank
1	Increasing access to gender friendly technologies	179	74.58	I
2	Intensification of farm women centered government schemes and programmes	168	70.00	II
3	Provision of financial support to take up income generating activities for women	161	67.08	III
4	Providing remunerative prices for farm produce	150	62.50	IV
5	Organizing capacity building programmes for farm women	144	60.00	V
6	Provision of subsidy on inputs	143	59.58	VI
7	Low interest loans for farming	129	53.75	VII
8	Creating legal awareness for benefit of women	114	47.50	VIII
9	Intensification of farm women focused extension services	108	45.00	IX
10	Improving transportation facilities for marketing of produce	93	38.75	X

Farm women where most of them were of poor economic background had perceived that availability of subsidy on inputs could reduce their financial burden. Low interest loans by various finance institutions could aid farm women to not ought for distress sale and also they would be able to afford inputs for farm activities and family needs.

Empowered farm women who had greater interest in legal aspects had perceived that woman should be provided legal awareness in order to fight the injustice and discrimination they faced in male dominated society. Increased extension services could increase access to capacity building programmes and information sources which would lead to more awareness, dissemination and adoption of improved technologies. Farm women wherein most of them reside in rural areas faced difficulty in marketing of produce due to lack of proper transportation facilities to better markets.

4.7. STRATEGY FOR GENDER MAINSTREAMING IN AGRICULTURE

Gender mainstreaming is a process that identifies development concerns, needs and impacts from gender perspectives at every stage of policy, programme and project planning, implementation, monitoring and evaluation. Gender mainstreaming is widely acknowledged as a necessary component of achieving gender equality and women's empowerment. Gender mainstreaming in agriculture ensures that policies and legislation meet the requirements of all people involved in agriculture with a special emphasis on farm women's empowerment. Farm women make up a substantial portion of the agricultural workforce but they face challenges owning productive assets like land and cattle, as well as having influence over productive inputs like loans and improved technology.

Gender perspective in agriculture pays attention to the fact that apparently rigid division of labour or power relations existing in agricultural activities between men and women. Becoming aware of differences in roles, scope of decision making power between men and women, gender mainstreaming in agriculture should ensure that policies and regulations laid down is to meet the requirements of all people involved in agriculture and with the with a special emphasis on farm women's empowerment. Gender-specific interventions might be directed at women only, men and women combined, or only men in order to ensure that both men and women can participate in and benefit from development activities equally. Therefore, keeping in view results of the study, an attempt was made to suggest/develop a strategy for gender mainstreaming in agriculture. The designed strategic model was depicted in figure 4.38.

The designed strategy consisted of three levels in which gender mainstreaming efforts should be focused viz., Individual and family level, institutional and organizational level and policy and legislation level. Integration of the efforts at the proposed three levels in strategy would result in gender mainstreaming in agriculture.

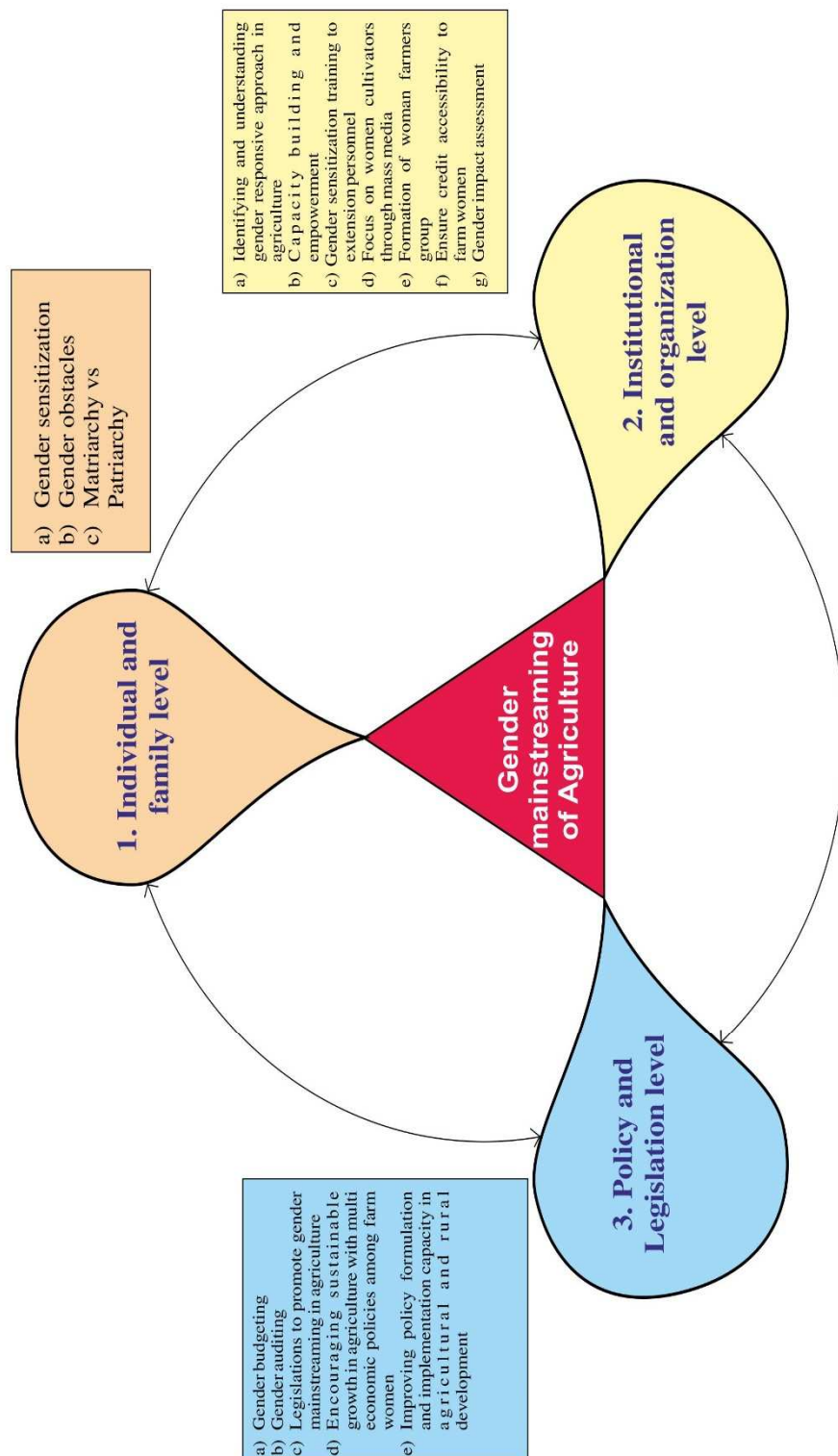


Fig. 4.30. Strategy for gender mainstreaming in agriculture

1. Individual and family level

Mainstreaming should be more deeply integrated into procedures and important activities which is shared by individual and family combinedly. As a result of 'family mainstreaming', the family becomes an even more important indicator of successful work in society. Mainstreaming could be achieved at individual and family level from the below methods.

a) Gender sensitization

Gender sensitization at individual and family level improves recognition and equal value of work about their own and the other genders. Inculcating good values at home will enhance to examining their personal attitude and beliefs. Gender sensitization at home promotes mutual understanding of men and women on gender roles and decision-making power.

d) Gender obstacles

Farm women's gender obstacles have an impact on gender mainstreaming. Farm women are lagging behind due to gender-specific obstacles, such as the majority of farm women having marginal land holdings, lack of freedom in spending income, lack of mobility due to inherent strength, lack of skills and knowledge in current trends, unequal treatment in recognition of farm women even though they work in farm till odd timings and extreme working conditions and unequal treatment in recognition of farm women.

- *Gender Bias*

Gender bias refers to the behavior that shows the favoritism or prejudice against one gender over another which occurs over workplaces, farming, politics and also educational organizations. Promoting women in farming by suitable policy formulation, identifying women as cultivators instead of treating them as daughters or spouses of men farmers, encouraging progressive farm women would lead to inclusion of them in farming.

- *Gender Discrimination*

Gender discrimination is the result of conscious or unconscious gender bias on the part of individuals or groups. It is the unequal treatment of an individual or a group based on gender. The migration of rural women from town to cities is majorly occurred due to lack of sufficient land, capital, unemployment and other reasons. The process of gathering, building capacities and providing information access to farm women can promote the empowerment of women which is a powerful tool for them to be employed.

e) Matriarchy vs Patriarchy

From the beginning we are manifested as patriarch families where men are influence person compare to women which also became obstacle for gender mainstreaming of farm women. Family system with old adoptions has different road blockers to women in farming mentioned as below.

- *Difference in ownership*

Patriarch authority has made some forceful implications in family which lead farm women into unrecognition even with greater contribution. The matriarchal family type will lead to a greater understanding of the difficulties that farm women face on a daily basis. For patriarch families, full and sole responsibility is challenging, yet some farm women have succeeded in planned and structured farming. The patriarch family has a different perspective on farming because there are many supportive tasks to accomplish outside of the farm.

- *Mortality and gender violence*

Mortality is the most important factor in achieving equality in farming, regardless of gender. Ethics is a moral value coupled with some regulations and norms to aid women in farming who lack autonomy. Lack of ethics and morals leads to gender violence. Every person has the right to live in peace and security, as well as the right to liberty and safety from harm.

- *Whole family inclusion*

Family should make actions by considering resources allocation to farm women, fulfil gender needs for farm women and also need to involve all people in a family into farming to reduce effort from farming women. Farm women do multiple tasks in daily wise household and farming activities. Because of the help of family members farm women will get some leisure time for themselves.

2. Institutional and organization level

At institutional level following efforts are needed for farm women inclusion in agriculture.

a) Identifying and understanding gender responsive approach in agriculture

The gender responsive approach means that particular needs, priorities and realities of men and farm women need to be recognized and adequately addressed so that both will equally benefit. Recruitment of more women extension agents and socio-structural approach in decision making of farm women will make improvement in ability of autonomy in farming women

- *Gender Equity*

Gender equity is a state in which women and men have equal access to resources and opportunities, including economic participation and decision-making and state of equally valuing varied behaviours, goals, and needs, regardless of gender. Equity entails attempting to comprehend and provide for people's needs with justice in order for them to live complete, full and healthy lives.

- *Gender Equality*

Gender Equality entails offering equal opportunities and resources to men and women. Land, credit, participation in decision-making bodies or organizations and capacity building through trainings and extension services are all valuable resources in agriculture. Gender equality means that an individual's rights, responsibilities and opportunities will be considered by all ages regardless of gender. Equality seeks to ensure that everyone has access to the same resources with uniformity in order to live full and healthy lives. By ensuring the equity and

equality, farm women get access to the available information sources and can be responsible for the higher yield productions in agriculture.

b) Capacity building and empowerment

Capacity building refers to the process of developing and strengthening the skill and competencies, instincts, process and resources of an individual or organization to perform better in the fast-growing world.

Capacity building includes

- Supervision and monitoring of farm activities of women cultivator. Farm women based and gender-based monitoring techniques will notify growth in farm women activity individually, based on this we can implement best methods to optimize farm women benefits.
- Developing leadership of women: Individual and cluster-based group formation and authorization in group activity roles will develop and improve farm women's leadership qualities. Individual and cluster-based group formation and authorization in group activity roles will improve farm women's leadership qualities.
- Training programmes: Based on latest trends and technologies gender-based training programmes needed for farm women. Perception of understanding and adoption ability is different in between farm women and men, so separate farm women training will be helpful to handle tools and techniques by farm women.
- Couple training: The majority of people's perceptions of farmers are based on men rather than women or both. By reducing conventions, it is possible to consider couples as farmers for trainings in order to obtain adoptability of motives
- Capacity building will improve by encouraging literacy in farming women by adult literacy procedures. Communities and farmer groups within village should provide facilities to maintain information and required procedures in handy for farming by linkage of institutional and extension personals into farmer groups. Also farming women economic condition will improve with encouraging of micro economics in farming. Access to spending income will

empower the ability and ideas of farming women. Which leads in improve of self confidence among them.

c) Gender sensitization training to extension personnel

Gender sensitization is a process through which one understands the sensitive needs of the particular gender and raise sensitization of gender equality concerns. In the gender sensitization training, the field extension personnel are made aware of mainstreaming gender equality in their work, labour division, access to resources, decision making and gender awareness in project activities.

d) Focus on women cultivators through mass media

Women farmers should be given more attention by the media, including television, radio, newspapers, and farm journals. Farm women's agricultural experiences and success stories should be published. Progressive farmers can be elected among those farm women and encouraged to spread knowledge and awareness among farmer groups. Farm women can easily share their skills and ideas within their community or within a group, as well as their own triumph.

e) Formation of woman farmers group

Formation of women farmers group will facilitate easy access to the extension agent to disseminate the production technologies to the women cultivators. This group approach alleviates many cultural difficulties and enhance the work productivity of farm women.

f) Ensure credit accessibility to farm women

Land ownership in patriarchal societies was restricted to male members of the family. This makes it difficult for women cultivators to obtain institutionalized credit for their agricultural purposes. To increase the contribution of women cultivators in decision-making at home and on the farm, financial needs of women cultivators should be met through cooperatives and nationalized banks and cumbersome procedures and security required to obtain a loan should be reduced.

g) Gender impact assessment

Gender impact assessment is a tool designed to assist organizations in critically thinking about how programmes, policies and services meet the various needs of farm women, men, and gender diverse people. This gender impact assessment identifies the skill gap among farm women as well as their training requirements.

3. Policy and Legislation level

a) Gender budgeting

Gender responsive budgeting has emerged as an important tool for mainstreaming gender issues as part of the ongoing struggle in several countries around the world to make budgets and policies more gender responsive. Gender budgeting is the process of conceiving, planning, approving, implementing, monitoring, analyzing and auditing budgets while keeping gender in mind. Gender budgeting is comparing real spending and revenue on women and girls to spending and revenue on men and boys. Gender budgeting is assessing budgets from a gender viewpoint, adopting a gender perspective at all stages of the budgetary process, and reorganizing income and expenditures to promote gender equality.

b) Gender auditing

Gender auditing is the process helps to understand the extent to which gender equality of farm women is effectively institutionalized in policies, programmes, organizational structure and decision making process in corresponding to the gender budget. Gender audit enhance the collective capacity of organization to examine the activities from gender perspective and identify the strength, weakness and challenges to promote gender equality in agriculture.

c) Legislations to promote gender mainstreaming in agriculture

Identifying policies related to gender mainstreaming in agriculture. Implementing gender-based policies to give farming women more authority over their land. Consideration of farm women's efforts by legal approaches, as well as

accumulation of farm women's efforts in estimating crop related budgeting, will improve farm women's roles and gain significant recognition. Guidelines and rules must imply in field level for farm women to ensure the safety and healthy working conditions of farm women. Encourage gender based technologies and farm equipment through legal policies to ensure farm women's adaptability to cutting edge technology. Encourage the portability of equipment to ensure farm women's easy access to existing and upcoming innovations.

d) Encouraging sustainable growth in agriculture with multi economic policies among farm women

Wide ranging economic status and alternative economic development approaches make farm women liable on farming and farm-based earnings. These types of policies and encouraging procedures like subsidies will provide sustainable growth in agriculture.

e) Improving policy formulation and implementation capacity in agricultural and rural development

Improving policy formulation from the perspective of farm women in rural areas, as well as policies based on local resource accessibility, will lead to economic growth and hope in farming based on current day to day life. Most of the cases, farm women are struggling with unsustainable income sources to live. Daily expenditures are increasing, so farm women must be supported through encouraging policies and multi economic income generation methods based on or related to farming.

4.8 EMPIRICAL MODEL OF THE STUDY

The conceptual model for this research study (Figure.2.1.) was tested based on the results and an empirical model was established and provided in figure 4.31. This model was hopefully conceived to give an objective assessment of attitude of farm women towards farming and extent of empowerment of farm women. This model was tested with the help of correlation analysis to find out the relationship between independent variables and dependent variables.

Correlation analysis revealed that education, family type, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation and economic orientation displayed positively significant relationship with the attitude of farm women towards farming at 0.01 per cent level.

Farming experience displayed negatively significant relationship with the attitude of farm women towards farming at 0.05 per cent level. Age displayed negatively non significant relationship with the attitude of farm women towards farming. The partial regression coefficients revealed that the independent variables viz., education, farming experience, land holding, annual income, and information sources utilization were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in attitude of farm women towards farming.

Correlation analysis displayed that education, farming experience, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation and economic orientation displayed positively significant relationship with the extent of empowerment of farm women at 0.01 per cent level. Age displayed negatively significant relationship with the extent of empowerment of farm women at 0.01 per cent level.

Family type displayed positively non significant relationship with the extent of empowerment of farm women. The partial regression coefficients revealed that the independent variables viz., education, family type, annual income, social participation, information sources utilization, creativity and achievement motivation were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in extent of empowerment of farm women.

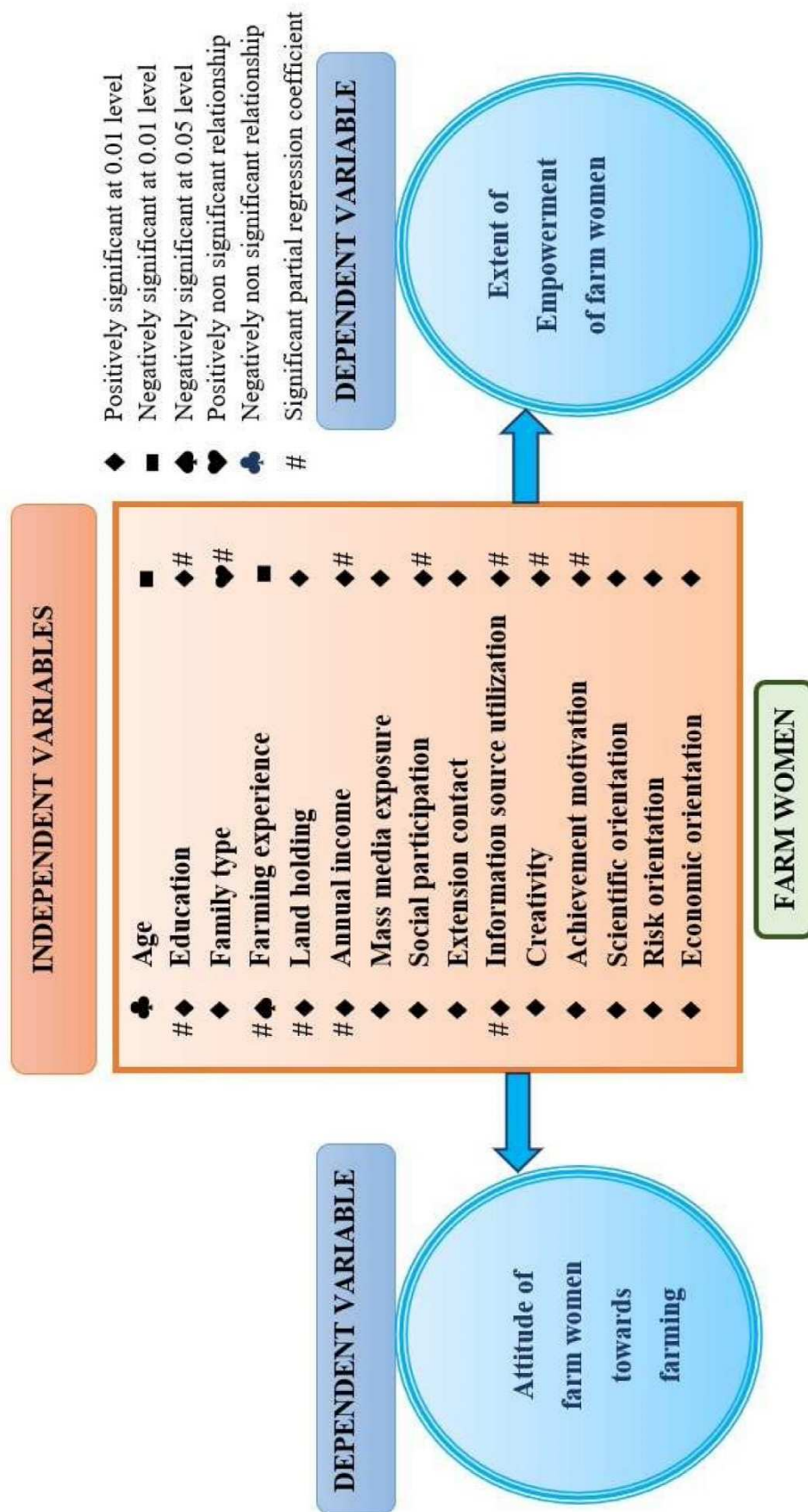


Fig. 4.31. Empirical model of the study

Chapter – V

Summary and Conclusions

Chapter V

SUMMARY AND CONCLUSION

Agriculture contributes significantly to the Indian economy and accounted for 19.9 per cent of Gross Domestic Product (GDP) in 2020-21. Approximately 41.49 per cent of the workforce in 2020 were employed by agriculture and allied sectors which indicated that they continue to be India's mainstay livelihood source. Agriculture sector in India employed 80 per cent of all economically active women of whom 33 per cent were agricultural labour force and 48 per cent were self-employed farmers (Annual Report, 2020-21), while in developing nations, on an average, women constituted 43 per cent of the agricultural workforce (FAO, 2011).

Women farmers played an increasingly important role in India's agricultural production, as evidenced by a growth in the number of female operational holders in successive agriculture censuses. In India, the share of women operational holders and area operated by them in agriculture was 13.87 per cent and 11.57 per cent respectively in 2015-16 compared to 12.79 per cent and 10.36 per cent in 2010-11 which implied that women's participation and involvement in farm managerial operations had increased (Agricultural census, 2015-16). Women's contribution to agriculture is now acknowledged in the present scenario as the major workforce in Indian agriculture and the 'Rashtriya Mahila Kisan Divas' was commemorated to honour them.

Women farmers contributed to the rural economy's growth and played a key role in agricultural development, which included main crop production, animal production, horticulture, post-harvest activities, agro/social forestry and fisheries etc. Women participated in farming activities in three different ways depending on their family's socioeconomic position and regional factors. They typically operated as paid labourers, cultivators on their own land and managers of certain areas of agricultural output by supervising labour and by participating in post-harvest operations (Lal and Khurana, 2011). They played a vital role in family, food security and survival despite living in extreme poverty, suffering gender inequalities and traditional role limitations.

Worldwide, most women were engaged in non-mechanized and drudgery-driven farm operations. Women also encountered numerous challenges in agriculture along with their male counterparts like the uncertainty of the weather, climate change effects, unpredictable prices for produce, challenges in obtaining financing etc. In comparison to men, women lacked equal access to resources and opportunities and received comparatively less wages than men for the same type of work for the same amount of time. If women had the same access to productive resources as their male counterparts, productivity on their farms could increase by 20 per cent to 30 per cent, thereby an increase of 2.5 per cent to 4 per cent of total agricultural output in poor nations and a reduction in the number of hungry people worldwide by 12 per cent to 17 per cent. (FAO, 2011). Many women around the world believed that gender disparity added to the burden faced by them and that their contributions went unnoticed and underpaid to a major extent.

India since independence began a journey towards gender equality and women's empowerment and Indian economic progress necessitated a greater focus on social and human development, notably women's development and empowerment. Indian Constitution's Preamble, Fundamental Rights, Fundamental Duties and Directive Principles had enshrined the principle of gender equality. Women's equality was guaranteed in the Constitution and the state was empowered to implement affirmative discriminatory measures in their favour. Even though legal reforms, human development and grassroots initiatives had made significant progress in women empowerment, a more concerted effort is needed to close the urban-rural divide and ensure that rural women have equal access to education, employment, healthcare and decision-making as their male counterparts.

Empowerment is a means of defining, challenging and overpowering barriers in women's life through which their ability to shape their life is improved. Women's sense of self-esteem and social identity as well as their readiness and capability to question their subordinate status and identity, their capacity to exercise strategic control over their own lives and renegotiate their relationships with those who matter to them and their ability to participate in

society redesigning on an equal footing with men in ways that contribute to a more equitable and democratic distribution of power and opportunities were all considered to be facets of empowerment (Kabeer, 2008).

Dimensions of empowerment and models of empowering women varied across the regions depending on the situation of women. Empowerment of women can be promoted through development in varied key components of empowerment dimensions such as psychological, health, social, cultural, economic, political, legal and technological which were interconnected.

Empowering women in agriculture requires a holistic approach that includes a comprehensive understanding of work participation, drudgery and gender issues and to take leadership positions in agricultural activities. Empowered women are more likely to double the developmental efforts and achieve inclusive agricultural growth. Empowerment encourages women to adopt positive attitudes, increase their involvement in agricultural decision-making and farm operations which leads to increased farm productivity.

Henceforth, the present study, 'Empowerment of farm women in Telangana state' was taken up with the following objectives.

5.1 OBJECTIVES OF THE STUDY

Keeping these important issues in view, the present study was contemplated with the ensuing objectives.

1. To study the profile characteristics of farm women.
2. To assess the magnitude of participation of farm women in farming.
3. To study the attitude of farm women towards farming.
4. To measure the extent of empowerment of farm women in agriculture.
5. To elicit the relationship between the profile characteristics with the attitude and empowerment of farm women.
6. To analyze the constraints faced by farm women and suggestions to overcome them.
7. To suggest a strategy for gender mainstreaming in agriculture.

5.2 REVIEW OF LITERATURE

Keeping in view the above objectives, the related literature on various aspects was reviewed and a strategy was developed for the study.

5.3 RESEARCH DESIGN

Ex post facto research design was used for conducting the study.

5.4 SAMPLING PROCEDURE

Telangana state was purposively selected. The districts with highest number of farm women in each agro climatic zone were chosen purposively for the study. The selected districts included 'Nizamabad' from 'Northern Telangana zone', 'Sangareddy' from 'Central Telangana zone' and 'Nalgonda' from 'Southern Telangana zone'. Four mandals from each of the selected three districts were purposively chosen based on the highest number of farm women in the mandals of each of the three districts. Two villages from each Mandal were selected by simple random sampling procedure thus, making a total of twenty four villages. From each village, ten farm women in farming were selected by simple random sampling procedure thus making a total of 240 respondents as the sample of the study.

5.5 VARIABLES SELECTED FOR THE STUDY

5.5.1 Dependent variables

The attitude of farm women towards farming and extent of empowerment of farm women were chosen as the dependent variables of the study. They were measured using the attitude scale and empowerment index constructed for the study.

5.5.2 Independent variables

The independent variables selected for the study were age, education, family type, farming experience land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation and economic orientation. The same were measured with appropriate scales and schedules for the study.

5.6 COLLECTION OF DATA

The data was collected by personal interview method through a structured interview schedule. The data thus collected was coded, classified, tested statistically, tabulated and were suitably interpreted.

5.7 RESULTS

5.7.1 Distribution of respondents based on their profile characteristics

5.7.1.1 Age

More than half (50.83%) of the farm women belonged to the middle aged category followed by farm women in young aged category (26.25%) and in the old aged category (22.92%).

5.7.1.2 Education

Most (35.00%) of farm women were illiterate followed by farm women with primary school level of education (16.67%), high school level of education (15.83%), functionally literate (12.50%), middle school level of education (9.58%), intermediate level of education (6.25%) and graduation and above level of education (4.17%).

5.7.1.3 Family type

More than half (57.92%) of farm women belonged to nuclear families and the remaining (42.08%) farm women belonged to joint families.

5.7.1.4 Farming experience

About sixty per cent of farm women had medium level of farming experience followed by low level category of farming experience (22.08%) and high level category of farming experience (17.92%).

5.7.1.5 Land holding

Half of the farm women respondents (50.417%) had marginal size of land holding followed by farm women with small sized land holding (34.167%), semi-medium sized land holding (10.416%), medium sized land holding (3.750%) and large sized land holding (1.250%).

5.7.1.6 Annual income

Most of farm women families (43.34%) earned medium level of annual income followed by farm women families with low annual income (32.08%) and high annual income (24.58%).

5.7.1.7 Mass media exposure

Most (45.00%) of farm women had medium exposure to mass media followed by farm women with high exposure (28.33%) and low exposure (26.67%) to mass media.

5.7.1.8 Social participation

Most (37.50%) of farm women had medium social participation followed by high social participation (33.33%) and low social participation (29.17%).

5.7.1.9 Extension contact

Above two fifths (44.58%) of farm women had medium extension contact followed by low extension contact (29.58%) and high extension contact (25.84%).

5.7.1.10 Information sources utilization

Most (43.33%) of farm women had medium level information sources utilization followed by high information sources utilization (30.42%) and low (26.25%) information sources utilization.

5.7.1.11 Creativity

More than half (52.92%) of farm women had medium creativity followed by farm women with high creativity (26.67%) and low creativity (20.42%).

5.7.1.12 Achievement motivation

Less than half (44.58%) of farm women had medium achievement motivation followed by farm women with high achievement motivation (30.42%) and low achievement motivation (25.00%).

5.7.1.13 Scientific orientation

About 50 per cent of farm women had medium scientific orientation followed by 27.08 per cent of farm women in high scientific orientation category and 22.92 per cent of farm women in low scientific orientation category.

5.7.1.14 Risk orientation

Most (46.25%) of the farm women had medium risk orientation followed by farm women with high risk orientation (29.58%) and low risk orientation (24.17%).

5.7.1.15 Economic orientation

More than two fifths (44.17%) of farm women had medium economic orientation followed by farm women with high economic orientation (29.58%) and low economic orientation (26.25%).

5.7.2 Magnitude of participation of farm women in farming.

Most (42.08%) of farm women had medium participation in farming followed by high participation (31.25%) and low participation (26.67%) in farming.

5.7.3 Attitude of farm women towards farming.

More than two fifths (46.25%) of farm women had moderately favourable attitude followed by highly favourable (30.00%) and less favourable attitude (23.75%) towards farming.

5.7.4 Extent of empowerment of farm women in agriculture

Majority (52.50%) of farm women had medium empowerment followed by high empowerment (25.00%) and less empowerment (22.50%).

Majority (55.83%) of farm women had medium psychological empowerment followed by high psychological empowerment (23.34%) and less psychological empowerment (20.83%).

Majority (52.08%) of farm women had medium socio-cultural empowerment followed by high socio-cultural empowerment (25.42%) and less socio-cultural empowerment (22.50%).

Approximately half (48.83%) of farm women had medium economic empowerment followed by high economic empowerment (27.50%) and less economic empowerment (24.17%).

More than two fifths (42.92%) of farm women had medium politico-legal empowerment followed by less politico-legal empowerment (30.00%) and high politico-legal empowerment (27.08%).

Nearly (42.08%) of farm women had medium professional empowerment followed by high professional empowerment (30.84%) and less professional empowerment (27.08%).

5.8. RELATIONSHIP BETWEEN PROFILE CHARACTERISTICS OF FARM WOMEN WITH THE ATTITUDE AND EMPOWERMENT OF FARM WOMEN

5.8.1 Relationship between the profile characteristics of farm women with their attitude towards farming

It could be inferred from the study that education, family type, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation, economic orientation displayed positively significant relationship with the attitude of farm women towards farming at 0.01 per cent level. Farming experience displayed negatively significant relationship with the attitude of farm women towards farming at 0.05 per cent level. Age displayed negatively non significant relationship with the attitude of farm women towards farming.

The partial regression coefficients revealed that the independent variables viz., education, farming experience, land holding, annual income and information sources utilization were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in attitude of farm women towards farming.

5.8.2. Relationship between the profile characteristics of farm women with the empowerment of farm women

Education, land holding, annual income, mass media exposure, social participation, extension contact, information sources utilization, creativity, achievement motivation, scientific orientation, risk orientation and economic orientation displayed positively significant relationship with the extent of empowerment of farm women at 0.01 per cent level. Age and farming experience displayed negatively significant relationship with the extent of empowerment of farm women at 0.01 per cent level. Family type displayed positively non significant relationship with the extent of empowerment of farm women.

The partial regression coefficients revealed that the independent variables viz., education, family type, annual income, social participation, information sources utilization, creativity and achievement motivation were significant as evidenced by the corresponding 't' values and had contributed to most of the variation in extent of empowerment of farm women.

5.9. CONSTRAINTS FACED BY FARM WOMEN AND SUGGESTIONS TO OVERCOME THEM

5.9.1. Constraints faced by farm women

Constraints faced by farm women were categorized into three viz., socio-personal constraints, economic constraints and technological/on farm constraints. Among socio-personal constraints, majority of the farm women perceived 'being woman, it is difficult to perform certain farm operations' (89.17%) 'lack of control over use of income' (81.67%), 'male dominated society' (71.67%), 'lack of ownership of assets (land and farm machinery/tools)' (67.52%), 'illiteracy' (64.58%), 'dependency on others' (63.33%) and 'secondary status in decision making' (57.92%) as major constraints. Most of the farm women perceived 'health problems' (45.83%), 'lack of decision making power' (42.08%), 'lack of adequate time to work on farm due to domestic work' (40.00%), 'low self-confidence' (37.50%) and 'family and social conflict' (35.00%) as other socio-personal constraints in their lives.

The economic constraints faced by farm women were, 'discouraging agricultural price policy' (72.92%), 'poor economic condition' (63.75%), 'discrimination in payment of wages' (63.75%), 'lack of credit' (57.08%), 'costly agricultural inputs' (49.58%), 'difficulty in getting loans' (35.83%) and 'unavailability of subsidy on inputs' (34.58%).

With regard to technological/on farm constraints faced by the farm women 'non access to gender friendly technologies'(74.58%), 'lack of technical knowledge about improved farming activities' (73.75%), 'unavailability of inputs at right time and right quantities' (70.00%), 'unavailability of farm machinery at right time' (69.58%), 'lack of Information and Communication Technologies' (ICT's) (68.33%), 'lack of awareness about gender friendly technologies' (66.25%), 'lack of training programmes', 'poor or non-access to information sources' (60.00%), 'lack of irrigation' (56.25%), 'scarcity of labour' (55.42%), 'small size of land holding' (50.83%) were major constraints. 'Inadequate extension services (48.75%), 'lack of direct extension contact' (39.17%), 'diminishing support from government for farm women' (35.83%) and 'qualitative degradation of inputs' (22.08%) were other technological/on farm constraints faced by the farm women.

5.9.2. Suggestions given by farm women to overcome their constraints

Suggestions given by farm women to overcome the constraints they faced in farming were, 'increasing access to gender friendly technologies (74.58%, rank I), 'intensification of farm women centered government schemes and programmes' (70.00%, rank II), 'provision of financial support to take up income generating activities for women (67.08%, rank III), providing remunerative prices for farm produce (62.50%, rank IV), organizing capacity building programmes for farm women (60.00, rank V), provision of subsidy on inputs (59.58%,rank VI), low interest loans for farming (53.75%, rank VII), creating legal awareness for benefit of women (47.50%, rank VIII), intensification of farm women focused extension services (45.00%, rank XI) and improving transportation facilities for marketing of produce (38.75%, rank X).

5.10. STRATEGY FOR GENDER MAINSTREAMING IN AGRICULTURE

Gender mainstreaming is a process that identifies development concerns, needs, and impacts from gender perspectives at every stage of policy, programme, and project planning, implementation, monitoring and evaluation. Gender mainstreaming in agriculture ensures that policies and legislation meet the requirements of all people involved in agriculture with a special emphasis on farm women's empowerment.

Farm women make up a substantial portion of the agricultural workforce, but they face challenges owning productive assets like land and cattle, as well as having influence over productive inputs like loans and improved technology. The designed strategy for gender mainstreaming in agriculture consisted of three levels in which gender mainstreaming efforts should be focused viz., Individual and family level, institutional and organizational level and policy and legislation level. Integration of the efforts at the proposed three levels in gender mainstreaming in agriculture would result in gender mainstreaming in agriculture.

1. Individual and family level
2. Institutional and organizational level
3. Policy and legislation level

Efforts to be accomplished under each level in gender mainstreaming strategy in agriculture were as follows

1. Individual and family level

- a. Gender sensitization
- b. Gender obstacles
- c. Matriarchy vs Patriarchy

2. Institutional and organizational level

- a. Identifying and understanding gender responsive approach in agriculture

- b. Capacity building and empowerment
- c. Gender sensitization training to extension personnel
- d. Focus on women cultivators through mass media
- e. Formation of woman farmers group
- f. Ensure credit accessibility to farm women
- g. Gender impact assessment

3. Policy and legislation level

- a. Gender budgeting
- b. Gender Auditing
- c. Legislations to promote gender mainstreaming in agriculture
- d. Encouraging sustainable growth in agriculture with multi economic policies among farm women
- e. Improving policy formulation and implementation capacity in agricultural and rural development

5.11. IMPLICATIONS OF THE PRESENT STUDY

The implications of the present study were documented based on the outcomes of the research, which in turn would help the farm women in farming, extension functionaries, researchers, policy makers and other stakeholders of farming to contribute to the overall development of farming community. Hence, an attempt was made to document the implications of the present study, mostly in the nature to suggesting to increase favourable attitude towards farming for farm women, extent of empowerment of farm women and improve the magnitude of women participation in farming.

1. The results of the study shown that majority of the farm women were in middle aged group and were illiterate. The majority of respondents belonged to nuclear family with marginal land holding and medium farm experience. Majority of the farm women had medium annual income, medium exposure to mass media, medium level of social participation,

medium extension contact, medium information sources utilization, medium creativity, medium achievement motivation, medium scientific orientation, medium risk orientation and medium economic orientation. Since it was revealed from the study that most of the respondents were in the medium category of most of the variables selected, the extension personnel, corporate experts and policy makers should understand and develop a policies to bring better changes to improve the farm women attitudes towards farming, extent of empowerment and participation in farming.

2. Majority of the farm women were middle aged and illiterate. Hence there is a need to provide non-formal education at village level.
3. Most of the farm women belonged to nuclear families. Therefore, there should be crèche facility near the work place to take care of children of farm women.
4. Farming experience of farm women was of medium level. Hence, it is important to utilize the opportunity and conduct training programmes to impart necessary skills to excel in farming.
5. Majority of farm women had marginal size of land holding, less annual income and access to credit facility. Hence, there is urgent need of policy intervention to ensure the adequate credit facility by linking co-operative and nationalized banks to empower them.
6. Majority of women had medium level exposure to mass media which results in lack of information flow. Therefore, mass media such as television, radio, newspaper and farm journals should focus more on women farmers. Farm women experiences, success stories in agriculture should be published
7. Social participation plays vital role in sharing knowledge, however, in this study majority of farm women had medium level of social participation, medium level of extension contact and medium level of information source utilization. Hence, there should be interventions to improve the social

participation of farm women by formation of Self-Help Groups and farm women groups.

8. Regarding participation of farm women in farming, majority had medium level of participation. Hence, the constraints that hinder the farm women participation in farming needs to be identified and addressed.
9. More than two fifths of farm women had moderately favourable attitude towards farming. Hence, gender sensitization, gender role identification in farming and gender division of labour has to be worked out and practiced to improve their attitude to participate in farming.
10. Since majority of the farm women were in medium category of empowerment in farming, policy intervention needs to be designed to empower them in decision making at home and farm.

In this study, various aspects of farm women in farming were comprehensively studied and the various constraints at different level were identified which hindered the farm women in farming. Based on the result of the study, various suggestions and strategies were proposed. The suggestions and strategies given by farm women and experts put into action by all the stakeholders involved in farming will lead to positive attitude towards farming, higher empowerment and better participation of farm women in farming.

5.12. SUGGESTIONS FOR FUTURE RESEARCH

The outcome of the present investigation demands the need for future investigations in several directions. The following suggestions were made for future researchers who would propose to undertake studies related to this subject.

1. The investigation was carried out in a specific area with restricted sample of 240 farm women in farming in three districts. Therefore, similar studies may be conducted with larger samples covering all the areas.
2. The present study considered only few selected profile characteristics in order to find their relationship with dependent variables. Number of other variables that are likely to affect the dependent variables may be studied.

3. To have an in-depth analysis of the study, some case studies could be studied which would help to find out clear picture of the farm women in farming.
4. The study was attempted to draw a strategy to empower farm women and gender mainstreaming in agriculture. Therefore, similar study may be conducted to study the in-depth analysis of gender mainstreaming in agriculture and its impact on women empowerment.

Literature Cited

LITERATURE CITED

(As per ANGRAU Thesis guidelines)

- Adedeji, I.A., Ogunjinmi, S.I., Yusuf, A., Obaniyi, K.S and Funmilayo, M.T. 2012. Attitudes of women farmers towards urban agriculture in Somolu local Government area of Lagos state, Nigeria. *Greener Journal of Agricultural Sciences*. 2 (1): 008-012.
- Agarwal, H., Subita, S and Rajni, S. 2013. A study of agricultural activities performed by rural women and problems faced by them in Jammu district of Jammu and Kashmir state. *International Journal of Scientific and Research Publications*. 1 (3): 1-3.
- Aghaee, F and Noorivandi, A.N. 2015. Professional empowerment of women wheat farmers in Dezful township of Iran. *Indian Journal of Fundamental and Applied Life Sciences*. 5 (S1): 6-10.
- Agriculture Census Division. 2014. *All India report on number and area of operational holdings*. Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi. 11.
- Agriculture Census Division. 2020. *All India report on Agriculture Census 2015-16*. Agriculture Census Division, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, New Delhi.
- Alam, M.N., Hossain, M.A., Miah, M.A.M and Sarker, M.A. 2004. Attitude of rural women towards homestead vegetable cultivation. *Bangladesh Journal of Extension Education*. 16 (2): 85-91.
- Anitha, M. 2003. Empowerment of women entrepreneurs in Ranga Reddy district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.
- Annual Report 2020-21. Department of Agriculture, Cooperation and Farmers Welfare. Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi. <https://agricoop.nic.in/en/annual-report>
- Ansari, M.A and Jantwal, V. 2019. Attitude of farm women towards agriculture extension services: A study in Kumaon region of Uttarakhand. *Anthropologist*. 38 (1-3): 9-16.

- Ashok, P.R. 2011. Adoption of clean milk production practices followed by dairy farm women in Junagadh district. *M.Sc.(Ag.) Thesis*. Junagadh Agricultural University, Junagadh, India.
- Balamurugan, V and Nirosha, R. 2020. Mass media exposure and information source utilization of farm women in groundnut production and postharvest operation in Thiruvannamalai district. *European Journal of Molecular & Clinical Medicine*. 7 (10): 3878-3881.
- Bandode, S. 2012. A study on awareness and adoption of post harvest management practices in maize among the farm women in Khargone district, M.P. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Bansal, V and Joshi, V. 2018. Profile characteristics of farm women knowledge groups (FWKGS). *International Journal of Science, Environment and Technology*. 7 (5): 1532-1537.
- Bhairve, R. 2013. A study on women's participation and decision making pattern in agriculture activities in Sehore district of M.P. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Bhanotra, A., Wankhade, V., Khandey, S.A and Kumar, P. 2015. Role of rural women in decision making process regarding livestock management. *Journal of Animal Research*. 5 (3): 555-559.
- Bharali, R and Das, M.D. 2016. A study on extent of involvement of rural women in agro based enterprises. *International Journal of Home Science Extension and Communication Management*. 3 (2): 72-77.
- Bharathamma, G.U., Angadi, J.G., Hirevenkanagoudar L.V and Natikar, K.V. 2006. Empowerment of rural women through income generating activities. *Karnataka Journal of Agricultural Sciences*. 19 (3): 600-602.
- Bharti. 2017. Empowerment of rural women through National Rural Livelihoods Mission in Rewa block of district Rewa (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Bhimrao, L.M. 2011. Involvement of rural women in paddy farm management. *M.Sc.(Ag.) Thesis*. Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India.

- Bird, C. 1940. *Social psychology*. Appleton Century Crofts, New York.
- Chand, A. 2012. A study on awareness and participation of tribal farm women in improved cattle management practices in Chhindwara district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Chandrakandan, K., Venkatapirabu, J., Sekhar, V and Anandakumar, V. 2000. *Tests and measurements in social research*. APH publishing corporation, New Delhi. 215-234.
- Chauhan, K.K. 2018. Participation of farm women in agricultural activities in Tikamgarh district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Chauhan, N.M. 2011. Participation of the tribal farm women in crop management. *Agriculture Update*. 6 (3&4): 210-212.
- Chave, E.J. 1929. *The measurement of attitude*. University of Chicago Press, Chicago.
- Chayal, K. Dhaka, B.L., Poonia, M.K., Tyagi, S.V.S and Verma, S.R. 2013. Involvement of farm women in decision-making in agriculture. *Studies on Home and Community Science*. 7 (1): 35-37.
- Chetia, Q., Das, M.D and Hazarika, D. 2018. Involvement of rural women in farm and non-farm activities. *International Journal of Home Science*. 4(3): 220-222.
- Chithra, N.N. 2011. Impact of kudumbashree programme on rural woman in Kottayam district of Kerala. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Choubey, S. 2009. A study on women empowerment through agricultural entrepreneurial activities of Self Help Groups (SHGs) in Jabalpur block of Jabalpur district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Chouhan, K. 2019. A study on empowerment of women members of Self Help Groups in Dhar district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.

- Chouhan, K.S. 2014. Role of farm women in decision making on vegetable cultivation in Tikamgarh district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Corteva Agriscience. 2018. *Global women in agriculture: Research findings*. Corteva Agriscience, Indianapolis, U.S.A.
- Damodar, P.P., Shaikh, J.J and Mali, M.D. 2016. Relationship of personal, socio-economic and situational characteristics with the empowerment of rural women. *Agriculture Update*. 11 (1): 93-95.
- Das, R. 2017. Restructuring women empowerment in agricultural innovation system. *Ph.D. Thesis*. Uttar Banga Krishi Viswavidyalaya, Cooch Behar, West Bengal, India.
- Datt, R. 2012. Dairy based innovations developed by farmers at field level: Case studies. *Ph.D. Thesis*. National Dairy Research Institute, Karnal, Haryana, India.
- Dawane, V.T and Gore, N.D. 2016. Economic empowerment of women through Self Help Groups (SHGs). *International Research Journal of Agricultural Economics and Statistics*. 7 (2): 182-185.
- Devaki, K., Senthilkumar, K and Subramanian, R. 2015. Socio-economic profile of livestock farm women of Thiruvallur district, Tamil Nadu. *International Journal of Science, Environment and Technology*. 4 (5): 1322-1329.
- Devarakonda, S. 2015. A study on generation of farmer innovations and re-inventions in Andhra Pradesh. *Ph.D. Thesis*. Professor Jayashankar Telangana State Agricultural University, Hyderabad, Telangana, India.
- Dhaduk, M.C. 2004. A study on reading behaviour, readership pattern and extent of utilization of farm literature by farm women of Junagadh district. *M.Sc.(Ag.) Thesis*. Junagadh Agricultural University, Junagadh, India.
- Dudi, A and Meena. M.L. 2017. Participation and decision making pattern of farm women in agriculture. *Asian Journal of Home Science*. 12 (1): 109-113.

- Edwards, A.L and Kilpatrick, F.P. 1948. A technique for the construction of attitude scales. *Journal of Applied Psychology*. 32: 374-384.
- Edwards, A.L. 1969. *Techniques of attitude scale construction*. Valkies, Feffer and Simons Pvt. Ltd. Bombay. 149-171.
- Ekatpure, S.M., Kale, M.T., Bodake, H.D and Antwal, P.N. 2011. Study of constraints faced by the farm women in production of vermicompost. *International Journal of Agricultural Sciences*. 7 (1): 113-115.
- Fakoya, E.O., Agbonlahor, M.U. and Dipeol, A.O. 2007. Attitude of women farmers towards sustainable land management practices in South-Western Nigeria. *World Journal of Agricultural Sciences*. 3 (4): 536-542.
- FAO. 2011. *The state of food and agriculture, 2010-2011: Women in agriculture, closing the gender gap for development*. Food and Agriculture Organization of the United Nations, Rome, Italy. 5. <https://www.fao.org>
- Garg, S.S. 2014. A study on role of farm women in decision making process in vegetable cultivation in Jabalpur block of Jabalpur district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- George, A. Rajkamal, P.J and Jiji, R.S. 2012. Analysis of socio-personal profile of livestock based Self Help Group members of Thrissur district, Kerala. *Journal of Indian Veterinary Association*. 10 (1): 38-42.
- Girade, S and Shambharkar, Y. 2012. Profile of farm women and constraints faced by them in participation of farm and allied activities. *Indian Journal of Applied Research*. 1 (12): 69-71.
- Gnanasham, D.B. 2009. Impact of dairy training programme on dairy farm women. *M.Sc.(Ag.) Thesis*. Anand Agricultural University, Anand, India.
- Goode J.W and Hatt, P.K. 1952. *Methods in social research*. McGraw Hill book company, London.

- Gulkari, K.D., Nethravathi, G., Conima, V., Phodiyil and Ayogesh, G. 2014. Profile analysis of dairy farm women in adoption of scientific practices. *International Journal of Agricultural Extension*. 2 (3): 159-163.
- Hooda, R. P. 2001. *Statistics for Business and Economics*. Macmillan India Limited, New Delhi.
- Imam, S.J. 2019. Participation of farm women in agricultural activities and allied occupation. *Ph.D. Thesis*. Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, India.
- Itawdiya, B.S. 2004. Impact of 'Madhya Pradesh Women in Agriculture Programme' on knowledge and adoption of agricultural technology among farm women of Raisen district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Jagannath, U.P. 2003. Adoption of food grain storage practices by the farm women and their training needs. *M.Sc.(Ag.) Thesis*. Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, India.
- Jasuja, S. 2006. Scientific acceptability of traditional agricultural practices followed by farm women of Bikaner district, Rajasthan. *Ph.D. Thesis*. Rajasthan Agricultural University, Bikaner, Rajasthan, India.
- Jose, A.E. 2020. Entrepreneurial behaviour of farmer producer organization (FPO) members for livelihood security. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Kabeer, N. 2008. *Mainstreaming gender in social protection for the informal economy*. Commonwealth Secretariat, London.
- Kavithaa, N.V and Rajkumar, N.V. 2017. Factors contributing the attitude of farm women towards backyard poultry farming in Erode district of Tamil Nadu. *International Journal of Science, Environment and Technology*. 6 (1): 573-579.
- Kavyashree, C. 2018. Decision making and participation of farm men and women in paddy cultivation: A study in Shivamogga district. *M.Sc.(Ag.) Thesis*. University of Agricultural and Horticultural Sciences, Shivamogga, Karnataka, India.

- Kerlinger, F.N. 1973. *Foundations of Behavioral Research*. 2nd ed. New York: Holt, Rinehart and Winston, Inc.
- Kethwal, M. 2015. A study on empowerment of farm women under self help groups in Ichhawar block of Sehore district in Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Khatun, M.F., Hossain, M.K., Hossain, K.A and Rahman, M.M. 2014. Participation potential of rural women in different homestead farm activities. *The Agriculturists*. 12 (1): 57-67.
- Kholiya, M. 2019. A study on entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand. *M.Sc.(Ag.) Thesis*. G.B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India.
- Kiran, De, D., Gupta, B.K., Pandey, D.K and Upadhaya, A.D. 2012 a. Empowerment of rural women in agriculture: A Socio-psychological analysis. *Studies on Home and Community Science*. 6 (3): 139-144.
- Kiran., De, D., Gupta, B.K and Pandey, D.K. 2012 b. Entrepreneurial behaviour in rural women of Sultanpur district of Uttar Pradesh. *Indian Research Journal of Extension Education*. 12 (2): 29-33.
- Kokate, D.S. 2015. Empowerment of rural women in Kolhapur district of Maharashtra state. *Advances in Economics and Business Management*. 2 (15): 1553-1555.
- Kumar, A. 2011. An analytical study on women dairy entrepreneurs in Mandya district of Karnataka. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Raichur, India.
- Kumari, A.R and Laxmikant. 2015. Role of farm women in agricultural activities. *Agriculture Update*. 10 (1): 31-35.
- Kumari, A.R. 2018. Role of farm women in agriculture and their involvement in decision making-A study in Deoria district of Uttar Pradesh. *Journal of Pharmacognosy and Phytochemistry*. SP1: 1249-1253.
- Kumari, M.S.C. 2004. A study on tribal women entrepreneurs in high altitude tribal zone of Andhra Pradesh. *Ph.D. Thesis*. Acharya N. G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.

- Lahoti, S.R., Chole, S.R and Rathi, N.S. 2012. Role of women in dairy farming. *Indian Journal of Dairy Science*. 65 (5): 442-446.
- Lakshmi, P.V. 2013. A critical analysis of farming performance of farm women in rice based farming system in Andhra Pradesh. *Ph.D. Thesis*. Acharya N. G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.
- Lal, R and Khurana, A. 2011. Gender Issues: The role of women in agriculture sector. *Zenith International Journal of Business Economics & Management Research*. 1 (1): 29-39.
- Lavanya, D.N. 2016. Involvement of farm women in different farm enterprises: A critical analysis. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Raichur, Karnataka, India.
- Likert, R.A. 1932. Technique for the measurement of attitudes. *Archives of Psychology*. New York. 140: 5-55.
- Machhliya, M. 2014. A study on role of farm women in decision making in relation to vegetable cultivation in Teonthar block of Rewa district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Madhushree, A. 2014. Decision making pattern and achievement motivation of farm women under dry land condition in Tumkur district. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka.
- Mahesh, V. 2011. An assessment of status of empowerment of fisherwomen in coastal Karnataka. *M.Sc. (Fisheries Science) Thesis*. Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar, Karnataka, India.
- Malek, S.H and Sisodia, S.S. 2019. Constraints faced by farm women in participation in agricultural activities in Udaipur district of Rajasthan, India. *International Journal of Current Microbiology and Applied Sciences*. 8 (11): 140-142.
- Mishra, R and Gupta, A.K. 2017. Relation between extent of participation and extent of knowledge of farm women in various farms practices. *International Journal of Social Science and Management*. 4 (3): 198-201.

- Mohapatra, B.P. 2009. Empowerment of farm women in Orissa. *Ph.D. Thesis*. Orissa University of Agriculture and Technology, Bhubaneswar, Orissa, India.
- Mubeena. 2017. A study on entrepreneurial behaviour of rural women of podupu laxmi ikya sangam in Kurnool district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh, India.
- Nain, M.S and Kumar, P. 2010. A study of women participation and decision making in farm management. *Journal of Community Mobilization and Sustainable Development*. 5 (1): 067-071.
- Nair, R.G. 2014. Empowerment of women through self help group. *M.Sc.(Ag.) Thesis*. Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra, India.
- National Policy for farmers. 2007. Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, New Delhi. <https://agricoop.nic.in/sites/default/files/npff2007%20%281%29.pdf>
- Neelima, K. 2005. Creative potential and performance of self help groups in rural areas of Warangal district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.
- Nethravathi, R.V. 2008. Participation of farm women in post-harvest technologies of tomato in Kolar district. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Nimoda, U. 2013. A study on information and training needs of farm women on crop production technology in Sehore district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Nishitha, K. 2016. Decision making and participation of farm men and women in Sugarcane cultivation: A study in Mandya district. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Pal, S and Halder, S. 2016. Participation and role of rural women in decision making related to farm activities: A study in Burdwan district of West Bengal. *Economic Affairs*. 61 (1): 55-63.

- Pallavi, I. 2006. A study on empowerment of tribal women in Khammam district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.
- Pandey, P. 2014. A study on an assessment of entrepreneurial management activities in relation to onion cultivation among the farm women in Rewa block of Rewa district (M.P). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Parveen, S.N. 2021. A study on value chain management in maize in Telangana state. *Ph.D. Thesis*. Professor Jayashankar Telangana State Agricultural University, Hyderabad, Telangana, India.
- Patel, M.R. 2006. Role of tribal farm women in agriculture development in integrated tribal development project area of Dahod district of Gujarat state. *Ph.D. Thesis*. Anand Agricultural University, Anand, India.
- Patel, M.R., Patel, A., Desai, J.S and Patel, V.B. 2016. Scientific orientation of tribal farm women and its relationship with their contribution in agriculture and animal husbandry. *International Journal of Information Research and Review*. 3 (7): 2596-2598.
- Patel, S.J., Kumar, R., Patel, A.S., Patel, N.R and Parmar V.N. 2017. Involvement of farm women in decision making regarding dairy farming in Junagadh district of Gujarat state. *Indian Journal of Hill Farming*. 30 (1): 45-58.
- Pooja, D and Rathod, M.K. 2013. Empowerment of rural women through the activities of mahila arthik vikas mahamandal. *Indian Journal of Applied Research*. 3 (8): 4-6.
- Pooja, K., Arunima, K and Meera, S. 2016. Analysis of constraints faced by farm women in agriculture-A study in Samastipur district of Bihar. *International Journal of Science, Environment and Technology*. 5 (6): 4522-4526.
- Poonam. 2018. Status of women empowerment for enhancement of sustainable quality of life. *Ph.D. Thesis*. G.B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India.

- Pradip, W.V. 2016. Empowerment of rural women through National Rural Livelihoods Mission. *M.Sc.(Ag.) Thesis*. Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India.
- Purbia, K.K. 2019. A study on participation and decision making of farm women in *Bt*. Cotton cultivation in Rajsamand district of Rajasthan. *M.Sc.(Ag.) Thesis*. Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan, India.
- Pushpa, P. 2009. A study on extent of farm women empowerment in Chitradurga district of Karnataka. *Ph.D. Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Raghuwanshi, D.S. 2016. A study on information and training needs of farm women on crop production technology in Vidisha district of Madhya Pradesh. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Rahul, G.H. 2012. Participation of farm women in decision making process in relation to agriculture activities. *M.Sc.(Ag.) Thesis*. Anand Agricultural University, Anand, India.
- Rai, R.K. 2011. A study on empowerment of rural women under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Raj, N. 2018. Entrepreneurial behaviour of lease land vegetable growers in Thiruvanthapuram district. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Raja, S.P. 1998. Indigenous knowledge of tribals of Pachaimalai hills. *M.Sc.(Ag.) Thesis*. Annamalai University, Annamalainagar, Tamil Nadu, India.
- Ram, D., Singh, M.K., Chaudhary, K.P and Jayarani, L. 2013. Entrepreneurship behaviour of women entrepreneurs in Imphal of Manipur. *Indian Research Journal of Extension Education*. 13 (2): 31-35.
- Rani, J.G. 1985. Scientific productivity of agricultural scientists-An activity analysis approach. *Ph.D. Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.

- Rani, S. N. 2014. Managerial role of farm women in Chittoor district of Andhra Pradesh. *M.Sc.(Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India.
- Raziyanu, P.I. 2016. Attitude of farm women towards post harvest management of fruits and vegetables. *M.Sc.(Ag.) Thesis*. Junagadh Agricultural University, Junagadh, India.
- Reshma, Bheemappa, A., Natikar, K.V., Biradar, N., Mundinamani, S.M and Havaladar, Y.N. 2014. Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities. *Karnataka Journal of Agricultural Sciences*. 27 (2): 173-176.
- Reshma, R.S. 2020. A multidimensional analysis of awardee farmers of department of agriculture development and farmers' welfare in southern Kerala. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Roy, P. 2016. Empowerment of sub-marginal women farmers through livelihood enterprises. A critical analysis in Muzaffarpur district. *M.Sc.(Ag.) Thesis*. Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, India.
- Roy, P.L. 1999. Participation of farm women in post-harvest activities. *M.Sc. (Home Science) Thesis*. Assam Agricultural University, Jorhat, Assam, India.
- Sachan, R. 2016. Empowerment of Tharu farm women in tribal setting of Uttarakhand. *Ph.D. Thesis*. Banaras Hindu University, Varanasi, Uttar Pradesh, India.
- Sagufta, K.R. 2007. A study on adoption of dairy innovations by dairy farm women in Anand district. *M.Sc.(Ag.) Thesis*. Anand Agricultural University, Anand, India.
- Saikia, P. 2015. Level of capacity and competitiveness building of farm women in Assam through extension services and its impact on their empowerment. *Ph.D. (Home Science) Thesis*. Assam Agricultural University, Jorhat, Assam.

- Saikia, P., Deka, M.B and Das, M.D. 2018. Extent of participation of women farmers and their problems in rice production in Assam. *Asian Journal of Home Science*. 13 (2): 579-584.
- Saikia, R. 2014. Study on attitude towards farm enterprises and their adoption level by the youth farm women in Raichur district. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Raichur, India.
- Samanta, R.K. 1994. They reap less than sow. *The Hindu (April) No.7*. Chennai, India.
- Sangeetha, K.G. 1997. Managerial behaviour of commercial banana growers in Thiruvananthapuram district. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Santhi, S and Kalirajan, V. 2019. Study the profile characteristics of farm women with reference to decision making behaviour. *Asian Journal of Agricultural Extension, Economics & Sociology*. 29 (1): 1-5.
- Sarjerao, V.K. 2007. Participation of farm women in agriculture enterprise. *M.Sc.(Ag.) Thesis*. Marathwada Agricultural University, Parbhani, Maharashtra, India.
- Savitha, R. 2005. Women empowerment and decision making in agriculture-An economic study in Mysore district, Karnataka. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Seema, B. 1986. Role of farm women in decision making process of a farming community in Trivandrum district. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Shah, R., Singh, A.K and Shantanu, R. 2019. Development of a scale to measure farmer's attitude towards farming as an occupation. *Journal of Pharmacognosy and Phytochemistry*. 8 (2): 411-414.
- Shamna, A., Biswas, P., Jha, S.K., Sarkar, S and Kumar, S. 2018. Tribal farm women's participation in agriculture and factors influencing it: Evidence from West Bengal, India. *Journal of Agriculture, Science and Technology*. 20: 911-922.
- Shankarrao, W.D. 2018. Decision making behaviour of farm women about agriculture. *M.Sc.(Ag.) Thesis*. Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, India.

- Sharma, A. 2000. A study on attitude and adoption of farm and home innovations by tribal farm women in Kundam block of Jabalpur district. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Sharma, N.K. 2013. A study on attitude of rural women towards agro based enterprise under District Poverty Initiatives Project (DPIP) in Rewa block of Rewa district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Shilparani, M.S. 2016. A critical analysis of empowerment of farm women in Eastern Dry Zone of Karnataka. *Ph.D. Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Shiroya, M.S. 2014. A study on perception, decision making and participation of farm women in dairy occupation. *M.Sc.(Ag.) Thesis*. Navsari Agricultural University, Navsari, Gujarat, India.
- Singh, S. 2011. A critical study on participation of rural women in agriculture activities in Hoshangabad district (M.P.). *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Singh, S. 2015. A study on involvement of farm women in agricultural activities in Gwalior district of Madhya Pradesh. *Ph.D. Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.
- Singotiya, P., Khare, N.K and Agrawal, S. 2014. Role of tribal farm women in decision making towards agricultural operations. *Advance Research Journal of Social Science*. 5 (2): 242-244.
- Sonam. 2018. Sustainability of women mushroom growers and its impact on their livelihood. *M.Sc. (Community Science) Thesis*. Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, India.
- Sucharita, S and Bishnoi, I. 2016. Factors affecting decision making of farm women in Nayagarh district of Odisha. *Progressive Research-An International Journal*. 11 (Spl-II): 1227-1230.

- Sujina, C. 2009. A study on change in work pattern of farm women and its consequences on farming in Madurai district. *M.Sc.(Ag.) Thesis*. Tamil Nadu Agricultural University, Coimbatore, India.
- Sunitha, N., Kamala, T.S and Rani, R.N. 2019. Profile characteristics of farm women with reference to knowledge groups in Maheshwarammandal of Rangareddy district, India. *International Journal of Current Microbiology and Applied Sciences*. 8 (07):1597-1605.
- Supe, S.V. 1969. Factors related to different degrees of rationality in decision making among farmers in Buldane district. *Ph.D. Thesis*. Indian Agricultural Research Institute, New Delhi, India.
- Supriya, D. 2016. Decision making pattern and work participation of farm women in management of coffee plantation in Kodagu district. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Swetha, B.S. 2010. Impact of on-farm demonstration on capacity building of women beneficiaries in Karnataka community based tank management project. *M.Sc.(Ag.) Thesis*. University of Agricultural Sciences, Bengaluru, Karnataka, India.
- Tayde, V and Chole, R.R. 2010 a. Empowerment appraisal of rural women in Marathwada region of Maharashtra state. *Indian Research of Journal of Extension Education*. 10 (1): 33-36.
- Tayde, V and Chole, R.R. 2010 b. Personal correlations of empowerment of women. *Agriculture Update*. 5 (3 & 4): 450-452.
- Thakur, A and Barman, U. 2014. Factors influencing entrepreneurial behavior of women Self Help Group members formed under Swarnajayanti Gram Swarozgar Yojana in Jorhat district of Assam. *International Journal of Agricultural Sciences*. 10 (1): 402-408.
- Thakur, P.S. 2013. A study on role of farm women in decision making process in vegetable cultivation in Panagar block of Jabalpur district (M.P.). *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Thurstone, L.L and Chave, E.J. 1929. *The measurement of attitude*. University of Chicago Press, Chicago, USA.

- Thurstone, L.L. 1946. Comment. *American Journal of Sociology*. 52: 39-50.
- Tiwari, N. 2010. Economic and Technological constraints facing farm women. *International Journal of Rural Studies*. 17 (1): 1-5.
- Upadhyay, S and Desai, C.P. 2011. Participation of farm women in animal Husbandry in Anand district of Gujarat. *Journal of community mobilization and sustainable development*. 6 (2): 117-121.
- Upadhyay, S. 2010. A study on participation of dairy farm women in animal husbandry occupation. *M.Sc.(Ag.) Thesis*. Anand Agricultural University, Anand, India.
- Vaghasiya, K.P. 2018. Pattern of participation of farm women in agricultural activities and decision making in Rajkot district of Gujarat state. *M.Sc.(Ag.) Thesis*. Junagadh Agricultural University, Junagadh, India.
- Varma, P.H. 1996. A multi-dimensional analysis of self-employment among farm women. *M.Sc.(Ag.) Thesis*. Kerala Agricultural University, Thrissur, Kerala, India.
- Vyas, L., Maheswari, S., Dangi, K.L and Dashora, P.K. 2010. Attitude scale construction for tribal women towards vermiculture technology. *Rajasthan Journal of Extension Education*. 17 & 18: 56-59.
- Wang, K.A. 1932. Suggested criteria for writing attitude statements. *Journal of Social Psychology*. 3: 367-373.
- Wankhade, R.P., Sangane, M.A and Mankar, D.M. 2013. Entrepreneurial behaviour of vegetable growers. *Agriculture Science Digest*. 33 (2): 85-91.
- Warkade, P. 2010. A study on role of tribal farm women in decision making towards agricultural operations in Bichhia block of Mandla district, M.P. *M.Sc.(Ag.) Thesis*. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh, India.
- Yadav, R. 2010. A study on women's participation and decision making pattern in agricultural activities in Sehore district of M.P. *M.Sc.(Ag.) Thesis*. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh, India.

Appendices

APPENDIX-I



ACHARYA N. G. RANGA AGRICULTURAL UNIVERSITY
GUNTUR, ANDHRA PRADESH, 522 509

Dr. T. Lakshmi
Professor
Mobile: 9392340148

Dept. of Agricultural Extension
S. V. Agricultural College
Tirupati

Dear Sir/Madam,

This is in relation to the research study undertaken by Ms. Hinduja. N. A., I.D. No. TAD/2015-10, Ph. D., student in Agricultural Extension. She is trying to develop an attitude scale to measure the attitude of farm women towards farming. In this regard, statements pertaining to attitude of farm women towards farming are listed.

Considering your vast experience in research/ extension/ teaching you have been selected as one of the experts for judging the items. Against the listed items, a three-point continuum is given as “Most Relevant, Relevant and Least Relevant” with the scores of 3, 2 and 1 respectively.

Please put a tick mark (/) against each item of any one of the three response categories of the continuum indicating your opinion. We will be glad if you can delete any one of the items which does not fall under the relevancy of the characteristics under consideration or add some more items with appropriate rating.

I, therefore request you to spare some of your valuable time and cooperate in her research work.

Thanking you

Yours sincerely,
(T. Lakshmi)

ATTITUDE OF FARM WOMEN TOWARDS FARMING

Please verify the following statements for their **relevancy** with respect to the **attitude of farm women towards farming**. Kindly indicate your opinion in the three point continuum i.e., '**Most Relevant**', '**Relevant**', '**Least Relevant**' with scores, '**three**', '**two**' and '**one**' respectively.

S. No.	Statements	Most Relevant	Relevant	Least Relevant
1.	I feel that farming is the best venture for farm women as it makes them self-employed.			
2.	I have been enjoying higher income benefits after taking up farming.			
3.	I believe that investment needed for farming is not affordable by farm women. *			
4.	Participation of women in farming increases farm output.			
5.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.			
6.	I feel that large share of income is obtained from non- agricultural sources than through farming. *			
7.	I enjoy abundant opportunities in farming along with men farmers in farming.			
8.	I am passionate towards farming.			
9.	I don't think farming support policies focus on farm women. *			
10.	I feel more professional as I am getting equal respect and importance as given to men farmers.			
11.	I am self-driven to be more innovative in the ways of cultivation of crops.			
12.	I believe that a higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *			
13.	I like farming as it is related to our tradition and culture.			
14.	I am aspire to seek further knowledge and skills in farming.			
15.	I feel that men farmers can take up farming more effectively than farm women*			

S. No.	Statements	Most Relevant	Relevant	Least Relevant
16.	I feel that practicing farming increased my self- reliance.			
17.	Farming ensures more satisfaction than other professions as it provides food to people.			
18.	I dislike farming as other enterprises are better for farm women. *			
19.	I am aspire to seek more entrepreneurial opportunities in farming.			
20.	I am willing to undergo training activities to improve my skills.			
21.	I will not encourage my children to be in farming. *			
22.	I prefer to be in farming than as an employee.			
23.	Farming has become more enjoyable and easier for women with the availability of gender friendly technologies.			
24.	I feel that there is less opportunity for career development in farming particularly for women*			
25.	I prefer farming as it provides continuous income throughout the year.			
26.	I feel that rural household wellbeing will be increased when women members take up farming.			
27.	I think that practicing farming affects farm women prestige. *			
28.	I feel that my decision making skills improved after involving in farm activities.			
29.	Farming can provide employment to majority of rural women.			
30.	I feel that farming demands more drudgery and is energy sapping for farm women. *			
31.	Practicing farming helps in improving amenities for farmwomen.			
32.	I became self-confident after taking up cultivation of crops.			
33.	As there is no other means of income, I am forced to do farming. *			

S. No.	Statements	Most Relevant	Relevant	Least Relevant
34.	I enjoy autonomy in farm production activities.			
35.	Women enjoy leadership position in farming.			
36.	I am oriented to overcome any type of hardships in farming.			
37.	Farming is the least prospective job for women*			
38.	I enjoy the relationship with nature through farming.			
39.	I am motivated to be in farming as it makes me independent.			
40.	I think that farm women are often neglected in the planning interventions pertaining to farming. *			
41.	I feel that supervising and taking part in activities on farm increased my managerial ability.			
42.	Women involving in farming achieve higher socio-economic standards for success in life.			
43.	Farming alone cannot guarantee economic stability to families of women farmers. *			
44.	I feel proud to be as a part of profession which feeds the nation.			
45.	I feel farming as more profitable than any other occupation.			
46.	Farming will give less scope for higher education accessibility to our children. *			
47.	I have experienced the benefits of team work by the activities carried out on farm along with others.			
48.	Poverty can be reduced in rural areas when women take up income earning activities via farming.			
49.	I do not want to continue in farming further. *			
50.	Gender equality is ensured through participation of women in farming.			
51.	Farming is seen as best occupational alternative for uneducated rural women			

S. No.	Statements	Most Relevant	Relevant	Least Relevant
52.	I believe that it is risky for a family to be solely dependent on farming for generating income. *			
53.	I like farming as it is major source of income to my family since many generations.			
54.	My self-esteem increased as I support my family through income obtained from farming.			
55.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *			
56.	I am interested in motivating others to take up farming after reaping the benefits through farming.			
57.	I don't think farm women have access to information sources which makes them difficult to survive in farming. *			
58.	I believe that farming leads to social and economic empowerment of women.			
59.	I am willing to use all possible information sources for updating of knowledge about farming.			
60.	The booming non-farm occupational opportunities in urban areas are more attractive than farming to the farm women. *			

***Negative statements**

APPENDIX-II
INTERVIEW SCHEDULE
EMPOWERMENT OF FARM WOMEN IN TELANGANA STATE

Section-A

General Information

Name of the respondent : Respondent No:
 Father's name/Spouse name :
 Village :
 Mandal :
 District :

Section- B

Profile characteristics of farm women

1. Age : _____ Years

2. Education

S. No.	Education level	Score	Response
1.	Illiterate	1	
2.	Functionally literate	2	
3.	Primary School	3	
4.	Middle School	4	
5.	High School	5	
6.	Intermediate	6	
7.	Graduation and above	7	

3. Family type

S. No.	Family type	Score	Response
1	Nuclear	1	
2	Joint	2	

4. Farming experience: _____ years

5. Land holding (Number of acres of land)

a) Dry land _____ b) Wet land _____ c) Total land _____

6. Annual income

Please state your yearly income from different sources.

S. No.	Income source	Income in rupees
1.	Agriculture	
2.	Agricultural labourer	
3.	Allied enterprises i. Poultry ii. Livestock iii. Goat and sheep rearing	
4.	Off farm enterprises	
5.	Any others (Specify)	
Total		

7. Mass media exposure

Please state the frequency of your exposure to the different mass media sources

S. No.	Source	Frequency of exposure		
		Regularly (2)	Occasionally (1)	Never (0)
1.	Radio			
2.	Television			
3.	News paper			
4.	Periodicals/ Farm magazines			
5.	Internet, e- journals, e- newspapers			
6.	Any others (Specify)			

8. Social participation

a. Please indicate your association with the following institutions

S. No.	Institution	Office bearer (2)	Member (1)	No membership (0)
1.	Gram Panchayat			
2.	Cooperatives			
3.	Rythu Mitra group			
4.	Self Help Groups (SHG's)			
5.	Water user's association			
6.	Any others (Specify)			

b. Please state how frequently you have attended meetings in the following institutions for the past six months

S. No.	Institution	Regularly (2)	Occasionally (1)	Never (0)
1.	Gram Panchayat			
2.	Cooperatives			
3.	Rythu Mitra group			
4.	Self Help Groups (SHGs)			
5.	Water user's association			
6.	Any others (Specify)			

9. Extension contact

Please state your frequency of contact with different extension agents.

S. No.	Name of the organization/ Officials	Regularly (2)	Occasionally (1)	Never (0)
1	Village Sarpanch/ Village Secretaries/ Village Revenue Officer			
2	Staff of State Department of Agriculture (AEO/ VAS/ AO/ HO/ VO/ ADA/ ADAH/ ADH/ DDA/ DDH/ DDAH/ JDA/ JDH/ JDAH etc.)			
3	Scientists of Krishi Vigyan Kendras (KVK's) and District Agricultural Advisory and Transfer of Technology Centres (DAATTCs) of Professor Jayashankar Telangana State Agricultural University			
4	Bank officials			
5	Private company officials			
6	Input dealers			
7	Fellow farmers/ Progressive farmers			
8	Any others (Specify)			

10. Information source utilization

Please state your extent of utilization of various information sources.

S. No.	Information source	High (3)	Moderate (2)	Less (1)	Nil (0)
I. Informal sources					
1.	Family members/ Relatives				
2.	Friends/ Neighbours				
3.	Fellow farmers/ Progressive farmers				
II. Formal sources					
4.	Village Sarpanch/ Village Secretaries/ Village Revenue Officer				
5.	State Department of Agriculture officials (AEO/ VAS/ AO/ HO/ VO/ ADA/ ADH/ ADAH/ DDA/ DDH/ DDAH/ JDA/ JDH/ JDAH etc.)				
6.	Scientists of KVK's and DAATTC of Professor Jayashankar Telangana State Agricultural University				
7.	Input dealers				
8.	Bank officials				
9.	Private company officials				
III. Mass Media					
10.	Radio				
11.	Television				
12.	News paper				
13.	Periodicals/ Farm Magazines				
14.	Internet, e- journals, e- newspapers				
15.	Any others (Specify)				

11. Creativity

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), and Strongly Disagree (SDA) to each of the following statements pertaining to creativity.

S. No.	Statement	SA	A	UD	D	SDA
1.	I delight new tasks and areas.	5	4	3	2	1
2.	I like to restructure problems and recognize ideas.	5	4	3	2	1
3.	I like to concentrate on single idea at a time rather than working on several ideas simultaneously. (-)	1	2	3	4	5
4.	I am interested in exploring unexplored areas of my work.	5	4	3	2	1
5.	One should often question, 'why things are done only in a particular way'.	5	4	3	2	1

12. Achievement motivation

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SDA) to each of the following statements pertaining to achievement motivation.

S. No.	Statement	SA	A	UD	D	SDA
1.	One should work like a slave until one is satisfied with the result.	5	4	3	2	1
2.	One should have determination and driving ambition to achieve certain things in life even if these qualities make one unpopular.	5	4	3	2	1
3.	Work should come first even if one cannot get rest in order to achieve one's goal.	5	4	3	2	1
4.	The way things are happening now a day's discourages hard work. (-)	1	2	3	4	5
5.	Even when one's own interests are in danger, one should concentrate on the work and forget one's obligation to others.	5	4	3	2	1
6.	One should set different goals for oneself and try to reach them.	5	4	3	2	1
7.	It is better to be content with whatever little one has than to be always struggling for more. (-)	1	2	3	4	5
8.	When working in groups, one should try to excel others in similar tasks.	5	4	3	2	1

13. Scientific orientation

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), and Strongly Disagree (SDA) to each of the following statements pertaining to scientific orientation.

S. No.	Statement	SA	A	UD	D	SDA
1.	New methods of farming give better results to farm women than old methods.	5	4	3	2	1
2.	The way your forefathers did the farming is still the best way. (-)	1	2	3	4	5
3.	Even a farm woman with lot of experience should use new methods of farming.	5	4	3	2	1
4.	Though it takes time for a farm woman to learn new methods of farming, it is worth the efforts.	5	4	3	2	1
5.	A good farm woman experiments with new ideas of farming.	5	4	3	2	1
6.	Traditional methods have to be changed in order to raise the living.	5	4	3	2	1

14. Risk orientation

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), and Strongly Disagree (SDA) to each of the following statements pertaining to risk orientation.

S. No.	Statement	SA	A	UD	D	SDA
1.	A farm woman should grow large number of crops to avoid greater risk involved in growing one or two crops.	5	4	3	2	1
2.	Farm women should rather take more of a chance in making a big profit than to be content with smaller but less risky profits.	5	4	3	2	1
3.	Farm women who is willing to take greater risk than the other usually does better financially.	5	4	3	2	1
4.	It is good for a farm woman to take risk when she knows her chance of success is fairly high.	5	4	3	2	1
5.	It is better for a farm woman not to try new farming methods unless most others have used them with success. (-)	1	2	3	4	5
6.	Trying an entirely new method in farming by a farm woman involves risk but it is worth trying.	5	4	3	2	1

15. Economic orientation

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), Strongly Disagree (SDA) to each of the following statements pertaining to economic orientation.

S. No.	Statement	SA	A	UD	D	SDA
1.	Most successful farm woman is one who makes more profits.	5	4	3	2	1
2.	It is difficult for a farm woman's children to make a good start and be financially secure unless she provides them with monetary aid. (-)	1	2	3	4	5
3.	A farm woman must earn her living but the most important thing in life cannot be defined in economic terms.	5	4	3	2	1
4.	One can do anything when one has adequate money.	5	4	3	2	1
5.	A farm woman should practice superior technology to increase monetary profits than depending on conventional technology.	5	4	3	2	1
6.	A farm woman should prefer cultivation of cash crops to increase monetary returns.	5	4	3	2	1
7.	Farm woman should venture new areas and try new ideas for gaining more income.	5	4	3	2	1
8.	A farm woman should put more effort in achieving higher yields thereby increasing profits.	5	4	3	2	1

SECTION – C

MAGNITUDE OF PARTICIPATION OF FARM WOMEN IN FARMING

Please indicate your participation in farm activities.

S. No.	Activity	Full Participation (2)	Partial Participation (1)	No Participation (0)
1.	Land Preparation			
2.	Ploughing of field			
3.	Levelling of field			
4.	Buying of inputs (seed, fertilizers, plant protection chemicals)			
5.	Buying of farm machinery/ farm tools			
6.	Sowing operations			
7.	Nursery management			
8.	Transplantation			
9.	Weeding			
10.	Thinning			
11.	Irrigation			
12.	Application of herbicides			
13.	Application of fertilizers			
14.	Plant protection measures			
15.	Harvesting			
16.	Post-harvest operations			
17.	Marketing			

SECTION – D

ATTITUDE OF FARM WOMEN TOWARDS FARMING

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SDA) to each of the following statements pertaining to attitude towards farming.

S. No.	Statement	SA	A	UD	DA	SDA
1.	I aspire to seek further knowledge and skills in farming.	5	4	3	2	1
2.	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	5	4	3	2	1
3.	Farming will give less scope for higher education accessibility to our children. *	1	2	3	4	5
4.	Poverty can be reduced in rural areas when women take up income earning activities via farming.	5	4	3	2	1
5.	I like farming as it is major source of income to my family since many generations.	5	4	3	2	1
6.	I aspire to seek more entrepreneurial opportunities in farming.	5	4	3	2	1
7.	I feel that farming is the best venture for farm women as it makes them self-employed.	5	4	3	2	1
8.	Farming can provide employment to majority of rural women.	5	4	3	2	1
9.	Gender equality is ensured through participation of women in farming.	5	4	3	2	1
10.	I feel that rural household wellbeing will be increased when women take up farming.	5	4	3	2	1
11.	As there is no other means of income, I am forced to do farming. *	1	2	3	4	5
12.	I prefer to be in farming than as an employee.	5	4	3	2	1
13.	I feel that there is less opportunity for career development in farming particularly for women. *	1	2	3	4	5

S. No.	Statement	SA	A	UD	DA	SDA
14.	Women enjoy leadership position in farming.	5	4	3	2	1
15.	I feel that men farmers can take up farming more effectively than farm women. *	1	2	3	4	5
16.	I feel that participation in farming activities curbs time for women to concentrate on household activities. *	1	2	3	4	5
17.	I feel that practicing farming increased my self- reliance.	5	4	3	2	1
18.	Practicing farming helps in improving household amenities for farm women.	5	4	3	2	1
19.	I am interested in motivating others to take up farming after reaping the benefits through farming.	5	4	3	2	1
20.	I feel that large share of income is obtained from non-agricultural sources than through farming. *	1	2	3	4	5
21.	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming. *	1	2	3	4	5
22.	I don't think farming support policies focus on farm women. *	1	2	3	4	5
23.	I feel more professional as I am getting equal respect and importance as given to men farmers.	5	4	3	2	1
24.	I became self-confident after taking up farming.	5	4	3	2	1

***Negative statements**

SECTION – E

EXTENT OF EMPOWERMENT OF FARM WOMEN

A set of statements with respect to empowerment are given below. Please tick against the items as applicable to you

S. No.	Empowerment dimensions	Yes (2)	Undecided (1)	No (0)
I	Psychological			
1	I aspire to reach higher levels in my life.			
2	I have strength and courage to face any struggle and challenge in my life without or with little support from others.			
3	I have faith in myself.			
4	I express my views without any hesitation.			
5	I seek alternatives to cope up from difficult situation.			
6	My future depends solely on my own decisions and actions.			
II	Socio Cultural			
1	I have a feeling of self-security within my family.			
2	I have a feeling of self-security within my community.			
3	My family agrees with my opinion about education of self and family members.			
4	My family agrees with my decision about my marriage.			
5	I had/will have my own choice regarding family planning.			
6	I give equal importance for male child and female child.			
7	My family agrees/will agree with my opinion about the marriage of my children (specifically girl child).			
8	I have my own choice in selection of work of my preference.			

S. No.	Empowerment dimensions	Yes (2)	Undecided (1)	No (0)
9	I have due recognition in my family.			
10	My role is very crucial in my family affairs.			
11	I enjoy full support and trust of my family.			
12	My family members share works of daily chores and I enjoy sufficient leisure time.			
13	I object domestic violence strongly without any justification of the intent.			
14	I can go to my work place alone.			
15	I can interact with outsiders without any hindrance and fear.			
16	I am aware of the local social institutions.			
17	I am an active member of social groups.			
18	I had/shall have a say in community action both by decision making and participation.			
III	Economic			
1	My family agrees with my opinion related to financial activities like purchase of land/buildings.			
2	My family agrees with my opinion related to financial activities like sale of land and buildings.			
3	I have a say in the income generating activities of my family members.			
4	I have a say in financial activities such as taking credit for family needs other than farm purposes.			
5	I have control over the use of my earned income.			
6	I have control over my family expenditure.			
7	I operate personal account in bank and carry out transactions independently.			
8	I maintain personal savings for self and familial benefit.			

S. No.	Empowerment dimensions	Yes (2)	Undecided (1)	No (0)
IV	Politico legal			
1	I insist on having legal sole/joint ownership of farm/land/ machinery inherited or bought by my family.			
2	I insist on payment of equal wages to men and women for same type of work for equal period of time.			
3	I have well awareness about legislation for women and human rights.			
4	I have awareness of political institutions and local leaders.			
5	I feel comfortable speaking in public (about helping/ deciding on infrastructure, payment of wages, protesting against misdeeds).			
6	I never miss the opportunity of contesting for electoral positions.			
V	Professional			
1	I aim to excel in my career.			
2	I am aware of gender friendly technologies.			
3	I have access to gender friendly technologies.			
4	I have access to modern and improved technology.			
5	I am interested and motivated towards improving my capabilities in using farm related modern technologies.			
6	I take/participate in decision making regarding acquisition of credit/loans for farm purpose.			
7	I take/participate in decision making related to expenditure on farm (inputs purchase/payment of wages).			
8	I take/participate in decision making regarding farm operations (timing of farm operations/increasing production on farm).			

S. No.	Empowerment dimensions	Yes (2)	Undecided (1)	No (0)
9	I take/participate in decision making about marketing of produce.			
10	I manage the time efficiently for farm and home activities.			
11	I participate/shall participate in training programmes to update my knowledge and skills regarding farming practices.			
12	I participate/shall participate in training programmes along with men farmers without any hindrance.			
13	I participate actively and be a good team player while working in groups.			
14	I perform equally or even more efficiently in farm activities than fellow farmers.			
15	I plan and manage all activities on farm and allied enterprises independently.			
16	I plan for long-term and short-term objectives and strive to achieve them.			
17	I approach the concerned officials to solve problems on my farm.			
18	I am well aware of the government schemes for agriculture/farm women.			
19	I am deriving benefit from the schemes intended for promotion of agriculture/encouraging farm women.			
20	I interact with my fellow male farmers without gender bias.			
21	I view farming as a commercial enterprise.			

SECTION – F

CONSTRAINTS FACED BY FARM WOMEN

a. Please indicate the constraints faced by you

S. No.	Constraints	Response
I. Socio personal constraints		
1.	Illiteracy	
2.	Dependency on others	
3.	Low self confidence	
4.	Lack of decision making power	
5.	Secondary status in decision making	
6.	Lack of adequate time to work on farm due to domestic work	
7.	Difficulties in performing certain farm operations as a woman.	
8.	Health problems	
9.	Lack of ownership of assets (Land and farm machinery/tools)	
10.	Male dominated society	
11.	Family and social conflict	
12.	Lack of control over use of income	
II. Economic constraints		
1.	Lack of credit	
2.	Poor economic condition	
3.	Difficulty in getting loans	
4.	Costly agricultural inputs	
5.	Unavailability of subsidy on inputs	
6.	Discrimination in payment of wages	
7.	Discouraging agricultural price policy	

S. No.	Constraints	Response
III. Technological / On farm constraints		
1.	Small size of land holding	
2.	Lack of irrigation	
3.	Scarcity of labour	
4.	Qualitative degradation of inputs	
5.	Unavailability of inputs at right time in right quantities	
6.	Unavailability of farm machinery at right time	
7.	Lack of training programmes	
8.	Lack of technical knowledge about improved farming activities	
9.	Lack of awareness about gender friendly technologies	
10.	Non - access to gender friendly technologies	
11.	Lack of Information and Communication Technologies	
12.	Poor or non - access to information sources	
13.	Inadequate extension services	
14.	Lack of direct extension contact	
15.	Diminishing support from government for farm women	
Any others (Specify)		

b. Suggestions of farm women to overcome the constraints.

- 1
- 2
- 3
- 4
- 5

Plates



Plate 1: Glimpses of data collection

Continued...

Continued...



Continued...



Continued...



Continued...



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Scale construction to measure the attitude of farm women towards farming

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Abstract

Farm women are the momentous contributors of agriculture and rural enterprises and play a potentially transformative role in agricultural growth in developing countries. In Indian agriculture, farm women are dominant work force and their attitude towards farming influences their productivity in farm operations. Therefore, the study intended to develop a scale to measure the attitude of farm women towards farming. Likert's summated rating technique was adopted to construct the scale. This paper elucidates the scale development procedure in a stepwise manner from collection of statements to their final selection. The attitude scale consisted of 24 statements and scale reliability was calculated to the tune of 0.80. It is tacit that the scale would be useful in further studies for determining the attitude of farm women towards farming.

Keywords: Attitude scale, farm women, farming, Telangana

Introduction

Agriculture is a key driver of economic development and poverty alleviation. Women contribute to agriculture and allied enterprises and their nature and extent varies to a great extent across different regions. Rural women in addition to farming and enterprises also play a prominent role at homes by fostering the upbringing of children and catering to the needs of the family. Dynamic involvement of women is indispensable for the overall development of the country. The unrelenting obstacles faced by women in farming influences their attitude towards farming and have an effect on their productivity in farm operations. Hence, a scale to measure the attitude of the farm women towards farming with the respondents from the Telangana state was developed.

Material and Methods

Thurstone (1946) ^[7] defined attitude as "the degree of positive or negative affect associated with some psychological object." In the present study, attitude of farm women towards farming was operationalised as the psychological disposition of the farm women about farming in varying degrees of favorableness or unfavorableness. The scale was developed using summated ratings method (Likert, 1932) ^[5]. The procedure followed for the development of scale is as detailed below.

Definition of Universe: The initial step in the attitude scale construction is to define the general area of universe of content. The set of all probable statements that could be made about a given psychological object is often called a universe. The possible statements about 'Attitude of farm women towards farming' represent the universe in this study.

Collection of Statements: A number of statements about "attitude of farm women towards farming" were gathered from books, farm magazines, newspapers, research articles, journals, expertise of intellectuals in extension, research, teaching, farmers, self intuitions and own experiences. A tentative inventory of 100 statements related to attitude of farm women towards farming were prepared based on the applicability of statements for the area of study.

Editing of the statements: The inventory of statements was subsequently subjected to close scrutiny with respect to the informal criterion suggested by many scientists (Thurstone and Chave, 1929; Likert, 1932; Wang, 1932; Bird, 1940; Edwards and Kilpatrick, 1948) ^[6, 5, 8 1, 3]. Imprecise, overlapping, double negative statements were rejected and 60 statements out of a total of 100 were retained.

Testing the statements for relevancy: The statements were subjected to scrutiny by judges to determine the relevancy and screening for inclusion in the final scale. For this purpose, the list of all the 60 statements was sent to 100 judges to critically evaluate each statement for its relevancy on a three point continuum as most relevant, relevant, and least relevant with scores 3, 2 and 1 respectively. They were also requested to feel free to add some more statements, if they feel important and also delete unrelated statements. The judges included the faculty and scientists of various agricultural universities and

institutions. The responses obtained from 55 judges in a time span of 60 days were subjected to standard normal deviate test (z test). After giving the scores to the statements, 'z' values were computed for each statement. Grand 'z' of all the 60 statements was obtained and ' $\bar{z}$ ' was calculated. All the statements with 'z' values above ' $\bar{z}$ ' (-0.0001) were selected as the scalable statements of attitude of farm women towards farming. The statements with 'z' values below ' $\bar{z}$ ' were excluded and 37 statements were selected out of 60 statements through relevancy testing.

Table 1: Selected attitude statements based on relevancy test

S. No.	Statements	'z' value
1	Farming will give less scope for higher education accessibility to our children.*	1.77
2	I feel that my decision making skills improved after involving in farm activities.	1.71
3	I do not want to continue in farming further.*	1.69
4	I feel that large share of income is obtained from non-agricultural sources than through farming.*	1.54
5	I don't think farming support policies focus on farm women.*	1.46
6	I feel that farming is the best venture for farm women as it makes them self-employed.	1.40
7	As there is no other means of income I am forced to do farming.*	1.38
8	I feel that there is less opportunity for career development in farming particularly for women*.	1.38
9	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	1.32
10	I feel that participation in farming activities curbs time for women to concentrate on household activities.*	1.23
11	I feel that practicing farming increased my self- reliance.	1.09
12	I enjoy autonomy in farm production activities.	1.07
13	I feel that men farmers can take up farming more effectively than farm women.*	1.01
14	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming.*	0.92
15	I will not encourage my children to be in farming.*	0.92
16	I aspire to seek further knowledge and skills in farming.	0.86
17	I became self-confident after taking up farming.	0.86
18	I like farming as it is major source of income to my family since many generations.	0.86
19	I like farming as it is related to our tradition and culture.	0.78
20	I aspire to seek more entrepreneurial opportunities in farming.	0.78
21	Farming can provide employment to majority of rural women.	0.78
22	Farming has become more enjoyable and easier for women with the availability of gender friendly technologies.	0.78
23	I feel more professional as I am getting equal respect and importance as given to men farmers.	0.63
24	I feel proud and satisfied to be as a part of profession which feeds the nation.	0.63
25	I prefer to be in farming than as an employee.	0.47
26	I am interested in motivating others to take up farming after reaping the benefits through farming.	0.47
27	Women enjoy leadership position in farming.	0.40
28	I prefer farming as it provides continuous income throughout the year.	0.39
29	I enjoy the relationship with nature through farming.	0.32
30	I feel that rural household wellbeing will be increased when women take up farming.	0.32
31	Practicing farming helps in improving household amenities for farm women.	0.30
32	Gender equality is ensured through participation of women in farming.	0.24
33	Poverty can be reduced in rural areas when women take up income earning activities via farming.	0.16
34	Farming alone cannot guarantee economic stability to families of women farmers.*	0.14
35	I have experienced the benefits of team work by the activities carried out on farm along with others.	0.14
36	I enjoy abundant opportunities in farming along with men farmers in farming.	0.14
37	I am passionate towards farming.	0.14

* Negative Statements

Item analysis: These 37 statements selected through relevancy test were administered to 100 farm women from a non sample area and their responses were sought on a five point continuum as strongly agree, agree, undecided, disagree and strongly disagree with scores of 5, 4, 3, 2 and 1 respectively for positive statements and vice-versa for negative statements. The sum of the scores of all statements given by each respondent was calculated and the respondents were arranged in descending order based on the total scores obtained for all the statements. The top twenty five per cent of the respondents with the highest scores and the bottom twenty five per cent of the respondents with the lowest scores were considered as criterion groups to evaluate individual statements to calculate the critical ratio, 't' value for each

statement. The calculated 't' value for each statement will measure the extent to which the statement differentiates between the respondents of high group and low group. The 't' values were calculated by using the formula suggested by Edwards (1957) [2]. The statements with 't' values more than 1.75 were included in the final attitude scale and thus 24 statements out of the 37 statements with 't' value more than 1.75 were included in the final attitude scale.

$$t = \frac{(\bar{X}_H - \bar{X}_L)}{\sqrt{\sum (X_H - \bar{X}_H)^2 + \sum (X_L - \bar{X}_L)^2 / n(n-1)}}$$

Where

$\bar{X}_H$ = Mean score on a given statement for the high group

$\bar{X}_L$ = Mean score on a given statement for the low group

$$\Sigma(X_H - \bar{X}_H)^2 = \Sigma X_H^2 - \frac{\Sigma(X_H)^2}{n_H}$$

$$\Sigma(X_L - \bar{X}_L)^2 = \Sigma X_L^2 - \frac{\Sigma(X_L)^2}{n_L}$$

$$\bar{X}_H = \frac{\Sigma X_H}{n_H}$$

$$\bar{X}_L = \frac{\Sigma X_L}{n_L}$$

$$n = n_L = n_H$$

Reliability of the scale: A scale is reliable when it will consistently produce the same results when applied on the same sample (Goode and Hatt, 1952) [4]. Split half method was employed to test the reliability. The attitude scale of 24 statements was administered to thirty farm women in non sample area. The 24 item scale was divided into two halves, all odd statements into one half and all even statements into another. Score of the respondents for each item of the two halves was computed. Then the co-efficient of reliability was calculated between the two halves treating the two halves as

separate scales. The correlation coefficient for both the sets was worked out using Rulon's formula.

$R_{tt} = 1 - S^2 d / S^2 t$ where, d = Difference between two half scores of a respondent; $S^2 d$ = Variance of those differences and $S^2 t$ = Variance of total scores.

The correlation coefficient ($r = 0.80$) was significant at 0.01 level indicating the attitude scale was highly reliable for administration to the farm women in farming.

Validity of the scale: The content of the attitude scale was borne out by the method of collecting and screening statements within the universe of attitude of farm women towards farming. The validity of the scale on attitude of farm women towards farming was obtained through content validity by taking the judges opinion. The statements selected for the scale were evaluated individually and as a whole by the judges for their relevance and coverage.

Results and Discussion

The final scale had 24 statements depicted in table 2. Each statement of scale was provided with five point continuum of strongly agree, agree, undecided, disagree, strongly disagree with scores of 5, 4, 3, 2 and 1 respectively for positive statements and 1,2,3,4 and 5 for negative statements. The attitude score of the respondent on the scale can be obtained by aid of summing up the scores of all the statements in the scale. The possible minimum and maximum score lies in the range of 24 and 120. The high score of scale will represent the favourable attitude of farm women towards farming.

Table 2: Attitude scale statements with 't' values

S. No.	Statements	't' value
1	I aspire to seek further knowledge and skills in farming.	5.52
2	I feel that women in farming are inevitable as most of the activities on farm are being done by farm women.	4.60
3	Farming will give less scope for higher education accessibility to our children.*	4.26
4	Poverty can be reduced in rural areas when women take up income earning activities via farming.	4.13
5	I like farming as it is major source of income to my family since many generations.	3.95
6	I aspire to seek more entrepreneurial opportunities in farming.	3.91
7	I feel that farming is the best venture for farm women as it makes them self-employed.	3.56
8	Farming can provide employment to majority of rural women.	3.34
9	Gender equality is ensured through participation of women in farming.	3.22
10	I feel that rural household wellbeing will be increased when women take up farming.	3.16
11	As there is no other means of income I am forced to do farming.*	3.00
12	I prefer to be in farming than as an employee.	2.96
13	I feel that there is less opportunity for career development in farming particularly for women*.	2.75
14	Women enjoy leadership position in farming.	2.75
15	I feel that men farmers can take up farming more effectively than farm women.*	2.45
16	I feel that participation in farming activities curbs time for women to concentrate on household activities.*	2.38
17	I feel that practicing farming increased my self- reliance.	2.22
18	Practicing farming helps in improving household amenities for farm women.	2.21
19	I am interested in motivating others to take up farming after reaping the benefits through farming.	2.10
20	I feel that large share of income is obtained from non-agricultural sources than through farming.*	1.94
21	I believe that higher standard of living is achieved more rapidly in non-agricultural job than through hard work in farming.*	1.93
22	I don't think farming support policies focus on farm women.*	1.81
23	I feel more professional as I am getting equal respect and importance as given to men farmers.	1.86
24	I became self-confident after taking up farming.	1.80

* Negative Statements

Conclusion

This scale aids in measurement of attitude of farm women towards farming and was developed considering the study area, Telangana. A favourable attitude towards farming facilitates farm women to improve their efficiency, utilize improved technologies and increase farm output. A negative attitude will be a barrier for their involvement in the farm

operations. The attitude scale can be administered to farm women on a large scale to get broad view towards the farming as a potential occupation. The results obtained help in improving the participation of the farm women by delivering more gender friendly technologies and planning their inherent inclusion in farming by adequate extension support services.

References

1. Bird C. Social Psychology. Appleton Century Crofts, New York 1940.
2. Edwards LA. Techniques of attitude scale construction. Vakils, Feffer and Simons Pvt. Ltd. Mumbai 1957.
3. Edwards AL, Kilpatrick FPA. A technique for the construction of attitude scales. J. Appl. Psychol. 1948;32:374-384.
4. Goode JW, Hatt PK. Methods in social research. McGraw Hill book company London 1952.
5. Likert RA. Technique for the measurement of attitudes. Archives of Psychology. New York 1932;140:5-55.
6. Thurstone LL, Chave EJ. The measurement of attitude. Chicago: Chicago Press, USA 1929.
7. Thurstone LL. Comment. American Journal of Sociology. 1946;52:39-50.
8. Wang KA. Suggested criteria for writing attitude statements. J Social Psychol 1932;3:367-373.