

**Extent of awareness of Farmers regarding  
Soil Health Card (SHC) in Rewa block of  
Rewa District (M.P.)**

**THESIS**

*Submitted to the*

**Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur**

**In partial fulfillment of the requirement  
For the Degree of**

**MASTER OF SCIENCE**

*in*

**AGRICULTURE**

**(Extension Education)**

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**2019**

## CERTIFICATE- I

This is to certify that the thesis entitled “**Extent of awareness of Farmers regarding Soil Health Card (SHC) in Rewa block of Rewa district (M.P.)**” Submitted in partial fulfillment of the requirement for the degree of **MASTER OF SCIENCE IN AGRICULTURE (Extension Education)** of Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur is a record of the bonafide research work carried out by **Mr. Yogesh Birle** under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee and the Director of Instructions.

No part of the thesis has been submitted for any other degree or diploma (Certificate awarded etc.) or has been published / published part has been fully acknowledged. All the assistance and help received during the course of the investigation has been acknowledged by him.

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## CERTIFICATE- II

This is to certify that the thesis entitled “**Extent of awareness of Farmers regarding Soil Health Card (SHC) in Rewa block of Rewa district (M.P.)**” Submitted by **Mr. Yogesh Birle** to Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE in Agriculture (Extension Education )** in the Department of Extension Education , College of Agriculture, Rewa (M.P.) has been after evaluation approved by the External Examiner and Student's Advisory Committee after an oral examination of the same.

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## **Declaration and Undertaking by the Candidate**

I, **Yogesh Birle S/O Lekhram Birle** certify that the work embodied in thesis entitled “**Extent of awareness of Farmers regarding Soil Health Card (SHC) in Rewa block of Rewa district (M.P.)**” is my own first hand bonfire work carried out by me under the guidance of **Dr. Kinjulck C. Singh** Scientist at Krishi Vigyan Kendra, College of Agriculture Rewa, Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur during 2018-19.

The matter embodied in the thesis has not been submitted for the award of any other degree / diploma. Due credit has been made to all the assistance and help.

I, undertake the complete responsibility that any act of misinterpretation, mistakes, and errors of fact are entirely of my own.

I, also abide myself with the decision taken by my advisor for the publication of material extracted from the thesis work and subsequent improvement, on mutually beneficial basis, provided the due credit is given, thereof.

Place: Rewa

Signature of the student

Date:

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## LIST OF ABBREVIATIONS

<b>Words</b>	<b>Abbreviations</b>
Degree of Centigrade	°C
Degree of Freedom	d.f.
Figure	Fig.
Hectare	Ha
Maximum	max.
Minimum	min.
Non-significant	N.S.
Number	No.
Per	/
Per cent	%
Serial No.	S. No
Non Significant at 5% level	*
Significant at 5% level	**
Temperature	Temp.

*Chapter- I*

**INTRODUCTION**

## INTRODUCTION

Recent agricultural productivity is a result of improved seeds and use of chemical fertilizers. Initially a small quantity of fertilizer was capable of producing more gain due to organic manure present in the soil but in the progressive years the same quantity of fertilizer did not yield profusely like previous years. Many researches explored that balanced use of fertilizers is not adopted by the farmers. To attain sustainable and potential yield of crops, application of balance dose of fertilizers based on soil test value was felt just after the green revolution. Many advances in this line suggested to provide a permanent document to farmers to achieve the same.

Soil is a living medium which serves as a natural nutrient source for growth of plants. The components of soils are mineral, organic matter, water and air, the proportions of which vary and together form a system for plant growth. Soils are studied and classified according to their use. Soil surveys are made for Natural Resource Management and soil testing is conducted as a part of Fertilizer Use and Management. Continued degradation of natural resources under intensive agriculture to attain goals of food sufficiency is one of the reasons for the declining factor productivity and stagnation in food grains production in the country. The health of our soils has been impaired due to emergence of multinutrient deficiencies and falling of organic carbon levels. The soils are generally not replenished adequately with nutrients removed by crops particularly micro and secondary nutrients. The wider fertilizer consumption ratios for many states corroborate nutrient imbalance in soils. The soils are presently operating on a negative nutrient balance of about 10 million tonnes per annum. Soil health is not a felt need of the Indian farmers. In this context Singh *et al* (2018) reported that information regarding alternative manures stand on 15<sup>th</sup> rank *i.e.* this aspect is of very low priority. Limiting nutrients not allowing full expression of other nutrients obviously lower overall fertilizer-use efficiency and crop productivity. Farmers are resorting to addition of more and more fertilizers to obtain yields similar to previous years, especially in rice-wheat belt of Indo-Gangetic plains and the increased inputs are thus adding to the production cost marginalizing net returns to farmers. (Charel, J.M. 2016)

In recent decade, fertilizers recommendations for different crops are made on the basis of agronomical practices and not on the soil test base. Fertility maps prepared using soil analysis, in general, are not able to give specific information for the farm of each and every farmer. Deteriorating Soil Health has been a cause of concern and that has been leading to sub optimal utilization of farming resources, optimum use of fertilizers, low addition of organic matter and non-replacement of depleted micro and macro nutrients over the years, has resulted in nutrient deficiencies and decrease in soil fertility in some parts of the country. (Mukati 2016)

Soil Health involves the idea that soil is an ecosystem full of life that needs to be carefully managed to regain and maintain our soil's ability to function optimally. Proper maintenance of the Soil Health is necessary from agricultural point of view. (Raaj and Jahanara 2017)

Soil Health Card scheme was initiated by Government of India on 19 february 2015. The Soil Health Card is a simple document, which contains useful data on soil based essential analysis of the soil to identify soil Health in term of its nutrient availability and its physical and chemical properties. Soil Health Card can be used to optimum use of fertilizer in the Integrated Nutrient Management (INM) system. (Patel *et al* 2017)

The Soil Health Card programme brings together the scientific community in the field of agriculture, the information repository of latest tools, techniques and cropping practices.

A Soil Health Card (SHC) is a printed card given to a farmer that contains the status of various plant nutrients available in his/her soil (soil health indicators) as well as the dosage of different fertilizers for the major crops grown in his/her farmland based on the soil test results. The Soil health card presently depicts the status of 12 essential parameters like pH , EC, Organic carbon, available nitrogen (N), Phosphorus (p), Potassium (K), Sulphur(S), Iron (Fe ), Manganese (Mn), Zinc (Zn), Copper (Cu), and Boron (B). Acharya and Srivastava (2017) commented about the benefit of soil health card scheme as the adoption of soil health card based fertilizer recommendation is expected to economize on fertilizer use in the country by

reducing the fertilizer consumption in the areas where soil fertility is build up and increasing its use in the areas where it is required. This would ensure an increased productivity on sustainable basis and also reduce the financial burden on government towards import of fertilizer(s) and fertilizer raw material. They also mentioned about the possible hurdles before the scheme as to provide Soil Health Cards to the farmers of India at an interval of three years about 4.67 crore soil samples need to be analyzed each year (assuming that one representative soil sample is collected from each of the 14 crore farmer's holding over a period of three years) which will be a daunting task considering the available infrastructure of soil testing laboratories in the country. However, to accomplish the dream, Government, private functionaries, and students are working in mission mode for soil sample collection and analysis. (Dubey, M 2018)

Study carried out in the Kurnool district of Andhra Pradesh in the year 2016 to assess the extent of adoption of SHC distributed during 2010-11 through the Bhoochetana Project conveyed that about 67 per cent of the beneficiary farmers surveyed had high level of satisfaction on SHC based fertilizer recommendation but, hardly 47 per cent of beneficiary farmers adopted the SHC recommendation in their farm. Rest beneficiary farmers continued with the excess quantity of chemical fertilizers in their farmland (Chowdary and Theodore, 2016).

Keeping the importance of Soil Health Card in view the present study entitled "Extent of awareness of farmers regarding Soil Health Card (SHC) in Rewa block of Rewa district (M.P.)" was carried out with following objectives-

1. To know the socio-personal, economical, communication and psychological characteristics of the respondents.
2. To study the extent of awareness of respondents regarding Soil Health Card (SHC).
3. To analyze the association between extent of awareness of respondents and characteristics.

4. To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).

### **Organization of the study**

The present investigation is presented in six chapters. Chapter I of the study attempts to focus the need of the study with background, objectives, scope and limitation of the study i. e. Introduction. Chapter II includes the review of literature related to the study. Chapter III elaborates the methodology, sampling and technique of data collection & its analysis and operationalization of variables with their measurement. Chapter IV deals with the presenting and description of data for the purpose of study. Chapter V deals with the main findings and discussion and the last chapter VI concerned with the summary, conclusions and suggestions of the study.

### **Limitations of the study**

1. The study was exploratory in nature and conducted in Rewa block of Rewa district.
2. The finding of the study are based on individual research work and may have limited generalizations.
3. The study was conducted with limited number of farmers hence; the findings will not be generalized and applicable only to the research area.
4. The study was restricted to few variables only, due to limited time and resources. The variables were measured by putting questions to each Soil Health Card holders.

*Chapter- II*

**REVIEW OF LITERATURE**

## REVIEW OF LITERATURE

The review of literature is one of the important aspects in the research process. It helps the researcher to keep his work going in right and appropriate direction. This chapter reviews the work done on different aspects related with the present study and also describes the findings of various investigations as presented below in the following heads:

- 2.1 To know the socio-personal, economical, communication and psychological characteristics of the respondents.
- 2.2 To study the extent of awareness of respondents regarding Soil Health Card (SHC).
- 2.3 To analyze the association between extent of awareness of respondents and characteristics.
- 2.4 To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).

### 1. Age:

Ferrazino *et al.* (2014) found that average age of farmers was 46 years old. The age group of 40-50 years was the most represented, followed by the 30-40 years.

Garg (2014) in his study reported that majority (54.16%) of the chickpea growers were of middle age group followed by young age (26.66%) and old age (19.16%) group.

Gurjar (2014) reported that 45.84 per cent were of middle age group; followed by 25.00 per cent belonged to young age and 29.16 per cent were found in old age group.

Makashre (2014) found that out of total soybean growers, 65.83 per cent were of middle age group; followed by 16.67 per cent belonged to young age and 17.50 per cent were found in old age group.

Patel (2014) reported that majority (65.83%) of the respondents belonged to middle age group, followed by 18.34 per cent and 15.83 per cent of respondents belonged to young age and old age categories, respectively.

Parmar (2014) reported that higher number of the soybean growers (41.67%) were of middle age group followed by old age group (30.95%) and young age group (27.38%).

Mawle *et al.* (2015) revealed that the majority (55.00 per cent) of the organic farming followers were found in the old age group followed by 27.50 per cent and 17.50 per cent of the respondents belonged to middle and young age groups respectively.

Raghuwanshi (2015) reported that majority of the respondents i.e. 61.90 per cent of respondents belonged to middle age group and equal percentage i.e. 19.05 per cent of respondents belonged to young and old age group.

Sihare (2015) reported that out of total organic farmer, 65.00 per cent belonged to middle age group; followed by old (25.00%) and young (16.67%).

## **2. Education:**

Mawale *et al.* (2015) found that 44.26 per cent of soil testing users had primary education followed by 23.48 and 20.12 per cent of soil testing users had no formal education and secondary level of education respectively. Only 12.13 per cent of soil testing users had higher secondary or above level of education.

Raghuwanshi (2015) reported that majority (29.76%) of the respondents were having middle level of education followed by 16.67 per cent respondents who are able to read and write only, higher education (13.10%), 10.71 per cent of the respondents were having education up to

high school and graduation/or more. Similarly, an equal percentage of respondents i.e. 9.52 per cent were illiterate and having primary education.

Sihare (2015) reported that out of total organic farmers, equal percentages of farmers i.e. 23.33 per cent were having education up to middle school and graduation, followed by higher secondary (18.83%) and high school education (16.67%), 10.00 per cent respondents had primary education and 8.33 per cent organic farmers were illiterate.

### **3. Family Size**

Choudhary and Ray (2010) observed that majority of respondents (46.13 percent) had small size of family.

Ram *et al.* (2010) observed that majority (64.7 percent) of the farmers were belonged to small families.

Mazumder *et al.* (2011) revealed that the family size were significantly associated with the adoption for delineating the adoption behavior of the winter vegetable growers.

Dubey (2018) According to the results on family size majority of the SHC beneficiary farmers (47%) belonged to medium sized families and next major group having small families (40%) and a few farmers (13%) had large families. The trend was similar in the case of SHC non-beneficiary farmers too where major group of farmers (50%) belonged to medium sized families followed by small sized families (38%) and large sized families (12%).

### **4. Land holding;**

Chouhan (2007) reported that out of the total 120 respondents, the majority (33.60%) of the respondents had size of land holding under small farmers group.

Yadav (2008) revealed that highest number of the farmers (42.51%) had small size of land holding.

Garg (2014) found that out of total respondents, majority of respondent (47.50%) had medium land holding, followed by 20.83, 18.33 and 13.33 per cent of the respondents who were having small, large and marginal land holding, respectively.

Patel (2014) reported that the majority (76.67%) of the respondents were having medium size of land holding, followed by small and large size of land holding category (11.67% both).

Raghuwanshi (2015) reported that majority of the respondents 40.48 per cent had medium farm size, while equal percentage i.e. 23.81 per cent had small and large farm size and 11.90 per cent were having marginal farm size.

## **5. Occupation**

Nagesh (2006) reported that there was no significant relationship between occupation and entrepreneurial behavior of Pomegranate growers.

Vijayakumar (2011) reported that occupation of respondents did not show significant relationship with their entrepreneurial behavior.

## **6. Social participation**

Gaikwad *et al.* (2008) found that higher percentage (67.34 per cent) of the respondents had low social participation.

Kumar *et al.* (2011) found that the most of the farmers had no membership in any rural social organization indicating very poor social participation.

Sihare (2015) reported that out of total organic farmers, 85.00 per cent were having medium level of social participation followed by 15.00 per cent were having high level of social participation.

## **7. Annual income:**

Patel (2014) reported that 76.66 per cent of the respondents had medium level of annual income (Rs. 41280 – 86120), followed by equal

percentage of the respondents i.e. 11.67 per cent were in low (up to 41280) and high (above Rs. 86120) level of income group.

Sihare (2015) reported that out of total organic farmers, 90.00 per cent were having medium level of annual income, followed by 8.33 per cent were in low income category. Only 1.70 per cent of the organic farmers belonged to the high income group.

### **8. Farming experience:**

Desbiez *et al.* (2004) revealed in his study that majority of the respondents belonged to medium category with regard to farming experience.

Dhodia *et al.* (2014) conducted a study on attitude of farmers towards training programme of Mega Seed Project and found that majority (69.00 per cent) of the respondent had medium farming experience whereas, 18.00 per cent and 13.00 per cent of the respondents had low and high farming experience respectively.

Jaganathan and Nagaraja (2015) concluded that majority (73.40 per cent) of the arecanut based multi-species cropping system followers had medium farming experience whereas, 14.40 per cent and 12.20 per cent of the respondents had high and low farming experience respectively.

### **9. Extension contact:**

Yadav *et al.* (2006) reported that majority of respondents (36 and 27 %) were using the knowledge gained from scientists working in Krishi Vigyan Kendra in the operational area and the personnel of State Deptt. of Agriculture. Nine per cent respondents depended upon the Kisan Mela and eight per cent on Kisan Gosthi for knowledge about soil testing practices. Five per cent respondents collected knowledge from fellow farmers while three per cent respondents gained knowledge through television. Only two per cent respondents collected knowledge from radio and farm magazines, extension literature about soil testing practices and eight per cent farmers had no knowledge of soil testing practice.

Sharma (2009) observed in his study that majority (57.50%) of the respondents had high extension participation.

Chauhan and Kansal (2014) revealed that the among mass media sources i.e. Radio, Newspapers, Magazines and Internet, the mean level ( $1.68 \pm 0.06$ ) of extent of utilization of Newspapers was higher among dairy farmers of Punjab, maximum by large dairy farmers ( $1.93 \pm 0.02$ ) followed by medium ( $1.62 \pm 0.09$ ) and small ( $1.59 \pm 0.07$ ) dairy farmers.

Garg (2014) reported that higher percentage of respondents (45.00%) had medium mass media exposure, followed by 37.50 per cent and 17.50 per cent respondents had low and high mass media exposure, respectively.

Patel (2014) reported that 67.50 per cent of the respondents had medium mass media exposure, whereas 26.67 per cent and 5.83 per cent of respondents were having low and high level of mass media exposure, respectively.

Parmar (2014) reported that the higher number of soybean growers (47.62%) have medium mass media exposure followed by low mass media exposure (32.14%) and high mass media exposure (20.24%).

Raghuwanshi (2015) found that out of total respondents, 59.42 per cent had medium level of mass media exposure, followed by 21.43 per cent high and 19.05 per cent had low mass media exposure.

## **10. Risk orientation**

Kaushalkumar (2012) revealed that more than half (60.00 per cent) of the respondents had medium risk orientation, where as 14.17 per cent had low and 25.83 per cent had high level of risk orientation.

Lawrence and Ganguli (2012) revealed that Majority of the respondents (58 per cent) had medium level of risk orientation and remaining 28.00 and 14.00 per cent had low level and high level of risk orientation, respectively.

Rathod *et al.* (2013) stated that majority (70.00 per cent) of FLD soybean growers were found in the category of high risk preference followed by 20.00 per cent and 10.00 per cent of the respondents were found in medium and high risk preference respectively.

#### **11. Economic Motivation:**

Archana and Natikar (2013) revealed that maximum percentage (41.11) of the seed growers had achievement motivation.

Makashre (2014) reported that out of total soybean growers, 59.17 per cent had medium level of achievement motivation, followed by 22.50 per cent had low and 18.33 per cent had high achievement motivation.

Parmar (2014) reported that higher number of soybean growers (36.90%) have medium achievement motivation followed by high achievement motivation (34.53%) and low achievement motivation (28.57%).

Patel (2014) reported that 95.83 per cent of the respondents had medium level of achievement motivation, whereas 4.17 per cent were having high level of achievement motivation.

#### **12. Scientific orientation:**

Makashre (2014) reported that out of total soybean growers, majority (72.50%) had medium scientific orientation, followed by low (8.33%) and high scientific orientation (19.17%).

Mukati (2016) reported that out of total soil health card holders, 81.20 per cent were having medium level of scientific orientation, followed by 12.82 per cent belonged to low level of scientific orientation category and 5.98 per cent were having high level of scientific orientation.

### **13. Innovativeness:**

Gurjar (2014) reported that out of total respondents 53.35 per cent had medium innovativeness, followed by 26.67 per cent had low and 20.00 per cent had high innovativeness.

Makashre (2014) reported that out of total soybean growers, 70.83 per cent had medium innovativeness, followed by 12.50 per cent had low and 16.67 per cent had high innovativeness.

Patel (2014) reported that majority (75.83%) of the respondents belonged to medium innovativeness category followed by 14.17 per cent and 10.00 per cent of respondent belonged to low and high innovativeness categories, respectively.

Sihare (2015) reported that out of total organic farmers, 70.00 per cent were having medium level of innovativeness followed by 30.00 per cent had high innovativeness, whereas no one was in the category of low innovativeness.

Mukati (2016) revealed that out of total soil health card holders he studied in the Tikamgarh district of Madhya Pradesh, hardly 12.82 per cent had high level of innovativeness. Most of the farmers (77.78 per cent) belonged to the group with medium level innovativeness and 9.40 per cent of the soil health cards holders had low innovativeness.

### **14. Knowledge of collecting soil sample**

Mukati (2016) found that out of 117 the soil health card holders he studied in the Tikamgarh district in Madhya Pradesh, 81.19 per cent farmers had awareness about the utility of soil health card made by the agricultural department.

Rajput and Chinchmalatpure (2016) revealed that, among the twelve characteristics studied, nine characteristics namely education, area under Bt cotton, annual income, socio economic status, social participation, scientific orientation, cosmopolitaness, extension contact and knowledge of Bt cotton were significantly related with extent of adoption of Bt cotton cultivation

practices. However, age, land holding and risk orientation did not establish any relationship with adoption of Bt cotton cultivation practices.

Bordoloi and Das (2017) found in a study conducted in the Jorhat and Golaghat districts of Assam that 58.33 per cent of the SHC non beneficiary farmers had awareness about the soil health card scheme ongoing in the study area. Moreover, 80 per cent of SHC beneficiaries and 78.33 per cent of the non beneficiaries had knowledge about the ill effects of imbalanced fertilizer application.

Patel *et al.* (2017) studied the knowledge level of SHC beneficiaries in the district of Anand and found that hardly one third of the farmers (32 per cent) had low level of knowledge regarding benefits of soil testing and utility perception of soil health card.

Patel *et al.* (2017) revealed that 52 per cent respondent belonged high to very high category with respect to knowledge of soil testing and use of Soil Health Cards for advance farming. These farmers adopted the technology to balance the dose of fertilizers for sustaining Soil Health. This half of the majority found the technology beneficial for sustaining Soil Health, lowering the input cost and improving the farm production. Study revealed that size of family and occupation found to be the most influencing factors in utilizing the technology.

Naruka *et al.* (2018) found that highest no. of respondents had medium knowledge score that is 58 % followed by respondents with low knowledge score (26%) and only 16 % respondents had high knowledge score about soil health card.

## **2.2 To study the extent of awareness of respondents regarding Soil Health Card (SHC)**

Bhatt *et al.* (2010) revealed that all the beneficiaries were aware about various soil health card aspects like major nutrients (N, P & K), soil pH and Soil EC, while 74.00 per cent were aware about irrigation water analysis, and only 20.00 per cent were aware about analysis of Sulphur. Only meager percent (2.50) of farmers were aware about analysis of micro

nutrient namely Manganese. Further, the proportion of respondents who were aware about these aspects was comparatively much less in case of farmers without soil health card.

Patel and Chauhan (2012) in their study revealed that more than one third (35.00%) of farmers had neutral attitude towards soil health card programme, while 20.00 per cent of farmers had strongly favourable attitude. Equal number (17.00%) of farmers had unfavorable and strongly unfavorable attitude towards soil health card programme. Rest of them (11.00%) had favorable attitude towards soil health card programme.

Hossen *et al.* (2013) reported that most of the respondents (77.00%) had positively observed the climate change occurred and only 23.00 per cent did not realize about climate change. They further found that most of the farmers (57.2%) had no idea about soil carbon but they followed various soil management practices (crop rotation 90.3%, irrigation 98.96% and fertilization 96.8%) for better crop production which helps to increase soil organic carbon in the farmer's field.

Abebe and Abera (2014) indicated that there was a significant difference between farmers and Agricultural and Rural Development workers regarding their perception towards gender and gender mainstreaming, moderately female farmers have higher degree of perception than male farmers in rural areas. Relatively female workers have higher degree of perception than male workers in Agricultural and Rural Development workers.

Chakrawarty *et al.* (2018) regarding awareness of field preparation showed, out of the total beneficiaries, majority of the beneficiaries (48.33%) pertained high level of awareness followed by partial awareness (33.34%) and least awareness (18.33%).

Singh *et al.* (2018) in a study on information need of the farmers reported that information need regarding alternative manures stands on 15<sup>th</sup> rank i.e. this aspect is of very low priority.

### **2.3 To analyze the association between extent of awareness of respondents and characteristics**

Kumar *et al.* (2012) reported that the relationship between risk orientation, economic motivation and size of land holding and adoption level of chickpea growing respondents was positive and statistically significant.

Eric *et al.* (2013) the result of correlation analysis indicated a significant relationship between perception of OSMP and some institutional and socio-economic variables. He stated that age, education, household size, extension, training and farm distance had a relationship with farmers perception towards OSMP.

Chowdary (2015) in his study reported that annual income, scientific orientation, perception of soil health, interest to learn about SHM, satisfaction index and follow-up of SHC recommendations were some of the factors determine the use of soil health card recommendation by the farmers.

Patidar and Patidar (2015) found that respondents age, educational background, farm size, benefits associated with organic farming and social factors were significantly related with attitude/perception towards organic farming whereas gender, knowledge, cost and environment had no significant relationship with attitude of respondent.

Raaj and Jahanara (2017) revealed that three fifth (60.00 per cent) of respondents had favourable attitude towards Soil Health Card programme only 04.16 per cent of the respondents had most favourable attitude towards Soil Health Card scheme. Education, mass media exposure, extension contact, scientific orientation, innovativeness had significant and positive relationship with their attitude towards Soil Health Card scheme.

Charel *et al.* (2018) revealed that education, source of information, social participation, land holding, annual income and scientific orientation had positive and significant relationship with their perception about Soil Health Card. Moreover age, mass media, risk orientation and farming

experience had negative and non- significant relationship with their perception about Soil Health Card.

Dubey (2018) showed that for SHC beneficiaries showed that out of the variables tested only two variables i.e knowledge of SHC, and cost of cultivation found positively correlated at 5% level of significance.

Dubey (2018) showed that adoption of nutrient management practices was found negatively correlated with the economic motivation at 5% level of significance.

Dubey (2018) Out of the all variables tested only five showed positive correlation with the extent of adoption of SHC based nutrient management. The correlation between extent of adoption of SHC based nutrient dose by the beneficiary with their education ( $r_s = 0.294$ ), income ( $r_s = 0.242$ ), and family size ( $r_s = 0.347$ ) found as weak positive correlation.

#### **2.4 To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC)**

Patel and Chauhan (2012) in their study reported that major constraints faced by the farmers in soil health card programme were difficulty in identifying micronutrient deficiency due to unavailability of micronutrient status of soil, difficulty in calculating fertilizer dose on the basis of nutrient status of soil and soil health cards were issued after harvesting of crops.

Mukati (2016) conducted among the soil health card holders of Tikamgarh district in Madhya Pradesh revealed that large majority of the soil health card holders faced the problem while making the soil health card (76.92 per cent) followed by difficulty in calculating fertilizer dose on the basis of nutrient status of soil (64.10 per cent). The respondents also responded that the task of collection of soil sample was not done in presence of farmers (55.56 per cent), time gap between soil sample was not done in presence of farmers (55.56 per cent), time gap between soil sample taken and issuing cards was too high (51.28 per cent), received soil health cards after crop harvest (40.17 per cent), inability to understand all the

information give in the card (25.64 per cent), no subsidy on inputs required by the government for improving the soil quality (20.51per cent), and irregularity of extension services (17.09 per cent), which may restrict them to clear their doubts at the time of need.

Dubey (2018) showed that majority (60%) of SHC beneficiaries were facing difficulty in understanding the information given in SHC without the assistance of an agricultural/extension officer, followed by lack of knowledge about what is SHC and its use even after receiving the card (32%) respondents, 22% respondents problem was unavailability of SHC before crop season and another few respondents (9%) faced problem was high cost of fertilizers (recommended in SHC).

**Chapter- III**

**MATERIALS AND METHODS**

# RESEARCH METHODOLOGY

Research methodology is a detailed action plan of investigation. This chapter narrates the methods and procedure of investigation used during the entire course of study and is presented under the following heads:

1. Location of the study area
2. Research Design
3. Sampling techniques used
4. Operationalization of variables
5. Sources of data collection
6. Method of data collection
7. Statistical analysis of the data
8. Hypotheses

## **1. Location of the study area**

Rewa district of Madhya Pradesh, lies between 24'18 and 25'12 north latitudes and 81'2 and 82'18 east longitudes in the north-east of the division of the same name. The district is bounded on the north and east by the state of Uttar Pradesh, in the south Sidhi district and in the west with Amarpatan and Raghurajnagar tahsils of Satna district. In shape the district can be compared to an isosceles triangle, with its base along the Satna border and the two longer arms converging towards Mauganj in east. The climate of the district some time ranges to extremes. In summer, the temperature can vary from the lowest of 22<sup>o</sup>C to the maximum of more than 45<sup>o</sup>C. In winter the minimum temperature falls even up to 30<sup>o</sup>C. Usually first monsoon shower comes in between end of the June to early July. The major crop of the district in kharif season is paddy, soybean, urd and green gram where as wheat, gram, lentil and mustard in rabi.

## **2. Research Design**

The design of research is the most important and crucial aspect of the research methodology. It is the entire process of planning and carrying out the research. To seek the answers for the research question, a descriptive research design was used in the investigation because it describes phenomena with adequate interpretation. It clearly states the characteristics

of the particular situation of group or individuals. In this design the variables are to be known.

### **3 .Sampling technique used**

The sample of the present study was selected by proportionate random sampling method. The various stages of the sample were -

1. Selection of the district
2. Selection of the block
3. Selection of the villages
4. Selection of the respondents

#### **1. Selection of the district**

The present study was conducted in Rewa district of Madhya Pradesh. Rewa district was selected purposively has being the administrative area of institution (college of agriculture Rewa).

#### **2. Selection of the block**

Rewa district comprises of 9 blocks, out of which Rewa block was selected purposively because of having maximum number of Soil Health Card holders.

#### **3. Selection of the villages**

Rewa block consists of 245 villages. Out of which ten villages namely Rethi, Rakriya, Baans, Koshta, Saman, Purena, Amilki, Umari, Khadda and Mehsaanv villages were selected on the basis of highest coverage under Soil Health Card holders.

#### **4. Selection of the respondents**

A list of farmers of each selected villages, who are Soil Health Card holders has been selected with the help of Krishi Vighyan Kendra (KVK) and other officials. From this list the farmers were selected from each village through proportionate sampling method to make a sample of 120 farmers. Hence, finally the sample was consisted of 120 respondents.

The name of the selected villages and number of respondents selected from each villages are given in Table 3.1.

**Table- 3.1 Village wise distribution of Soil Health Card and selected respondents of Rewa block**

<b>S.N.</b>	<b>Name of village</b>	<b>Total number of Soil Health Card Holders</b>	<b>No of selected respondents</b>
1	Rithi	35	14
2	Rakriya	44	16
3	Baans	34	13
4	Koshta	40	15
5	Saman	26	10
6	Purena	45	17
7	Amilki	25	10
8	Umari	19	7
9	Khadda	16	6
10	Mehsaanv	30	12
<b>Total</b>		<b>314</b>	<b>120</b>

### 3.2 Selection of variables, definition, measurement, scoring produce and categorization:

Keeping the view of the objectives of the study, the independent and dependent variables selected for the study were as follows

#### Variables and their measurements

Variables	Measurement
<b>(A.) Independent variables :</b>	
<b>I ) Socio, Economical and Personal variables :</b>	
1. Age	Actual Chronological age
2. Education	Self scoring
3. Size and type of family	Self scoring
4. Size of land holding	GOI norms
5. Occupation	Self scoring
6. Social participation	Self scoring
7. Annual income	Self scoring
8. Farming experience	Self scoring
<b>II. Communicational variables</b>	
9. Local personal channels	Self scoring
10. Local Cosmopolites channels	Self scoring
11. Mass contact	Self scoring
<b>III. Psychological variables</b>	
12. Risk orientation	Self scoring
13. Economic motivation	Scale will be used developed by Chandrapaul (1998)
14. Scientific orientation	Scale will be used developed by Supe and Singh (1969)
15. Innovativeness	Scale will be used developed by Supe and Singh (1969)
16. Knowledge of collecting soil sample	Self scoring
<b>(B.) Dependent variable</b>	
1. Awareness regarding Soil Health Card	Index will be developed

### 3.4 Operationalization of variables

Social scientists hold the view that there exists a gap between theory and empirical research. The theorists use conceptual variables that are formulated at high level of abstraction. Most of the social scientists attempt to solve measurement problems by operationally defining the conceived variables and then by either using available measures or by designing one's own measure.

A number of terms and variables have been used in the present study with specific meaning in research. These terms require operationalization for clarity.

#### (A) Independent Variables

##### 1. Age

It refers to actual age of the respondents in complete year, i.e. chronological age of the respondents. The actual age was recorded as told by the respondents at the time of interview. The respondents were grouped into following three age groups on the basis of maximum and minimum age of the respondents recorded during data collection.

S. No.	Categories	Age (years)
1.	Young	21-35
2.	Middle Aged	36-50
3.	Old	50 & Above

##### 2. Education

It refers to the ability or inability to read and write and number of classes of the formal education passed by the respondents. The respondents were grouped into the following four categories on the basis of their educational level.

S. No.	Category	Education	Weightage
1.	Illiterate	Cannot read or write	1
2.	Up to primary	Educated up to primary	2
3.	Up to middle	Educated up to middle	3
4	High school & Above	Educated high school and above	4

### 3. Size of family

It was operationalized as the total number of members in the family. In the present study, the family size of the respondents was operationally defined as total number of members residing in the family, including new born baby. It was categorized as small, medium and large family by procedure adopted as below.

S. No.	Category	Score
1	Small	Up to 4 family members
2	Medium	5-10 family members
3	Large	11 & above family members

### 4. Size of land holding

It refers to the size of the land owned and cultivated by the respondent in Hectare. The criteria prescribed by government of India were used and the respondents were grouped into four categories.

S. No.	Categories	Land holding (ha.)	Score
1	Marginal	Up to 1.00	0
2	Small	1.01 to 2.00	1
3	Medium	2.01 to 10	2
4	Large	10 & above	3

### 5. Occupation:

Occupation means the kind of work done by the members in the family for earning their livelihood. The respondents were categorized into three occupational groups as follows -

S. No.	Category	Weightage
1.	Crop production	1
2.	Crop production + vegetable production	2
3	Crop production + Other	3

## 6. Social Participation

It refers to the degree or extent of involvement of an individual in formal and informal social organization at village, block or district level. A list of these organizations was prepared for collecting the data. The scores assigned for member and office bearer were 1 and 2 respectively. The degree of involvement and frequency of participation in an organization was measured with the allotment of scores 1, 2, 3 for never, sometimes and always respectively. The sum of scores of membership and frequency of participation represent the degree of social participation of a respondent. The respondents were further classified into the following three categories on the basis of maximum and minimum scores obtained by them.

S. No.	Category	Score range
1.	Low	Up to 7
2.	Medium	8– 11
3.	High	Above 11

## 7. Annual income

It refers to the total income of the respondents obtained from farming and allied occupations. The respondents were classified into three categories on the basis of the following range of income.

S. No.	Categories	Annual income	Weightage
1.	Low	Up to Rs. 50,000	1
2.	Medium	Rs. 50,001 to 1,00,000	2
3.	High	Above Rs. 1,00,000	3

## 8. Farming experience:

Experience in farming was measured in terms of total number of years from which they started growing the crop on their farm. The categorization of grower as per their farming experience was as follow:

S. No.	Categories	Score
1.	Low	Up to 23 year
2.	Medium	24 to 42 year
3.	High	Above 42 year

## 9. Extension contact

It refers to the degree of frequency of contact by an individual with various information sources. This is the pattern by which a farmer gets his information either seeking on its own or as a consequence. In the present study the sources of information were categorize as local personal channel and local cosmopolite channel. The degree of frequency of contact with information sources of respondent was measured on three point's response category namely "always", "sometimes", and "never". For each of information sources consulted by the respondents' score of 2, 1 and 0 were assigned respectively. The total scores were computed for each respondent by summing the scores. The categorization was as follows:

### A. Local personal channels

S. No.	Category	Score range
1	Less	6-11
2	Moderate	12-17
3	More	Above 17

## B. Local cosmopolite channels

S. No.	Category	Score range
1	Low	Up to 4
2	Medium	5-7
3	High	Above 7

## C. Mass contact-

It was operationalized as the degree to which a respondent was exposed to the information of Soil Health Card from various source and channels of communication. It was measured with the help of developed index. Responses were recorded on 4 point continuum as most often, often, sometime and never were scored 3, 2, 1 and 0 respectively. On the basis of range of score, three categories were developed as write down the range of score.

S. No.	Categories	Score
1	Low	Score up to 6
2	Medium	Score 7 to 12
3	High	Score 13 and above

## 10. Risk orientation

It is the degree to which a farmer is oriented towards risk and the problems in farming. In the present study, risk orientation of respondents was measured with the help of risk orientation scale developed by Supe and Singh (1969). The scores were given for the responses to the each statement for strongly disagree (5), agree (4), undecided (3), disagree (2) and strongly agree (1). The order was reversed in case of negative statement. The total scores of an individual on the scale were obtained by

adding the scores of all the individual statement in the scale. The risk orientation categories were formulated as follows.

<b>S. No.</b>	<b>Categories</b>	<b>Score range</b>
1.	Low	Up to 12
2.	Medium	13 – 18
3.	High	Above 18

### **11. Economic motivation**

It refers to occupational success in terms of profit maximization and their relative value an individual places on economic ends. It was measured with the help of "economic motivation scale" of Supe and Singh (1969). The scale consisted of four items. The responses for each item were recorded on 5 point continuum as strongly disagree, agree, undecided, disagree and strongly agree and were given 5, 4, 3, 2, 1 scores respectively. The total scores indicated the degree of economic motivation of an individual. On the basis of maximum and minimum obtained scores, the respondents were categorized as below.

<b>S. No.</b>	<b>Categories</b>	<b>Score range</b>
1.	Low	Up to 15
2.	Medium	16 to 21
3.	High	Above 21

### **12. Scientific orientation:**

It is the degree to which the farmer is oriented to the use of scientific method in decision making and farming. It were operationalized as characteristic of farming apprehended by cultivator that social and natural force if understood mobilized through efforts and applied would

have to solve human problem. In the present study scientific orientation were measured with the help of “scientific orientation scale” developed by Supe & Singh (1969). Statements were provided with five response categories. The responses to positive statement were scored as: strongly agree-5, agree-4, undecided-3, disagree-2 and strongly disagree-1. The respondents were categories into low, medium and high categories for measuring the frequency:

<b>S. No.</b>	<b>Categories</b>	<b>Score range</b>
1.	Low	10 to16
2.	Medium	17 to 23
3.	High	24 to 30

**13. Innovativeness:** Innovativeness is the degree to which an individual adopts new ideas or technology relatively earlier than others in his social system. The responses to positive statement were scored as: strongly agree-5, agree-4, undecided-3, disagree-2 and strongly disagree-1. The respondents were categories into low, medium and high for measuring the frequency:

<b>S. No.</b>	<b>Categories</b>	<b>Score range</b>
1.	Low	Up to 15
2.	Medium	16 to 21
3.	High	Above 21

#### **14. Knowledge of collecting soil sample**

The actual knowledge was recorded as told by the respondents at the time of interview. The respondents were grouped into following three groups on the basis of maximum and minimum knowledge of the respondents recorded

during data collection. The degree of involvement and frequency of knowledge was measured with the allotment of scores 1, 2, 3 for low, medium and high respectively.

<b>S. No.</b>	<b>Category</b>	<b>Score range</b>
1	Low	Up to 2
2	Medium	3-4
3	High	5

### **(B) Dependent variable**

#### **Awareness regarding Soil Health Card**

Awareness is the ability to directly know and perceive, to feel or to be conscious of events, objects, thoughts, emotions or sensory pattern. An important dimension of the study was to know the awareness of the farmers about soil health card.

The score assigned for each practice were as 2 for full awareness, 1 for partial awareness and 0 for no awareness. The total score obtained by the respondents from all the 20 practices was the awareness score of individual respondents. On the basis of maximum and minimum obtained awareness score, the respondents were categorized as below.

<b>S. No.</b>	<b>Categories</b>	<b>Score range</b>
1.	Low	8-16
2.	Medium	17-25
3.	High	26 & above

### **3.5 Validity and reliability of instrument**

Validity refers to whether the data collection instruments measures what it is supposed to measure. Validity of the interview schedule for this study was maximized by taking the following steps:

- (i) The interview schedule was thoroughly discussed with the members of advisory committee, experts and scientists of concerned discipline and their suggestions were incorporated.
- (ii) Pre-testing of the interview schedule served as an additional check for improving the instrument.
- (iii) The relevance of each question in terms of the objectives was used carefully.

The reliability of an interview schedule refers to its consistency. It was observed properly that the interview schedule had reliability before it was used as a data collection instrument.

### **3.6 Preparation of interview schedule**

Keeping in view the objectives of the study, a structured interview schedule was prepared. It consisted the information about the independent variables namely age, education, size of family, size of land holding, occupation, social participation, annual income, farming experience, source of information, mass media exposure, risk orientation, economic motivation, scientific orientation, innovativeness and knowledge of collecting soil sample. It also consisted the information about dependent variable, namely awareness regarding Soil Health Card.

In order to find out the mistakes and short falls and to achieve clarity and practicability of the schedule the nature of some questions was modified and the schedule was finalized.

### 3.7 Pre-testing of schedule

The interview schedule was pre-tested by a pilot study conducted on twenty one sample respondents. Based on the experience gained during pre-testing, necessary corrections and modification were done especially to ensure that the instructions and questions were clear and unambiguous.

The data were carefully examined before tabulation. All the entries in the schedule were checked for accuracy and completeness and then it was tabulated.

### 3.8 Statistical analysis of data

Data collected were qualitative as well as quantitative in nature. The quantitative data were interpreted in terms of percentage and qualitative data were tabulated on the basis of approved categorization method as described earlier, the following statistical techniques were used in the study.

#### Chi-square test

The association of different attributes of the respondents with their awareness of the respondents was tested by chi-square test ( $\chi^2$ ). For this purpose the following formula was used.

$$\chi^2 = \sum \frac{(o-e)^2}{e} \quad \text{With d.f. } (r - 1) (c - 1)$$

Where,

o =	observed frequency
e =	Expected frequency
$\Sigma$ =	Summation over all differences
r =	Number of rows
c =	Number of columns
d.f. =	Degree of freedom

The extent of association was calculated by using Pearson's contingency coefficient 'C' formula

$$C = \sqrt{\frac{\chi^2}{\chi^2 + N}}$$

## **Where,**

$\chi^2$ : Value of chi-square

N: total number of observation

C: Co-efficient of association

For practical explanation of the extent of association, the contingency co-efficient of association values were interpreted as -

- i) To 0.20 (negligible association)
- ii) 0.21 to 0.40 (fair association)
- iii) 0.41 to 0.60 (good association)
- iv) Above 0.60 (excellent association)

### **3.9 Hypotheses of the study**

Relevant hypotheses were formulated on the basis of objectives of the study and were tested in the null form. These were

#### **3.9.1 General hypothesis**

There will be positive association between socio-personal, economic, psychological, communicational attributes and awareness regarding Soil Health Card.

#### **3.9.2 Null hypothesis**

01. There was no association between age and awareness regarding Soil Health Card of respondents.
02. There was no association between education and awareness regarding Soil Health Card of respondents..
03. There was no association between size of family and awareness regarding Soil Health Card of respondents.
04. There was no association between size of land holding and awareness regarding Soil Health Card of respondents.
05. There was no association between occupation and awareness regarding Soil Health Card of respondents.

06. There was no association between social participation and awareness regarding Soil Health Card of respondents.
07. There was no association between annual income and awareness regarding Soil Health Card of respondents.
08. There was no association between farming experience and awareness regarding Soil Health Card of respondents.
09. There was no association between source of information and awareness regarding Soil Health Card of respondents.
10. There was no association between mass media exposure and awareness regarding Soil Health Card of respondents.
11. There was no association between risk orientation and awareness regarding Soil Health Card of respondents.
12. There was no association between contact with economic motivation and awareness regarding Soil Health Card of respondents.
13. There was no association between contact with scientific orientation and awareness regarding Soil Health Card of respondents.
14. There was no association between contact with innovativeness and awareness regarding Soil Health Card of respondents.
15. There was no association between knowledge of collecting soil sample and awareness regarding Soil Health Card of respondents.

***Chapter- IV***

**RESULTS**

## RESULT

This chapter describes the result of the research problem, which has been organized according to the objectives of the study. In other words, this chapter deals with the empirical statement of the objectives set fourth for the study. For convenience of interpretation of facts and findings it has been presented into following sub heads:

- 4.1 To know the socio-personal, economical, communication and psychological characteristics of the respondents.
- 4.2 To study the extent of awareness of respondents regarding Soil Health Card (SHC).
- 4.3 To analyze the association between extent of awareness of respondents and characteristics.
- 4.4 To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).

### **4.1 To know the socio-personal, economical, communication and psychological characteristics of the respondents.**

The variables selected and studied as independent variables were age, education, size of family, size of land holding, occupation, social participation, annual income, farming experience, source of information, mass media exposure, risk orientation, economic motivation, scientific orientation, innovativeness and knowledge of collecting soil sample.

#### **1. Age**

**Table 4.1: Distribution of respondents according to their age**

<b>S. No.</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage</b>
1	Young	29	24.16
2	Middle age	58	48.34
3	Old	33	27.50
<b>Total</b>		<b>120</b>	<b>100</b>

The data presented in Table 4.1 shows the percentage distribution of respondents according to their age. Out of total respondents, majority belonged to middle age group (48.33 per cent) followed by old (27.5 per cent) and young age group (24.16 per cent).

Thus, it can be concluded that most of the respondents were of middle age followed by old age.

## 2. Education

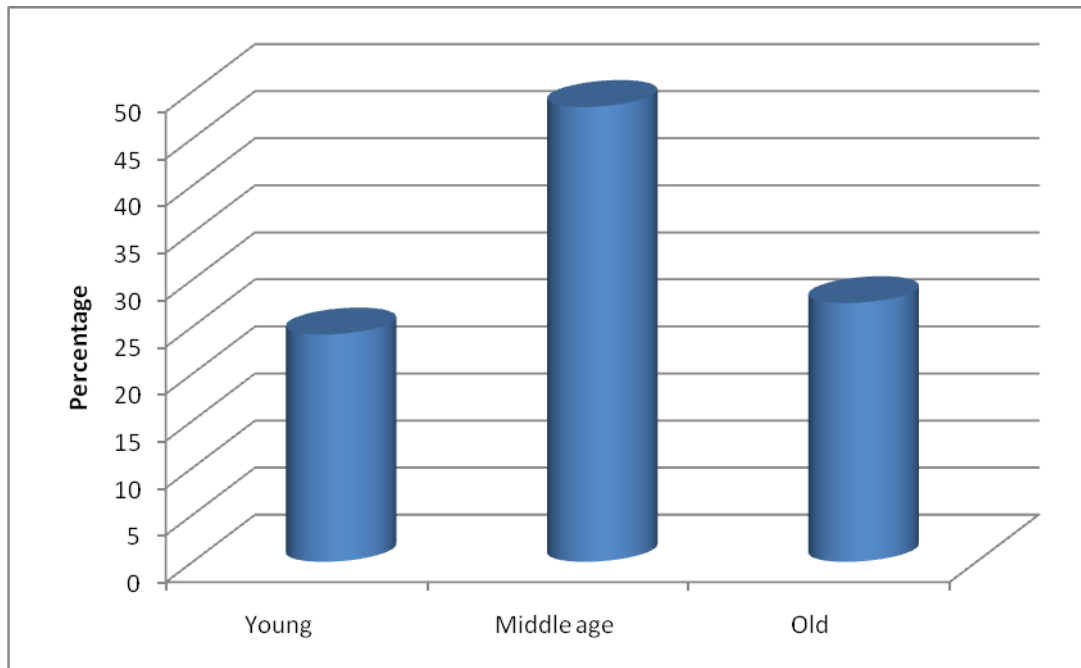
**Table 4.2: Distribution of respondents according to their education level**

<b>S. No.</b>	<b>Education</b>	<b>Frequency</b>	<b>Percentage</b>
1	Illiterate	26	21.66
2	Up to primary level	31	25.83
3	Up to middle level	40	33.33
4	High school & above	23	19.16
<b>Total</b>		<b>120</b>	<b>100</b>

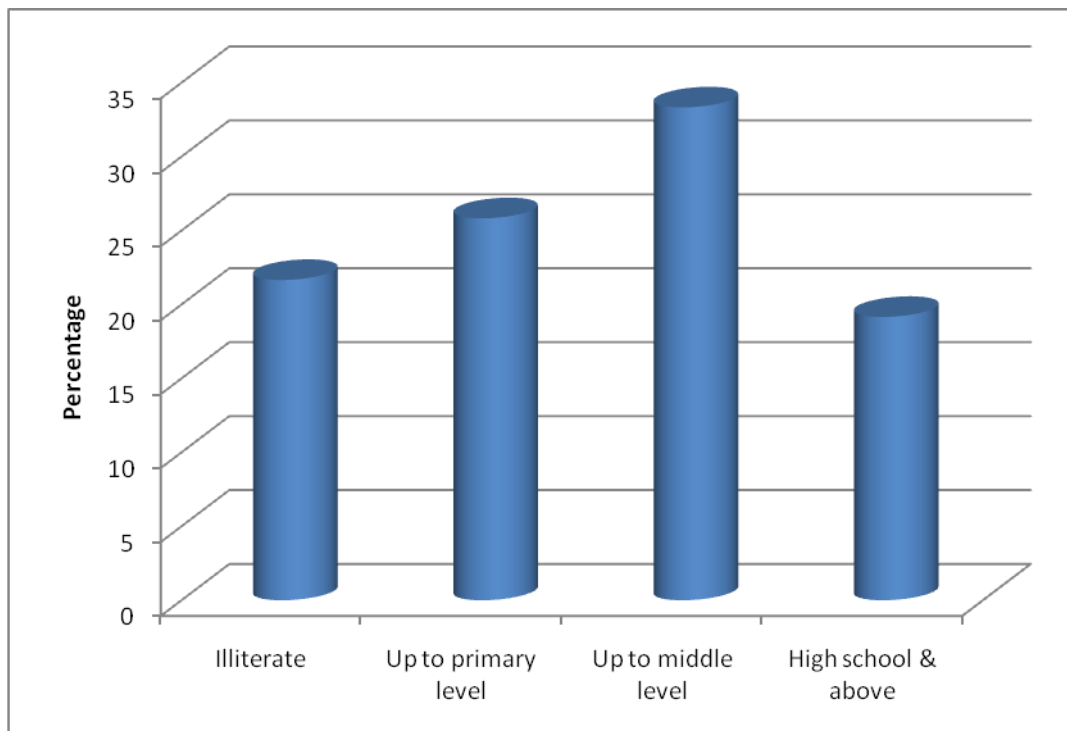
The data presented in Table 4.2 shows the percent distribution of respondents according to their education. Out of the total higher percentage (33.33) percent were found to be in up to middle education level category followed by (25.83) percent up to primary level, (21.66) percent were illiterate education group and remaining (19.16) percent were from high school & above education group.

Thus, it can be concluded that most of the respondents were educated up to middle school level followed by primary level.

**Fig 4.1: Distribution of respondents according to their age**



**Fig 4.2: Distribution of respondents according to their education level**



### 3. Size of family

**Table 4.3: Distribution of respondents according to their size of family**

S. No.	Size of family	Frequency	Percentage
1	Small	38	31.66
2	Medium	63	52.50
3	Large	19	15.84
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.3 shows the percentage distribution of respondents according to their size of family. Out of total maximum respondents had medium size of family (52.50 per cent) followed by small size of family (31.66 per cent) and large size of family (15.83 per cent).

Thus, it can be concluded that, most of the respondents were in medium size of family followed by small size of family.

### 4. Size of land holding

**Table 4.4: Distribution of respondents according to their size of land holding**

S. No.	Land holding	Frequency	Percentage
1	Marginal	31	25.83
2	Small	45	37.50
3	Medium	25	20.83
4	Large	19	15.84
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.4 shows the percentage distribution of respondents according to their size of land holding. Out of total majority had small size of land holding (37.50 per cent) followed by marginal size of land holding (25.83 per cent), medium size of land holding (20.83 per cent ) and large size of land holding (15.84 per cent).

Thus, it can be concluded that most of the respondents had in small size of land holding followed by marginal size of land holding, medium size of land holding and large size of land holding.

## 5. Occupation

**Table 4.5: Distribution of respondents according to their occupation**

S. No.	Occupation	Frequency	Percentage
1	Crop Production	55	45.83
2	Crop production+ Vegetable production	40	33.33
3	Crop Production + other	25	20.83
<b>Total</b>		<b>120</b>	<b>100</b>

The data presented in Table 4.5 shows the percentage distribution of respondents according to their occupation. Out of total majority higher per cent had Crop production as occupation (45.33 per cent) followed by Crop production+ Vegetable production as occupation (33.33 per cent) and Crop Production + other (20.83 per cent) as occupation.

Thus, it can be concluded that most of the respondents were Crop Producers followed by Crop producers+ Vegetable producers.

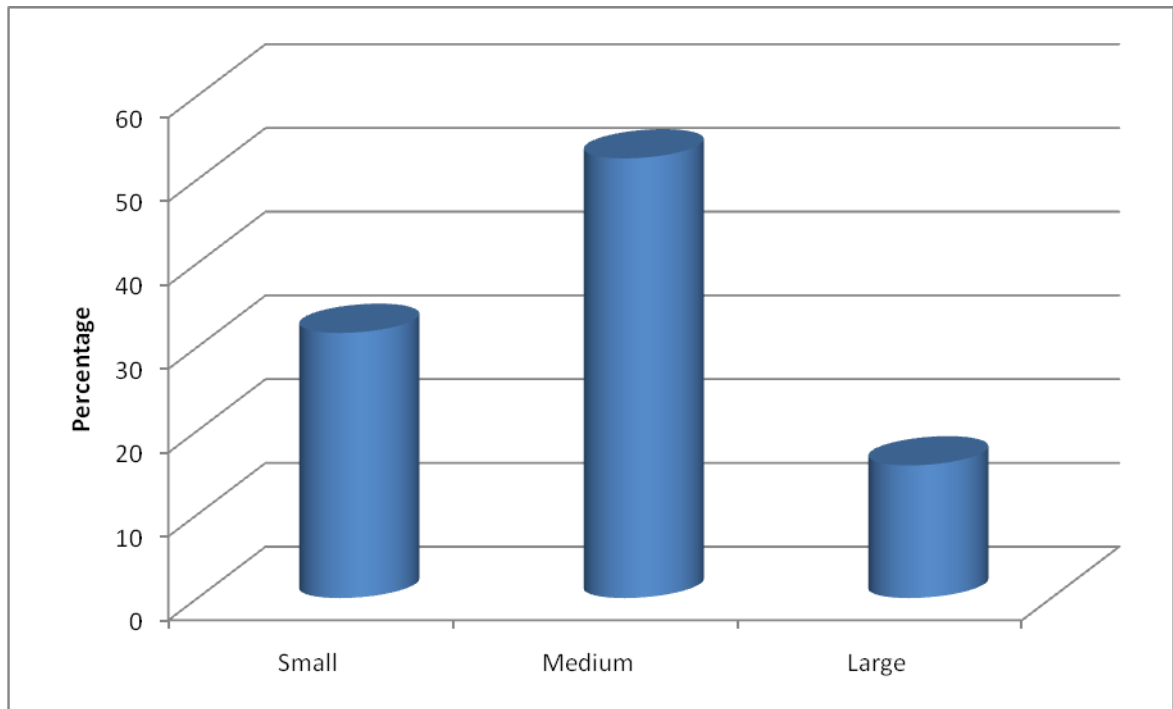
## 6. Social participation

**Table 4.6: Distribution of respondents according to their social participation**

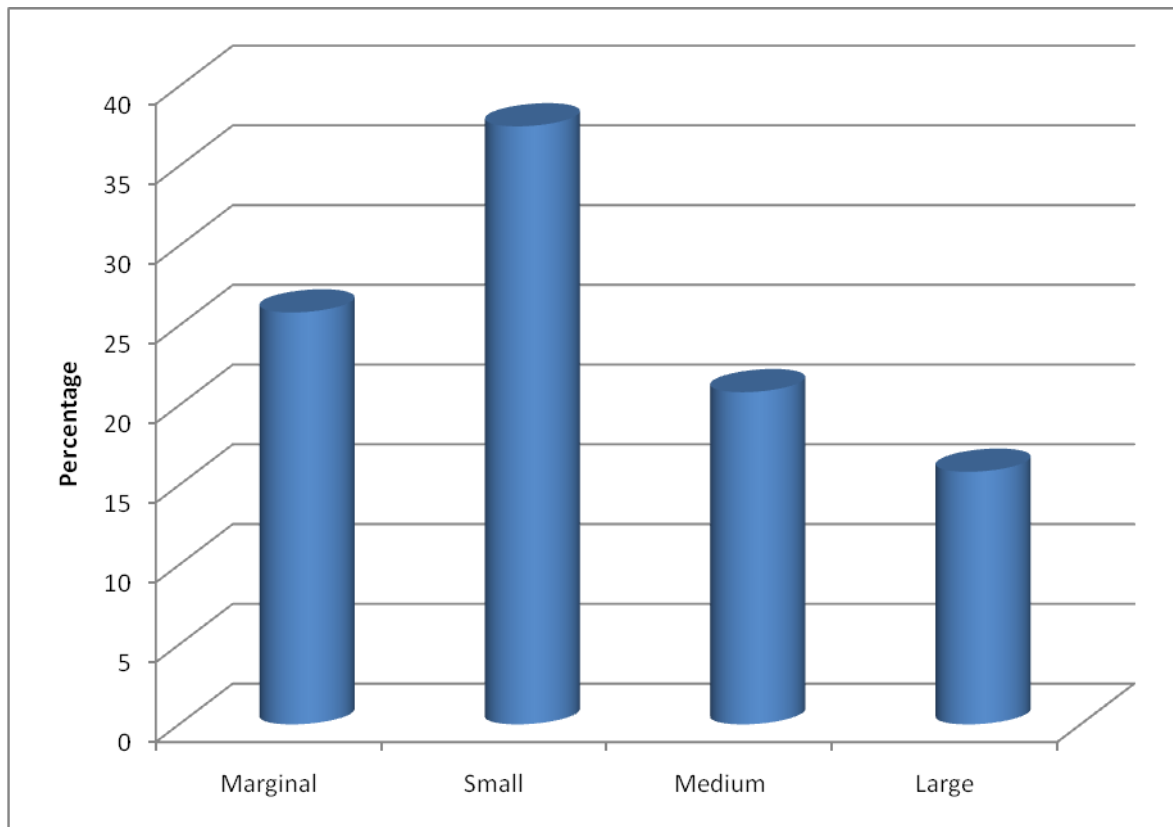
S.No.	Social participation	Frequency	Percentage
1	Low	61	50.83
2	Medium	34	28.33
3	High	25	20.84
	<b>Total</b>	<b>120</b>	<b>100</b>

Table 4.6 shows that out of total respondents, 50.83 per cent respondents had low social participation, 28.33 per cent had to medium

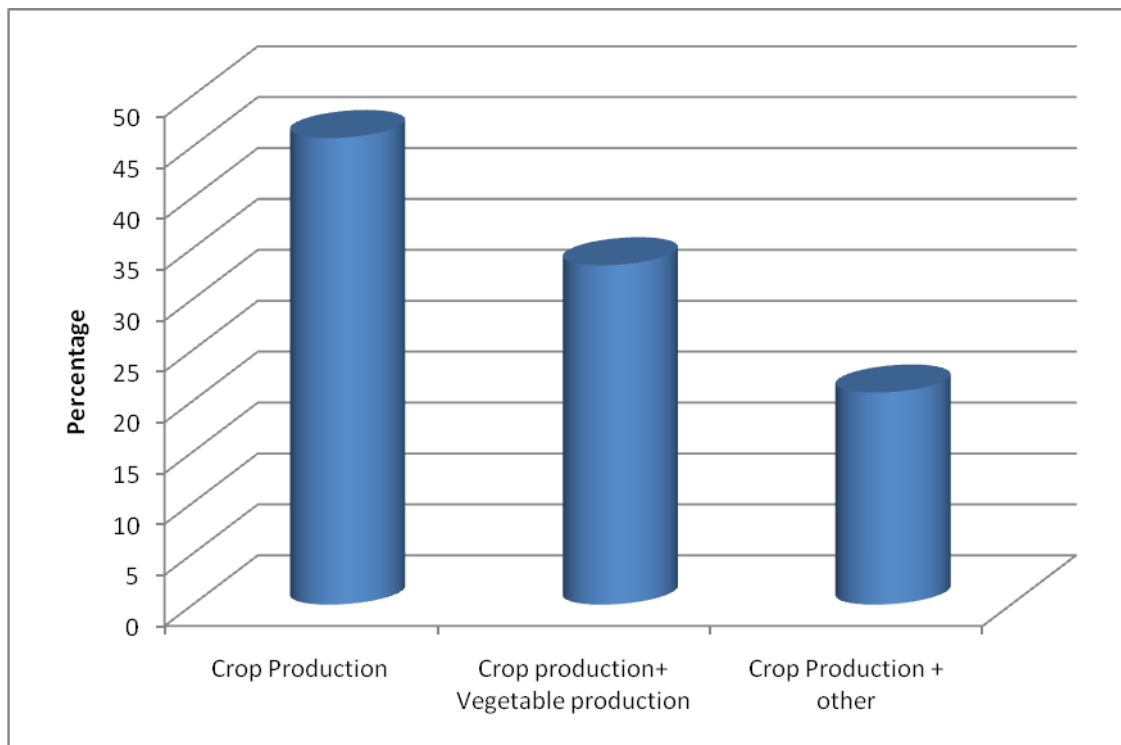
**Fig 4.3: Distribution of respondents according to their size of family**



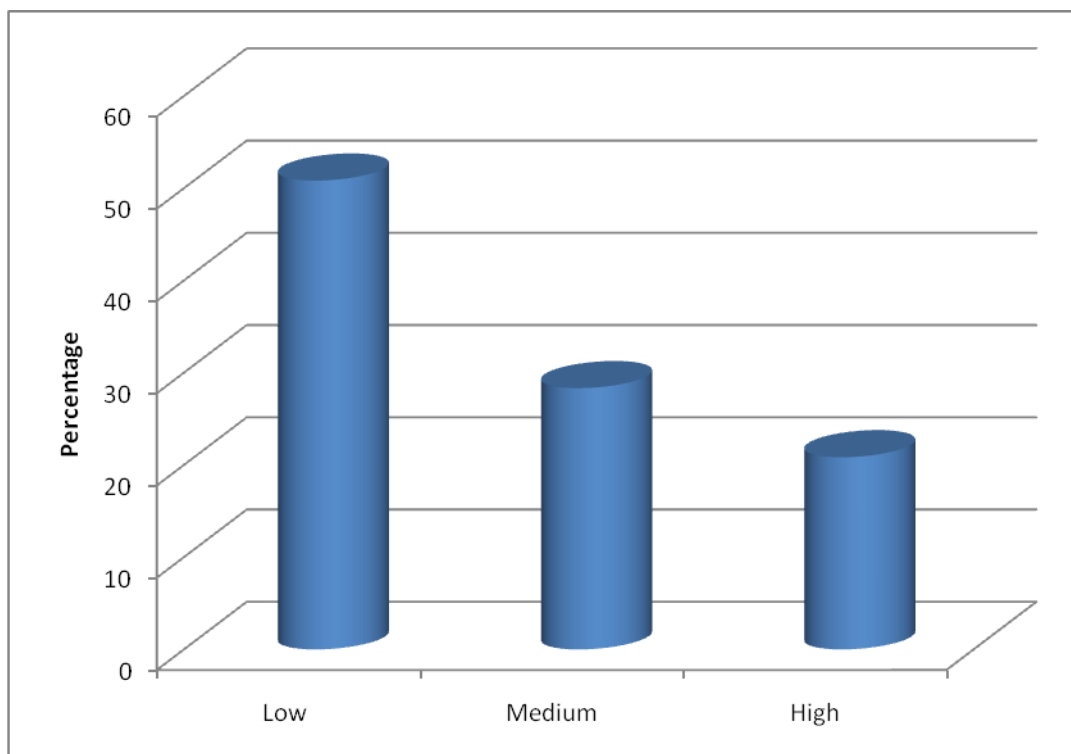
**Fig 4.4: Distribution of respondents according to their size of land holding**



**Fig 4.5: Distribution of respondents according to their occupation**



**Fig 4.6: Distribution of respondents according to their social participation**



social participation and 20.84 per cent of the respondents had high social participation.

Thus, it can be concluded that most of the respondents had low social participation followed by medium social participation and high social participation

## 7. Annual income

**Table 4.7: Distribution of respondents according to their annual income**

S. No.	Annual income	Frequency	Percentage
1	Low	39	32.50
2	Medium	56	46.66
3	High	25	20.84
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.7 shows the percentage distribution of respondents according to their annual income. Out of total, 46.66 per cent had medium annual income followed by low annual income 32.50 per cent and high annual income 20.84 per cent.

Thus, it can be concluded that most of the respondents had medium annual income followed by low annual income.

## 8. Farming experience

**Table 4.8: Distribution of respondents according to their Farming experience**

S. No.	Farming experience	Frequency	Percentage
1	Low	38	31.66
2	Medium	50	41.66
3	High	32	26.66
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.8 shows the percentage distribution of respondents according to their Farming experience. Out of total, 41.66 percent had medium Farming experience followed by low Farming experience 31.66 percent and high Farming experience 26.66 percent.

Thus, it can be concluded that most of the respondents were in medium Farming experience followed by low Farming experience and high Farming experience.

## 9. Extension contact

**Table 4.9: Distribution of respondents according to their local personal channels**

S. No.	Local personal channels	Frequency	Percentage
1	Low	40	33.33
2	Medium	57	47.50
3	High	23	19.16
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.9 shows the percentage distribution of respondents according to their local personal channels. Out of total, 47.50 per cent had medium local personal channels followed by low local personal channels (33.33 per cent) and high local personal channels (19.16 per cent).

Thus, it can be concluded that most of the respondents had medium local personal channels followed by low local personal channels.

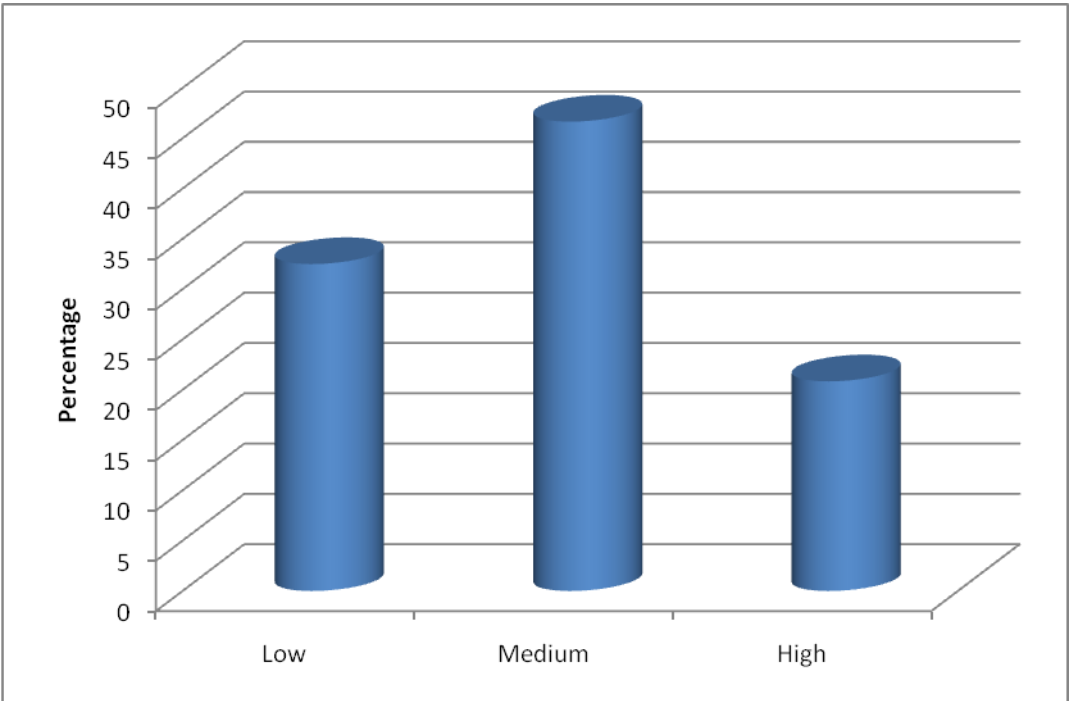
**Table 4.10: Distribution of respondents according to their Local cosmopolite channels**

S. No.	Local cosmopolite channels	Frequency	Percentage
1	Low	28	23.33
2	Medium	62	51.66
3	High	30	25.00
	<b>Total</b>	<b>120</b>	<b>100</b>

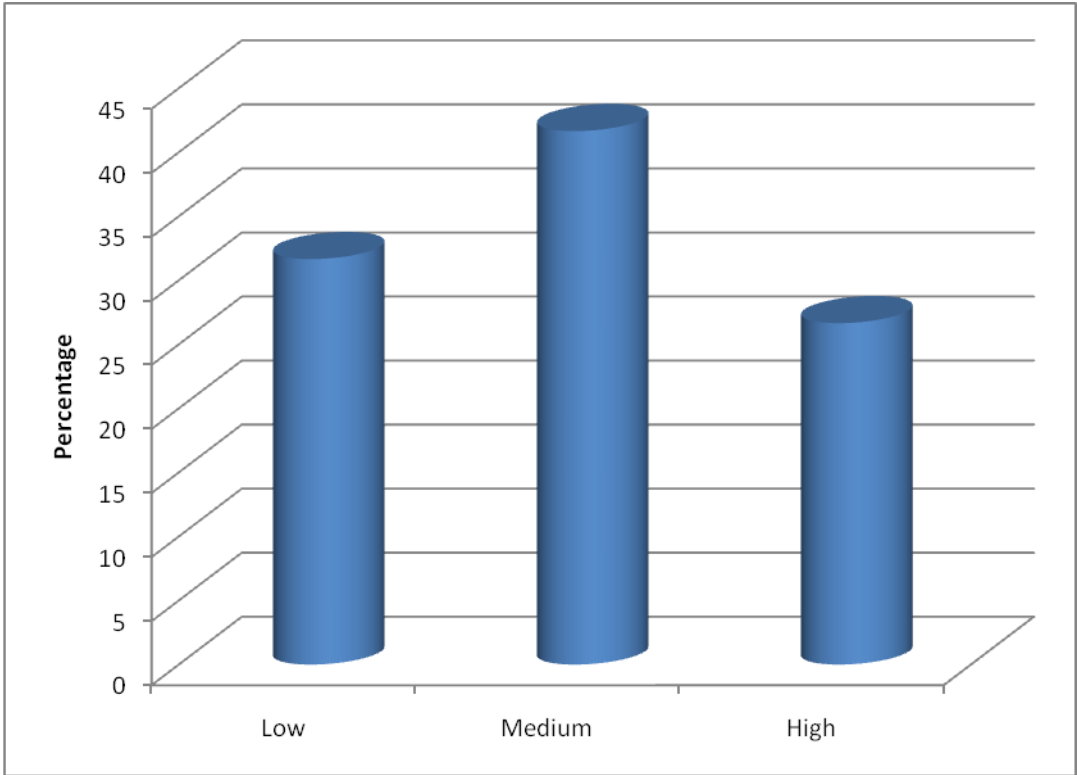
The data presented in Table 4.10 shows the percentage distribution of respondents according to their cosmopolite. Out of total, 51.66 per cent had medium cosmopolite followed by high cosmopolite 25 per cent and low cosmopolite 23.33 per cent.

Thus, it can be concluded that most of the respondents were in medium cosmopolite followed by high cosmopolite.

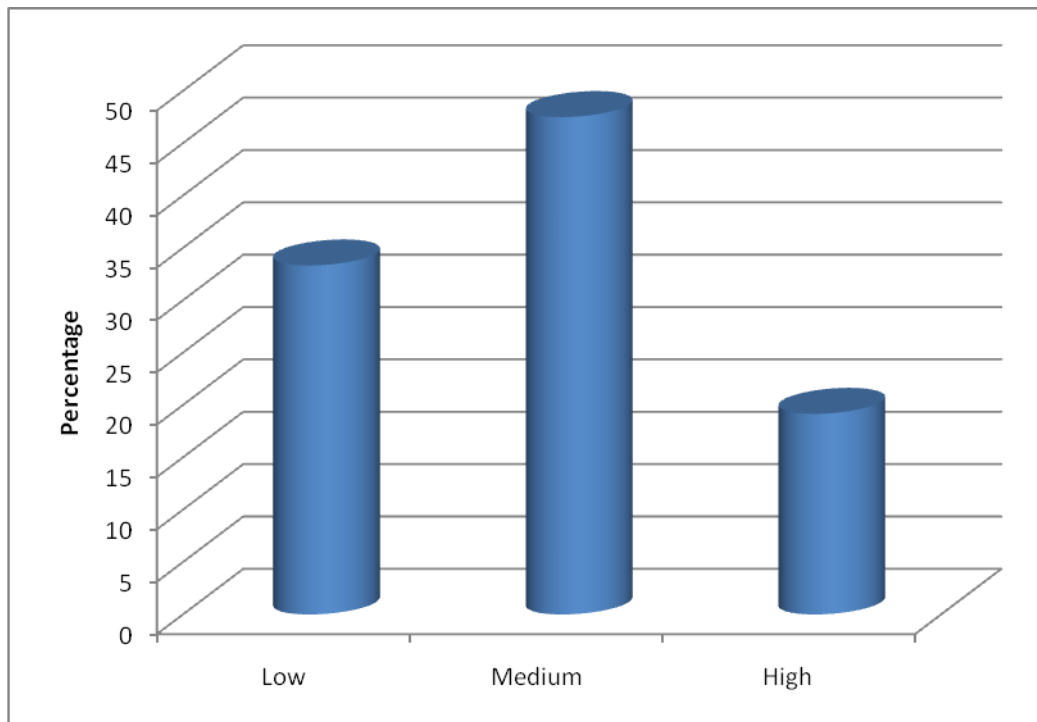
**Fig 4.7: Distribution of respondents according to their annual income**



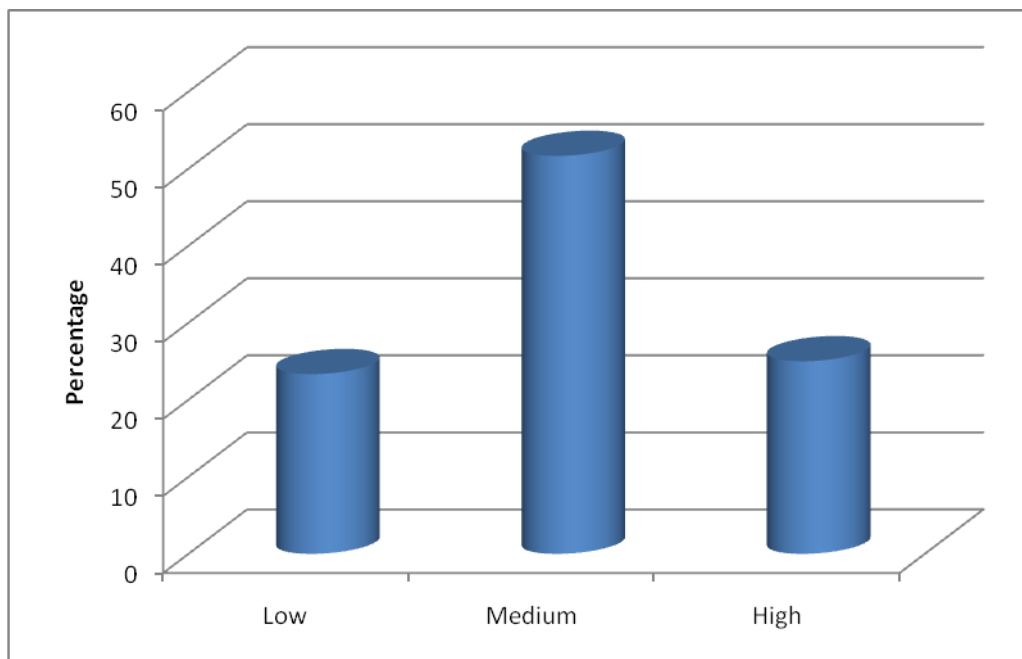
**Fig 4.8: Distribution of respondents according to their Farming experience**



**Fig 4.9: Distribution of respondents according to their local personal channels**



**Fig. 4.10: Distribution of respondents according to their Local cosmopolite channels**



## 11. Mass contact

**Table 4.11: Distribution of respondents according to their mass media exposure**

<b>S. No.</b>	<b>Mass media exposure</b>	<b>Frequency</b>	<b>Percentage</b>
1	Low	26	21.66
2	Medium	63	52.50
3	High	31	25.83
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.11 shows the percentage distribution of respondents according to their mass media exposure. Out of total, 52.50 per cent had medium mass media exposure followed by high mass media exposure 25.83 per cent and low mass media exposure 21.66 per cent.

Thus, it can be concluded that most of the respondents were in medium mass media exposure followed by high mass media exposure.

## 12. Risk orientation

**Table 4.12: Distribution of respondents according to their risk orientation**

<b>S. No.</b>	<b>Risk orientation</b>	<b>Frequency</b>	<b>Percentage</b>
1	Low	20	16.66
2	Medium	25	20.83
3	High	75	62.50
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.12 shows the percentage distribution of respondents according to their risk orientation. Out of total majority of respondents had high risk orientation (62.50 per cent) followed by medium risk orientation (20.83 per cent) and low risk orientation (16.66 per cent).

Thus, it can be concluded that most of the respondents had high risk orientation followed by medium risk orientation.

### 13. Economic motivation

**Table 4.13: Distribution of respondents according to their economic motivation**

<b>S. No.</b>	<b>Economic motivation</b>	<b>Frequency</b>	<b>Percentage</b>
1	Low	22	16.17
2	Medium	26	17.50
3	High	72	66.33
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.13 shows the percentage distribution of respondents according to their economic motivation. Out of total highest had high economic motivation (66.33 per cent) followed by medium economic motivation (17.50 per cent) and low economic motivation (16.17 per cent).

Thus, it can be concluded that most of the respondents were found in high economic motivation category followed by medium economic motivation category.

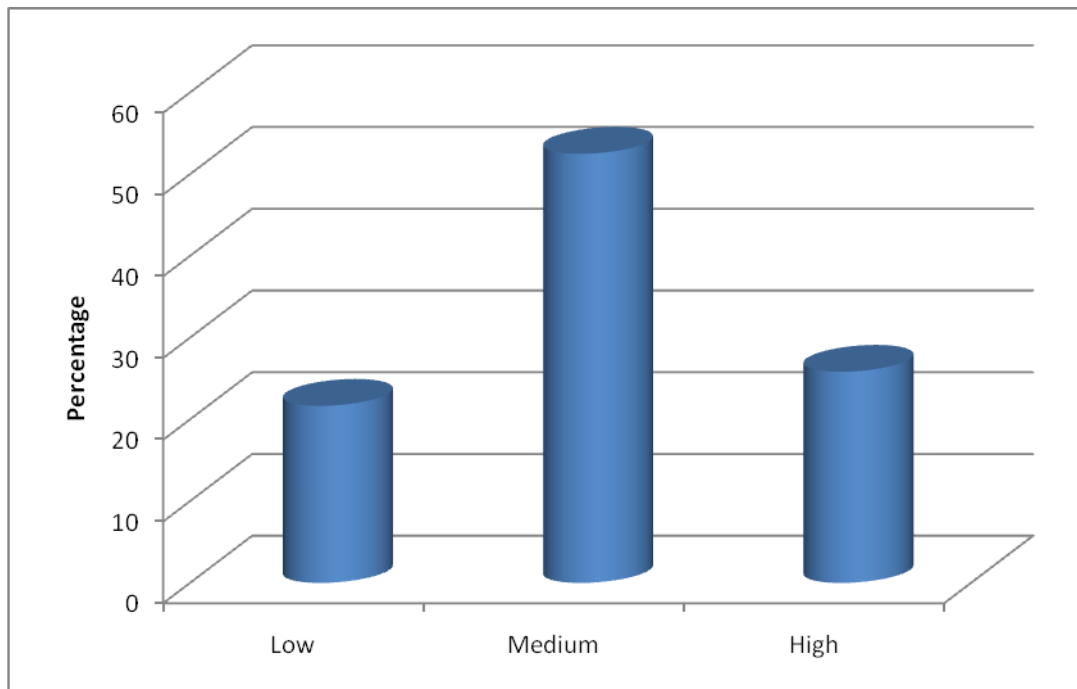
### 14. Scientific orientation

**Table 4.14: Distribution of respondents according to their scientific orientation**

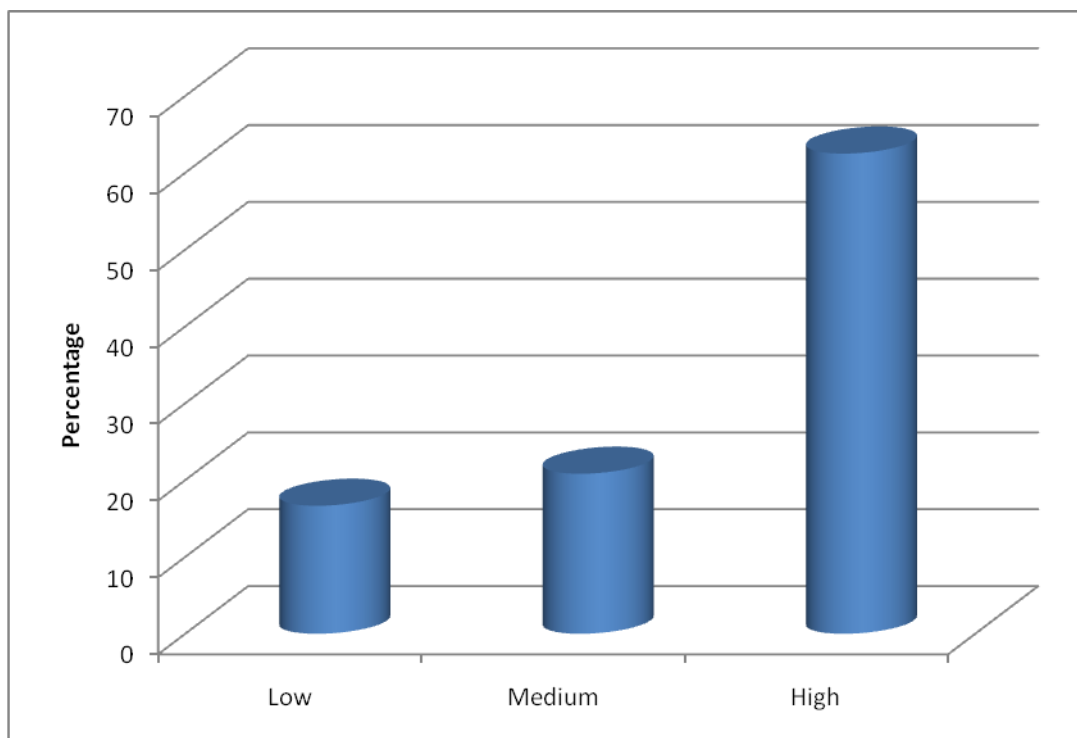
<b>S. No.</b>	<b>Scientific orientation</b>	<b>Frequency</b>	<b>Percentage</b>
1	Low	34	28.33
2	Medium	55	45.84
3	High	31	25.83
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.14 shows the percentage distribution of respondents according to their scientific orientation. Out of total, 45.84 per cent had medium scientific orientation followed by low scientific orientation 28.33 per cent and high scientific orientation 25.83 per cent.

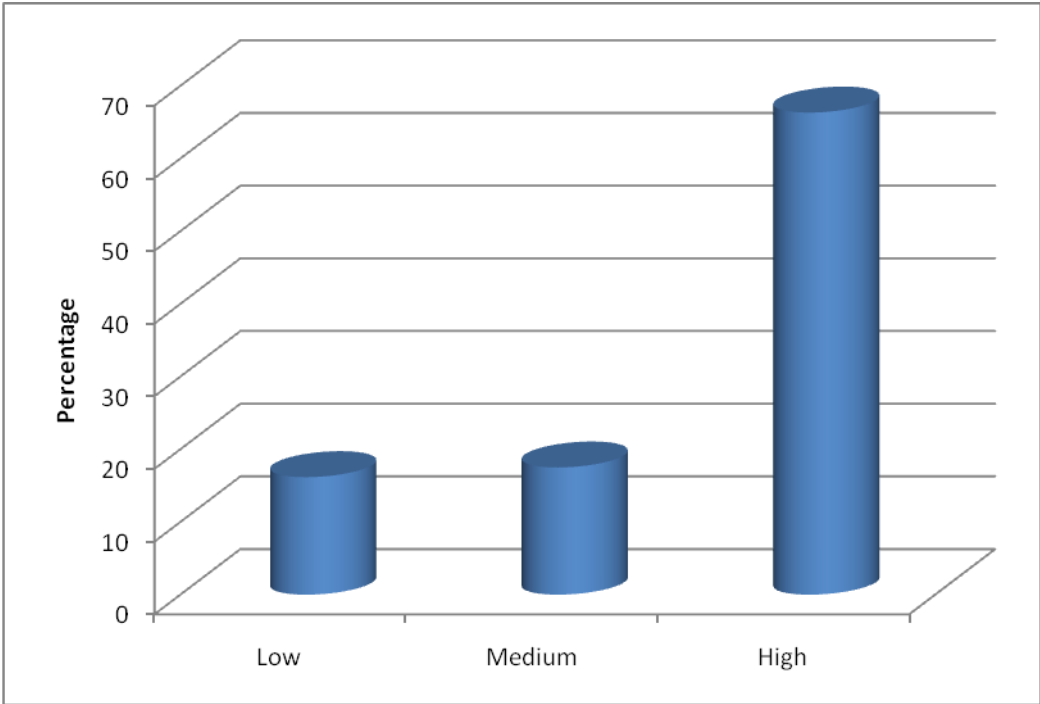
**Fig 4.11: Distribution of respondents according to their mass media exposure**



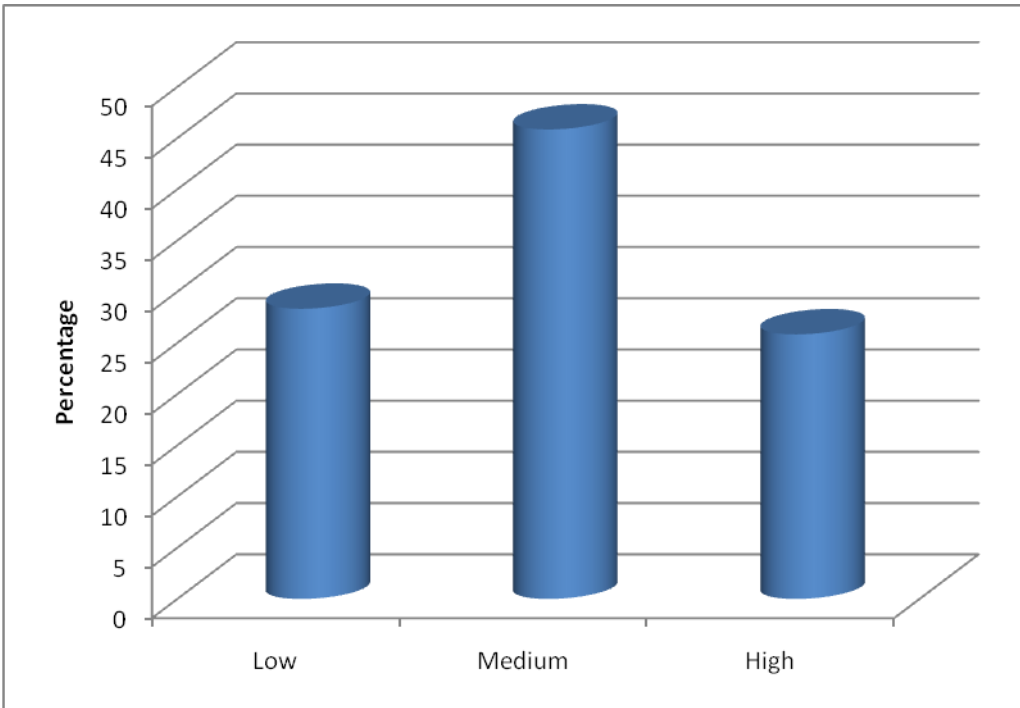
**Fig 4.12: Distribution of respondents according to their risk orientation**



**Fig 4.13: Distribution of respondents according to their economic motivation**



**Fig 4.14: Distribution of respondents according to their scientific orientation**



Thus, it can be concluded that most of the respondents had medium scientific orientation followed by low scientific orientation.

### 15. Innovativeness

**Table 4.15: Distribution of respondents according to their Innovativeness**

S. No.	Innovativeness	Frequency	Percentage
1	Low	26	21.66
2	Medium	62	51.66
3	High	32	26.66
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.15 shows the percentage distribution of respondents according to their Innovativeness. Out of total highest respondents had medium Innovativeness (51.66 per cent) followed by high Innovativeness (26.66 per cent) and low Innovativeness (21.66 per cent).

Thus, it can be concluded that most of the respondents had medium Innovativeness followed by high Innovativeness.

### 16. Knowledge of collecting soil sample

**Table 4.16: Distribution of respondents according to their Knowledge of collecting soil sample**

S. No.	Knowledge of collecting soil sample	Frequency	Percentage
1	Low	36	30
2	Medium	53	44.16
3	High	31	25.83
	<b>Total</b>	<b>120</b>	<b>100</b>

The data presented in Table 4.16 shows the percentage distribution of respondents according to their Knowledge of collecting soil sample. Out of

total majority had medium Knowledge of collecting soil sample (44.16 per cent) followed by low Knowledge of collecting soil sample (30 per cent) and high Knowledge of collecting soil sample (25.83 per cent) respectively.

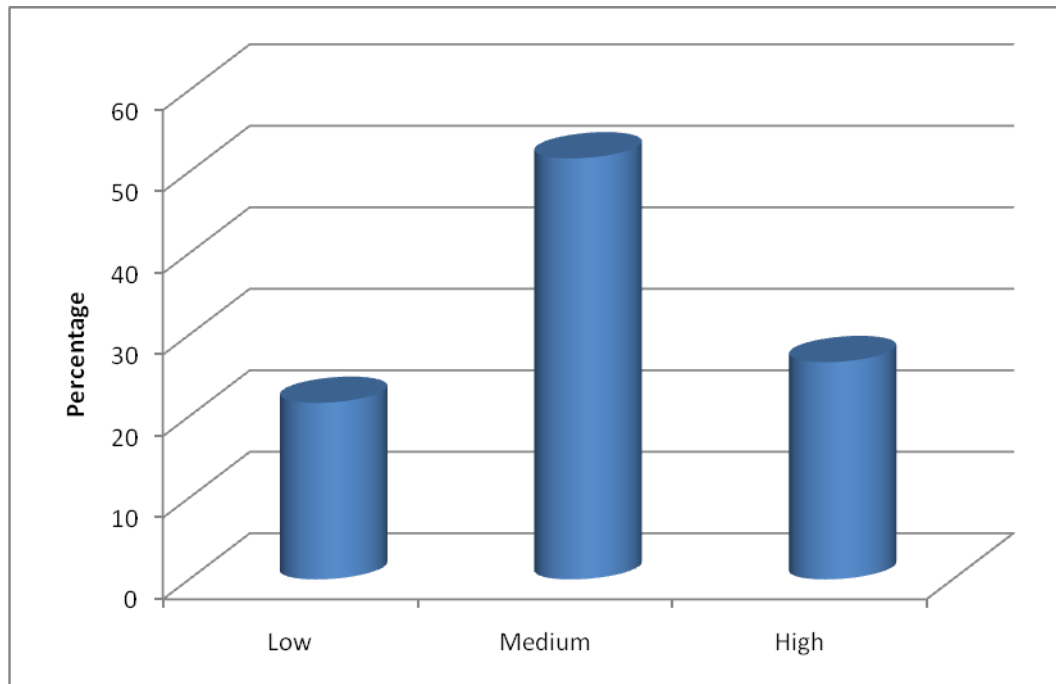
Thus, it can be concluded that most of the respondents had medium Knowledge of collecting soil sample followed by low Knowledge of collecting soil sample.

#### 4.2 To study the extent of awareness of respondents regarding Soil Health Card (SHC)

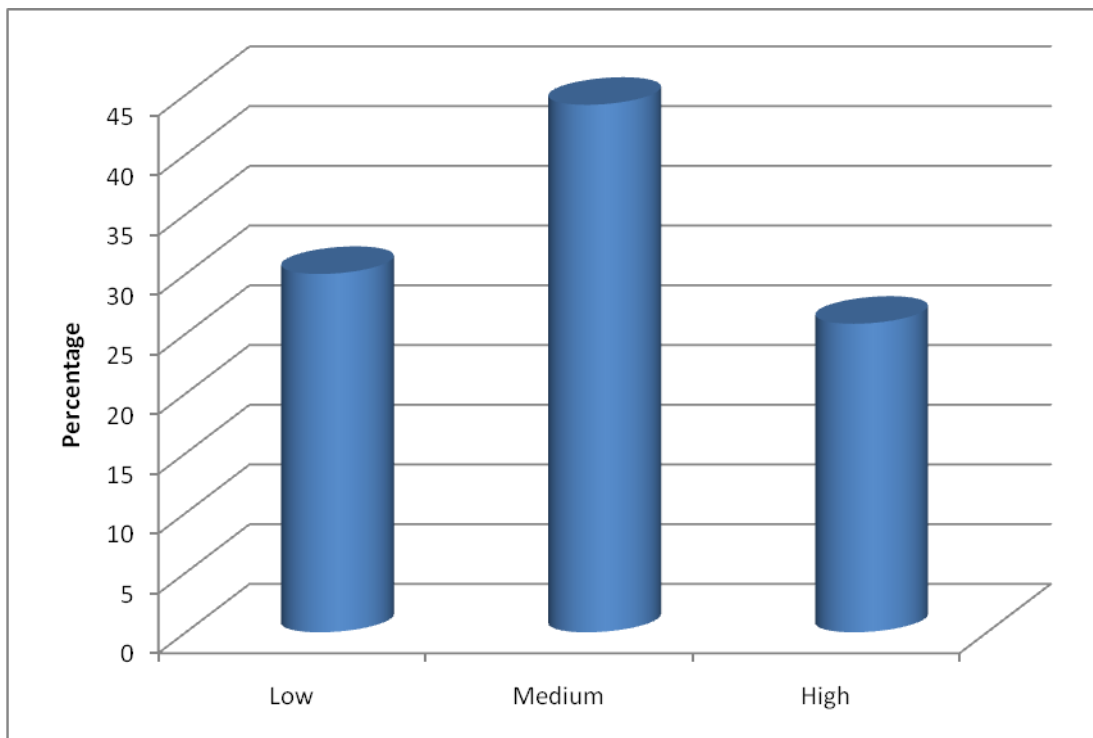
**Table 4.2.1: Extent of awareness of respondents regarding Soil Health Card (SHC)**

S. No.	Components	Awareness Level			Total score	Mean score	Rank
		Complete	Partial	Not at all			
1.	Validity of SHC	52	50	18	154	1.28	I
2.	Application of organic manure for sick soil	44	61	15	149	1.24	II
3.	Diagnosis of status of plant nutrients from SHC	40	65	15	145	1.20	III
4.	Information about soil sample lab	40	58	22	138	1.15	IV
5.	Recommendation given through SHC for different crops	38	59	23	135	1.12	V
6.	PH value of ideal soil	31	70	19	132	1.10	VI
7.	Area of land for soil sample	34	62	24	130	1.08	VII
8.	Information about SHC	36	55	29	127	1.05	VIII
9.	Information mentioned in soil sample bag	34	56	30	124	1.03	IX
10.	Agencies involved in SHC	27	68	25	122	1.01	X
11.	Nitrogen content in neem coated urea	29	62	29	120	1.00	XI

**Fig 4.15: Distribution of respondents according to their Innovativeness**



**Fig 4.16: Distribution of respondents according to their Knowledge of collecting soil sample**



12.	Unit of fertilizer mentioned in SHC	27	60	33	114	0.95	XII
13.	Phosphorus content in SSP	25	63	32	113	0.94	XIII
14.	Objective of SHC	25	60	35	110	0.91	XIV
15.	Assessment level of nutrients in soil	20	67	33	107	0.89	XV
16.	Depth of soil taken for soil testing	28	50	42	106	0.88	XVI
17.	Potassium content in MOP	33	48	39	104	0.86	XVII
18.	Implements required for soil sampling	26	50	44	102	0.85	XVIII
19.	Judicious combination of fertilizers for major nutrients	25	50	45	100	0.83	XIX
20.	Parameters of soil health recommended through SHC	28	40	52	96	0.80	XX

#### 4.2.2: Distribution of the respondents according to their overall awareness of Soil Health Card

S. No.	Extent of awareness	No. of respondents	Percentage
1	Low	32	26.66
2	Medium	59	49.16
3	High	29	24.16
	<b>Total</b>	<b>120</b>	<b>100</b>

The Table 4.2.2. shows that out of total, a higher number exhibited medium level of awareness regarding Soil Health Card followed (49.16 per cent) by low level of awareness regarding Soil Health Card (26.66 per cent) and only showed high awareness (24.16 per cent) regarding Soil Health Card.

Thus, it can be concluded that most of the respondents had medium level of awareness regarding Soil Health Card followed by low level of awareness regarding Soil Health Card.

#### 4.3 To analyze the association between extent of awareness of respondents and their characteristics

##### 1. Age

**Table 4.3.1 Association between age of the respondents and their awareness regarding Soil Health Card**

Age group	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Young	12	41.38	11	37.93	6	20.69	29	24.16
Middle	14	24.14	36	62.07	8	13.79	58	48.33
Old	6	18.18	12	36.36	15	45.45	33	27.5
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

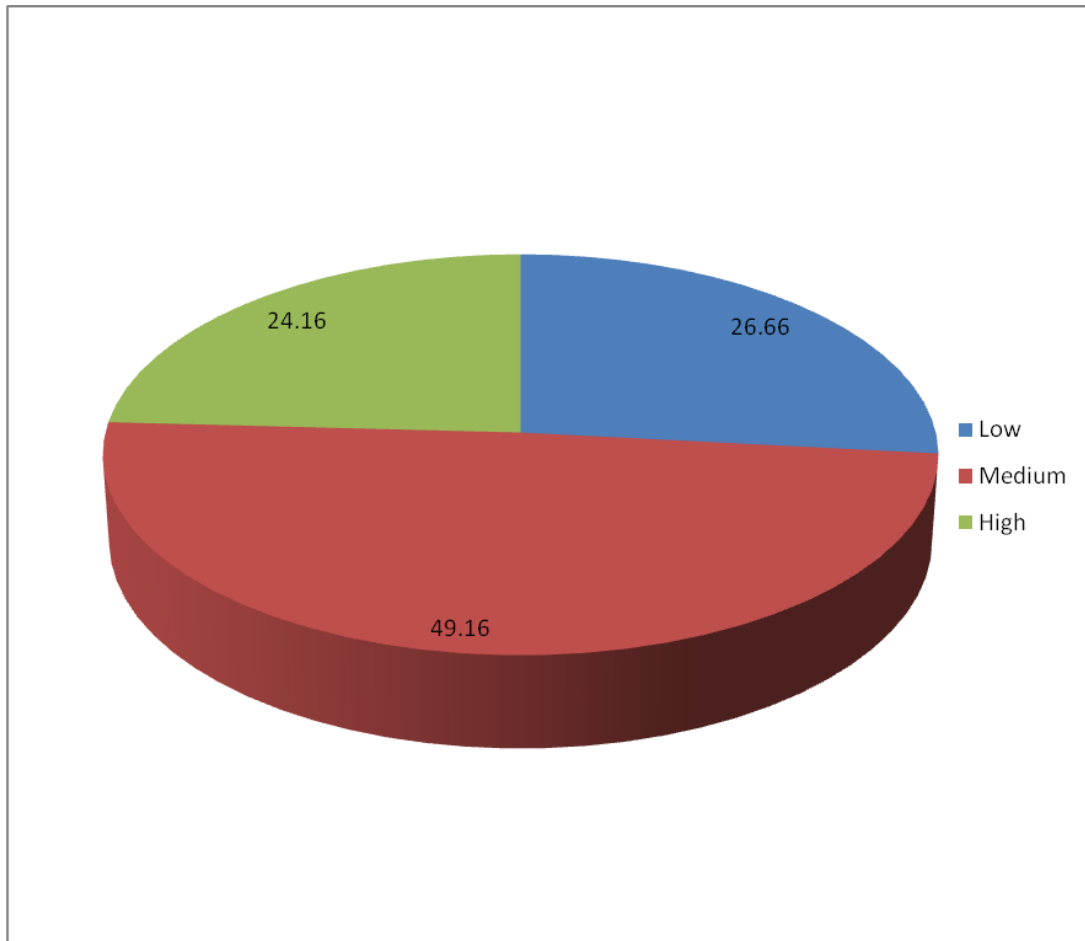
$\chi^2 = 6.32$  non significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.1. shows that out of 29 respondents who were from younger age group, 41.38percent had low awareness, 37.93 per cent exhibited medium awareness and 20.69 percent showed high awareness regarding Soil Health Card.

Out of 58 respondents belonging to middle age group, 62.07 per cent had medium awareness, 24.14 per cent had low awareness whereas only 13.79 per cent indicated high awareness regarding Soil Health Card.

In case of 33 respondents belonging to the old age group, 45.45 per cent showed high awareness, 36.36 per cent had medium awareness, whereas only 18.18 per cent had low awareness regarding Soil Health Card.

**Fig 4.17: Distribution of the respondents according to their overall awareness regarding Soil Health Card**



When the  $\chi^2$  test was applied to the data, the calculated  $X^2$  value 6.32 was found to be non significant at 4 d.f. and 5% level of significance about awareness regarding Soil Health Card.

Hence, the null hypothesis may be accepted and it could be concluded that there was no significant association between age and awareness regarding Soil Health Card.

## 02. Education

**Table 4.3.2: Association between education of the respondents and their awareness regarding Soil Health Card.**

Education	Awareness						Total	
	Low		Medium		High		No.	%
	No.	%	No.	%	No.	%		
Illiterate	5	19.23	15	57.69	6	23.08	26	21.66
Up to primary	7	22.58	16	51.61	8	25.81	31	25.83
Up to middle	12	30.00	18	45.00	10	25.00	40	33.33
High school and above	8	34.78	10	43.48	5	21.74	23	19.16
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	

**$\chi^2 = 15.26$  significant at 0.05 level of probability with 6 d.f.**

The data presented in table 4.3.2. reveals that out of 26 respondents who were illiterate, 57.69 percent showed medium awareness, 23.08 percent exhibited high awareness and 19.23 percent low had awareness regarding Soil Health Card.

Out of 31 respondents education up to primary, 51.61 percent had medium, 25.81 per cent had high and 22.58 per cent had low awareness regarding Soil Health Card.

Among 40 respondents who were educated up to middle school, majority 45 per cent indicated medium awareness, 30 per cent showed low awareness and 25 per cent had high awareness regarding Soil Health Card.

In case of 23 respondents who had education up to high school, 43.48 per cent showed medium awareness, 34.78 per cent exhibited low awareness and 21.74 per cent high had awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 15.26 was found to be significant at 6 d.f. and 0.05 level of significance. Hence, the null hypothesis may be rejected.

### 3. size of family

**Table 4.3.3: Association between Size of family of the respondents and their awareness regarding Soil Health Card.**

size of family	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Small	11	28.95	17	44.74	10	26.32	38	31.66
Medium	16	25.40	34	53.97	13	20.63	63	52.5
High	5	26.32	8	42.11	6	31.58	19	15.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2 = 6.62$  non significant at 0.05 level of probability with 4 d.f.,

The data presented in table 4.3.3. exhibits that out of 38 respondents who belonged to small size of family, 44.74 per cent showed medium awareness, 28.95 per cent showed low awareness and 26.32 per cent indicated high awareness regarding Soil Health Card.

Out of 63 respondents who belonged to medium size of family, 53.97 per cent showed medium awareness, 25.40 per cent had low awareness and 20.63 per cent indicated high awareness regarding Soil Health Card.

In case of 19 respondents who belonged to large size of family 42.11 per cent showed medium awareness, 31.58 per cent had high awareness and 26.32 per cent exhibited low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 6.22 was found to be non significant at 4 d.f. and 0.05 per cent level of significance. Hence, the null hypothesis may be accepted.

#### 4. Size of land holding

**Table 4.3.4: Association between Size of land holding of the respondents and their awareness regarding Soil Health Card.**

Size of land holding	Awareness						Total	
	Low		Medium		High		No.	%
	No.	%	No.	%	No.	%		
Marginal	5	16.13	19	61.29	7	22.58	31	25.83
Small size	6	13.33	30	66.67	9	20.00	45	37.50
Medium size	12	48.00	5	20.00	8	32.00	25	20.83
Large size	9	47.37	5	26.32	5	26.32	19	15.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>			

$\chi^2 = 14.7$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.4 exhibits that out of 31 respondents who had marginal size of land holding, 61.29 per cent showed medium awareness, 22.58 per cent showed high awareness and 16.13 per cent indicated low awareness regarding Soil Health Card.

Out of 45 respondents who had small size of land holding, 66.67 per cent showed medium awareness, 20.00 per cent had high awareness and 13.33 per cent indicated low awareness regarding Soil Health Card.

In case of 25 respondents who had medium size of land holding 48.00 per cent showed low awareness, 32.00 per cent had high awareness and 20.00 per cent had medium awareness regarding Soil Health Card.

In case of 19 respondents who had large size of land holding 47.37 per cent showed low awareness, 26.32 per cent had medium awareness and 26.32 per cent had high awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 14.70 was found to be significant at 4 d.f. and 0.05 per cent level of significance. Hence, the null hypothesis may be rejected.

## 5. Occupation

**Table 4.3.5: Association between Occupation of the respondents and their awareness regarding Soil Health Card**

Occupation	Awareness						Total	
	Low		Medium		High		No.	%
	No.	%	No.	%	No.	%		
Crop pro.	17	30.91	28	50.91	10	18.18	55	45.83
C.p. + V.P.	6	15.00	23	57.50	11	27.50	40	33.33
C.P. + other	9	36.00	8	32.00	8	32.00	25	20.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2 = 6.96$  non significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.5 shows that out of 55 respondents who were sole crop production, 50.91 per cent showed medium awareness, 30.91 per cent possessed low awareness and 18.18 per cent showed high awareness regarding Soil Health Card.

Out of 40 respondents who were practicing crop production as well as vegetable production, 57.50 per cent showed medium awareness, 27.50 per

cent exhibited high awareness and 15.00 per cent showed low awareness regarding Soil Health Card.

Out of 25 respondents who practiced crop production and other occupation, 36.00 per cent possessed low awareness, 32.00 per cent showed high awareness and 32.00percent showed medium awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 6.96 was found to be non significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be accepted.

## 6. Social participation

**Table 4.3.6: Association between Social participation of the respondents and their awareness regarding Soil Health Card.**

Social participation	Awareness						Total	
	Low		Medium		High		No.	%
	No.	%	No.	%	No.	%		
Low	16	26.23	40	65.57	5	8.20	61	50.83
Medium	10	29.41	13	38.24	11	32.35	34	28.33
High	6	24.00	6	24.00	13	52.00	25	20.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

**$\chi^2=22.94$  significant at 0.05 level of probability with 4 d.f.**

The data presented in table 4.3.6. shows that out of 61 respondents who had low social participation,65.57per cent showed medium awareness, 26.23 per cent possessed low awareness and 8.20 per cent showed high awareness regarding Soil Health Card.

Out of 34 respondents who had medium social participation, 38.24 per cent showed medium awareness, 32.35 per cent possessed high awareness and 29.41 per cent showed low awareness regarding Soil Health Card.

Out of 25 respondents who had high social participation, 52.00 per cent possessed high awareness, 24 per cent showed low awareness and 24 per cent showed medium awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 22.94 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

## 7. Annual income

**Table 4.3.7: Association between Annual income of the respondents and their awareness regarding Soil Health Card**

Annual income	Awareness						Total	
	Low		Medium		High		No.	%
	No.	%	No.	%	No.	%		
Low	13	33.33	18	46.15	8	20.51	39	32.50
Medium	13	26.79	31	50.00	13	23.21	56	46.66
High	7	28.00	10	40.00	8	32.00	25	20.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2=9.98$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.7 shows that out of 39 respondents who had low annual income 46.15 per cent showed medium awareness, 33.33 per cent possessed low awareness and 20.51 per cent showed high awareness regarding Soil Health Card.

Out of 56 respondents who had medium annual income, 50.00 per cent showed medium awareness, 26.79 per cent possessed low awareness and 23.21 per cent showed high awareness regarding Soil Health Card.

Out of 25 respondents who had high annual income, 40.00 per cent possessed medium awareness, 32.00 per cent showed high awareness and 28.00 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 9.98 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

## 8. Farming experience

**Table 4.3.8: Association between Farming experience of the respondents and their awareness regarding Soil Health Card**

Farming experience	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	14	36.84	19	50.00	5	13.16	38	31.66
Medium	11	22.00	25	50.00	14	28.00	50	41.66
High	7	21.88	15	46.88	10	31.25	32	26.66
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2=5.07$  non significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.8. exhibits that out of 38 respondents who belonged to low farming experience, 50.00 per cent showed medium awareness, 36.84 per cent showed low awareness and 13.16 per cent indicated high awareness regarding Soil Health Card.

Out of 50 respondents who belonged to medium farming experience, 50.00 per cent showed medium and awareness, 28.00 per cent had high awareness and 22.00 per cent indicated low awareness regarding Soil Health Card.

In case of 32 respondents who belonged to high farming experience 46.88 per cent showed medium awareness, 31.25 per cent had high awareness and 21.88 per cent exhibited low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 5.07 was found to be non significant at 4 d.f. and 0.05 per cent level of significance. Hence, the null hypothesis may be accepted.

## 9. Extension contact

### a. Local personal channels

**Table 4.3.9.: Association between local personal channels of the respondents and their awareness regarding Soil Health Card**

Local personal channels	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	17	42.50	17	42.50	6	15.00	40	33.33
Medium	10	17.54	32	56.14	15	26.32	57	47.5
High	5	21.74	10	43.48	8	34.78	23	19.16
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2=9.86$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.9 shows that out of 40 respondents who had low local personal channels, 42.50 per cent showed medium

awareness, 42.50 per cent possessed low awareness and 15.00 per cent showed high awareness regarding Soil Health Card.

Out of 57 respondents who had medium local personal channels, 56.14 per cent showed medium awareness, 26.32 per cent possessed high awareness and 17.54 per cent showed low awareness regarding Soil Health Card.

Out of 23 respondents who had high local personal channels, 43.48 per cent possessed medium awareness, 34.78 per cent showed high awareness and 21.74 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 9.86 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

#### **b. Local Cosmopolite channels**

**Table 4.3.10: Association between local Cosmopolite channels of the respondents and their awareness regarding Soil Health Card**

Local Cosmopolite channels	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	15	53.57	7	25.00	6	21.43	28	23.33
Medium	12	19.35	35	51.61	15	24.19	62	51.66
High	5	16.67	17	56.67	8	26.67	30	25
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2=13.87$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.10 shows that out of 28 respondents who had low local Cosmopolite channels, 53.57per cent showed low awareness, 25.00 per cent possessed medium awareness and 21.43 per cent showed high awareness regarding Soil Health Card.

Out of 62 respondents who had medium local Cosmopolite channels, 51.61 per cent showed medium awareness, 24.19 per cent possessed high awareness and 19.35 per cent showed low awareness regarding Soil Health Card.

Out of 30 respondents who had high local Cosmopolite channels, 56.67 per cent possessed medium awareness, 26.67 per cent showed high awareness and 16.67 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 13.87 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

### C. mass media exposure

**Table 4.3.11: Association between mass media exposure of the respondents and their awareness regarding Soil Health Card**

mass media exposure	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	10	38.46	11	42.31	5	19.23	26	21.66
Medium	15	23.81	33	52.38	15	23.81	63	52.5
High	7	22.58	15	48.39	9	29.03	31	25.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2= 21.35$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.11. shows that out of 26 respondents who had low mass media exposure, 42.31 per cent showed medium awareness, 38.46 per cent possessed low awareness and 19.23 per cent showed high awareness regarding Soil Health Card.

Out of 63 respondents who had medium mass media exposure, 52.38percent showed medium awareness, 23.81 per cent possessed high awareness and 23.81 per cent showed low awareness regarding Soil Health Card.

Out of 31 respondents who had high mass media exposure, 48.39 per cent possessed medium awareness, 29.03 per cent showed high awareness and 22.58 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 21.35 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

## 10. Risk orientation

**Table 4.3.12: Association between risk orientation of the respondents and their awareness regarding Soil Health Card**

Risk orientation	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	9	45.00	6	30.00	5	25.00	20	16.6
Medium	14	56.00	5	20.00	6	24.00	25	20.9
High	9	12.00	48	64.00	18	24.00	75	62.5
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2 = 25.82$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.12. shows that out of 20 respondents who had low risk orientation 45.00 per cent showed low awareness, 30.00 per cent possessed medium awareness and 25.00 per cent showed high awareness regarding Soil Health Card.

Out of 25 respondents who had medium risk orientation, 56.00 per cent showed low awareness, 24.00 per cent possessed high awareness and 20.00 per cent showed medium awareness regarding Soil Health Card.

Out of 75 respondents who had high risk orientation, 64.00 per cent possessed medium awareness, 24.00 per cent showed high awareness and 12.00 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 25.82 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

### 11. Economic motivation

**Table 4.3.13: Association between Economic motivation of the respondents and their awareness regarding Soil Health Card**

Economic motivation	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	6	27.27	11	50.00	5	22.73	22	18.33
Medium	5	19.23	14	53.85	7	26.92	26	21.66
High	21	29.17	34	47.22	17	23.61	72	60
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>0</b>	<b>100</b>

$\chi^2 = 11.55$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.13. shows that out of 22 respondents who had low economic motivation, 50.00 per cent showed medium awareness, 27.27 per cent possessed low awareness and 22.73 per cent showed high awareness regarding Soil Health Card.

Out of 26 respondents who had medium economic motivation, 53.85 per cent showed medium awareness, 26.92 per cent possessed high awareness and 19.23 per cent showed low awareness regarding Soil Health Card.

Out of 72 respondents who had high economic motivation, 47.22 per cent possessed medium awareness, 29.17 per cent showed low awareness and 23.61 per cent showed high awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 11.55 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

## 12. Scientific orientation

**Table 4.3.14: Association between Scientific orientation of the respondents and their awareness regarding Soil Health Card**

Scientific orientation	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	11	32.35	16	47.06	7	20.59	34	28.33
Medium	14	25.45	29	52.73	12	21.82	55	45.83
High	7	22.58	14	45.16	10	32.26	31	25.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>120</b>	<b>100</b>

$\chi^2 = 13.72$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.14. shows that out of 34 respondents who had low scientific orientation, 47.06 per cent showed medium awareness, 32.35 per cent possessed low awareness and 20.59 per cent showed high awareness regarding Soil Health Card.

Out of 55 respondents who had medium scientific orientation, 52.73 per cent showed medium awareness, 25.45 per cent possessed low awareness and 21.82 per cent showed high awareness regarding Soil Health Card.

Out of 31 respondents who had high scientific orientation, 45.16 per cent possessed medium awareness, 32.26 per cent showed high awareness and 22.58 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 13.72 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

### 13. Innovativeness

**Table 4.3.15: Association between Innovativeness of the respondents and their awareness regarding Soil Health Card**

Innovative -ness	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	7	26.92	14	53.85	5	19.23	26	21.66
Medium	15	24.19	31	50.00	16	25.81	62	51.66
High	10	31.25	14	43.75	8	25.00	32	26.66
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>0</b>	<b>100</b>

$\chi^2 = 14.98$  significant at 0.05 level of probability with 4d.f.

The data presented in table 4.3.15. shows that out of 26 respondents who had low Innovativeness, 53.85 per cent showed medium awareness,

26.92 per cent possessed low awareness and 19.23 per cent showed high awareness regarding Soil Health Card.

Out of 62 respondents who had medium Innovativeness, 50.00per cent showed medium awareness, 25.81 per cent possessed high awareness and 24.19per cent showed low awareness regarding Soil Health Card.

Out of 32 respondents who had high Innovativeness, 43.75per cent possessed medium awareness, 31.25 per cent showed low awareness and 25.00 per cent showed high awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 14.98 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

#### 14. Knowledge of collecting soil sample

**Table 4.3.16: Association between Knowledge of collecting soil sample of the respondents and their awareness regarding Soil Health Card**

Knowledge of collecting soil sample	Awareness						Total	
	Low		Medium		High			
	No.	%	No.	%	No.	%	No.	%
Low	12	33.33	18	50.00	6	16.67	36	30
Medium	14	26.42	31	58.49	8	15.09	53	44.16
High	8	25.81	8	25.81	15	48.39	31	25.83
<b>Total</b>	<b>32</b>		<b>59</b>		<b>29</b>		<b>0</b>	<b>100</b>

$\chi^2 = 15.16$  significant at 0.05 level of probability with 4 d.f.

The data presented in table 4.3.16. shows that out of 36 respondents who had low Knowledge of collecting soil sample, 50.00 per cent showed medium awareness, 33.33 per cent possessed low awareness and 16.67 per cent showed high awareness regarding Soil Health Card.

Out of 53 respondents who had medium Knowledge of collecting soil sample, 58.89 per cent showed medium awareness, 26.42 per cent possessed low awareness and 15.09 per cent showed high awareness regarding Soil Health Card.

Out of 31 respondents who had high Knowledge of collecting soil sample, 48.39 percent possessed high awareness, 25.81 per cent showed medium awareness and 25.81 per cent showed low awareness regarding Soil Health Card.

When the  $\chi^2$  test was applied to the data, the calculated  $\chi^2$  value 15.16 was found to be significant at 4 d.f. and 0.05% level of significance. Hence, the null hypothesis may be rejected.

**Table 4.3.17: Summary of association between profile of the respondents and awareness regarding soil health card**

S. No.	Characteristics	C	Degree of association
1.	Age	-	Negligible
2.	Education	0.33	Fair
3.	Size of family	-	Negligible
4.	Size of landholding	0.32	Fair
5.	Occupation	-	Negligible
6.	Social participation	0.39	Fair
7.	Annual income	0.29	Fair
8.	Farming experience	-	Negligible
9.	Local personal channels	0.29	Fair
10.	Local cosmopolite channels	0.32	Fair
11.	Mass media exposure	0.36	Fair
12.	Risk orientation	.0.41	Fair
13.	Economic motivation	0.30	Fair
14.	Scientific orientation	0.31	Fair
15.	Innovativeness	0.32	Fair
16.	Knowledge of collecting soil sample	0.33	Fair

Table 4.3.17 depicts the 'C' value indicating the relationship between profile of the respondents with their awareness regarding Soil Health Card. The characteristics namely, education, size of land holding, social participation, annual income, local personal channels, local cosmopolite channels, mass contact, risk orientation, economic motivation, scientific orientation, Innovativeness and Knowledge of collecting soil sample had significant relationship with their awareness had fair degree of association. The result also depict that age, size of family, occupation, Farming experience of the farmers establish negligible degree of association with awareness regarding Soil Health Card.

#### 4.4 To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC)

S. No.	Constraints	Awareness		
		Frequency	percent	Rank
1	Lack of knowledge about Soil Health Card	112	93.33	I
2	Lack of trust in the information given in Soil Health Card	105	87.5	II
3	Non availability of information related to Soil Health Card at the right time	98	81.66	III
4	Problem in making Soil Health Card	92	76.66	IV
5	Lack of proper training for awareness of Soil Health Card	85	70.83	V
6	Difficulty in calculating fertilizer dose on the basis of nutrient status of soil	75	62.5	VI
7	Non availability of extension officers at proper time	55	45.83	VII
8	Other personal constraints associated with illiteracy / low education	40	33.33	VIII

The Data regarding constraints in awareness regarding Soil Health Card as perceived by soil health card holders is presented in table 4.4.1. It reveals that Lack of knowledge about Soil Health Card (93.33%, rank I ), Lack of trust in the information given in Soil Health Card (87.5%, rank II), Non availability of information related to Soil Health Card at the right time (81.66%, rank III), Problem in making Soil Health Card (76.66%, rank IV), Lack of proper training for awareness of Soil Health Card (70.83%, rank V), Difficulty in calculating fertilizer dose on the basis of nutrient status of soil (62.5%, rank VI), Non availability of extension officers at proper time (45.83%, rank VII) and Other personal constraints associated with illiteracy / low education (33.30, rank VIII) major constraints.

*Chapter- V*

**DISCUSSION**

## **DISCUSSION**

The main findings of the study have been discussed in this chapter to draw generalization. The discussion has been presented under the following sub heads as per the stated.

### **Objectives of the study**

- 1 To know the socio-personal, economical, communication and psychological characteristics of the respondents.
- 2 To study the extent of awareness of respondents regarding Soil Health Card (SHC).
- 3 To analyze the association between extent of awareness of respondents and characteristics.
- 4 To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).

### **A. To know the socio-personal, economical, communication and psychological characteristics of the respondents.**

#### **Independent variables**

1. Out of total respondents, majority belonged to middle age group followed by old age group and young age group. Similar results were also revealed by Parmar (2014).
2. The finding regarding education shows that higher percentage of respondents had education up to middle school level followed by up to high school. Similar results were also revealed by Raghuwanshi (2015).
3. Half of the respondents had medium size of family (52.50 per cent) followed by small size of family (31.66 per cent) and large size of family (15.83 per cent) Similar results were also revealed by Dubey (2018).
4. Small size of land holding was owned by 37.50 per cent respondents followed by marginal size of land holding (25.83 per cent), medium size

of land holding (20.83 per cent) and large size of land holding (15.84 per cent). Similar results were also revealed by Yadav (2008).

5. The percentage distribution of respondents according to their occupation shows that out of total 45.33 per cent had Crop production as occupation followed by Crop production + vegetable production as occupation (33.33 per cent) and Crop production + other (20.83 per cent). Similar results were also revealed by Vijay kumar (2011).
6. The percentage distribution of respondents according to their social participation shows that out of total, 50.83 per respondents cent had low social participation followed by medium social participation (28.33 per cent) and high social participation (20.84 per cent). Similar results were also revealed by Gaikwad *et al.* (2008).
7. The percentage distribution of respondents according to their annual income shows that out of total, 46.66 per cent respondents had medium annual income followed by low annual income (32.50 per cent) and high annual income (20.84 per cent). Similar results were also revealed by Patel (2014).
8. The percentage distribution of respondents according to their farming experience shows that out of total, 41.66 per cent respondents had medium farming experience followed by low farming experience (31.66 per cent) and high farming experience (26.66 per cent). Similar results were also revealed by Dhodia *et al.* (2014).
9. The percentage distribution of respondents according to their local personal channels shows that out of total 47.50 per cent respondents had medium local personal channels followed by low local personal channels (33.33 per cent) and high local personal channels (19.16 per cent). Similar results were also revealed by Raghuwanshi (2015).
10. The percentage distribution of respondents according to their local cosmopolite channels shows that out of total 51.66 per cent respondents had medium local cosmopolite channels followed by high local cosmopolite channels (25.00 per cent) and low local cosmopolite

channels (23.33 per cent) Similar results were also revealed by Raghuwanshi (2015).

11. The percentage distribution of respondents according to their mass media exposure shows that out of total 52.50 per cent respondents had medium mass media exposure followed by high mass media exposure (25.83 per cent) and low mass media exposure (21.66 per cent). Similar results were also revealed by Raghuwanshi (2015).
12. Most of the respondents (62.50 per cent) had high risk orientation followed by medium risk orientation (20.83 per cent) and low risk orientation (16.66 per cent). Similar results were also revealed by Rathod *et al.* (2013).
13. The percentage distribution of respondents according to their economic motivation shows that out of total 66.33 per cent respondents had high economic motivation followed by medium economic motivation (17.50 per cent) and low economic motivation (16.17 per cent). Similar results were also revealed by Archana and Natikar (2013).
14. The percentage distribution of respondents according to their scientific orientation shows that out of total 45.84 per cent respondents had medium scientific orientation followed by low scientific orientation (28.33 per cent) and high scientific orientation (25.83 per cent). Similar results were also revealed by Mukati (2016).
15. The percentage distribution of respondents according to their Innovativeness shows that out of total 51.66 per cent respondents had medium Innovativeness followed by high Innovativeness (26.66 per cent) and low Innovativeness (21.66 per cent). Similar results were also revealed by Sihare (2015).
16. The percentage distribution of respondents according to their Knowledge of collecting soil sample shows that out of total 44.16 per cent respondents had medium Knowledge of collecting soil sample followed by low Knowledge of collecting soil sample (30.00 per cent) and high

Knowledge of collecting soil sample (25.83 per cent). Similar results were also revealed by Naruka *et al.* (2018).

## **B. To study the extent of awareness of respondents regarding Soil Health Card (SHC)**

It was observed that the mean awareness score was highest in validity of SHC (mean score 1.28, rank I), Application of organic manure for sick soil (mean score 1.24, rank II), Diagnosis of status of plant nutrients from SHC (mean score 1.20, rank III), Information about soil sample lab (mean score 1.15, rank IV), Recommendation given through SHC for different crop (mean score 1.12, rank V), PH value of ideal soil (mean score 1.10, rank VI), Area of land for soil sample (mean score 1.08, rank VII), Information about SHC (mean score 1.05, rank VIII), Information mentioned in soil sample bag (mean score 1.03, rank IX), Agencies involved in SHC (mean score 1.01, rank X), Nitrogen content in neem coated urea (mean score 1.00, rank XI), Unit of fertilizer mention in SHC (mean score 0.95, rank XII), Phosphorus content in SSP (mean score 0.94, rank XIII), Objective of SHC (mean score 0.91, rank XIV), Assessment level of nutrients in soil (mean score 0.89, rank XV), Depth of soil taken for soil testing (mean score 0.88, rank XVI), Potassium content in MOP (mean score 0.86, rank XVII), Implements required for soil sampling (mean score 0.85, rank XVIII), Judicious combination of fertilizers for major nutrients (mean score 0.83, rank XIX), Parameters of soil health recommended through SHC (mean score 0.80, rank XX).

Out of total 120 respondents 49.16 percent exhibited medium level of awareness of Soil Health Card followed by 26.66 percent had low and only 24.16 percent showed high awareness of Soil Health Card. The finding of Chakrawarty *et al.* (2018) supports this result.

## **C. To analyze the association between extent of awareness of respondents and characteristics**

The association between age and extent of dependent variables (Awareness regarding Soil Health Card) of respondents found non

significant ( $\chi^2$  value 6.32). Similar results were also revealed by Raaj and Jahanara (2017).

The association between education and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 15.26). Similar results were also revealed by Charel *et al.* (2018).

The association between size of family and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found non significant ( $\chi^2$  value 6.62). Similar results were revealed by Dubey (2018).

The association between size of land holding and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 14.7). Similar results were also revealed by Dubey (2018).

The association between occupation and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found non significant ( $\chi^2$  value 6.96). Similar results were revealed by Charel *et al.* (2018).

The association between social participation and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 22.94). Similar results were revealed by Charel *et al.* (2018).

The association between annual income and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 9.98). Similar results were revealed by Dubey (2018).

The association between farming experience and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found non significant ( $\chi^2$  value 5.07). Similar results were revealed by Charel *et al.* (2018).

The association between local personal channels and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 9.86). Similar results were revealed by Raaj and Jahanara (2017).

The association between local cosmopolite channels and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 13.87). Similar results were revealed by Raaj and Jahanara (2017).

The association between mass media exposure and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 21.35). Similar results were revealed by Raaj and Jahanara (2017).

The association between risk orientation and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 25.82). Similar results were revealed by Kumar *et al.* (2012).

The association between economic motivation and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was revealed significant ( $\chi^2$  value 11.55) Similar results were also revealed by Kumar *et al.* (2012).

The association between scientific orientation and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 13.72) Similar results were also revealed by Raaj and Jahanara (2017).

The association between innovativeness and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 14.98) Similar results were also revealed by Raaj and Jahanara (2017).

The association between knowledge of collecting soil sample and extent of dependent variables (Awareness regarding Soil Health Card) of respondents was found significant ( $\chi^2$  value 15.16). Similar results were also revealed by Dubey (2018).

#### **D. To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC)**

The major constraints faced by the farmer in awareness of Soil Health Card practices perceived by Lack of knowledge about Soil Health Card (93.33%, rank I ), Lack of trust in the information given in Soil Health Card (87.5%, rank II), Non availability of information related to Soil Health Card at the right time (81.66%, rank III), Problem in making Soil Health Card (76.66%, rank IV), Lack of proper training for awareness of Soil Health Card (70.83%, rank V), Difficulty in calculating fertilizer dose on the basis of nutrient status of soil (62.5%, rank VI), Non availability of extension officers at proper time (45.83%, rank VII) and Other personal constraints associated with illiteracy / low education (33.30, rank VIII). Some of the findings are similar to findings of Dubey (2018).

*Chapter- VI*

**SUMMARY,**  
**CONCLUSIONS &**  
**SUGGESTIONS FOR**  
**FURTHER WORK**

## **SUMMARY, CONCLUSION & SUGGESTIONS FOR FURTHER WORK**

Recent agricultural productivity is a result of improved seeds and use of chemical fertilizers. Initially a small quantity of fertilizer was capable of producing more gain due to organic manure present in the soil but in the progressive years the same quantity of fertilizer did not yield profusely like previous years. Many researches explored that balanced use of fertilizers is not adopted by the farmers. To attain sustainable and potential yield of crops, application of balance dose of fertilizers based on soil test value was felt just after the green revolution. Many advances in this line suggested to provide a permanent document to farmers to achieve the same.

In recent decade, fertilizers recommendations for different crops are made on the basis of agronomical practices and not on the soil test base. Fertility maps prepared using soil analysis, in general, are not able to give specific information for the farm of each and every farmer. Deteriorating Soil Health has been a cause of concern and that has been leading to sub optimal utilization of farming resources, optimum use of fertilizers, low addition of organic matter and non-replacement of depleted micro and macro nutrients over the years, has resulted in nutrient deficiencies and decrease in soil fertility in some parts of the country. (Mukati 2016)

Soil Health involve the idea that soil is an ecosystem full of life that needs to be carefully managed to regain and maintain our soil's ability to function optimally. Proper maintenance of the Soil Health is necessary from agricultural point of view. (Raaj and Jahanara 2017)

Soil Health Card scheme was initiated by Government of India on 19 february 2015. The Soil Health Card is a simple document, which contains useful data on soil based essential analysis of the soil to identify soil Health in term of its nutrient availability and its physical and chemical properties. Soil Health Card can be used to optimum use of fertilizer in the Integrated Nutrient Management (INM) system. (Patel et al 2017)

The Soil Health Card programme brings together the scientific community in the field of agriculture, the information repository of latest tools, techniques and cropping practices.

The Soil health card presently depicts the status of 12 essential parameters like pH , EC, Organic carbon, available nitrogen (N), Phosphorus (p), Potassium (K), Sulphur(S), Iron (Fe ), Manganese (Mn), Zinc (Zn), Copper (Cu), and Boron (B). Acharya and Srivastava (2017) commented about the benefit of soil health card scheme as the adoption of soil health card based fertilizer recommendation is expected to economize on fertilizer use in the country by reducing the fertilizer consumption in the areas where soil fertility.

Keeping the importance of Soil Health Card in view the present study entitled “**Extent of awareness of farmers regarding Soil Health Card (SHC) in Rewa block of Rewa district (M.P.)**” was carried out with following objectives-

1. To know the socio-personal, economical, communication and psychological characteristics of the respondents.
2. To study the extent of awareness of respondents regarding Soil Health Card (SHC).
3. To analyze the association between extent of awareness of respondents and characteristics.
4. To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).

## **Methodology**

### **1. Selection of the district**

The present study was conducted in Rewa district of Madhya Pradesh. Rewa district was selected purposively as maximum number of Soil Health Card holders.

## **.2. Selection of the block**

Rewa district comprises of 9 blocks, out of which Rewa block was selected purposively because of having maximum number of Soil Health Card holders.

## **3. Selection of the villages**

Rewa block consists of 245 villages. Out of which ten villages namely Rethi, Rakriya, Baans, Koshta, Saman, Purena, Amilki, Umari, Khadda and Mahsaanv villages were selected on the basis of highest coverage under Soil Health Card holders.

## **4. Selection of the respondents**

A list of farmers of each selected villages, who are Soil Health Card holders has been selected with the help of Krishi Vigyan Kendra (KVK) and other officials. From this list the farmers were selected from each village through proportionate sampling method to make a sample of 120 farmers. Hence, finally the sample was consisted of 120 respondents.

## **Independent variable**

Age, education, size of family, size of land holding, occupation, social participation, annual income, farming experience, extension contact, risk orientation, economic motivation, scientific orientation, innovativeness and knowledge of collecting soil sample.

## **Dependent variable**

Awareness regarding Soil Health Card

## **Conclusions**

The conclusion of the study has been presented in line with the objectives of study. The findings are presented under the following sub-heads.

**A. To know the socio-personal, economical, communication and psychological characteristics of the respondents.**

1. Out of 120 respondents i.e. 48.33 percent were from middle age group.
2. The data revealed that 33.33 percent respondents were having up to middle level education.
3. Among the respondents i.e. 52.50 percent belonged to the medium size of family.
4. Higher proportion of the respondents i.e. 37.50 percent had small size of land holding.
5. It was observed that 45.83 percent respondents had crop production in occupation.
6. About 50.83 percents respondents had low social participation.
7. The higher percentage i.e. 46.46 of the respondents had medium annual income.
8. It was observed that 41.66 percent respondents had medium experience.
9. The higher percentage i.e. 47.50 of the respondents had medium local personal channels.
10. It was revealed that 51.66 percent respondents were having medium local cosmopolite channels.
11. It was revealed that 52.50 percent respondents were having medium mass media exposure.
12. It was found that 62.50 percent respondents belonged to high risk orientation.
13. As regards 66.33 percent respondents had high level economic motivation.
14. It was found that 45.84 percent respondents belonged to medium scientific orientation.

15. The higher percentage i.e. 51.66 of the respondents had medium innovativeness.
16. It was observed that 44.16 percent respondents had medium knowledge of collecting soil sample.

## **B. To study the extent of awareness of respondents regarding Soil Health Card (SHC)**

It was observed that the mean awareness score was highest in validity of SHC (mean score 1.28, rank I), Application of organic manure for sick soil (mean score 1.24, rank II), Diagnosis of status of plant nutrients from SHC (mean score 1.20, rank III), Information about soil sample lab (mean score 1.15, rank IV), Recommendation given through SHC for different crop (mean score 1.12, rank V) , PH value of ideal soil (mean score 1.10, rank VI), Area of land for soil sample (mean score 1.08, rank VII), Information about SHC (mean score 1.05, rank VIII), Information mentioned in soil sample bag (mean score 1.03, rank IX), Agencies involved in SHC (mean score 1.01, rank X), Nitrogen content in neem coated urea (mean score 1.00, rank XI), Unit of fertilizer mention in SHC (mean score 0.95, rank XII), Phosphorus content in SSP (mean score 0.94, rank XIII), Objective of SHC (mean score 0.91, rank XIV), Assessment level of nutrients in soil (mean score 0.89, rank XV), Depth of soil taken for soil testing (mean score 0.88, rank XVI), Potassium content in MOP (mean score 0.86, rank XVII), Implements required for soil sampling (mean score 0.85, rank XVIII), Judicious combination of fertilizers for major nutrients (mean score 0.83, rank XIX), Parameters of soil health recommended through SHC (mean score 0.80, rank XX).

Out of total 120 respondents 49.16 percent exhibited medium level of awareness of Soil Health Card followed by 26.66 percent had low and only 24.16 percent showed high awareness of Soil Health Card. The finding of Chakrawarty et al. (2018) supports this result.

**C. To analyze the association between extent of awareness of respondents and characteristics**

The association between profile of the soil health card holders with their awareness of Soil Health Card. The characteristics namely, education, size of land holding, social participation, annual income, local personal channels, local cosmopolite channels, mass media exposure, risk orientation, economic motivation, scientific orientation, Innovativeness and Knowledge of collecting soil sample had significant relationship with their awareness at 0.05 level of probability of significance. The result also depict that age, size of family, occupation, Farming experience of the farmers did not establish significant relationship with awareness regarding Soil Health Card.

**D. To find out the constraints perceived by the respondents in Soil Health Card Scheme (SHC).**

The major constraints faced by the farmer in awareness of Soil Health Card practices perceived by Lack of knowledge about Soil Health Card (93.33%, rank I ), Lack of trust in the information given in Soil Health Card (87.5%, rank II), Non availability of information related to Soil Health Card at the right time (81.66%, rank III), Problem in making Soil Health Card (76.66%, rank IV), Lack of proper training for awareness of Soil Health Card (70.83%, rank V), Difficulty in calculating fertilizer dose on the basis of nutrient status of soil (62.5%, rank VI), Non availability of extension officers at proper time (45.83%, rank VII) and Other personal constraints associated with illiteracy / low education (33.30, rank VIII).

## **Suggestions for Future Research**

1. The study was confined to Rewa districts of Madhya Pradesh on sample of 120 respondents and the results are applicable to the area only. Hence, further research in this field may be carried out in other areas so that generalization of results could be possible.
2. The limited independent variables were included in the study. Other relevant variables may also be included for further study.
3. More intensive statistical techniques should be used for improving contribution of different variables which might be given more strength to the study.

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# APPENDIX

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b	lQy fdlku ogh gS tks vf/kdre ykHk izklr djrk gSA					
c	fdlku dks vf/kd ykHk ds fy, dksbZHkh u, Ñf"k fopkjksa ds fy, iz;kl djuk pkfg,A					
d	vf/kd ykHk ds fy, fdlku dks [kk] Qlyksa ds ctk, uxnh Qly ysuk pkfg,A					
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d	fdlkuksa ds ijEijkxr fof/k;ks aes aifjorZu djus Is muds vkfFkZd Lrj es alq/kkj gksrk gSA					
e	fdlku —f"k dh ubZ oSKkfud fof/k;ksa] fopkj] ,ao tkudkjh dks vius iz{ks= ij iz;ksx djds ns[krk gSaA					
f	—f"k dh ubZ fof/k;ksa dh vis{kk ijEijkxr fof/k;ksa dk vuqHko vf/kd gksus Is vklkuh gksrh gSA					
G	iwoZtksa }kjk viuk;k tkus okyk [ksrh dk iqjkuk ,ao ijEijkxr rjhdk] [ksrh ds oSKkfud rjhdksa Is					

	vkt Hkh Js"B gSA					
--	------------------	--	--	--	--	--

**14- uokpkfjrk %& —i;k fuEu dFkuksa ds ckjs esa tkudkjh nsosaA**

Ø	dFku	iw.kZ vlger	va'kr% vlger	vfuf'pr	va'kr% lger	iw.kZ lger
A	eS u;h —f"k izFkkvksa ds ckjs esa tkudkjh j[krk gwW ysfdu bldk eryc ;g ugh afd eS vius [ksrks aes alHkh u;s rjhdk adks viukAA					
B	eq>s rc rd cspSuh eglwl gksrh gS tc rd eS u;h —f"k rduhdh dks vktek ugh aysrk ftlds ckjs esa eSus lqk gS					
C	—"kd bu fnuks adbZ u;s —f"k vH;klksa dh ckr djrs gS aysfdu dkSu tkurk gS fd os iqjkus ls csgrj gSaA					
D	le;&le; ij eSus ubZ izFkkvksa ds ckjs es alqk gS vkSj eSus fiNys dqN o"kksZ es amuesa ls vfèkdka'k dks viuk;k gSA					
E	u;h —f"k rduhdh viukus ds igys eS vkerkSj ij ;g ns[kus ds fy, izrh{kk djrk gwa fd iM+ksslh us blls D;k ifj.kke izklr fd;s					

	gSaA					
f	dqN ykx ekurs gS afd [ksrh ds ikjEifjd rjhds lcls vPNs gSaA					
g	gekjs iwoZtksa ds [ksrh ds rjhdksaesa le>nkjh Fkh vkSj eq>s bu iqjkuh i)fr;ks adks cnyus dk dksbZ dkj.k ugha fn[krk gSA					

### 15- e`nk uequs ls lacaf/kr Kku

(a) D;k vkidks LokLF; uequk ysus ds ckjs es Kku gSA  
gkW@ugh

(b) ,d ,dM [ksr esa e`nk LokLF; uequk fdruh txg ls fy;k tkrk  
gS

$\frac{1}{4}i\frac{1}{2}$  nks  $\frac{1}{4}ii\frac{1}{2}$  rhu  $\frac{1}{4}iii\frac{1}{2}$  pkj  $\frac{1}{4}iv\frac{1}{2}$  ikWp

(c) ,d mfpr uequs ds fy, vki fdruh e`nk dk mi;ksx djrs gksA

$\frac{1}{4}i\frac{1}{2}$  200 xzke  $\frac{1}{4}ii\frac{1}{2}$  500 xzke  $\frac{1}{4}iii\frac{1}{2}$  750 xzke  $\frac{1}{4}iv\frac{1}{2}$   
1000 xzke

(d) e`nk ls uequk dc fy;k tkrk gSA

$\frac{1}{4}i\frac{1}{2}$  cqvkbZ ds iwoZ  $\frac{1}{4}ii\frac{1}{2}$  cqvkbZ ds ckn  $\frac{1}{4}iii\frac{1}{2}$   
mijksDr nksuksaA

(e) e`nk LokLF; uequk ysus ds fy;s vki fdl vkdkj dk xM<k [kksnrs  
gksA

$\frac{1}{4}i\frac{1}{2}$  V  $\frac{1}{4}ii\frac{1}{2}$  U  $\frac{1}{4}iii\frac{1}{2}$  T  $\frac{1}{4}iv\frac{1}{2}$  H

### [k.M (c)

16 e`nk LokLF; dkMZ ds ckjs esa tkx#drk Lrj (Awareness  
level)

1. vkidks e`nk LokLF; dkMZ ds ckjs esa tkudkjh gSA

.....  
.....

2. fdlh Qly fos'ks'k ds fy, e`nk moZjd dkMZ esa eq[; iks'kd rRoksa ds fdruh la;kstu fn;s tkrs gSaA

.....  
.....

3. e`nk uequmk ysus ds fy, fdruh Hkwfe okaNuh; gSA

.....  
.....

4. e`nk uequmk dh tkip dgki & dgki gksrh gSA

.....  
.....

5. e`nk LokLF; dkMZ esa dkSu & dkSu ls foHkkx lgk;d gSaA

.....  
.....

6. e`nk LokLF; dkMZ esa dkSu ls eq[; iks'kd rRoksa dh ek=k dh tkudkjh gksrh gSA

.....  
.....

7. e`nk LokLF; dkMZ esa fdruh Qlyksa dh tkudkjh dh fLkQkfjlsa dh xbZ gSaA

.....  
.....

8. ;fn vkidh e`nk chekj gks rks dkSu lh [kkn dk iz;ksx djuk pkfg,A

.....  
.....

9. ,d LoLFk e`nk dk PH eku fdruk gksuk pkfg,A

.....  
.....  
10. e`nk LokLF; dkMZ ds fy, e`nk uequk ysus ds fy, fdruh  
xgjkZ Is feV~Vh ysuk pkfg,A

.....  
.....  
11. e`nk LokLF; dkMZ ds uequs ds VSx ds lkFk dkSu & dkSu  
lh tkudkjh Hkjh tkrh gSA

.....  
.....  
12. uhe ysfir ;qfj;k esa ukbV<sup>a</sup>kstu dh ek=k fdruh gksrh gSA

.....  
.....  
13. flaxy lqij QkLQsV esa QkLQksjl dh fdruh ek=k gksrh gSA

.....  
.....  
14. E;qjsV vkQ iksVk'k esa iksVssf'k;e dh ek=k fdruh gksrh  
gSA

.....  
.....  
15. e`nk LokLF; dkMZ esa fdruh iSjkehVj dh vuq'kalk dh xbZ  
gSA

.....  
.....  
16. e`nk LokLF; dkMZ dh oS/krk fdruh le; dh gksrh gSA

- a) 2 lky    b) 3 lky    c) 4 lky    d) 5 lky

17. e`nk LokLF; dkMZ esa moZjdxsa dh tkudkjh dSIs iznf'kZr dh  
tkrh gSA

- a) fdxzk/gs.    b) dqUry/ gs.    c) xzke/ gs.    d) Vu/ gs.

18. e`nk LokLF; dkMZ ds m|s'; D;k gSA

.....  
 .....  
 19. e`nk uequk ysus ds fy, fdl ;a= dk mi;ksx fd;k tkrk gSA  
 .....  
 .....

20. e`nk LokLF; dkMZ esa e`nk es fo/keku iks'kd rRoksa dh  
 ek=k ds vk/kkj ij fdl rjg iks'kd rRoksa dss Lrj dk vkadyu fd;k  
 tkrk gSA

iks'kd rRoksa dh ek=k                      de                      e;/e                      vf/kd

- 1) ukbV<sup>a</sup>kstu
- 2) QkLQksjl
- 3) iksVssf'k;e

**[k.M (I)]**

a) e`nk LokLF; i=d dh vuq'kalk;s viukus esa vkus okyh leL;k,W  
 crkb;sA

- I. ....
- II. ....
- III. ....

b) e`nk LokLF; i=d dh vuq'kalkvks dks viukus esa vkus okyh  
 leL;kvksa ds funku gsrq vius lqÖkko crkb;sA

- I. ....
- II. ....
- III. ....

**VITAE**

## CURRICULUM VITAE

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College of Agriculture Rewa, (M.P.)	B.Sc. (Ag.)	JNKVV, Jabalpur	2017	6.9
Govt. H. S. School Khamkheda (M.P.)	12 <sup>th</sup>	MP BOARD	2010	6.5

For the partial fulfillment of the master's degree programme he was allotted a field research survey on “**Extent of awareness of Farmers regarding Soil Health Card (SHC) in Rewa block of Rewa District (M.P.)**” which was successfully conducted by him and being submitted in the form of this thesis.