A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE EXTENSION SYSTEM

काशी हिन्दू विश्वविद्यालय BANARAS HINDU UNIVERSITY

THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

Master of Science (Agriculture)

in

Extension Education

Supervisor

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Submitted by

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To,

The Registrar (Academic)
Banaras Hindu University,
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Through: The Head, Department of Extension Education, Institute of Agricultural Sciences, B.H.U, Varanasi.

Dear Sir,

I have great pleasure in forwarding the thesis entitled **"A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE EXTENSION SYSTEM"** submitted by **Prem Kiran Battu**, **I.D. No. 19412EXE020, Enrollment No. 416514** in partial fulfillment of the requirements for the degree of **Master of Science (Agriculture)** in **Extension Education**, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (U.P.) and placing on record that he has completed the requisite residential requirements as contained in the statutes of the university.

I certify that the entire scheme of investigation presented herein was planned and carried out solely by the candidate under my guidance and supervision. The data presented in thesis, to the best of my knowledge and belief, are genuine and original.

Thanking you,

Yours faithfully,

Forwarded by

(Basavaprabhu Jirli)
Supervisor

Head of Department

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Date:

Place: *Varanasi* *(Prem Kiran Battu)*

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Introduction

India is a predominantly an agrarian economy, with about 69 per cent of its population living in rural areas (NITI Aayog 2017) and around 47 per cent of the workforce engaged in agriculture (Labour Bureau 2015-16). There are 138 million agricultural holdings in India, of which around 85 per cent are small and marginal farmers1 (Census 2010- 11). The majority of them are poor (Mahendra Dev 2014). Agricultural growth has a higher correlation to poverty reduction, malnutrition reduction, and the creation of a more fair society than growth in other sector. The concentration on small scale farmers is fair and visionary in the context of the Indian government's effort to double agricultural income by 2022. Agricultural research, education, and extension are claimed to be the most critical among the wide assortment of government spending for agriculture for enhancing farm production and increasing revenue. The agriculture extension system connects research labs to farmer's fields. However, public extension service reach in the country is limited, and it is also saddled with non-extension responsibilities like subsidy and input distribution, leaving little time for core extension operations like counselling farmers on how to improve acceptance of new practises and methods (Reddy 2018). Without successful implementation of agricultural extension to rural small holder farmers, the government's objective of doubling farmer income by 2022 is a huge task. The task can be accomplishes with the active role of agricultural extension service providers. Hence let’s look in to the need for agriculture extension.

Why agriculture extension?

Agriculture's growth is influenced by a variety of elements including rainfall, irrigation infrastructure development, agricultural research and development, and price stabilisation, among others. Aside from these, agricultural extension is important factor, since it brings innovations and technologies from labs to farmer's fields. For the agricultural community to make educated decisions, it is critical to have the relevant information at the right time and place, delivered through proper channels. For a long

time, specifically during the early stages of India's first Green Revolution, extension has played a significant role in agricultural growth (Babu et al. 2013). Its major objective has been to disseminate agricultural technology and management methods, resulting in a significant acceleration of agricultural growth and rural development. Agriculture extension systems are encountering increased possibilities as well as obstacles as government policies, technological demand and supply characteristics, and marketing changes. Extension is both an institution and an important contribution in agricultural growth. Agricultural technologies are of no use unless and until they are disseminated among farmers. Farmers must always be updated about these new technologies on a regular schedule. The objectives of extension education pave the way for efficient dissemination of relevant information among farming community and helps stake holders to take appropriate decisions. Hence in this context the objectives of extension have been discussed here.

Objectives of agriculture extension

Objectives are defined as the expression of ends toward which our efforts are directed. Extension concepts are based on a set of fundamental objectives that extension service providers must keep in mind when working in the field. (Ray, 2011)

- To assist people to discover and analyse their problems and identify their felt needs.

The initial priority for extension service providers is to identify difficulties as well as felt and unfelt requirements. Recognizing a felt need is straightforward, but convincing individuals of an unfelt need is more challenging.

- To develop leadership among people and help them in organizing groups to solve their problems.

The primary objective of extension education is to help people develop their leadership skills. Extended service providers must identify and assign duties to local leaders in order to build a sense of "we feeling" in the community and help to reinforce extension efforts.

- To disseminate research information of economic and practical importance in a way people would be able to understand and use.

Information must be provided in a localised manner by extension service providers. The majority of the time, an extension agent disseminates information that is inappropriate for the place, obstructing the spread of new services. As a result, all extension services provided by extension service providers must be in the local language.

- To assist people in mobilizing and utilizing resources which they have and which they need from outside.

Extension service providers must teach individuals how to use local resources economically and effectively, as well as how to recognise outside resources.

- To collect and transmit feedback information for solving management problems.

Farmers' opinion should be provided to researchers on a regular basis, according to extension service providers.

India features one of the world's largest agricultural research and extension systems. The ICAR is currently leading India's public research system, which includes 5 multidisciplinary national institutes, 64 central research institutes, 15 national research centres (NRCs), 6 national bureaux, 13 project directorates, 60 all-India co-ordinated research projects (AICRPs)/networks, and 19 other network projects/programs. Also there are 63 state agricultural universities (SAUs) and 3 Central Agricultural University, 4 Deeemed universities, 4 central universities with faculty of agriculture. The major link between the ICAR and the SAUs is the AICRPs. Around 1,300 centres are active in the AICRPs, with roughly 900 of them headquartered in agricultural colleges and 200 in ICAR institutes. The ICAR also has 200 sub-stations and zonal research stations (ZRSs). The National Academy of Agricultural Research Management (NAARM) is another ICAR entity that conducts agricultural research management research and teaching. The ICAR has also established 8 Trainers' Training Centres (TTCs) and 722 Krishi Vigyan Kendras at the

district level as innovative institutional models for assessment, refinement and transfer of modern agricultural technologies source 3 http://www.icar.org.in

AGRICULUTURE EXTENSION SERVICES OFFERED BY THE PUBLIC SECTOR

It was during pre-independence period, the Department of Agriculture came into being in June 1871 under the then Government of India, and by 1882, agricultural departments in most of the provinces started functioning in skeleton form. Recognising the need for new and improved methods of cultivation based on agricultural research, the then Government of India also set up an Institute of Agricultural Research at Pusa in Bihar in 1905. Here is a glance of few prominent pre-independence extension activities.

Table 1: Rural development programmes during pre-independence.

Year	Place	Person/agency
1903	Scheme of Rural Reconstruction at the Sunderbans in Bengal	Sir Daniel Hamilton
1920	Gurgaon project in Haryana	Mr. F.L. Brayne
1920	Sriniketan experiment in Bengal	Sri Rabindra Nath Tagore
1920	Seva-gram experiment in Wardha in Gujarat	Shree Mahatma Gandhi
1928	Marthandam project in Kerala	Dr. Spencer Hatch Young Men Christian Association (YMCA)
1932	Baroda village reconstruction project	Shree B.T. Krishnamachari
1942	Grow more food campaign	Agricultural departments of state governments
1945	Indian village service	Dr. W.H. Wisher
1946	Firka Vikas Yojana in Madras (now in Tamilnadu)	Government of Madras

Source: Module 2. Extension and rural development programme, Lesson 4

PRE-DEPENDENCE EXTENSION AND RURAL DEVELOPMENT PROGRAMMES

During the pre- and post-Green Revolution phases, extension services, like other critical inputs, played a key role. The NARS System provided the majority of the technology support for this credible gain. At various levels, there is a huge network of extension functionaries accounting for the public (1.19 lakhs) and private sectors (over 1 lakh).) (Sadamate, 2019)

The State Agricultural University System, as well as the training institutions in the Government of India and the States, has played an important role in the training and capacity building of extension personnel and farmers.

In pre-independence India, agricultural advisory services were largely run by volunteers in various segments of the nation. In the early post-independence period, massive agricultural development activities were established through the Grow More Food Campaign (GMFC) in 1947, Community Development Programme (1952), and National Extension Service (NES) blocks in 1953. Following that, pre-Green Revolution measures like as the Intensive Agricultural District Program (IADP) were implemented (IADP, 1961) and Intensive Agricultural Area Programme (IAAP, 1964). Then, came the period of Green Revolution of 1967, supported by intensive extension efforts like National Demonstrations (1965), Farmers Training Centres(FTC, 1966), Small and Marginal Farmers Development Agencies (SFDA, 1971), Krishi Vigyan Kendra (KVK1974) and Lab to Land Programme(1979). Source:(Sadamate, 2019)

In the post-community development phase an effort was made to inculcate professionalism in delivery of extension services by introducing T&V system (training and visit system). A brief about T&V system is discussed here

WORLDBANK'S TRAINING AND VISIT (T&V) PROGRAM

Due to the growing inefficiencies of the public extension service system, reforms in the system were sought. To meet this need, world Bank's Training & Visiting (T&V) program was introduced as a pilot programme in Rajasthan in 1974, and by 1977 it was scaled up to several states (Ameur,1994). Extension workers were allotted

a specific area and cluster of famers to work with, with scheduled visits through the crop cycle to ensure that advice was followed. Financial support by Government of India to the states to recruit and sustain the extension workers was the major driver for the latter to participate enthusiastically in this project. Since the programme was funded by the World Bank, a major issue relating to the programme was the sustainability of funding. Further, high requirement and quality of staffs became other major concerns (Babu et. al, 2013). In the early 1990s, when the World Bank funding stopped, the extension system had to be maintained by central and state government funds, which resulted in the stagnation of the T&V system as it became ineffective in several States. Subsequently, there was a reduction in the extent of T&V operations after recruitment of new staff was stopped and key aspects of T&V concept (Anderson et.al, 2006).

AGRICULUTURE TECHNOLOGY MANAGEMENT AGENCY (ATMA)

In 1998, the Indian Government, with the support of World Bank, introduced the Agriculture Technology Management Agency (ATMA) under the Innovation in Technology Dissemination (ITD) component of the National Agricultural Technology Project (NATP). It was first introduced in 28 districts in seven states from 1998 to 2003 under the guidance of MANAGE (National Institute of Agricultural Extension Management), an institution promoted by Ministry of Agriculture, Government of India. It was later expanded throughout the country in 2005 (Babu et al, 2013).

At the district level, ATMA began developing a strategic research extension plan (SREP). The SREP outlined the district's existing programmes as well as the gaps that needed to be filled. It also identified the research extension links that serve as the foundation for the state extension work plan. At the state level, the ATMA Governing Board established the research and extension priorities that would be executed in each district. The Farm Information and Advisory Centres (FIAC) at the district level, the block level teams (BTT), and the farmer advisory committee (FAC) were in charge of extension efforts in the district once the SREP was authorised. The ATMA strategy was still based on existing extension workers (with legacy gaps). Additional funding was made available to promote new ideas, pilots by NGOs, the commercial sector, as well as other initiatives. The State Agricultural Management and Extension Training

Institute (SAMETI) was organized at the state level as an apex planning and training institution with the goal of training all levels of extension personnel in the convergence-led paradigm of ATMA.

Krishi Vigyan Kendras (KVK)

Krishi Vigyan Kendras (KVK) are the field research units of the national agricultural research system (the Indian Council for Agricultural Research-ICAR) and are meant to test new seed varieties, agronomic practices, machinery etc. in field conditions across different agro-climatic zones before these are cleared for adoption by farmers. The revised mandates of KVK as per recommendation of R.S.Paroda committee 2014 are mentioned below. The main mandate KVK is TADA-CD (Technology Assessment and Demonstration for its wider Application and to enhance Capacity Development). The following initiatives should be specified for each KVK in order to successfully fulfil the mandate by raising knowledge about better agricultural technology.

- On-Farm Testing (OFT) to assess the location specificity of agricultural technologies under various farming systems.
- Out scaling of farm innovations through Frontline Demonstration (FLD) to showcase the specific benefits/worth of technologies on farmers' fields.
- Capacity development of farmers and extension personnel to update their knowledge and skills in modern agricultural technologies and enterprises.
- Work as Knowledge and Resource Centre for improving overall agricultural economy in the operational area.
- Conduct frontline extension programmes and provide farm advisories using Information Communication Technology (ICT) and other media on varied subjects of interest to farmers.
- Data documentation, characterization and strategic planning of farming practices. Source: https://taas.in/documents/pub-other-07a.pdf.

At the moment, the technical backstopping at the district level has been enhanced by supplementing and expanding the KVK Program across the country (721 in 2021) source: https://www.icar.org.in/content/agricultural_extension_division to support front line extension services. These are run by SMSs with specialised teams stationed at the district level that promote technological alternatives in micro-climatic settings that encompass a wide variety of industrial systems. A Program Coordinator and SMS (6) in agronomy, plant protection, extension, home science, horticulture, animal husbandry, and other subjects make up the KVK Team. Each KVK has a live production unit and an experimental/demo farm. On-farm testing and validation of technologies, Front Line Demonstrations, and Training of farmers, farm women, farm youth, and field officials are among the key activities. KVKs, in turn, are supported.

State Agricultural Universities

Another major instrument for boosting extension efforts in the states is the State Agricultural Universities (SAU). While their core objective is to deliver formal degree programmes in important agricultural subjects, the directorate of extension and education also provides extension and training support. The transfer of information is mostly from universities to the KVKs, which are in charge of farmer training. The information flow is essentially unidirectional, with limited opportunity for farmers to provide comments. Another issue is that the information flow primarily reflects centralised objectives rather than local requirements, with the main focus on technology transfer.

ICT (Information and Communication Technology)

Extension driven by ICT (Information and Communication Technology). The increased use of new technology and communication tactics to assist educate farmers has been a significant reform pursued by the Ministry of Agriculture at the national level in recent years. ICT offers a lot of promise for reaching a lot more farmers in a cost-effective way. It can also help farmers and extension organisations exchange information in a two-way fashion. We'll look at a few of the programmes that have been launched in the last three years:

Farmers portal : Farmers Portal is a website where farmers may find out about crop insurance, storage, crop advisories, extension activities, seeds, pesticides, agricultural machinery, fertilisers, and market pricing, among other things. Farmers can obtain a guidebook that contains information on numerous schemes and programmes, as well as guidelines.

Mkisan is an SMS platform that allows national and state government officials to communicate with farmers in their own language.

Kisan Call Centre: Farmers may call a single number to get information and guidance on a variety of agricultural topics. Subject matter experts are available to answer calls at these centres, and a callback service is also provided in case the Queries require specialised advice. The KCC has reached exceptional levels of penetration in various states. KCC toll free number :- **1800-180-1551.**

Agriculture Clinic and Agriculture Business Centres (ACABC)

The ACABC scheme was launched in 2002 and was targeted at young rural agriculture graduates who wanted to turn entrepreneurs seeking to provide fee-based agriculture services to farmers. The scheme involves mandatory training and subsidy to set up a rural service centre, often supported by a bank loan. ACABCs were to provide a range of services, including sale of inputs, agriculture advice, marketing support etc. A mandatory two month training at the National Institute of Agricultural Extension Management (MANAGE), at Hyderabad was designed to instil the basis of business management among aspiring agriculture entrepreneurs. As of November 2020, a total of 75796 graduates were trained under the scheme, 32428 of whom went on to set up agriculture venture. Source: http://www.agriclinics.net/querysheet.asp

Drawbacks of public extension system

- India public extension system concentrated on rural community development objectives rather than having strong agriculture focus.
- Weak research-extension technologies

- Most technologies offered by public extension system are supply driven rather demand drive
- Failure in timely transfer of technologies.
- Unable to reach majority of the potential clients effectively
- Little competency among extension agents
- Low finance and budget
- Extension worker : Farmers –ratio is 1:1100
- Accountable to government than farmers

NEED OF PRIVATE EXTENSION SYSTEM

- A shift in agriculture from subsistence level to commercialized agribusiness
- To meet the challenges of globalization and liberalization of the farm sector
- Perception of public extension service as less effective in meeting the current needs of the farmers
- To reduce the losses occurred during marketing
- The services which are not fully covered by public extension system are covered by private extension system- i.e. Input supply, market support and processing.

PRIVATE EXTENSION SYSTEM

- Privatisation is the act of reducing the role of government increasing the role of private sector in an activity or in the ownership of assets.
- Privatisation is the incidence or process of transferring ownership of business from the public sector (government) to the private sector (business) sector (business).

"Privatization of agriculture extension refers to the Services rendered in the area of agriculture and allied aspects by extension personnel working in private agencies or organizations for which farmers are expected to pay a fee(or free) and it can be viewed as supplementary or alternative to public extension services" (saravanan et.al 1999).

The term Privatization has been used in three ways (Jirli,2009)

(i) Reliance of private sector institutions to fulfil peoples need

(ii) Reduction of the role of government and consequently increase the role of private sectors in an activity or in the ownership of assets

(iii) Transfer of government enterprises or assets to private sectors.

ADVANTAGES

1. Reduces economic burden of governments.

2. Efficient extension services.

3. Competency in research system

4. Availability of specialized services.

DISADVANTAGES

1. Hindrance to free flow of information.

2. Contact between farmers and private agencies may decline

3. Commercial interest – a threat to eco-friendly and sustainable agriculture.

4. Only large farmers are benefited.

AGRICULUTURE EXTENSION SERVICES OFFERED BY THE PRIVATE SECTOR

Currently, extension services are mostly delivered by the public sector, using a two-tiered structure. The Indian Council of Agriculture Research (ICAR) is the nodal agency for agriculture education research and extension at the nationally, while the

State Agricultural Universities (SAU) facilitate agriculture extension at the state level through KrishiVigyan Kendra (KVKs) and Agriculture Technology Management Agency (ATMA) at the district level. Apart from the current national extension service system, a number of private actors, civil-society organisations, such as farmer-based organisations and non-governmental organisations (NGOs), play an important role in financing and offering extension services.(Birner and Anderson, 2007)

INPUT DEALERS: AES (agriculture extension services) are typically offered by input dealers in the private sector, such as those selling seeds, fertilisers, pesticides, and agricultural machinery. There are roughly 2.82 lakh input dealers across the nation (guidelines for operationalization of the DAESI program- 2014), compared to around 1.42 lakh sanctioned extension worker roles (of which on an average 30 per cent remain unmanned). (This illustrates the input dealer's scope and value as a source of technical guidance to farmers.) One of the most common complaints levelled at input dealers is that they act as "product advisors" rather than providing "technical counsel" that is brand independent. Even the Indian government recognises the value of this type of farmer extension assistance and provides a course at MANAGE aimed exclusively towards input dealers who want to brush up on the newest technical expertise in various agricultural sub-sectors. According to a research, 13% of farmers in the country acquire their knowledge from input dealers (Singh et al. 2016). This will enable Input Dealers to brush up on the latest technical knowledge in various sub-sectors of agriculture and certify them as qualified Input Dealers.

Agribusiness companies: Private sector agribusiness and input manufacturing companies (ITC, Nuziveedu Seeds, IFFCO, KRIBCO, Pepsico, Heritage, and others) also conduct direct extension activities in support of their product brands, aiming to assist farmers in achieving higher production (and thus returns) through necessary pre-sowing preparation., optimum seed rate, correct agronomic practices, application of nutrients and harvesting techniques.

ICT (Information and Communication Technology)

eChoupal by ITC:. The eChoupal endeavour was started by the company to bring ICTs to the villages and incorporate them into its corporate business plan while also serving

rural farmers. The approach is based on a network of eChoupals, or village-level information centres, each of which is equipped with a computer connected to the internet via VSAT and run by a trained local farmer. VSAT connectivity, despite its high cost, successfully overcomes last-mile connectivity difficulties and provides village residents with dependable broadband access to internet-based services. A local commission agent is also included in the plan to give logistical help in the grain procurement/marketing channel. ITC owns and operates the eChoupals, covers all costs, and compensates intermediaries for transactions completed through the eChoupals.

iKisan.com is a platform for the selling of its own and third-party products (farm inputs), services (knowledge-based crop management), and information. It is an initiative of the Nagarjuna Group in Hyderabad, India (weather, markets). The company's ICT infrastructure investments are confined to maintaining a local language web portal (http://www.ikisan.com) and an information kiosk maintained by its trained personnel in villages. Graduates in agricultural science are among the representatives. The online portal is accessible through dial-up from the village kiosk. Because of the absence of broadband connection at the village level, most of the material in the kiosks must be made available offline by transferring it to CDs. At the village, only weather forecasts, market information, and email services are normally available online.

Role of private extension service providers

- Farm advisory services for profit maximization of clients
- Timely inputs supply for better production
- Providing marketing information and market intelligence
- Providing credit, insurance and infrastructure facilities for farmers
- Processing and marketing the clients produce.

Need of public private partnerships in agriculture sector

- Increasing focus on research and Development in agriculture

- Rising MSP incentivize farming
- Institutional credit for farmers
- Growing yield and use of quality seeds
- Increasing mechanization of farming
- Growing area under irrigation
- Food securing for increasing population
- Agricultural inputs (Crop protection, Agricultural services, Seeds and fertilizers)

Statement of problem

In current, extension system is working broadly with the aim of transfer of technologies from the researcher to the farmers for better living of farmers. But Public extension system have came under severe criticism due to poor performance, fiscal crisis, lack of accountability, weak research- extension-farmer linkages and lack of coordination among different technology transfer agencies (saravanan, 2001). so, the private extension system involved in doing their duties with specific objectives. So what are the perceptions farmers receiving the services provided by the public and private extension systems?

The above discussion highlights the objectives, advantages, drawbacks and organizational approach of the public and private extension systems in providing their services. To be a successful extension system, services provided to farmers have to meet their needs timely, more production through strategic and innovative technologies and better standard of living of farmers. Extension services are positive, dynamic, useful and effective when the concepts involved are clearly understood and applied by the farmers in advice of the extension facilitator.

Against this backdrop a range of issues were raised to provide satisfactory answers to the question like :

1. What is the perception of respondents and extension service providers towards public and private extension services?
2. Whether farmers and extension service providers are facing any problems in public and private extension systems?
3. What are the suggestions for successful delivery of extension services that need to be changed in the existing public and private systems?

Purpose of the study

Now, however, serious reservations are being expressed about the performance and capability of public sector, placing the future of the public extension system in doubt. The participation of the private sector as a means of ensuring competition is gaining traction, particularly among agricultural input-supply organizations. The most coherent and efficient mechanism to 'get agriculture moving' and usher in a second Green Revolution is thought to be a demand-driven market-led extension service. In addition, public-private partnerships are critical in efficiently offering extension services to all farmers.

Before making any improvements to the present public and private extension systems, it's important to understand the farmers' and extension service providers ' perspectives. As a result, the major goal of this study was to investigate the perceptions of farmers and extension service providers in both public and commercial extension systems. . Especially the present study was designed with the following objectives.

Objectives:-

1. To study the perception of respondents towards public and private extension systems
2. To study the perception of extension service providers towards public and private extension systems

3. To document problems experienced by the respondents in accessing and delivery of extension services.

4. To document suggestions for improvement in delivery of extension services

Scope for the study

The findings of the research will provide a basis for planning, execution of strategies and delivery of services in future that need to be change in the existing public and private extension systems. This study will give an idea about what the farmers and extension service providers perception, problems faced in extension systems and suggestions for effective delivery of services in extension systems. This will facilitate appropriate actions and decisions by the administrators, policy makers, technocrats, professionals and academicians in their attempt to improve existing public and private extension systems.

Limitations of the study

The present study has the limitations of time, fund and other research facilities commonly faced by a student investigator. As a result, the study was confined to a limited area and sample size. Therefore, the findings have to be viewed in the specific context to the conditions prevailing in the area of the study and cannot be generalised for a wider geographical area. However, these findings will be applicable where ever similar conditions prevail.

Presentation of the study

The study is presented in six chapters' viz., introduction, review of literature, methodology, results and discussion, summary and references. The appendices are given at the end as the relevant details.

Operational definitions of the concepts used in the study

1. **Perception towards extension system**: It is operationalized as individual's degree of favourableness or unfavourableness toward public and private extension systems.

2. **Public extension system**: extension system refers to which it is formulated, implemented, organized and funded by the government for the benefit of general farmers.

3. **Private extension system**: Private agriculture extension refers to the Services rendered in the area of agriculture and allied aspects by extension personnel working in private agencies or organizations for which farmers are expected to pay a fee.

4. **Farmer**: farmers who are utilising agricultural extension services and aware of public and private extension system.

5. **Extension facilitator**: the officials working in the state department of agriculture in the cadre of agricultural officer (AO), agriculture extension officer (AEO), multi-purpose extension officer (MPEO), village agriculture assistant at raithu barosa kendras (RBK) and private consultants, input dealers and agri-bussiness firms.

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Review of Literature

In this chapter, an attempt is made to present the theoretical and empirical information concerning the present investigation. This study is a maiden attempt and hence many reviews were not available. However, the available related review of literature is presented under the following headings.

2.1 Perception of respondents towards extension systems

2.2 Perception of extension facilitators towards extension systems

2.3 Personal, socio-economic, psychological and communication characteristics of respondents.

2.4 Personal, socio-psychological characteristics of extension service providers.

2.5 Personal, Socio-Economic, Psychological and Communication Characteristics of respondents and their Association with the Perception about Extension Systems

2.6 Personal, socio- psychological and communication characteristics of farmers and their association with the dependent variables

2.7 Problems faced by the farmers and extension facilitators in public and private extension systems

2.8 Suggestions given by the farmers and extension facilitators in public and private extension systems

2.1. Perception of farmers towards extension systems

Deepak (2003) in his study on perception of beneficiaries and non-beneficiaries towards WYTEP (women and youth training extension project) programme in Dharwad district of Karnataka state has reported that 53.33 per cent of beneficiaries belong to high category of perception whereas remaining 46.67 per cent had medium perception. Also

considering the non-beneficiaries 40 per cent of them had medium perception and 60 per cent had low perception towards WYTEP.

Jirli *et al.* (2005) in their study on Communication behavior and attitude of vegetable growers towards privatization of agricultural extension services (PAES) revealed that majority of the respondents had favourable 67 per cent attitude towards PAES followed by most favourable 20 per cent and about 13 per cent belongs to least favourable attitude towards PAES.

Singh and Narain (2008) in their study on capacity and willingness of farmers to pay for extension observed that 76 per cent farmers were ready to pay for 'advice on plant protection measures' whereas 63 per cent farmers ready to pay for 'advice on weed management' and 60 per cent for 'livestock management'. The willingness to pay for advisory services was found depending upon severity.

Jiyawan et al. (2008) in their study on farmers preference and constrains in privatization of agricultural extension services (PAES) revealed that privatization of agriculture extension system has various advantages like increasing farmers voice in extension services, demand driven services, cost effective with efficient and quality services, supplement to the effort of public extension system, more clientele accountable and increase staff professionalism.

Jirli *et al.* (2009) in their study on Farmers' View on Privatization of Agricultural Extension Services reported that Privatization of Agricultural Extension Services has a wealth of advantages, including providing demand-driven services, increasing the voice of farmers in extension services, being more cost-effective with efficient and quality services, holding more clients accountable, complementing or supplementing public extension efforts, and increasing staff professionalism.

Hycient and Gana (2009) in their study on comparative assessment of public and private extension programmes in Etche local government area of river state of Nigeria revealed that when compared to public sector private sector agency was more effective in their study. The Shell community development project was more effective in dissemination of Agricultural information, supply of farm inputs, and had more regular contact with

the extension end user and had better extension human relation with the farmers compared to State agriculture development programme.(2) owing the influence of Shell community development project more farmers adopted the improved farm technology.

Jiyawan *et al.* (2010) in their study on farmers perception towards conservation tillage practices revealed that the majority of respondents (69 per cent) had a medium level of knowledge, followed by those with a low level of knowledge (20%) and those with a high level of knowledge (11 per cent) towards conservation tillage practices.

Singh *et al.* (2012) in their study on farmers attitude and constraints in privatization of agricultural extension services (PAES) reported that majority of the farmers had favourable attitude (67 per cent) followed by 20% of the farmers had most favourable attitude and about 13% of farmers had least favourable attitude towards privatization of agricultural extension.

Gilbert *et al.* (2012) in their study on effectiveness of extension services in enhancing outgrowers credit system: A case of smallholder sugarcane farmers in Kisumu country reported that private extension had higher role in enhancing effectiveness of out growers credit system when compared to public extension services. This was because the lesser majority of the private extension recipients 47.00 % either disagreed or strongly disagreed compared to 61.50 % public extension recipients in terms of advising farmers on various farm activities.

Kavyashree (2016) in her study on a comparative analysis of public, private and corporate extension systems in Karnataka state reported that 26.66 % of farmers had most favorable perception while 36.66 % of farmers had medium level of perception and 36.66 % has low level of perception towards public extension system in their study on perception of farmers and extension workers towards extension systems in Karnataka state. reported that nearly half of the respondents 43.33 % had medium level of perception followed by most favorable 30 % and least favorable 26.66 % towards private extension systems in their study on perception of farmers and extension workers towards extension systems in Karnataka state.

It can be summarized that the farmers had favorable perception towards both private and public extension system it can be concluded that farmers are receiving both public and private extension services, but majority of the farmers had most favorable perception towards private extension system.

2.2 Perception of extension facilitators towards extension systems

Khare *et al.* (1998) in their study on role perception of village panchayat chairman towards agriculture development in Maharashtra reported that 52.44 % of the sarpanchs had medium levels of perception towards agriculture development followed by 34.15 % had high level of perception and 13.41 had low level of perception towards extension system.

Ingle *et al.* (2000) studied role perception and role performance of extension personnel from single window system of department of agriculture and concluded that there was unfavorable attitude of most of the respondents towards single window system and majority of them were desirous of change to their parent system. Role perception of different extension personnel was low and hence effective and need based orientation training programme have been suggested to develop right perception of extension personnel in single window system about the prescribed roles.

Patel *et al.* (2007) in their study on perception of teachers about roles to be performed by them in Gujarat reported that majority of the teachers in Anand Agriculture University had high to medium level of perception in general and in case of research and extension work, slightly more than half had high level of perception towards public extension system.

Somesh (2011) found that the majority of respondents (51%) belonged to the favourable category of organisational climate perception, with the remaining 25.00 and 23.75 percent of extension personnel falling into the more favourable and less favourable categories, respectively, in his study on organisational climate perception of taluk level fisheries extension personnel.

Nikitha (2012) examined the perceptions of organisational climate among Anganawadi Workers (AWWs) working on ICDS projects in the Dharwad district of Karnataka,

finding that 71.54 percent of the AWWs fell into the medium category, while 15.00 and 13.46 percent fell into the high and low perception categories, respectively.

Tamagond (2013) in his study on role perception and role performance of farm facilitators under Bhoochetana programme of Karnataka State Department of Agriculture in Raichur district revealed 34 per cent of farm facilitators were in high level of perception followed by 39 per cent has medium level of perception and 27 per cent had low level of perception.

Paul *et al.* (2015) in their study on opinion of state functionaries of state department of agriculture towards training on mushroom production technology indicate that the majority of the trainees, 25(80.65%), had a favourable view of the Mushroom Production Technology training; 16.12% of them had an extremely favourable opinion of the training; and just 1 trainee (3.23%) had a least favourable opinion of the training.

Kavyashree (2016) in her study on a comparative analysis of public, private and corporate extension systems in Karnataka state, reported that more than half 55 % of the public extension facilitators has medium level of perception towards public extension system and 30 % and 15 % respondents had high level and low level of perception respectively. While, extension workers in private extension system had favorable 45 % followed by most favourable 30 % and least favourable 25 % perception towards private extension system. While, extension workers in corporate extension system had favorable 30 % followed by most favourable 30 % and least favourable 40 % perception towards corporate extension system.

It can be summarized that perception of extension facilitators towards public extension system is most favourable compared to extension facilitators in private extension system.

2.3. Personal, socio-economic, psychological and communication characteristics of farmer

2.3.1AGE

Gakkhar *et al.* (2010) found that more than half of the respondents (54.17 percent) were middle aged, followed by young (35.00 percent) and old (10.83 percent) age groups in their study on Agricultural extension and rural environment: focus on water resource influencing lives and livelihood.

Devarajaiah (2010) In his study on livelihood diversification of small and marginal farmers in the Kolar district of Karnataka, found that more than half of small farmers (56.00 percent) were in their late adulthood age group, while the proportion of marginal farmers was 42.00 percent. In marginal farmers and small farmers, the respondents from early adulthood were 33.00 percent and 31.00 percent, respectively. The proportion of young farmers was also higher in marginal farmers (25.00%), followed by small farmers (13.00%).

Lavanya (2010) In her study on Assessment of farming system efficiency in the Theni district of Tamil Nadu, found that 55.9% of the farmers were middle-aged, while 28.3% and 15.8% of them belonged to the old and young age groups, respectively.

Angela *et al.* (2012) found that 58.00 percent of Stanley reservoir fishers were over 45 years old, followed by 36-45 years old (26.67 percent), 26-35 years old (14.67 percent), and under 25 years old in their study on Fishers of Stanley reservoir: An insight into their livelihood (0.66 percent).

Raksha *et al.* (2012) In their study on Constraints faced by rural women in procurement and utilisation of credit facilities in Hissar district, found that nearly half of the respondents were in the middle age group (48.00 percent), followed by the young (46.00 percent), and the elderly (46.00 percent) (6.00 percent).

Mohanty *et al.* (2013) in their study on Constraint's analysis in adoption of vegetable production technologies for livelihood perspective of tribal farmers in North Sikkim reported that highest proportion (49.17%) of the respondents was in young age group

as compared to 35.83per cent belonged to middle age group and only 15.00 per cent in old age category.

Tamagond (2013) in his study on role performance of farm facilitators under Bhoochetana programme found that about 75.83 per cent of the respondents were young aged while middle aged are about 23.33 per cent and old aged are 0.83 per cent.

2.3.2Education

Dyamannavar (2000) conducted a study on economics of gherkin production and trade in Haveri district, Karnataka reported that 43.34,15.55 and 11.11 per cent of growers had education of primary school, high school and college and above respectively while remaining 30 per cent were illiterate in Haveri district of Karnataka.

Manjula (2000) in her study on job perception and job satisfaction of AAO in Karnataka reported that 61.20 % were graduates in different disciples of agriculture sciences and rest of respondents AAO 38.80 % were post graduates in agriculture sciences.

Kumar (2002) In his study observed that 24 % of respondents were illiterate 45.33 % of respondents had studied up to primary school while 21.33 % respondents were educated upto high school and 9.34 % had studied up to college and above respectively In his study on vegetable growing contact farmers of Belgaum district.

Farokhi (2002) believed that managerial system, experts participation and education level of experts, managerial system and expert's participation determine extension privatization in his study on attitudes of experts and farmers of Ilam province to privatization of agricultural extension.

Kaul and Sahini (2009) in their study on participation of women in panchayat raj institution observed that 27.27 % of women received education upto primary school and 27.28 % received education upto high school while 19.68 % educated up to middle school and 25.74 % were illiterates.

Narayani (2009) In her study on the livelihood security of farmers in Tamil Nadu's Mirudhangam district, found that the majority of farmers (80.00%) had a medium education level, followed by low (16.67%) and high (3.33%) education levels.

Devarajaiah (2010) In his study A study on livelihood diversification of small and marginal farmers in the Kolar district of Karnataka, found that 31.00 percent of small farmers had secondary education (5th–10th standards), 25.00 percent had higher secondary education (11th and 12th standards), 22.00 percent had primary education (1st–4th standards), and an equal percentage were graduates (11.00%) and illiterates (11.00 per cent). In a similar vein, 33.00 percent of marginal farmers had primary education (1st–4th grades), 30.00 percent were illiterates, 27.00 percent had secondary education (5th–10th grades), 7% had higher secondary education (11th and 12th grades), and only 3% were graduates.

Lavanya (2010) In her study Assessment of farming system efficiency in Theni district of Tamil Nadu, found that 40.0 percent of farmers had a low education level, followed by 36.7 and 23.3 percent for medium and high education levels, respectively.

Sharma *et al.* (2015) in their study on analysis of adoption and constrains perceived by small paddy growers in rice production technologies in Muktsar district in Punjab reported 35 % of respondents having low level of education followed by 60 % were having medium level of education. Whereas only 5 % of respondents were in high level of education category.

2.3.3 Family size

Sridhara (2002) in his study on an evaluative study of watershed programme in Pavagada taluk of Tumkur district Karnataka reported that majority of families 75.33 % belonged to medium sized families while 14.67 % belonged to small families and 10 % had big sized families.

Raghunandan (2004) in his study on knowledge and adoption level of soil and water conservation practices by farmers in northern Karnataka reported that the respondents had majority (62.85 %) of medium sized family followed by big families and small families had 25 % and 13.25 % respectively.

Ahmadpour and Solatani (2013) in their study on the need for a strong public-private linkage in agriculture extension system reported that there was significant difference between two groups. In public sector about 22 % of extension experts were single and

maximum family size was 5, wherein private sectors about 50 % of experts were single. The maximum sizes of family members were 5 in private sector.

Sharma *et al.* (2015) in their study on analysis of adoption and constrains perceived by small paddy growers in rice production technologies in Muktsar district in Punjab reported that about 36.66 % of respondents were having large family size with more than five members whereas 63.33 % of respondents having small family size having less than five members.

Reddy (2005) in his study on a study on knowledge, extent of participation and benefits delivered by participant farmers of the watershed development programme reported that respondents having small family size area 5.33 % followed by big family are 34.7 % but the majority of respondents 60 % having medium family size in his study conducted in Raichur district of Karnataka.

2.3.4 Family type

Savitha *et al.* (2011) In their study on Livelihood systems for rural communities in Chitradurga district of Karnataka state, found that 79.38 percent of rural communities had nuclear family systems, while 20.63 percent had joint family systems.

Angela *et al.* (2012) In their study Fishers of Stanley Reservoir: An insight into their livelihood, found that almost all of the fishers of Stanley Reservoir (95.33 percent) belonged to the nuclear family type, with the remaining (4.66 percent) belonging to the joint family type.

Raksha *et al.* (2012) In their study on Constraints faced by rural women in procuring and using credit facilities in Hissar district, found that 66.00 percent of rural women in Hissar district belonged to the nuclear family type, while the remaining 34.00 percent belonged to the joint family type.

2.3.5 Occupation

Mankar (2003) reported that make occupation of the respondents is farming (55.24%) after that followed by business about 20.63 % and service (18.10 %). Further, the analysis reveals that farming was the major occupation in case of make respondents

(61.82 %) and for female respondents (40 %) followed by business 21.36 % in case of male respondents and service 28.42 % of female respondents in his study on knowledge of gram panchayat members about agriculture technologies and their role performance in Konkan region of Maharashtra.

Devalatha (2005) reported that agriculture is considered to be the major occupation add 61.76 % of beneficiaries were dependent on agriculture. Whereas 21.67 % beneficiaries dependent on non-agriculture activities in her study on profile study of women SHGs in Gadag district of northern Karnataka.

2.3.6 Caste

Rani (2002) in their study on self-help groups, microcredit and empowerment found that participation of Morningstar in self-help group mobilization was higher in scheduled caste and scheduled Tribes as compared to other backward class members because of their access to economic resources, enhanced awareness, collection and social and political awareness in their study on self-help group, micro credit and empowerment conducted in Tirupathi Andhra Pradesh.

2.3.7 Size of land holding

Kumar (2002) in his study on vegetable producing contract farmers of Belgaum district of Karnataka observed that average land holdings size of contract farmers was 9.57 acres, and dry land was 3.16 acres and irrigated land was 6.41 acres.

Sharma *et al.* (2015) in their study on analysis of adoption and constrains perceived by small paddy growers in rice production technologies in Muktsar district of Punjab found that 36 % were marginal category farmers, while about 63.33 % were in small farmers category.

Charitha (2017) In her study on the impact of national innovations on climate resilient agriculture (NICRA) on the rural livelihood security of farmers in Chikkaballapura district, found that (58.72%) of beneficiaries and (55.00%) of non-beneficiaries belonged to the medium land holding category. The beneficiaries were divided into two

groups: those with a high level of land ownership (30.00%) and those with a low level of land ownership (25.00%).

Sivaraj *et al.* (2017) in their study on Climate Change Impact on Socio-Economic Status and Communication Pattern of Paddy Farmers in Tamil Nadu, India, 51.00 percent of the respondents in the Kalingarayan basin were small farmers, followed by marginal farmers (49.00 percent).

Muthulakshmi and Rajkumar (2018) the majority of respondents were marginal farmers (40.00 percent), followed by semi-medium farmers (25.00 percent), small farmers (20.00 percent), medium farmers (10.00 percent), and large farmers (10.00 percent) in their study on Socio Economic and Psychological Profile of Farmers with Reference to Climate Change in the Western Agro Climatic Zone of Tamil Nadu (5.00 percent).

Pise *et al.* (2018) found that 37.50 percent of the beneficiaries were marginal farmers, 31.25 percent were semi-medium land holding farmers, 28.75 percent were small farmers, and 2.50 percent were medium farmers in their study on the Impact of National Innovations on Climate Resilient Agriculture (NICRA) Project on Its Beneficiaries.

Raghuvanshi *et al.* (2018) In their study on A study on Janmabhoomi programme in Chittoor district of Andhra Pradesh, found that the majority of the respondents were small farmers (96%) with land less than 34 naali, followed by medium farmers (3%) with 34 to 66 naali. Only 1% of respondents were large farmers with a landholding of more than 66 naali.

2.3.8 Farming experience

Kumar (2005) in his study on knowledge and adoption of rose growing farmers in Karnataka reported that 1.67 % respondents belonged to high level of farming experience followed by 45.00 % had medium level of experience and 53.33 % had low level of farming experience.

Thiranjangowda (2005) in his study on knowledge and adoption level of soil and water conservation practices by farmers in north Karnataka observed that 23.45 %

respondents belonged to low level of farming experience whereas 35.93 and 40.62 % belonged to medium and high level of farming experience respectively.

Madhusekhar (2009) in his study on marketing behavior of chilli growers in Guntur district of Andhra Pradesh reported that 21.25 % of chilli growers had high experience followed by 41.25 % had medium level of experience and 37.50 % had low level of experience in chilly cultivation.

Ahmadpour and Solatani (2013) in their study on the need for a strong public-private linkage in agricultural extension system found that private experts average experience was 6 years whereas public experts average experience was 19 years. There was considerable difference among the work experience of public and private experts.

2.3.9 Annual income

Prasad (2002) In his study on the general knowledge of rural youth about improved agriculture, their attitudes, and participation in farm activities in the Dharwad district of Karnataka, found that 38 percent of the respondent families had annual income above Rs. 25,000, 31.33 percent had annual income between Rs. 11,000 and Rs. 25,000, and 30.67 percent of the rural youth's families had annual income greater than Rs. 11,000.

Bhanu (2006) in his study on aspirations of rural youth and their attitudes towards rural development activities in Dharwad district of Karnataka revealed that 23.34 % of respondents belonged to high income category, 45 % of respondents belonged to low annual income category, followed by semi medium income category 25.83 % and very get of the respondents come under medium income category about 5.83 %.

2.3.10 Social participation

Charan (2005) reported that only 2.66 and 4.0 % of the farmers were office bearers and members respectively. Whereas 43.33 and 30.0 per cent of the respondents attend the meeting occasionally and regularly respectively in his study on Sujala watershed project beneficiary farmers in Dharwad district.

Saha (2008) found that more than half of the respondents (59.16 percent) had medium social participation, while 22.50 and 18.33 percent had low and high social

participation, respectively, in his study on the sustainability of farming systems and livelihood security among rural households in Tripura.

Narayani (2009) In her study on the livelihood security of farmers in Tamil Nadu's Mirudhangam district, found that 49.17 percent of the farmers had low social participation, followed by high (27.50 percent) and medium (23.33 percent).

Devarajaiah (2010) in his study 44.00 percent of small farmers had no social participation, 32.00 percent had membership in one organisation, 19.00 percent had membership in two or more organisations, and only 5% were office bearers. In the case of marginal farmers, 43.00 percent do not participate in social activities. In his study on livelihood diversification of small and marginal farmers in the Kolar district of Karnataka, 29.00% had membership in one organisation, 23.00% had membership in two or more organisations, and only 5% were office bearers.

Tamagond (2013) in his study on role perception and role performance of farm facilitators under Bhoochetana programme of Karnataka State Department of Agriculture (KSDA) in Raichur district found that 28.33 per cent of the farm facilitators belonged to high social participation category followed by 40.83 per cent of the respondents were medium social participation category and 30.83 had low social participation.

Vinayak (2014) in his study on knowledge, adoption and economic performance of arecanut growers in north Kanara district of Karnataka found that 25 per cent of the respondents were found to be in high category of social participation while 52.50 percent and 45.83 per cent of the respondents were in medium and low social participation categories, respectively.

Sharma *et al.* (2015) on his study on in their study on analysis of adoption and constrains perceived by small paddy growers in rice production technologies in Muktsar district of Punjab reported that 80 per cent of respondents were having no membership of any social organization while only 20% of respondents were involved in membership with some organizations.

2.3.11 Cosmopoliteness

Anitha (2004) indicated that 44.20 per cent of farm women had medium cosmopoliteness followed by 28.30 % had high level of cosmopoliteness and 27.50 per cent had low cosmopoliteness in her study on entrepreneurial behavior and market participations of farm women in Bangalore rural district of Karnataka.

Gowda.G and Gowda. N (2006) conducted a study on Thomson seedless grape growers in Bijapur, Karnataka and observed 41.0% medium cosmopoliteness and 43.00% low cosmopoliteness. But in case of Bangalore blue grape growers, majority of about 62.00 per cent of them had high level of cosmopoliteness.

Shanthamani (2007) in her study on A critical analysis of MYRADA (NGO) programme in Gulbarga district reported that 46 per cent of the respondents belongs to medium innovativeness category, followed by 24.70 and 29.30 per cent low and high innovativeness category respectively.

Lavanya (2010) In her study on the efficient assessment of farming systems in the Theni district of Tamil Nadu, found that 40.0 percent of the respondents had high cosmopoliteness, while an equal number of farmers (30.0 percent each) had low and medium cosmopoliteness.

Rokonuzzaman (2013) In his study on the training needs of tribal people for income-generating activities, found that nearly half of them (48.42%) had low cosmopoliteness, followed by very low cosmopoliteness (40.00%) and medium cosmopoliteness (11.58 percent).

2.3.12 Risk orientation

Hinge (2009) in their study on diffusion and adoption of wine grape production technology in Maharashtra revealed that 28.12% of the farmers had high risk orientation and nearly an equal percentage of the wine grape growers had low (36.25%) and medium (35.62%) risk orientation.

Madhushekar (2009) in his study on marketing behavior of chilli growers in Guntur district of Andhra Pradesh found that (20.63%) of respondents had low risk-taking

ability followed by high risk-taking ability of 26.25% and medium risk-taking ability of 53.12%.

Lavanya (2010) In her study on the efficient assessment of farming systems in the Theni district of Tamil Nadu, found that nearly half of the farmers (48.3%) had a medium level of risk willingness. Furthermore, 28.3% and 23.4% of them fell into the low and high-risk willingness categories, respectively.

Devarajaiah (2010) In his study on livelihood diversification of small and marginal farmers in the Kolar district of Karnataka, found that more than half of the farmers (57.00 percent) were of medium risk orientation, with 38.00 and 5.00 percent belonging to high and low risk orientation, respectively. Similarly, 37.00 percent of marginal farmers fell into the low-risk orientation category, with 36.00 and 27.00 percent falling into the medium-risk and high-risk orientation categories, respectively.

Chethan (2011) revealed that 26.66% of cardamom growers had low level of risk bearing ability category while 29.33% had high level of risk bearing ability and more than one-third (44.00%) of cardamom growers had medium risk bearing ability in his study on knowledge and adoption of cardamom cultivation practices by the farmers of Chickmanglore district of Karnataka state.

Raksha *et al.* (2012) found that 53.00 percent of rural women in Hissar district had a high-risk orientation, followed by medium (36.00 percent) and low (11.00 percent) risk orientation categories in their study on Constraints faced by rural women in procurement and utilisation of credit facilities.

2.3.13 Innovative proneness

Gowda.G and Gowda.N (2006) in their study on profile of Thompson seedless and Bangalore blue grape growers in Mysore, inferred that considerable percentage of Thompson seedless grape growers belonged to medium 46.66 per cent innovative proneness category. While a little more than half of the respondents of Bangalore blue grape growers belonged to high 52.00 per cent innovative proneness category.

Suresh (2004) in his study on entrepreneurial behaviour of milk producers in Chittoor district of Andhra Pradesh reported that the milk producers in Chittoor district of Andhra Pradesh had medium, high and low innovativeness in the order of 55.00,24.58 and 20.42 per cent, respectively.

Bhanu (2006) in his study on aspirations of rural youth and their attitudes towards rural development activities in Dharwad district reported that 12.50% of the respondents belonged to high innovative proneness category while 21.67% belonged to low innovative proneness category and majority of (65.83%) of the rural youth belonged to medium innovative proneness category.

Patil (2008) in his study on constrains of grape exporting farmers of Maharashtra indicated that only 10.29% of organic vegetable growers belonged to low innovative proneness category while 32.14% are medium innovative proneness and 53.57% are high innovative proneness category in his study on organic vegetable growers in Belgaum district.

Chethan (2011) in his study on knowledge and adoption of cardamom cultivation practices by the farmers of Chickmagulur district observed that 10.00% of the cardamom growers were found to be low innovative proneness category while 38.00% of respondents were high innovative proneness and 52.00% of respondents were of medium innovative proneness category.

Kavyashree 2016 in her study on A comparative analysis of public, private and corporate extension system in Karnataka revealed that farmers in public extension system had high 33.33 medium 46.66 low 20 level of innovative proneness followed by farmers in private extension system had high 16.66 medium 46.66and low 36.66 level of innovative proneness and farmers in corporate extension system had high 36.66 medium 40 and low 23.33 level of innovative proneness category

2.3.14 Scientific orientation

Sidram (2008) in his study on analysis of organic farming practices in pigeon pea in Gulbarga district of Karnataka state found that only 16.67 % and 14.17% respondents

belonged to high and low scientific orientation category while majority of respondents (69.17%) belonged to medium scientific orientation category.

Raghavendra (2010) in his study on impact of front-line demonstration of sunflower on farmer's knowledge and adoption-A study in Bijapur district of Karnataka found that 58.33,35.00 and 6.67% of other farmers belonged to low, medium and high scientific orientation category, respectively. Majority of them (40.00%) of demonstration farmers belonged to medium scientific orientation category while 31.67 and 28.33% respondents belonged to low and high scientific orientation category.

Tamagond (2013) in his study on role perception and role performance of farm facilitators under Bhoochetana programme of Karnataka State Department of Agriculture (KSDA) in Raichur district found that 21.66% and 38.33% of farm facilitators had low and medium level of scientific orientation categories while 40.00% of them were belonged to high scientific orientation category.

Gabriel (2014) in their study comparative analysis on precise farming technologies in selected crops of north eastern Karnataka revealed that 54.29, 25.71 and 20.00 per cent of the non-participant were in medium ,low and high scientific orientation levels, while majority (81.86%) of the participant farmers were in high scientific orientation category followed by 17% in low scientific orientation category.

2.3.15 Economic motivation

Gowda.G and Gowda.N (2006) revealed that little more than half of the Bangalore Blue grape growers (51.00%) of Bijapur and Bangalore Rural districts possessed high level of economic motivation while there was a greater number of Thompson seedless grape growers (47.00%).

Hinge (2009) indicated that in all the three categories of economic motivation, the wine grape growers were distributed equally, viz, low (32.50%), medium (33.12%), and high (34.37%) in their study on diffusion and adoption of wine grape production technology in Maharashtra.

Marbaniang (2010) found that 51.12 percent of the respondents in his study on Livelihood activities of Tibetan rehabilitants of Mundgod - a socioeconomic analysis had medium economic motivation, while 30.37 percent and 18.51 percent had high and low economic motivation, respectively.

Ashok (2012) In his study on the knowledge and adoption of System of Rice Intensification (SRI) technology among farmers in Tamil Nadu's Nagapattinam district, discovered that nearly three-quarters (72.50 percent) of SRI farmers had a medium level of economic motivation, followed by low (18.33 percent) and high (9.17 percent).

Naidu (2012) In his study on sugarcane farmers' farming performance and entrepreneurial behaviour in Andhra Pradesh's North Coastal Zone, found that the majority of the respondents (62.22 percent) had a medium level of economic orientation, followed by high (23.89 percent) and low (13.89 percent).

Raksha et al. (2012) found that 57.00 percent of rural women in Hissar district had high economic motivation, followed by medium (34.00 percent) and low (9.00 percent) economic motivation categories in their study on Constraints faced by rural women in procurement and utilisation of credit facilities.

Babu (2016) found that more than half (57.50 percent) of APMIP beneficiaries had medium economic orientation, followed by high (28.34 percent) and low (14.16 percent) levels of economic orientation in his study on the impact of the Andhra Pradesh micro irrigation project (APMIP) in the Chittoor district of Andhra Pradesh.

Charitha *et al.* (2017) In their study on the Impact of national innovations on climate resilient agriculture (NICRA) on the rural livelihood security of farmers in Chikkaballapura district, found that more than half of the beneficiaries (42.50 percent) were of medium economic motivation, while 37.50 percent of non-beneficiaries were of low economic motivation.

Chinmayee (2018) conducted a study in Odisha on the impact of the Diploma in Agricultural Extension Services for Input Dealers (DAESI) programme, finding that economic motivation was positively and significantly correlated with knowledge level

of both DAESI and non-DAESI holders at the 1% level of significance. She discovered that annual income was positively and significantly correlated with DAESI holder knowledge level at a 5% level of significance.

Pise *et al.* (2018) found that 63.75 percent of the beneficiaries had medium innovative, 21.25 percent had high innovative, and 15.00 percent of the beneficiaries had low innovative in their study on Impact of National Innovations on Climate Resilient Agriculture (NICRA) Project on Its Beneficiaries.

2.3.16 Mass media participation

Anitha (2004) reported that 27.50% had low level of mass media use while one-fifth (20.00%) of farm women had high level of mass media exposure and more than half (52.50%) of farm women were having medium level of mass media exposure in her study on entrepreneurial behavior and market participations of farm women in Bangalore rural district of Karnataka.

Belli (2008) indicated that about 97.00% of the presidents owned television and 67.74% of them were viewing television programmes occasionally. Weekly/monthly magazines were subscribed by 86.02% of the presidents of which, 53.76% read the magazines occasionally. Further 32.25% presidents possessed radio and occasional listening behaviour with regard to radio was found to be 41.93%. Per cent of the presidents subscribed newspapers and 70.96% of them read newspapers regularly in his study on leadership behavior of presidents of panchayat raj institutions for horticulture development in Bijapur district of Karnataka.

Tamagond (2013) in his study on role perception and role performance of farm facilitators under Bhoochetana programme of Karnataka State Department of Agriculture (KSDA) in Raichur district reported that equal proportion of the farm facilitators were in the low and medium mass media participation (31.66%) while one third (36.66%) of the farm facilitators had high mass media participation.

Vinayak (2014) in his study on knowledge, adoption and economic performance of arecanut growers in north Kanara district of Karnataka found that about 21.67% of respondents belonged to low category of mass media participation while about 29.16%

of respondents belonged to high category of mass media participation. And about 49.17% of the respondents belonged to medium category of mass media participation.

2.3.17 Extension contact

Bhanu (2006) in his study on aspirations of rural youth and their attitude towards rural development activities in Dharwad district of Karnataka reported that 65 per cent of the respondent contacted Agriculture Assistants occasionally followed by 23.33 per cent of the respondents contacted Agriculture Assistants regularly. About 90.00 per cent of the farmers never contacted extension guide of University of agriculture sciences. But, only 9.17 per cent of them contact occasionally.

Shanthamani (2007) in her study on influencing factors and constrains in drip irrigation by horticulture farmers in Bijapur district of Karnataka, concluded that 44.00 per cent of the beneficiaries belonged to high level of extension contract, followed by low 33.30 and medium 22.70 level of revelation contact.

Sharma *et al.* (2015) reported that about (18.00%) of the respondents were with low level of extension contact while majority of the respondents (68.33%) were in medium extension contact category in their study on analysis adoption and constrains perceived by small paddy growers in rice production technologies in Muktsar district of Punjab state.

Sashikiran (2015) reported that (28.89%) of farmers had low level of extension contact, while (37.22%) of farmers had medium level of extension contact and about (33.89%) had high level of extension contact in his study on adoption and attitude of farmers on mechanization of paddy in command area of Karnataka.

Kavyashree 2016 in her study on A comparative analysis of public, private and corporate extension system in Karnataka revealed that farmers in public extension system had high 23.33 medium 36.66 low 40 level of extension agency contact followed by farmers in private extension system had high 30 medium 26.66 and low 43.33 level of extension agency contact and farmers in corporate extension system had high 30 medium 36.66and low 33.33 level of extension agency contact.

2.3.18 Extension participation

Nagesh (2006) in his study on entrepreneurial behavior of pomegranate growers in Bagalkot district in Karnataka reported that majority of the farmers 65.83 per cent had medium extension participation followed by 20.83 and 13.33 per cent of farmers had high and low extension participation, respectively.

Kharatmol (2006) in his study on impact of trainings conducted on vermicompost by Krishi Vigyan Kendra in Bijapur, reported that half of the trained respondents 46.66 and 16.66 per cent of untrained belonged to high extension participation category followed by low 28.33 and 38.33 and medium 25 and 45 per cent to extension participation categories.

Kumar (2004) in his study on the farmers knowledge and adoption of production and post-harvest technology in Tomato crop of Belgaum district of Karnataka reported that nearly 2 per cent of farmers participated regularly in agriculture exhibition followed by 20.83 per cent in demonstrations. Majority of them never attend the activities like training 66.67, educational tour 94.17 and field visits.

Geetha (2007) reported that nearly half of the beneficiaries 53.12 per cent will attend regularly to group meetings, followed by result demonstration 37.50 per cent, and method demonstration 28.12 per cent, field days about 25 per cent, and field trips 9.38 per cent and Krishimela about 1.88 per cent beneficiaries will attend in their study on (BAIF) Bharathiya Agro industries foundation programmes on livelihood on women beneficiaries in North Karnataka.

Kavyashree 2016 in her study on A comparative analysis of public, private and corporate extension system in Karnataka revealed that farmers in public extension system had high 36.66 medium 33.33 low 30 level of extension participation followed by farmers in private extension system had high 20 medium 53.33 and low 26.66 level of extension participation and farmers in corporate extension system had high 30 medium 36.66 and low 33.33 level of extension participation category.

2.3.19 Decision making ability

Suresh (2004) in his study on entrepreneurial behaviour of milk producers in Chittoor district of Andhra Pradesh reported that majority of the milk producers had medium level of decision making ability 65.83 per cent followed by low and high decision making ability with 21.67 and 12.50 per cent, respectively.

Kumar (2001) conducted a study on entrepreneurial behaviour of floriculture farmers in Ranga Reddy district of Andhra Pradesh and indicated that majority of the farmers 46.66 per cent belonged to medium level of decision-making ability followed by low 27.50 per cent and high 25.84 percent decision making categories, respectively.

Sidram (2008) in his study on analysis of organic farming practices in pigeonpea in Gulbarga district of Karnataka state found that 46.67,34.27 and 19.17 per cent of respondents belonged to high, medium and low level of decision making ability with mean score of 10.55,7.46 and 5.69 respectively.

Shashikiran (2015) in his study on adoption and attitude of farmers on mechanization of paddy I'm command areas of Karnataka shows that 32.78 of respondents had high decision making ability whereas 25.56 percent of respondents have low level of decision making ability and majority of the respondents 41.66 per cent had medium level of decision making ability.

2.3.20 Management orientation

Nagesh (2006) in his study on entrepreneurial behavior of pomegranate growers in Bagalkot district of Karnataka reported that majority of the respondents 62.5 per cent had medium management orientation, followed by 15.84 and 21.66 per cent of farmers having low and high level of management orientation respectively.

Ningareddy (2005) in his study on knowledge, extent of participation and benefits derived by participant farmers of the watershed development programme in Raichur district reported that 70.66 per cent of the farmers have medium level of management orientation while 14 per cent and 15.33 per cent farmers feel under low and high level of management orientation, respectively.

Shashikiran (2015) in his study on adoption and attitude of farmers on mechanization of paddy I'm command areas of Karnataka revealed that 35 per cent of farmers had high level of management orientation followed by 25 per cent of farmers had low level of management orientation and less than half per cent of farmers have medium level of management orientation

Kavyashree (2016) in her study on A comparative analysis of public, private and corporate extension system in Karnataka revealed that farmers in public extension system had high (33.33%) medium (36.66%) and low (30%) level of management orientation followed by farmers in private extension system had high (26.66%),medium (40%)and low (33.33%) level of management orientation and farmers in corporate extension system had high(30%), medium (36.66%)and low (33.33%) level of management orientation category.

It can be summarized that majority of the farmers were middle aged category and medium socio-economic status, farm annual income, risk orientation, economic motivation, extension agency contact and management orientation and were satisfied.

2.4 Personal, psychological and communication characteristics of extension facilitaors

2.4.1 Age

Raghava and Rao (2014) in their study on "ICT use behavior of scientists of Krishi Vigyan Kendra" The research has been carried out during 2010-11 in Andhra Pradesh state covering 29 KVKs, in which he found that nearly half 38% were the age group of below 35 years, 47% of 35-50 years and 15% are above 50 years.

Raksha *et al.* (2014) in her study on "Perception of the agricultural extension personnel towards use of information technologies in fields works" conducted in Ranga Reddy district of Andhra Pradesh, in which revealed that more than half of the extension agents (51.67 %) were young aged, followed by the middle aged and senior aged groups with 28.33% and 20.00%, respectively.

Khamoushi and Gupta (2015) in their study on "Factors affecting familiarity and usage of Information and Communication Technologies by Agricultural Extension Scientists in North India" found that majority of agricultural extension scientists (36.61%) were in the middle-aged category of their careers, followed by the young aged (31.17%) and the elderly 29.22 per cent.

Kumar and Kaur (2016) in their study entitled "Role Performance of Subject Matter Specialists in Krishi Vigyan Kendras of Northern India" The study was conducted in the Madhya Pradesh, Haryana and Punjab states, in which they revealed that slightly less than half of (49.00 per cent) respondents were middle aged category followed by 29.90 % were young aged category and 20.62% belongs to old aged category.

Unnisa (2017) in her study on knowledge and attitude of extension field functionaries towards ATMA in southern Karnataka reported that majority of the field functionaries belonged to young (87.7per cent) aged category followed by old aged category (6.66per cent) and middle (5.56 per cent) aged category.

2.4.2 EXPERIENCE

Raghava and Rao (2014) in their study on "ICT use behavior of scientists of Krishi Vigyan Kendra" The research has been carried out during 2010-11 in Andhra Pradesh state covering 29 KVKs, he revealed that most of scientists had experience of 10 years in KVKs, followed by 28% had more than 20 years of experience and 22% had up to 19 years

Pramila *et al.* (2014) her study on "Job satisfaction of lady veterinarians." This study conducted in Karnataka, in which found that more than half (65 per cent) of the respondents are under less experience category, followed by medium experienced (23.33 per cent) and highly (11.66%) experienced categories.

Raksha *et al.* (2014) in her study on "Perception of the agricultural extension personnel towards use of information technologies in fields works" conducted in Ranga Reddy district, Andhra Pradesh state, in which found that most of the extension personnel belonged to low experience less than 5 years, followed by 22.22 % and 18.33 % of

extension personnel belonging to the medium experience (5 -10 years) and high (more than 10 years) experience respectively.

Kumar and Kaur (2016) in their study on "Role Performance of Subject Matter Specialists in Krishi Vigyan Kendras of Northern India" The study was conducted in Himachal Pradesh states, Punjab, Haryana in which observed that majority (56.7per cent) of the respondents fell under low experienced group (1-11years) followed by 26.80% of respondents fell under the medium experienced group (11-21years) and 16.50 % of the respondents fell under the high experience group (Above 21years).

Unnisa (2017) in her study on knowledge and attitude of extension field functionaries towards ATMA in southern Karnataka reported that majority of the field functionaries were having low (51.11%) work experience followed by 38.8 per cent and 10 per cent of extension functionaries had medium and high work experience in ATMA, respectively.

2.3.3 Trainings received

Biswanger and Prakash (2012) from their study on "fisheries extension personnel of Tamil Nadu" observed that about two third (66.00 per cent) of respondents attended 1-2 trainings, 29.00 per cent respondents attended 3-4 trainings and only 5% of respondents attended 5-6 trainings.

Rokonuzzaman (2013) conducted study in Sherpur district of Bangladesh concluded that, 51.58% of the respondents did not undergo any training and 38.95% had short training experience and rest (9.47per cent) had undergone medium training experience category.

Vijayendra (2013) in their study on "job performance and job satisfaction of Anganwadi workers" of Gadag and Ranebennur taluk, found that, 65.62% of AWWs were received only one training during their entire service at the time of research followed by 18.13% and 9.37%, with two and three trainings, respectively. While, 6.87% of then were not received any training during their service at the time of research.

Unnisa (2017) in her study on knowledge and attitude of extension field functionaries towards ATMA in southern Karnataka reported that, 46.67% of the extension field functionaries participated in training programme for more than 2 up to 4 times, whereas, 44.44% and 8.89% of the extension field functionaries participated in training programme for 1-2 and more than 4 times respectively.

2.3.4 Achievement Motivation

Bortamuly (2015) in his study on the "role performance of the agricultural extension personnel in the revitalized extension system" in Assam state observed that, 66.96 % of the respondents had medium level of achievement motivation, followed by 17.86% respondents had low level of achievement motivation and 15.24% had high level of achievement motivation.

Reddy and Mishra (2017) in their study reported that, 63.33 per cent of the respondents had medium level of achievement motivation, followed by same proportion (18.33 per cent) of the respondents had low and high level of achievement motivation respectively.

Unnisa (2017) in her study on knowledge and attitude of extension field functionaries towards ATMA in southern Karnataka reported that, 47.48% of the extension field functionaries had medium level of achievement motivation, while, 27.78 % and 24.44 per cent of the extension field functionaries had high level and low level of achievement motivation respectively.

Suman (2017) conducted a study on "relationship between profile characteristics and knowledge level of state department of agriculture and farmers practices on nutrient management in vegetables cultivation" reported that, 66% of the respondents had medium level of achievement motivation, followed by 24.00% and 10% respondents who had high and low level of achievement motivation, respectively.

Priyanka and Sajib (2017) in their study on socio-economic characteristics of ATMA (Agricultural Technology Management Agency) extension functionaries in Assam and their relationship to their training needs revealed that, more than two third (67.50%) of the respondents were in high level of achievement motivation, followed by 24.00 and

8.50 per cent respondents were in medium and low level of achievement motivation respectively.

It can be summarized that many of the extension facilitators were middle aged and highly experienced and medium level of trainings received and medium level of achievement motivation in delivering the extension services.

2.5 Personal, socio-economic, psychological and communication characteristics of farmers and their association with the perception towards extension systems

Jirli *et al.* (2005) in their study on Communication behavior and attitude of vegetable growers towards privatization of agricultural extension services (PAES) revealed that independent variables such as land, income, vegetable farming knowledge, preference toward PAES (clientele group and approaches), types of services suitable for PAES and mass media exposure, innovative orientation, and preference toward PAES are all negatively and significantly related to vegetable growers' attitudes toward PAES (5 percent and 1 percent level of significance). This suggests that nine variables have an impact on the dependent variable, "vegetable growers' attitude toward PAES."

Mohammed *et al.* (2008) revealed that they are no significant difference between overall means of agricultural extension professional perception towards the concepts and their age (X^2=5.573, P= 0.233), years of experience (X^2=2.336, P= 0.801), organizational post (X^2=2.226, P=0.329) and educational level (X^2= 0.574, P= 0.750) in their study on perceptions of Iranian agricultural extension professionals towards sustainable agriculture concepts.

Jiyawan *et al.* (2010) in their study on farmers perception towards conservation tillage practices revealed that Age was shown to be negatively and significantly associated to conservation tillage knowledge, whereas education, landholding, social participation, extension contact, and mass media exposure were found to be positively and significantly connected to conservation tillage knowledge. The findings reveal that the variables studied had a significant impact on the degree of knowledge about conservation tillage methods. The other independent factors, such as occupation, home, category, family size, family type, material ownership, irrigation facilities, and so on,

were not substantially connected, indicating that these variables had no effect on respondents' knowledge of conservation tillage methods.

Singh *et al.* (2012) in their study on farmers attitude and constraints in privatization of agricultural extension services (PAES) reported that at the 5% and 1% level of significance, independent variables such as land, income, knowledge of vegetable farming, preference toward PAES (clientele group and approaches), types of services suitable for PAES and mass media exposure, innovative orientation, and preference toward PAES (vegetable crops) are negatively and significantly related to vegetable growers' attitudes toward PAES. This means that nine variables have an impact on the dependent variable, vegetable growers' attitudes toward PAES.

Khan and Akram (2012) revealed that In comparison to older respondents, younger respondents were more critical of extension services. The majority of the 138 sample respondents had a primary to intermediate level of education, with only 6 having a bachelor's degree or higher. According to 174 farmers, extension personnel contact with sample respondents was very poor. The majority of the sample respondents had up to 40 years of experience, with only six members having more than two years. The majority of the sample respondents rated letter extension services as ineffective, according to the statistics. In their study on farmers' perceptions of extension methods used by extension people for distribution of new agricultural technology in Khyber Paktunkhwa, Pakistan, age, farming experience, and education had no significant effect on the effectiveness of extension services.

Rathode *et al.* (2012) revealed that 56% and 58.66 % farmers perceived that extension services were available in time and with regard to amount paid respondents perceived services were delivered free of cost respectively. In the study area, 37.33 per cent were satisfied with the extension services delivered. The variables like education, age, occupation, knowledge level, annual income and information seeking behaviour were found to be positively correlated with timely availability of services. The factors like education, decision making ability, social participation and knowledge level were positively correlated with the amount paid for extension services. The relationship between independent variables and satisfaction level revealed that occupation,

education, knowledge level, land holding, annual income, livestock possession and innovativeness were reported positively in his study on farmers perception towards Livestock extension service: A case study.

Kavyashree (2016) revealed that the characteristics such as age, cropping intensity, socio economic status, risk orientation, innovative proneness, scientific orientation, economic motivation, mass media participation, extension contact, management orientation and decision making ability were non-significant with perception of farmers at one per cent level of significance. Irrigation intensity is negatively significant with perception shows highly significant association. Extension participation and perception shows highly significant association. Participation of farmers in the extension activities like group discussion meetings, demonstrations, campaign, exhibitions etc., this might be helped them to understand the mandate of the organization conducting such activities in her study on A comparative analysis of public, private and corporate extension systems.

From the above reviews it can be concluded that extension participation, information seeking behavior and knowledge level are significant with the perception and age, annual income and experience are non-significant with the perception and satisfaction level.

2.6 Personal, socio- psychological and characteristics of extension personnel and their association with perception towards extension systems

Godara *et al.* (2006) found that the perception of extension scientists at the Chaudhary Charan Singh Haryana Agricultural University, Hissar had a positive and significant relationship with organisational climate, job perception, job performance, and job satisfaction in their study on productivity of extension scientists in Krishi Vigyan Kendras.

Barman and Kumar (2010) found a positive and significant relationship between knowledge level and age, education, experience, achievement motivation, decision making ability, and mass media use in their study on A test to measure knowledge of extension personnel on farmers group dynamics, whereas innovativeness and rural-

urban background were found to have a positive but not significant relationship with climate change perception.

Tologbonse *et al.* (2010) found a positive and significant relationship between perception of climate change and age, education, and farming experience in their study on farmers' perceptions of the effects of climate change and coping strategies in three Agro-ecological zones of Nigeria. Innovativeness and rural-urban backgrounds were found to have a positive but not statistically significant relationship with climate change perception.

Manjunath *et al.* (2011) found that organisational variables such as organisational climate as perceived by agricultural scientists and job satisfaction had a positive and highly significant relationship with their overall scientific productivity in their study on determinates of scientific productivity of agricultural scientists.

Preethi (2015) found that the variables farming experience, achievement motivation, rural-urban background organisational climate, decision making ability, innovativeness, mass media use, and participation in training programme had a positive and significant association with perception of farm youth in her study on perception, aspiration, and participation of farm rural youth in agriculture.

Hlatswayo and Worth (2016) In their study on stakeholders' perceptions of the state agricultural extension's visibility and accountability in the Nquthu area of South Africa, found a positive and significant relationship between age, education, farming experience, and perception, whereas innovativeness and rural-urban background were found to have a positive but not significant relationship with respondents' perception.

Chaitra (2018) According to her research on extension personnel's knowledge and perceptions of agricultural technology management agencies, 32.50 percent of respondents were young and had a low level of perception, 46.90 percent were middle aged and had a medium level of perception, and 25.00 percent were old and had a high level of perception about ATMA. The Chi-square value for the relationship between age and perception is 7.42, which indicates that there is no significant relationship.

From the above reviews it can be concluded that organizational climate, job perception, job performance and job satisfaction had positive significant relation towards perception of extension system and decision making ability and mass media use, whereas, innovativeness, rural-urban background were found to be positive but not significant association with the perception of climate change.

2.7 Problems faced by the farmers and extension facilitators in public and private extension systems

2.7.1 Problems faced by farmers in extension systems

Singh (2000) in his study on contract farming for agriculture diversification in the Indian Punjab- A study of performance and problems, identified the faults of contracting system both at company and farmers in his study on the role of contract farming in agricultural diversification. The problems noticed were delayed payments, poor co-ordination of activities, outright cheating in dealings, manipulation of norms by the firm and poor technical assistance.

Kumar (2002) in his study on vegetable producing contract farmers of Belgaum district of Belgaum district of Karnataka opined that the problems faced by the farmers were manipulation of norms by firms, poor technical assistance, higher rejection rate and unawareness of potentiality of crops. The major problems faced were irregular payments and low contract prices. The other problems were holding up of vehicles and farmers' discontent. He also opined that other major problems faced by contract firms were fixing of contract price and land constraints. The contract farmers try to put lower grade into higher grade and it was difficult to make sure and check the grade as quantity handled was more. Farmers demanded that they should be paid higher prices even though agreement does not say so by holding up vehicles in the villages.

Chawla (2002) in their study on contract farming "Partners in progress" found major constraints like poor technical assistance, absence of loans to govern the contracts, pay less than what was originally promised, delayed payments, companies manipulation of the conditions of the contract by the corporate and might fail to honour the contracts by reviewing various studies on contract farming.

Masoud-nia (2004) in his study on the role of the private sector in the provision of extension services by agriculture extension service providers' perspectives in the cities of urmia and khoy showed that activities and issues in public and private extension were widely different. Problems in private extension included inappropriate and insufficient training and organization of staff in private advisory firms, less ability of farmers to pay for services, lack of scientific support by research, weak linkages with agricultural education system and less attention of private sector to the national policies.

Ajieh *et al.* (2008) in their study on constrains to privatization and commercialization of agricultural extension services as perceived by extension professionals and farmers found that the most important constraints included: job insecurity amongst extension staff, lack of farmers interest in extension programme and high risk and uncertainty in agriculture.

Jiyawan *et al.* (2008) in their study on farmers preference and constrains in privatization of agricultural extension services (PAES) reported that there is no governmental procedure for checking the private extension service provider, (PESP) private extension service provider lead to monopoly in spreading of innovations, private extension service provider concentrates more on large farmers and information is given to those who provide money are the major constraints faced by the farmers.

Jirli *et al.* (2009) reported that there is no governmental procedure for checking /controlling the private extension service provider, they will concentrate only on larger farmers, they may give the information to those who provide money and they lead to monopoly in spreading of innovations, so he reported that majority of the farmers perceived constraints in their study on "farmers view on Privatization of Agricultural Extension Services"

Jiyawan *et al.* (2010) in their study on farmers perception towards conservation tillage practices revealed that Inadequate finance facilities for the purchase of upgraded equipment are cited as the top most limitation by farmers. Poor economic condition and unprofitable land holdings have been identified as the second most significant barriers to implementing conservation tillage measures.

Kumar and Nain (2014) in their study on A critical analysis of the privatization of agricultural extension services found that high charges, supply of substandard technology due to lack of regulatory mechanism, exploitation of the farmers were the major constraints perceived by all the three categories of farmers. They also found that the privatization of agricultural extension services in terms of the preferences of three categories of farers i.e. small, medium and large for various forms of privatization.

Kavyashree (2016) in her study on a comparative analysis of public, private and corporate extension systems revealed that insufficient training to the farmers (93.33%) and untimely diffusion of the latest technical information (73.33%) are major constrains in public extension system and there is no government support (90%) and information is provided only those who pay (83.33%) are the major constrains in private extension system and labour intensive (86.67%) and quality parameters were difficult to follow are the major constrains faced by the extension workers in corporate extension system.

From the above reviews it can be concluded that the respondents were facing several kinds of problems that is untimely diffusion of the latest technical information, the information to those who provide money, inappropriate and insufficient training and organization of staff in private advisory firms, irregular payments and low contract prices and some other problems.

2.7.2 Problems faced by extension facilitators

Mohan (2000) in his study on job performance and job satisfaction of assistant Agricultural officers in northern district of Karnataka, reported that the important problems expressed by AAOs were lack of support from seniors , urgency to get the work done and non-availability of inputs on time (6.25%),lack of freedom for decision making (12.50%), lack of interest in adoption of technology by the farmer (15.62%), interest of farmers in physical inputs rather than technology (21.87%), political interference (21.87%), lack of co-operation and interest from farmers (28.12%), non-availability of transport (28.12%).

Kumari (2004) reported that there were bribery and misappropriation of funds (52.00%),lack of education among panchayat members (60.00%),careless among villagers for developmental works in their villages (64.00%),lack of interest in developmental works (60.00%),availability of persons well versed with the rural projects (76.00%), lack of knowledge for the members (80.00%), lack of fund for carrying out the work of the projects (88.00%) , lack of resources for developmental work (88.00%). She also reported that 8 out of 11 constraints of role performance by women members viewed as most serious in her study on women empowerment through panchayat raj institutions.

Nagananda (2005) revealed that three fourth of Agriculture Officers had expressed the problem of inadequate field functionaries to carry out extension work. He further reported that there were inadequate conveyance facilities , lack of recognition for good workers , lack of promotional opportunities and political interference in implementing programmes, discrimination between different cadres of officers as important problems expressed by both officers in the departments in his study on organizational climate perception of Assistant Directors of Agriculture Officers of KSDA.

Mengal *et al.* (2014) in their study on Assessment of technology transfer process perceived by the public and private extension field staff in Balochistan, depicts that public extension has more constraints than private extension; such as lack of incentives for extension workers, lack of discipline among extension staff , lack of training and need assessment for extension functionaries were significant at $p>0.01$.However , the clients, technology and research constraints were non- significant at $p>0.05$. He also depicts that there was multiple nature/constraints of technology transfer among public and private extension.

Kavyashree (2016) in her study on a comparative analysis of public, private and corporate extension systems revealed that cent per cent of extension workers expressed the main constrain as farmers are less responsible and lack of supporting staff (85%) are major constrains in public extension system and in time operation is not possible (95%) and lack of transport facilities (85%) are the major constrains in private extension system and cent per cent expressed labour intensive cultivation and less frequency of

supporting staff (85%) are the major constrains faced by the extension workers in corporate extension system

From the above reviews it can be concluded that the respondents were facing several kinds of problems that is farmers are less responsible and lack of supporting staff, such as lack of incentives for extension workers, lack of recognition for good workers, lack of promotional opportunities and political interference and some other problems.

2.8 Suggestions given by the farmers and extension functionaries

Kumar (2000) in his study on vegetable producing contract farmers of Belgaum district of Belgaum district of Karnataka opined that the problems faced by the contract farming were manipulation of norms by firms and high rejection rate, unawareness of potentiality of crops , farmers' discontent , poor technical assistance, holding up of vehicles . The contract farmers were tried to put lower grade to higher grade. He also opined that major problems faced by the contract farming were low contract price, irregular payments, land constraints and fixing of contract price.

Raju (2001) in his study on constrains and suggestions for effective implementation of farm women development programmes, elicited , suggestions such as provision of non-formal education , enhancement of credit amount, provision of high yielding varieties, conducting of more training and demonstrations in agriculture ,conducting field training in other activities during off season, ensuring timely supply of inputs .

Deepak (2003) in his study on perception of beneficiaries and non-beneficiaries towards WYTEP (women and youth training extension project) revealed that 100% of the farm women beneficiaries suggested that training should be imparted using local words rather than using technical words, more training should be organized on agro-based subsidiary enterprises , training should be organized based on practiced field problems, more importance to be given on integrated pest management and the subject matter should have photographs /illustrations rather than being theoretical oriented.

Keshavamurthy (2005) in his study on contract farming in gherkin production revealed that percent of respondents suggested for guidance over pest and diseases (26.66%), around (50.00%) highlighted government interventions for making strict loss to make

legal contracts (52.50%), provision of good price to their produce (85.00%) followed by regular payments (100.00%). In his study he also reported suggestions expressed by the respondents for successful implementation of contract farming.

Kavyashree (2016) in her study on a comparative analysis of public, private and corporate extension systems revealed that number of extension staff should be increased (96.66%) and conduct more extension activities (80%) are the major suggestion given by farmers in public extension system and frequent visits of extension workers to the farmers field (90%) suggested in private extension system and quality inputs should be supplied in time (83.33%) is major suggestion in corporate extension system. Cent per cent of the extension workers suggested provide more number of supporting staff and adequate transport facilities (90%) in public extension system and cent per cent extension workers suggested department should recognize the consultants and involve in day to day activities in private extension system and cent per cent of the extension workers suggested to provide sufficient number of labour in corporate extension system.

From the above reviews it can be concluded that the suggestions given by the farmers and extension facilitators in delivering of extension services effectively were, provide sufficient number of labours, government interventions for making strict loss to make legal contracts, training should be imparted using local words rather than using technical words, more training should be organized on agro-based subsidiary enterprises and some other suggestions.

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Methodology

The pivotal point for the success of a research programme is research methodology. The systematic planning and directing of specific research needs an appropriate research methodology. This chapter elucidates the brief description of scientific procedures and methods followed in conducting the study. The methodology adopted in this study is grouped and presented in this chapter under following sub-headings

3.1. Research design
3.2. Description of study area
3.3. Selection of respondents
3.4. Variables and measurement tools used for farmers receiving service in the study
3.5. Variables and measurement tools used for extension service provider in the study
3.6. Collection of Data
3.7. Statistical tools applied for analysis of data
3.8. Formulation of Hypothesis

3.1 Research Design

In the present study, after a careful analysis of the available literature and keeping in view the objectives, the researcher has no scope to manipulate the both dependent and independent variables as they have occurred already.

Ex-post-facto research design is a systematic empirical inquiry in which the researcher does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulate (Kerlinger, 1964)

Inferences about relation among variables have to be drawn on the basis of effects which are manifested already. Hence, Ex-Post-Facto research design was used in this study

3.2 Description of the study area

Kurnool district lies between latitude 14°-54' North to 16°-11' and longitude 76°-56' East to 78°-25' East. 58.60% of Kurnool District lies in Krishna basin and 41.40% in Pennar Basin. This district is bounded by Tungabhadra and Krishna Rivers and Mahaboob Nagar District in North, Kadapa and Ananthapur Districts on South, Karnataka State on West and Prakasham District in the East. The main rivers flowing in the district are

(1) Tungabhadra River which is a tributary to Krishna River

(2) Hundri, a tributary to Tungabhadra

(3) Kundu River is a major tributary to River Penna.

District survey report-2018 by Department of Mines and Geology, Govt. of Andhra Pradesh reported kurnool district receives an average rainfall of 687.35 mm annually and Kurnool District is rich in regur and red ferruginous soils which constitute about 60 and 40 per cent, respectively. They are further classified as clay, loamy and sandy soils. The black cotton soils are predominant in the Mandals of ,Nandyal, bandi atmakur, Koilkuntla, panyam ,banaganapalli and mahanandi which are selected for the study

3.2.1 Selection of state and district

There are 31 districts in Andhra Pradesh. The department of Agriculture has established 10,641 rural RBKs (Raithu Barosa Kendras) and 125 urban RBKs (Raithu Barosa Kendras) to render the services to the farming community across the state.(Source – AGRICULTURE & COOPERATION DEPARTMENT, GAOVERNMENT OF ANDHRA PRADESH). Out of this, Kurnool District was purposively selected for the study because this district has organised government agriculture structure and (RBKs) Raithu Barossa Kendras and many private agriculture input dealers, private limited companies and researcher is familiar with language and culture which would help in building up a better rapport with the respondents.

Kurnool District was purposively selected for the study due to the following reasons:

1. The researcher was well known with the conditions of the district, study area, culture and local languages.

2. Due to the lockdown and pandemic covid-19, the researcher was confined to his own locality only.

3. Till date, no such research has been conducted in this district.

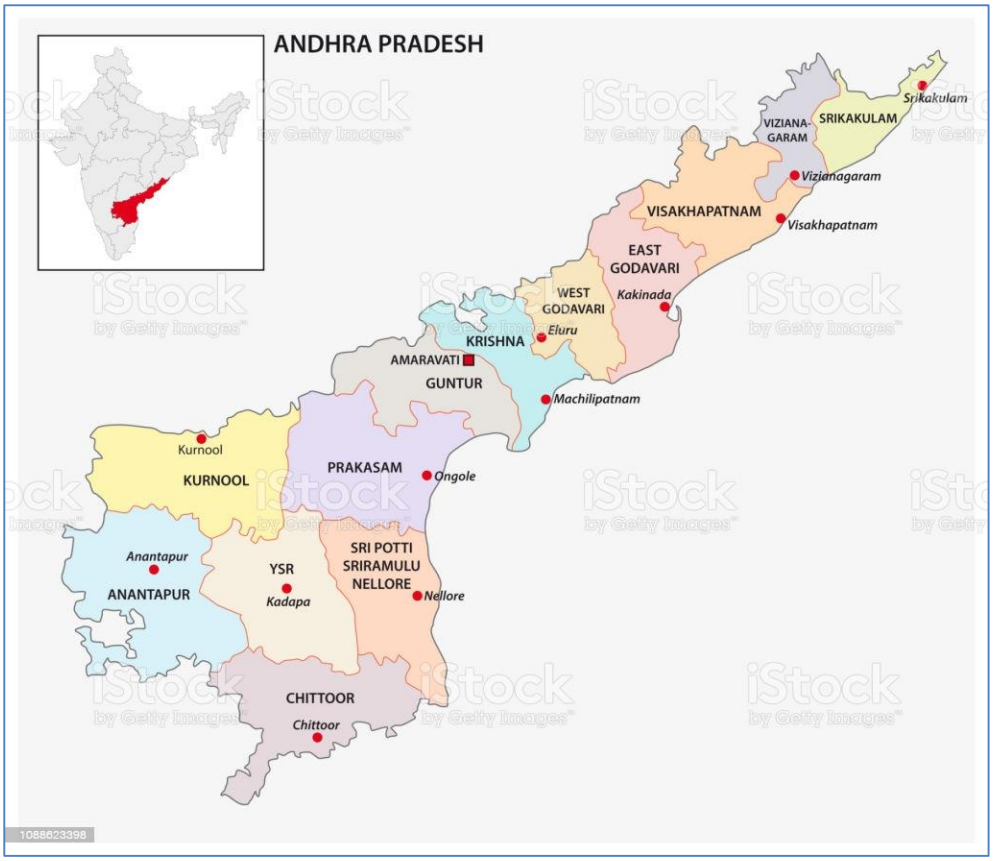

Figure 1 : State map of Andhra Pradesh

Source : Retrieved from https://media.istockphoto.com/vectors/administrative-and-political-map-of-indian-state-of-andhra-pradesh-vector-id1088623398

Figure: - 2 Kurnool District map of Andhra Pradesh state

Source : retrieved from https://www.researchgate.net/profile/Samarpitha-Athota/publication/324521400/figure/fig1/AS:615378065555457@1523728972803/Fig-A-Mandal-map-of-Kurnool-district.png

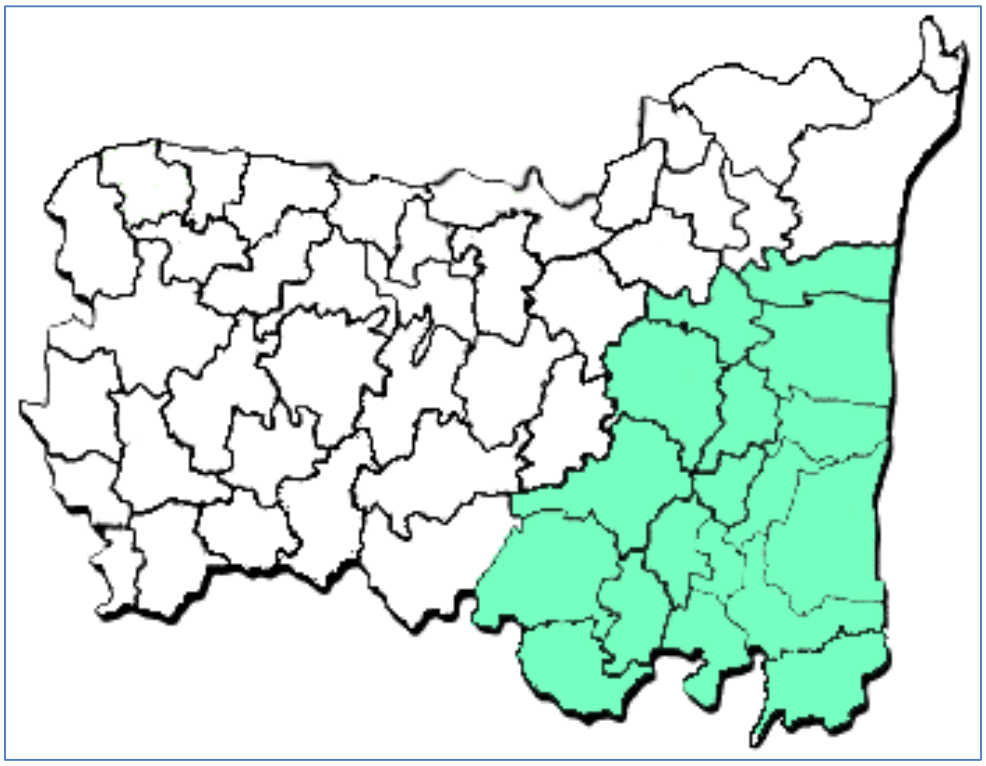

Figure:-3 Nandyal revenue division of Kurnool district

Source : retrieved from https://upload.wikimedia.org/wikipedia/commons/3/3d/Nandyal_revenue_division_in_Kurnool_district.png

Nandyal revenue division was purposively selected due to the researcher belong to same division and well known with culture and language and researcher wants to know about the existing agriculture system in their division which may be useful for futher research in future. Under nandyal revenue division there are 17 mandals out of which 7 mandals are selected namely Banaganapalle, Panyam, Koilakuntla, Owk, Bandi Atmakur, Mahanandi and Nandyal mandals are selected for the study. The villages were chapirevula, chabolu, ponnapuram, nandavarm, pandlapuram, mitnala, tellapuri, thimmapuram, bijanavemula, gundla singavaram, thammadapalle, A.koduru villages in the mandals were selected for study.

3.2.3 Duration of the study

The data was collected from the sampled respondents during the months of July-september in year 2021**.**

3.3 Selection of respondents

The main objective of the study was perception of farmers and extension service providers towards extension systems. So the study was planned in to two categories of respondents viz. progressive farmers and extension service providers (public and private). It was decided to conduct the study with beneficiaries of the selected organisations, as of only those farmers who have contact with any extension organization can alone give the more reliable data.

Table: - 3.1 Selection of Farmers receiving service through Public and private extension system from different Mandals under Nandyal revenue division of Kurnool District.

S.No.	Mandals	Farmers receiving service through Public extension system (n=30)	Farmers receiving service through Private extension system(n=30)
1	Nandyal	5	5
2	Banaganapalle	6	6
3	Panyam	5	5
4	Owk	4	4
5	Koilakuntla	4	4
6	Mahanandi	3	3
7	Bandi Atmakur	3	3
	Total	**30**	**30**
		Total Respondents	**60**

Extension service providers in public extension system Agriculture officer (AO), Agriculture Extension officer (AEO), Multi-purpose extension officer (MPEO) and Village Agriculture Assistant(VAA) working in Raithu Barosa Kendras (RBKs) and grama sachivalayam in Andhra Pradesh state.

Table:-3.2 Selection of Extension service providers in Public and private extension system from different Mandals under Nandyal revenue division of Kurnool District.

S.No.	Mandals	Extension service providers in Public extension system (n=30)	Extension service providers in Private extension system(n=30)
1	Nandyal	7	9
2	Banaganapalle	8	7
3	Panyam	6	5
4	Owk	2	2
5	Koilakuntla	2	3
6	Mahanandi	3	2
7	Bandi Atmakur	2	2
	Total	**30**	**30**
		Total Respondents	**60**

Extension service providers in Private extension system, majority of them are agriculture input dealers in different agencies namely manju agencies, K. M S agro agencies, sri Srinivasa agencies, sri Maheshwari fertilizers and pesticides, sri Sanjeev chemical fertilizers and pesticides, sri Pavan fertilizers and pesticides, sri Venkateshwara agencies, Satyam fertilizers and pesticides, tirumala agro agencies, bhuvaneshwari traders, viswas agro agencies, usha agencies; seedcs and fertilizers, Divaswarupi agro agencies and mukambika seeds and fertilizers and RSM (retail store manager) and FSA (field supervisor assistant) in some private institutions viz., Gromor fertilizers, parijat private limited, kisan agrimall.

Table: - 3.3 Total respondents selected for study

	Respondents	No. of Respondents
Farmers receiving service through	Public extension system	30
	Private extension system	30
Extension service providers in	Public extension system	30
	Private extension system	30
	Total	**120**

3.4 Measurement of variables

Table:- 3.4.1 Variables and measurement tools used in the study for farmers receiving service through public and private extension system.

Sl no.	Variables	Measurement	Level of measurement
a. Dependent variable			
1.	Perception towards extension system	Schedule developed for study	ordinal
b. Independent variable			
1.	Age	Standard classification of ministry of youth affairs, GOI	ordinal
2.	Socio-personal status	Procedure followed by saravanan (1999)	ordinal
3.	Annual income	Categorization by National Council of Applied Research (NCAER) 2001.	ordinal
4.	Risk orientation	Scale developed by supe(1969)	Interval
5.	Innovative proneness	Scale developed by moulik and rao(1973)	Interval
6.	Scientific orientation	Scale developed by supe(1969)	Interval
7.	Economic motivation	Scale developed by supe(1969	Interval
8.	Mass media participation	Scale developed by patil(1990)	Interval
9.	Extension contact	Procedure followed by hardikar(1998)	ordinal
10.	Extension participation	Procedure followed by badogonner(1983)	ordinal
11.	Decision making ability	Scale developed by moulik(1965)	Interval
12.	Management orientation	scale developed by Samantha(1977)	Interval
13.	Economic motivation	Scale developed by supe(1969)	Interval
Variables and Measurement tools used for Extension service providers in public and private extension system			
1.	Age	Schedule developed for study	Ratio
2.	Experience	Schedule developed for study	ordinal
3.	Areas covered	Schedule developed for study	ordinal
4.	Trainings received	Schedule developed for study	ratio
5.	Value orientation	Scale developed by Kittur(1976)	Interval
6.	Achievement motivation	Scale developed by Chandrapaul (1998)	Interval

3.4.2 Measurement and operationalization of dependent variables

3.4.2.1 Perception of farmers towards extension system

Perception is the process by which individual receive information or stimuli from our environment and transform it into psychological awareness (Van Den Ban and

Hawkins, 1966). Generally, perception is the process of attaching meanings based on past experience to signs.

A large number of statements were collected from agriculture scientists, farmers, review of literature and discussion with experts. Care was taken in assigning approximately equal number of negative and positive statements. The perception statements were formulated based on the measurement scale developed by Davis 1989. The perception was measured using a 5-point range from "strongly agree, agree, undecided, disagree and strongly disagree". Based on the total score obtained from the result, the perception was categorized into High, Medium and low based on the mean and the standard deviation as a medium of check and the result were shown in frequency and percentage.

Sl no.	**Category**	**Extension system**	
		Public extension system	**Private extension system**
1.	Least favourable(mean-SD)	<65.46	<68.14
2.	Favourable (mean+-SD)	65.46-71.74	68.14-71.83
3.	Most favourable (mean+SD)	>71.73	>73.92

3.4.2.2 Perception of extension service providers towards extension system

Perception is the process by which individual receive information or stimuli from our environment and transform it into psychological awareness (Van Den Ban and Hawkins, 1966). Generally, perception is the process of attaching meanings based on past experience to signs. A large number of statements were collected from agriculture scientists, farmers, review of literature and discussion with experts. Care was taken in assigning approximately equal number of negative and positive statements. The perception statements were formulated based on the measurement scale developed by Davis 1989. The perception was measured using a 5-point range from "strongly agree, agree, undecided, disagree and strongly disagree". Based on the total score obtained from the result, the perception was categorized into High, Medium and low based on

the mean and the standard deviation as a medium of check and the result were shown in frequency and percentage.

Sl no.	Category	Extension system	
		Public extension system	Private extension system
1.	Least favourable(mean-SD)	<77.89	<72.09
2.	Favourable (mean+-SD)	75.35-89.71	72.09-89.63
3.	Most favourable (mean+SD)	>89.71	>89.63

3.4.3 Measurement and operationalization of independent variables

3.4.3.1 Age

Age of the respondents refers to their chronological age. Chronological age of the respondents at the time of data collection was considered. It was calculated in terms of the number of years completed as on the date of the interview rounded up to the nearest year. The years were noted as such to be the age. The respondents were then categorized into three categories based on the standard classification of the Ministry of Youth affairs, GOI

Category	Years	Score
Young age	less than 35 years	1
Middle age	35-50 years	2
Old age	more than 50 years	3

3.4.3.4 Socio-personal status

To quantify this variable, the procedure followed by Sarvanan (1999) was followed with some changes in items and weightages. The items used and respective weightages given were as follows.

Items		Weight	Level of measurement
a. Education	Illiterate	1	Ordinal
	Primary school	2	
	Middle school	3	
	High school	4	
	P.U.C	5	
	Diploma	6	
	Graduate	7	
	Post graduate	8	
b. Family size	Up to 5	1	Ordinal
	More than 5	2	
c. House	Hut	1	Nominal
	Kaccha	2	
	Pucca	3	
	Banglow	4	
d. Type of family	Joint	1	Nominal
	Nuclear	2	
e. Occupation	Farming	1	Nominal
	Business	2	
	Both	3	
f. Caste	General	1	Nominal
	OBC	2	
	SC/ST	3	
g. Size of land holding	Up to 5.0 acres	1	Ordinal
	5.01 to 10.00 acres	2	
	Above 10.01 acres	3	
h. Farming experience	Up to 10 years	1	Ordinal
	11 to 20 years	2	
	Above 21 years	3	
i. Social participation	Member	2	Ordinal
	Office bearer	1	
	Regular	2	
	Occasional	1	
	Never	0	
j. Cosmopoliteness	Strongly agree	4	Interval
	Agree	3	
	Undecided	2	
	Disagree	1	
	Strongly disagree	0	

Total score for each responding was obtained and were scored into low, medium and high category keeping the mean and standard deviation as measures of check

Sl no.	Category	Extension system	
		Public	Private
1.	Low (mean-SD)	<34.61	<37.52
2.	Medium (mean+-SD)	34.61-43.44	37.32-41.80
3.	High (mean+SD)	>43.45	>41.80

3.4 Annual income

It is referred to the total income earned by the respondent from both agriculture and other enterprise business during the previous year of investigation. Based on the total annual income, respondents were categorized in to three groups based on the categorization suggested by National Council of Applied Research (NCAER) 2001.

Category	Years	Score
Low class income	<33,750 rupees	1
Medium class income	33,750-1,44,000 rupees	2
High class income	>1,44,000 rupees	3

3.4.3.5 Risk orientation

This referred to the degree to which an individual was oriented towards encountering risk and uncertainties and has courage to face the problems in farming. Scale developed by Supe (1969) was used in this study. The scale consisted of six statements, out of which all are positive statements except 1 and 5 are negative statements. Rating for each statement given by the respondents are given on a five point continuum, namely, strongly agree, agree, undecided, disagree, strongly disagree with the scores of 5,4,3,2 and 1 for positive statements and 1,2,3,4 and 5 for negative statements, respectively.

Sl No.	Statements	Response categories				
		SA	**A**	**UD**	**DA**	**SD**
1.	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops					
2.	A farmer should take more of a chance in making a huge profit than to be content with a smaller but less risky profiles.					
3.	A farmer who is willing to take greater risks than an average farmer, usually does better financially					
4.	It is good for a farmer to take risk when he knows his chance of success is fairly high.					
5.	It is better for a farmer not to try new farming methods unless most other farmers have used them success.					
6.	Trying an entirely new method in farming by a farmer involves risk, but its worth					

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Risk orientation score	
		Public	**Private**
1.	Low (mean-SD)	<17.80	<20.40
2.	(mean+-SD)	17.80 – 21.39	20.40-24.39
3.	High (mean+SD)	>21.39	>24.39

3.4.3.6 Innovative proneness

Rogers and Shoemaker (1971) defined innovativeness as the degree to which an individual is relatively earlier in adopting new ideas than other members of his society. It is the degree to which farmer is willing in adopting the innovations early in his field.

The farmers innovative proneness was measured by the scale constructed by Moulik and Rao (1973) and it is used in this study. The scale consists of five statements out of which 2, 3 and 5 are negative statements and 1 and 4 are positive statements. Rating for each statement given by the respondents are given on a five point continuum, namely, strongly agree, agree, undecided, disagree, strongly disagree with the scores of 5,4,3,2 and 1 for positive statements and 1,2,3,4 and 5 for negative statements, respectively.

Sl no.	**Statements**	**Response categories**				
		SA	**A**	**UD**	**DA**	**SD**
1.	I am very much interested in adopting whatever new practices that are helpful in better faming					
2.	Since, we are not sure of the new practices, I would like to wait till others adopt					
3.	Since new practices are not profitable , I am not interested in adopting them					
4.	I try to keep myself well informed about the new practice and will try to adopt as soon as possible					
5.	New practices are not easily adoptable and hence I do not adopt					

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	**Category**	**Innovative Proneness score**	
		Public	**Private**
1.	Low (mean-SD)	<10.26	<13.23
2.	Medium (mean+-SD)	10.26-15.86	13.23-16.03
3.	High (mean+SD)	>15.86	>16.03

3.4.3.7 Scientific orientation

Supe (1969) defined scientific orientation as the degree to which a farmer was oriented towards the use of scientific methods in farming. The scale developed by the same author was used in this study.

The scale consists of six statements out of which 1, 2, 3, 4and 5 are positive statements and 6^{th} is negative statement. Rating for each statement given by the respondents are given on a five point continuum, namely, strongly agree, agree, undecided, disagree, strongly disagree with the scores of 5,4,3,2 and 1 for positive statements and 1,2,3,4 and 5 for negative statements, respectively.

Sl no.	**Statements**	**Response categories**				
		SA	**A**	**UD**	**DA**	**SD**
1.	New methods of farming give better results than old method results					
2.	Even a farmer with a lot of experience should use new methods of farming					
3.	Though it takes time for a farmer to learn new farming methods, it is worth.					
4.	In order to have our hands productive, economically more profitable and eco- friendly ,the present system of farming needs to be change.					
5.	A good farmer experiment with new ideas in farming					
6.	The way our forefather where practicing is still the best way to follow today					

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Scientific orientation score	
		Public	Private
1.	Low (mean-SD)	<19.46	<18.05
2.	Medium (mean+-SD)	19.46-21.33	18.05-22.21
3.	High (mean+SD)	>21.33	>22.21

3.4.3.8 Economic motivation

Economic motivation was operationalized or conceptualized in terms of profit maximization and the relevant value placed by the farmer on economic ends.

It was measured with the help of scale developed by Supe (1969). The scale consists of six statements out of which 1, 2, 3, 4and 5 are positive statements and 6^{th} is negative statement. Rating for each statement given by the respondents are given on a five point continuum, namely, strongly agree, agree, undecided, disagree, strongly disagree with the scores of 5,4,3,2 and 1 for positive statements and 1,2,3,4 and 5 for negative statements, respectively.

Sl no.	Statements	Response categories				
		SA	A	UD	DA	SD
1.	A farmer should work towards larger yields and more economic profit					
2.	The most successful farmer is the one who makes the most profit					
3.	A farmer should try any new farming idea which may earn him more money					
4.	A farmer should grow cash crops to increase monetary profits in comparison to growing of food crops for home consumption					
5.	It is difficult for the farmers children to make a good start unless he provides them with economic assistance.					
6.	A farmer must earn his living but the important thing in life cannot be defined in economic terms					

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Economic Motivation Score	
		Public	Private
1.	Low (mean-SD)	<20.08	<19.56
2.	Medium (mean+-SD)	20.08-24.25	19.56-21.69
3.	High (mean+SD)	>24.25	>21.69

3.4.3.9 Mass Media participation

It is defined as the extent of participation of the respondents to different mass communication media in the agriculture related activities such as listening to radio, watching television and reading newspapers and magazines.

The quantification of mass media exposure was done according to the procedure followed by Patil (1990). The scores were given according to the participation as regular, occasionally and never as 2, 1 and 0 respectively.

Items	Owner/subscriber	Extent of participation		
		Regular	Occasionally	Never
Listening to radio	1	2	1	0
Tv interview	1	2	1	0
Reading newspaper	1	2	1	0
Reading farm magazine	1	2	1	0

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Mass media participation score	
		Public	Private
1.	Low (mean-SD)	<3.04	<2.92
2.	Medium (mean+-SD)	3.04-8.22	2.92-7.27
3.	High (mean+SD)	>8.22	>7.27

3.4.3.10 Extension contact

Extension contact is referred as the frequency of meeting of the respondents with the extension facilitator of various developmental departments like AO, state agriculture universities, private agencies, kvk etc. to get the advanced information on various aspects. Scoring for the variable was followed as per procedure followed by hardikar (1998).

Sl no.	Designation	Frequency of contact		
		often	rarely	never
1.	Agril. Assistant			
2.	Asst. Director of agriculture			
3.	Bank officer			
4.	Asst. Agriculture officer			
5.	Extension officer from private consultancy			
6.	Extension officer from input agencies			
7.	Extension workers from NGOs			
8.	Scientists of university of agriculture sciences			
9.	Agri-business companies			
10.	If any others specify			
	1.			
	2.			
	3.			

Frequency	Score
Never	0
Occasionally/rarely	1
Regular/often	2

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Extension contact score	
		Public	**Private**
1.	Low (mean-SD)	<3.26	<3.95
2.	Medium (mean+-SD)	3.26-7.26	3.95-7.04
3.	High (mean+SD)	>7.26	>7.04

3.4.3.11 Extension participation

Extension participation is referred as the extent of farmers participation in different activities of extension during the preceding year of the study.

In this study this variable was calculated by using the procedure followed by Badagaonnar (1983), the frequency of respondents participation was quantified with a three-point continuum viz, never, occasionally, regular with the scores of 1, 2 and 3 respectively.

Sl no.	Extension activities	Pattern of participants		
		regular	**occasional**	**never**
1.	Krishimela			
2.	Demonstration			
3.	Training programme			
4.	Group meetings			
5.	Field days			
6.	Field visits			

Further, the respondents were categorised into three categories taking mean and standard deviation as measured of check and result were shown in frequency and percentage.

Sl no.	Category	Extension participation score	
		Public	Private
1.	Low (mean-SD)	<10.38	<9.87
2.	Medium (mean+-SD)	10.38-15.88	9.87-14.78
3.	High (mean+SD)	>15.88	>14.78

3.4.3.12 Decision making ability

Decision making is a process of making choices by identifying a decision, gathering information and assessing alternative resolutions. Decision making ability is a brief state of affairs brought about by self-determining individual without coercion or pressure from any outside force.

This variable was measured by using the statements proposed by Moulik (1965). The positive statements were scored 3, 2, 1 and negative statements were given 1, 2, 3 point continuum.

Sl no.	Statements	Response categories		
		A	UD	DA
1.	It is necessary to seek other peoples advice before taking decision			
2.	One cannot avoid his worries and problems if he seek the advice from his friends and neighbours			
3.	One who believes in others advice does his work much better			
4.	To do any work with the advice of others is a sign of weakness			

Further the respondents were categorised in to three categories based on the mean score and standard deviation and measure of check and result were expressed in frequency and percentage

Sl no.	Category	Decision making ability score	
		Public	Private
1.	Low (mean-SD)	<8.66	<8.87
2.	Medium (mean+-SD)	8.66-10.46	8.87-10.12
3.	High (mean+SD)	>10.46	>10.12

3.4.3.13 Management orientation

It is defined as the degree to which a farmer is oriented towards the managerial aspects relating to his farm operation.

Management orientation of the farmers was measured with the help of a scale developed by Samantha (1977). It consists of 18 statements under three headings namely, production orientation, planning orientation and marketing orientation. The responses of each statement was rated on a two-point continuum namely agree and disagree and scoring was given 2 and 1 respectively..

a. Planning orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Every year one should think about the enterprise to be taken up during the year		
2.	It is not necessary to make price decision about the type of farming taken up by the family		
3.	selecting enterprise does not depend upon the availability of resource		
4.	The amount of input required for the enterprise should be assessed before starting the work		
5.	It is necessary to think of cost before up an enterprise		
6.	It is possible to increase the output through enterprise production plan		

b. production orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Timely planning of an enterprise ensures higher production		
2.	One should use as much as resources as he likes		
3.	Knowing the capacity of resources, saves money on inputs		
4.	Inputs must be used as recommended by specialists		
5.	Regular precautionary measures must be taken irrespectively of happening.		
6.	It is not necessary to consult specialists during production process		

c. marketing orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Market news and information is more useful to the farmer		
2.	A farmer can get more income by grading his produce		
3.	Proper storage facility can help to get good price for the produce		
4.	One should sell his produce in the nearest market irrespective of price		
5.	It is little value of record cost and return of particular enterprise		
6.	One should go for such enterprise which has more market demand		

Further the respondents were categorised in to three categories based on the mean score and standard deviation and measure of check and result were expressed in frequency and percentage.

Sl no.	Category	Management Orientation score	
		Public	Private
1.	Low (mean-SD)	<28.55	<28.77
2.	Medium (mean+-SD)	28.55-31.90	28.77-33.02
3.	High (mean+SD)	>31.90	>33.02

3.5 Variables and measurement tools used in the study for extension service providers in public and private extension system.

3.5.1 Age:-

Age has been operationally defined as the chronological age of respondent in completed years at the time of interview. Responses were recorded in terms of the chronological age. The criteria for young, middle and old are made based on mean and S.D. and score for young, middle.

Sl no.	Category	Age score	
		Public	Private
1.	Low (mean-SD)	Up to 22 years	Less than 25 years
2.	Medium (mean+-SD)	23 to 43 years	26 to 42 years
3.	High (mean+SD)	More than 43 years	More than 42 years

Further the respondents were categorised in to three categories based on frequency and percentage

3.5.2 Experience

Experience was operationalized as total number of years completed in the organization. Based on the experience the extension service providers were categorised.

Experience	**Score**
Less than 5 years	1
5 to 10 years	2
10 to 15 years	3
15 to 20 years	4
More than 20 years	5

Further the respondents were categorised in to three categories based on frequency and percentage

3.5.3 Areas covered under service

It refers to total number of villages in mandals covered by the extension service provider to assist farm people, through educational procedure, in improving farming methods and techniques, increasing income and lifting social and educational standards.

Areas	**score**
0 to 5 villages	1
5 to 10 villages	2
10 to 20 villages	3
More than 20 villages	4

Further the respondents were categorised in to three categories based on frequency and percentage

3.5.4 Trainings received

Training is the process by which the desire, knowledge, attitude, skill and ideas are inculcated, fostered and reinforced in an organism by Lynton and pareek.

Sl no.	Category	Number of Trainings received	
		Public	Private
1.	Low (mean-SD)	Up to 2	Up to 2
2.	Medium (mean+-SD)	From 3 to 13	From 3 to 7
3.	High (mean+SD)	More than 13	More than 7

Further the respondents were categorised in to three categories based on the mean score and standard deviation and measure of check and result were expressed in frequency and percentage.

3.5.5. Value orientation

Values can be defined as the relative importance of peoples attribute to different objects, phenomena and circumstances and to the large extent it can be influence the individuals behaviour pattern. The scale adopted to measure the value orientation of extension service providers was developed by Kittur (1976).

S.No		Statements	A 3	UD 2	DA 1
1	a	To get more information about income generating activities we should have frequent contact with different sources of interaction			
	b	Most of the information can be had at village itself rather than going outside the village			
2	a	Adoption of new income generating activities will certainly give higher returns and better health			
	b	Prospects of enterprises and our home life is predetermined and will of god is the deciding factor			
3	a	The man who manage their enterprises and have efficient get higher yields and enjoy healthy family life whether god wishes or not			
	b	If one adopts improved practices more problems will be involved. So there are more chances of loss			
4	a	I propose to better the record of production of the previous year			
	b	I am satisfied with the record of production of the previous year			

The scale consists of eight statements in which four were positive and four were negative. The positive statements were scored 3, 2, 1 and negative statements were given 1, 2, 3 point continuum. The individual responses of the respondents were summed up to obtain total scores. The possible maximum score was 24 and minimum score was 8.

Further the respondents were categorised in to three categories based on the mean score and standard deviation and measure of check and result were expressed in frequency and percentage.

Sl no.	**Category**	**Value orientation score**	
		Public	**Private**
1.	Low (mean-SD)	<13.12	<13.15
2.	Medium (mean+-SD)	13.12-15.65	13.15-15.71
3.	High (mean+SD)	>15.65	>15.71

3.5.6 Achievement motivation

Achievement motivation of an extension facilitator can be defined as a social value that emphasizes a desire for excellence for an individual to attain a sense of personal accomplishment. That variable was measured using the scale developed by Chandrapaul (1998) with slight modification.

The scale consists of 6 statements in which 3 and6 statements are negative and 1 ,2 ,4 and 5 are positive statements. For positive statements 5,4,3,2 and 1 scores were assigned respectively for strongly agreed, agreed, undecided, disagree and strongly disagree.

S.No	Statements	SA 5	A 4	UD 3	DA 2	SDA 1
1.	One should enjoy work as much as play					
2.	One should work like a slave until he is satisfied with results					
3.	Only those who depend on others, get ahead in life					
4.	Work should be first priority even if one cannot get adequate rest					
5.	One should have determination and driving ambition to achieve certain things in life even these qualities make one unpopular					
6.	Whatever one knows is enough and there is no need of learning new skills for betterment					

Further the respondents were categorised in to three categories based on the mean score and standard deviation and measure of check and result were expressed in frequency and percentage.

Sl no.	Category	Achievement motivation score	
		Public facilitator	Private facilitator
1.	Low (mean-SD)	<20.57	<18.99
2.	Medium (mean+-SD)	20.57-25.75	18.99-25.13
3.	High (mean+SD)	>25.75	>25.13

3.6 Collection of Data

The required primary data in this study was collected through the personal interview using a comprehensive structured interview schedule. The interview schedule consisted of two different parts. The first part covered the general details that are the profile of the farmers and the extension service providers like Education, caste, primary and other occupation, annual income etc. In the second part of documentation of the problems faced by the farmers and extension service providers in extension systems

and suggestion given by farmers and extension service providers for improvement in delivery of extension services.

3.7 Statistical Concepts and tools used

The data collected from the interview schedule was entered in spread sheets. The obtained data were processed, tabulated, categorized, evaluated and given necessary satisfied treatments. The result was interpreted and tested against the hypothesis that was assumed. In view of the objectives of the study, the salient interpretations were drawn. The following statistical tools have been used.

3.7.1 Frequency

Frequency measure i.e. the number of respondents was used to know the distribution of the participants and non participants for a particular variable.

3.7.2 Percentage

Percentage is used to make simple comparisons. It is calculated as

$$P = \frac{X}{N} \times 100$$

Where, X= Frequency

N= Possible total

Arithmetic Mean

This is obtained by dividing the total score obtained by individual respondents by the number of cases (participants)

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Where, i=1, 2, 3……n

∑xi=Sum of all the score in a distribution

$\overline{X}$= Mean

N= Total number of participants

3.7.3 Standard Deviation

The standard deviation is calculated by taking the square root of the average of the squared deviation from the mean i.e. difference of each item in the sequence from the arithmetic mean ($\overline{X}$) then squaring the gap. The sum of the square differences $\sum(X-\overline{X})^2$ is then divided by number of item (N) and then extracting the square root. Thus it is also known as root mean square deviation.

$$s=\sqrt{\frac{\sum(x_i-\overline{x})^2}{n-1}}$$

Where X_i -$\overline{X}$= Deviation from mean

SD= Standard Deviation

N= Number of observations

The maximum and minimum score limits can be obtained by the formula

Maximum= Mean+ SD

Minimum= Mean-SD

3.7.4 Pearson's Coefficient of Correlation

The Pearson's product moment method of calculating correlation coefficient, which provided widely accepted means to calculate the relation, was used to figure out the relationship between dependent and independent variables.

The following formula is used for the calculation of correlation coefficient (Garret, 1967)

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\, n\Sigma x^2 - (\Sigma x)^2 \,][\, n\Sigma y^2 - (\Sigma y)^2 \,]}}$$

Where n= Number of respondents

x= Independent variables

y= Dependent variable

r= Correlation coefficient

$\sum xy$= Sum of product of x and y

$\sum x$= Sum of independent variable

$\sum y$= Sum of dependent variable

$\sum x^2$= Sum of squared independent variable

$\sum y^2$= Sum of squared dependent variable

$(\sum x)^2$=Square of summation of the independent variable

$(\sum y)^2$= Square of summation of the dependent variable

For testing the significance of r, the t-value was calculated by using the formula

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

Where, t='t' value

r= Correlation Coefficient

n= Total number of Observations

3.7.5 Mean Score and Ranking: Total Score obtained from each score was drawn and mean score was obtained by dividing it with the number of respondents and on the basis of that rank was given

Mean Score= Total Score Obtained / Number of respondents

3.7.6. Multiple Regression Analysis

The multiple regression analysis is an extension of the simple linear regression analysis. This is used to predict the value of one variable called dependent variable based on the values of two or more variables called as independent variable. Multiple regressions allow us to determine the overall fit (variance explained) of the model and the relative contribution of each of the independent variables to the total variance in the dependent variable. This helps establish a linear relationship among them.

The general form of the multiple regression equation is presented as

$$\mathbf{Y=a + b_1X_1 + b_2X_2 + b_3X_3 +\ldots\ldots\ldots\ldots + b_nX_n + e}$$

Where,

Y = Dependent variable

a = Intercept

X_1 to X_n = Independent variables

b_1 to b_n = Partial regression co-efficient

e = Error term

3.7.7. t-test

Two samples t test was used to test the difference between two mean values of adoption of beneficiaries and non-beneficiary farmers.

3.8 Formulation of Hypothesis

According to Kerlinger (1973), hypothesis is a tentative proposition about the relationship between two or more phenomenon and variables.

Keeping the objectives of the study and review of literature in view the following null hypothesis has been included in the study.

H_{01}: There is no significant difference between farmers receiving service through public extesnion system and farmers receiving service through private extension system in terms of their perception towards extension system

H_1: There is significant difference between farmers receiving service through public extesnion system and farmers receiving service through private extension system in terms of their perception towards extension system

H_{02}: There is no significant difference between extension service providers in public extension system and extension service providers in private extension system in terms of their perception towards extension system

H_2: There is significant difference between extension service providers in public extension system and extension service providers in private extension system in terms of their perception towards extension system

Result and Discussion

This study was mainly focused on the perception of farmers and extension service providers towards public extension system and private extension system.

The results of the study are interpreted in this chapter under the following sub headings

4.1. Perception of the farmers towards public and private extension systems

4.2. Perception of extension service providers towards public and private extension systems

4.3. Personal, socio-personal, economic, psychological and communication characteristics of the farmers

4.4. Personal, psychological and communication characteristics of the extension service providers.

4.5. Relationship between profile characteristics of farmers and their perceptions towards extension system.

4.6. Problems faced by the farmers towards public and private extension systems

4.7. Problems faced by extension service providers towards public and private extension systems

4.8. Suggestions given by farmers for improvement in delivery of extension services

4.9. Suggestions given by extension service providers for improvement in delivery of extension services

4.1. Perception of the farmers towards public and private extension systems

The data in the Table 4.1 and fig 1 indicates that about one fourth of the farmers had least favourable (26 %) and favourable (37 %) perception towards public extension system and about one third of the farmers had most favourable (37 %) perception towards public extension system. While in case of private extension system about one third farmers had favourable (33 %) perception and about (24 %) had least favourable followed by most favourable (43 %) perception towards private extension system. When the perception of farmers receiving service through public and private extension system are compiled from favourable to most favourable private extension system(76%) had an edge over the public extension system(74%).

Table 4.1. Perception of the farmers towards public and private extension systems

Sl no.	Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
		Frequency	Percentage	Frequency	Percentage
1.	Least favourable	8	26	7	24
2.	Favourable	11	37	10	33
3.	Most favourable	11	37	13	43

From the observation of Table 4.1 and figure 1 indicates that private extension system played important role compared to public extension system this might be due to private extension system importance is given to individual who pays and also constant monitoring and timely supply of quality inputs and good co-ordination are observed in private extension system where as public extension system even though concentrates on service free technology transfer but disappointed in transfer of farmers need based technology and lack of proper guidance and political interventions in public extension system. Similar findings were reported by Singh and Narain (2008), Ajieh and Chucks (2014) and Kavyashree et.al (2015).

Table :4.1.1 Distribution of Public farmers receiving services through Public extension system according to their perception towards Public extension:

Sl.no	Topics	Farmers receiving service through public extension system (n=30)									
	Public Farmers Perception towards public extension system	SA		A		UD		DA		SDA	
		F	%	*F*	%	*F*	%	*F*	%	*f*	%
1	Timely supply of inputs by public extension service based on the needs of farmers	1	3	23	77	5	17	1	3	0	0
2	Public extension facilitators Regularly attend field meetings with farmers	0	0	19	63	9	30	2	7	0	0
3	Technology given timely to farmers by public extension service	0	0	13	43	1	3	16	53	0	0
4	Public extension service has personal bias	1	3	17	57	11	37	1	3	0	0
5	Public extension service cares about farmers personal problems and strive to solve them	1	3	13	43	3	10	13	43	0	0
6	No service charges are taken from farmers in public extension	13	43	13	43	3	10	1	3	0	0
7	Only resourceful farmers be benefited by public extension service	1	3	3	10	25	83	1	3	0	0
8	Extension programmes were conducted according to the situation ,farmers need and season by Public extension service	1	3	25	83	4	13	0	0	0	0
9	Public extension service Solve production problems by providing advisory services	0	0	19	63	10	33	1	3	0	0
10	Lot of political interventions made the benefit not to reach the real beneficiary[farmers]	15	50	8	27	6	20	1	3	0	0
11	Public extension service had Less concentration on environmental issues	1	3	19	63	1	3	9	30	0	0
12	Lack of sufficient staff leads to ineffective public extension services in regular technology dissemination	22	74	4	13	4	13	0	0	0	0
13	Help farmers in difficult situation and proper	1	3	16	53	12	40	1	3	0	0

	guidance is given by Public extension service										
14	Inputs provided by public extension services are of poor quality	0	0	2	67	6	20	22	73	0	0
15	Innovative farmers were not encouraged by Public extension service	1	3	2	67	12	40	15	50	0	0
16	Timely provide solution to farmer problem at field level by Public extension service	0	0	14	47	15	50	1	3	0	0
17	Public extension service Helps in socio-economic transformation in rural areas	1	3	23	77	6	20	0	0	0	0
18	Public extension service Does not concentrate on individual farmers	0	0	5	17	12	40	2	7	11	37
19	Public extension services were less efficient when compared to private extension services.	0	0	15	50	5	17	1	3	9	30
20	All the categories of farmers/farm women and youth were getting benefit by this system	2	7	18	60	5	17	3	10	2	7

From the table 4.1.1 it is clear that majority (80%) of farmers receiving services through public extension systems strongly agreed to the statements "Extension programmes were conducted according to the situation, "farmers need and season by Public extension service", "Lack of sufficient staff leads to ineffective public extension services in regular technology dissemination", "Lot of political interventions made the benefit not to reach the real beneficiary[farmers]" and "Public extension service Helps in socio-economic transformation in rural areas" it might be due to public extension system providing services and programmes timely and seasonally and also the public extension system based on the farmer needs conducting programmes for their, political intervention made the services inputs and services not to reach the farmers effectively and lack of sufficient staff who provides extension services are less and farmers are more and they are not sufficient in engaging their duties and services so the dissemination of technology is not effective, and farmers feel that helps farmer in social and economic status of farmers as they bring change in attitude and skill of the farmer in terms of production. While farmers receiving services through both public extension

systems strongly disagreed to the statements "Inputs provided by public extension services are of poor quality" and "Public extension service Does not concentrate on individual farmers" it might be due to the reason inputs provided by farmers are not time to time and of poor quality when compared to inputs provided by private extension system and also the public extension system concentrates as a group of farmers rather than individual so it might be the reason for the result.

Table :4.1.2 Distribution of Private farmers receiving services through Private extension system according to their perception towards Private extension: -

Sl.no	Topics	Farmers receiving service through public extension system(n=30)									
	Private Farmers Perception towards private extension system	SA		A		UD		DA		SDA	
		f	%	*f*	%	*F*	%	*f*	%	*f*	%
1	Services are highly charged in private extension service	1	3	24	80	2	7	3	10	0	0
2	Less number of farmers covered by private extension service	0	0	19	63	11	37	0	0	0	0
3	Private extension service had personal bias	0	0	10	33	9	30	11	37	0	0
4	Constant monitoring is followed in this private extension service	1	3	23	77	2	7	4	13	0	0
5	Lack of personal relationship with the farmers in private extension service	0	0	13	43	16	53	1	3	0	0
6	Only resourceful farmers can get benefit of private extension services	0	0	17	57	13	43	0	0	0	0
7	Private extension service ignoring small and marginal farmers as they cant afford the prices to pay for the service	1	3	14	47	11	37	4	13	0	0
8	All production risk lies within the extension service provider	0	0	19	63	10	33	1	3	0	0
9	Timely supply of required quality inputs to farmers	2	7	23	77	5	17	0	0	0	0
10	private Extension service are profit oriented	4	13	22	73	3	10	1	3	0	0
11	private extension service Encourage and motivate farmers to try new technology	1	3	22	73	7	23	0	0	0	0

12	private extension service helps in proper crop planning to get good profit	1	3	17	57	8	27	4	13	0	0
13	Regular monitoring is doing by the consultant made possible to take in time activity for better production	1	3	19	63	9	30	1	3	0	0
14	private extension service Helps in getting better marketing channel for the produce	1	3	16	53	11	37	2	7	0	0
15	Private extension service providers give the information to those who pay money	1	3	19	63	8	27	2	7	0	0
16	Private extension restricts free flow of information to the farmers	0	0	14	47	11	37	5	17	0	0
17	Private extension system facilitates management of agriculture production such as farmlands and livestock facilities to the farmers	0	0	15	50	13	43	2	7	0	0
18	Loans due to climatic factor , the private extension system is not taking the responsibility	2	7	9	30	15	50	4	13	0	0
19	private extension service has Loyalty and humbleness towards farmers	6	20	13	43	7	23	4	13	0	0
20	private extension service encourages and motivates farmers to try new technology	6	20	20	7	4	13	0	0	0	0

From the table 4.1.2 it is clear that majority (80%) of the farmers receiving services through private extension systems strongly agreed to the statements “Services are highly charged in private extension service”, private Extension service are profit oriented, “private extension service encourages and motivates farmers to try new technology” and “Timely supply of required quality inputs to farmers” it might be due to as private extension services provided are of high chance of profit orientation so they charge highly to provide service and advise them on farming, and also private extension services motivates farmers to try new technology as their services are new technologies as commercial aspect of farmer so the farmers agreed to this. While majority of the farmers disagree to the statement “Private extension service had

personal bias" it might be due to private extension services provide service who pays money so they have any bias, those who pay they will give their service so the farmers disagreed this reason.

4.2. Perception of extension service providers towards public and private extension systems

The data in the Table 4.2 and fig 2 indicates that public extension service providers had least favourable (20 %) and favourable (63 %) perception towards public extension system and nearly one third of the farmers had most favourable (17 %) perception towards public extension system. While in case of private extension system more than half of private extension service providers had favourable (57 %) perception and about (23 %) had least favourable followed by most favourable (20 %) perception towards private extension system. When the perception of extension service providers in public and private extension system are compiled from favourable to most favourable public extension system (80%) had an edge over the private extension system (77%).

Table 4.2. Perception of extension service providers towards public and private extension systems

Sl no.	Category	**extension service providers in public extension system (n_1=30)**		**extension service providers in private extension system (n_2=30)**	
		frequency	percentage	frequency	percentage
1.	Least favourable	6	20	7	23
2.	Favourable	19	63	17	57
3.	Most favourable	5	17	6	20

From the data of Table 4.2 observed that about 63 % of public extension service providers had favourable perception towards public extension system this might be due to public extension system concentrates on increasing income of farm family which in turn increases nation's food grain production and technology transfer of agriculture development objectives and due to their co-ordination, need based training programmes and experience. Similar results have been reported by Saravanan (1999) and Tamaogond (2013).

Table : 4.2.1 Distribution of Public Extension service providers in Public extension system according to their perception towards Public extension: -

Sl.no	Topics	Extension facilitator in public extension system (n=30)									
	Public extension facilitator Perception towards public extension system	SA		A		UD		DA		SDA	
		F	%	*f*	%	*F*	%	*F*	%	*f*	%
1	Active participation in meetings, campaigns and exhibitions to solve the problems of farmers	15	50	8	27	7	23	0	0	0	0
2	Public extension service bring team spirit through coordination and cooperation among extension facilitators	7	23	10	33	13	43	0	0	0	0
3	Organized training programs to enhance farmers knowledge and performance	5	17	18	60	4	13	3	10	0	0
4	Public extension cares to the need of all categories of farmers	3	10	11	37	12	40	4	13	0	0
5	Public extension facilitators feel that Public extension service perceived poor administration	4	13	8	27	13	43	5	17	0	0
6	Public extension service conduct production oriented and need based training programs for the farmers	3	10	14	13	8	27	5	17	0	0
7	Public extension services were not easily accessible	9	30	5	17	4	13	11	37	1	3
8	Developed skills through practical field training	3	10	11	37	5	17	7	23	4	13
9	Lot of political intervention leads to poor dissemination of inputs to farmers	16	53	4	13	7	23	3	10	0	0
10	Under certain conditions they feel uncomfortable in perform their professional duties	11	37	11	37	6	20	1	3	1	3
11	Work was recognized and appreciated by the higher authorities	3	10	9	30	6	20	7	23	5	17

12	Provided strategic leadership and guidance for extension and advisory services to extension facilitators in this public extension service	2	7	11	37	8	27	4	13	5	17
13	Provide production and profit oriented service	5	17	14	47	5	17	5	17	1	3
14	Service provider should have up to date knowledge on marketing trends	9	30	10	33	7	23	1	3	3	10
15	Insufficient supply of inputs reduces credibility of the extension personnel	11	37	7	23	6	20	5	17	1	3
16	Public extension service were not having accountability	6	20	9	30	8	27	7	23	0	0
17	Public extension services can supply all agricultural inputs required for demonstration , training and other purposes timely depends on season	2	7	11	37	9	30	5	17	3	10
18	Public extension system is practically suitable to adopt and can be trusted to be as accurate as possible	4	13	9	30	12	40	5	17	0	0
19	Dishonesty/corruption among extension worker reduces the trust of farmers on public extension system	10	33	8	27	5	17	3	10	4	13
20	Less support and co-ordination of higher authority	5	17	10	33	7	23	7	23	1	3
21	Extension facilitator to farmer ratio is too high, so full-fledged justification to all farmers is difficult	11	37	8	27	8	27	3	10	0	0
22	Public extension system provide forum for improving knowledge and skills of extension worker	3	10	18	60	5	17	1	3	3	10
23	Public extension facilitators were trained village facilitators on latest farm technology and help them in solving field problems	9	30	14	47	5	17	1	3	1	3

From the table 4.2.1 it is clear that majority (70%) of extension service providers in public extension systems strongly agreed to the statements "Active participation in meetings, campaigns and exhibitions to solve the problems of farmers", "Lot of political intervention leads to poor dissemination of inputs to farmers" and "Public extension facilitators were trained village facilitators on latest farm technology and help them in solving field problems" it might be due to public extension system involve in conducting many activities to enhance farmers knowledge and change their attitude by making active participation in meetings, campaign and exhibitions to solve farmers problems, political interventions are more and which leads to poor dissemination of inputs it might be due to political representatives influence extension service providers as inputs must firstly supplied to their members. And majority of the farmers disagreed to the statement "Work was recognized and appreciated by the higher authorities" and "Developed skills through practical field training" it might be due to extension service providers felt that their work id not recognized by their higher officials and no promotions are happening in their service and only few practical trainings are conducted at field level as they so the extension service providers may disagree to this.

Table : 4.2.2 Distribution of Private Extension service providers in Private extension system according to their perception towards Private extension: -

Sl.no	Topics	Extension facilitator in public extension system (n=30)									
	private extension facilitator Perception towards private extension system	SA		A		UD		DA		SDA	
		f	%	*f*	%	*F*	%	*f*	%	*f*	%
1	Service provided based on interest and needs of farmers	8	27	7	23	10	33	3	10	2	7
2	Private extension system is not suitable for farmers who have poor resources	5	17	9	30	9	30	5	17	2	7
3	Private extension services not covered wide range of farmers and only covered less area	12	40	6	20	7	23	5	17	0	0
4	Work was recognized and appreciated by the higher officials	6	20	10	33	7	23	4	13	3	10

5	Private extension service provide credit, insurance and infrastructure facilities for farmers	7	23	5	17	5	17	8	27	5	17
6	Private extension services are profit oriented	10	33	9	30	4	13	2	7	5	17
7	Private extension Provides demand-driven services	10	33	7	23	7	23	4	13	2	7
8	Private extension Service provider should have up to date knowledge on marketing trends, processing and profit maximizing farm advisory services	7	23	12	40	8	27	1	3	2	7
9	They should participate in regular capacity building programme to enhance their knowledge and performance	10	33	7	23	9	30	2	7	2	7
10	Private extension service had poor accountability	6	20	9	30	6	20	4	13	5	17
11	Well qualified persons were appointed for this service and Innovative workers are encouraged	8	27	12	40	4	13	3	10	3	10
12	Individual communication and technical skill play an important role in providing effective service	9	30	6	20	6	20	6	20	3	10
13	Private extension system lacks residential facilities for the extension workers who are working at remote areas	10	33	9	30	6	20	1	3	4	13
14	Extension worker feel uncomfortable in performing their professional duties	7	23	8	27	11	37	2	7	2	7
15	Private extension services are available but farmers were not ready to take risk at any stage of crop production	12	40	10	33	6	20	1	3	1	3
16	Service provider is the master in private extension system	7	23.	8	27	9	30	5	17	1	3
17	Only resourceful farmers can get the benefit of the private extension service	8	27	5	17	12	40	2	7	3	10
18	Private extension facilitator feel Difficult to establish	5	17	10	33	6	20	9	30	0	0

	credibility among farming community in some villages										
19	Overload of the work for the private extension service provider	7	23	8	27	8	27	5	17	2	67
20	Private Extension worker needs to update their knowledge and technical know-how, because of competitive nature of the service	13	43	5	17	8	27	1	3	3	10
21	Private extension service ensures timely supply of require quality inputs to the farmers	5	17	8	27	8	27	4	13	5	16
22	Innovative extension facilitators are encouraged and more importance is given	10	33	5	17	10	33	1	3	4	13
23	Extension agents making use of farmers suggestions in subsequent activities	9	30	6	20	8	27	3	10	4	13

From the table 4.2.2 it is clear that majority (60%) of extension service providers in public extension systems strongly agreed to the statements “Private Extension worker needs to update their knowledge and technical know-how, because of competitive nature of the service”, “Private extension services are available but farmers were not ready to take risk at any stage of crop production” and “Private extension services not covered wide range of farmers and only covered less area” this might be due to extension service providers in private extension system feels that agriculture service is very competitive in nature so they service providers must update their knowledge to survive in those competition, farmers are not ready to take risk on implementing new technologies and private extension services covers very few areas under service and the services are not accessible to all the farmers. And majority of the farmers disagreed to the statements “Private extension service provide credit, insurance and infrastructure facilities for farmers” it might be due to private extension service is mainly provides only advisory and consultancy services and inputs rather than credit, insurance and infrastructure facilities so majority of service providers disagreed to this.

4.3. Personal, socio-personal, psychological and communication characteristics of the farmers

4.3.1. Personal and socio-personal and economic characteristics of the farmers

TABLE 4.3 Personal and socio-personal and economic characteristics of the farmers

Sl. No	Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
		Frequency	Percentage	Frequency	Percentage
1.	**Age**				
	Young age	4	14	5	17
	Middle age	19	63	18	60
	Old age	7	23	7	23
2.	**Socio-personal status**				
	Low	9	30	4	13
	Medium	19	63	18	60
	High	2	7	8	27
3.	**Farm income**				
	Low	9	30	4	13
	Medium	18	60	23	77
	High	3	10	3	10

4.3.1.1. AGE

It could be observed from the data in Table 4.3 majority of the farmers receiving service through public extension system belongs to middle age category about 63 % followed by old age about 23 % and young age (13 %). Whereas, farmers receiving service through private extension system more than half of the farmers about 60 % belongs to middle aged followed by old age and young age about 23 % and 17 % respectively

It is clear from the Table 4.3 that majority of the farmers receiving service through public extension system (63 %) and private extension system (60 %) belongs to middle aged category. It may be attributed to the reason that middle aged farmers are more enthusiastic and energetic and active regarding participation in various

agricultural activities and feel more responsible as family head and tends for economic development. The results are in line with Muhammad et al. (2008), Ajieh and Chucks (2014) and Sharma et al.(2015).

4.3.1.2 Socio-personal status

The results from the Table 4.3 indicates that majority of the farmers belongs to medium level of socio economic status about 63 % followed by low level of socio-personal status about 30% and about 7 % of farmers had high level of socio personal status in public extension system. While in private extension system majority of the farmers belongs to medium level (60%) of socio personal status followed high level of socio personal status (27 %) and low level of socio personal status (13 %).

It is evident from results in Table 4.3 that majority of the farmers from public and private extension systems belongs to medium level of socio economic status this could be due to the reason that increased land holding of farmers and greater number of family members resulted in medium level of socio personal status similar findings were reported by Ram et.al (2013).

4.3.1.3 FARM ANNUAL INCOME

The results from the Table 4.3 indicates that majority of the farmers receiving service through public extension system belongs to medium income (60 %) category followed by low income level (30 %) about and high income level about 10 %. Whereas, the farmers receiving service through private extension system are of medium level income about (77 %) followed by high level income and low level income about 10 % and 13 % respectively.

From the result we concluded that majority of the farmers from public extension system and private extension system had medium level of farm income about (60 %) and (77 %) respectively it indicates that majority of the farmers in the rural areas are under middle class income level which range from 33,750rs to 1,,44,000rs per annum. This might be due to favourable soil with sufficient water resources and potential of the land. While farmers receiving service through public extension system had low level income about (30 %) this might be due to fact that public extension system mainly

focuses on resource poor farmers and rural population below poverty line. Similar findings were reported by Saravanan et.al (1999).

4.3.2 Psychological and communication characteristics of the farmers

Risk orientation

Table 4.4 revealed that the farmers receiving service through public extension system had high (17 %) level of risk orientation followed by low (23 %) and medium (60 %) level of risk orientation. In case of farmers receiving service through private extension system, nearly the farmers had medium (77 %) level of risk orientation followed by low (13 %) and high (10 %) level of risk orientation.

Table 4.4 Distribution of respondents based on their level of Risk orientation

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	Percentage	Frequency	Percentage
Risk orientation				
Low	7	23	4	13
Medium	18	60	23	77
High	5	17	3	10

The result from Table 4.4 reveals that majority of the farmers of both public and private extension systems have medium level of risk orientation. Similar findings are reported by Madhhusekhar (2009) and Reddy et.al (2017). While the farmers receiving extension services through public extension system had low level of risk orientation compared to farmers receiving extension services through private extension system who had high level of risk orientation this could be due to farmers willing to grow more commercial crops which in turn gets them higher income. Private extension system mainly focussed on commercial crops so farmers receiving extension services through private extension system are more engaged in risk orientation.

Table 4.4.1 Distribution of farmers receiving services through public and private extension systems with respect to risk orientation

Sl.no	Topics	Farmers receiving service through public extension system(n=30)										Farmers receiving service through private extension system(n=30)									
	Risk orientation	SA		A		UD		DA		SDA		SA		A		UD		DA		SDA	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*F*	%	*F*	%	*f*	%
1*	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops	0	0	2	7	7	23	17	57	4	13	0	0	3	10	2	7	20	67	5	16
2	A farmer should take more of a chance in making a huge profit than to be content with a smaller but less risky profiles	0	0	16	53	14	46	0	0	0	0	0	0	15	50	15	50	0	0	0	0
3	A farmer who is willing to take greater risks than an average farmer, usually does better financially	14	47	4	13	3	10	9	30	0	0	1	4	19	7	9	30	1	4	0	0
4	It is good for a farmer to take risk when he knows his chance of success is fairly high.	14	47	14	47	2	7	0	0	0	0	1	4	16	53	12	40	1	4	0	0
5*	It is better for a farmer not to try new farming methods unless most other farmers have used them success.	0	0	6	20	8	27	12	40	4	13	0	0	0	0	6	20	15	50	9	30
6.	Trying an entirely new method in farming by a farmer involves risk, but its worth	15	50	11	36	4	13	0	0	0	0	1	4	19	63	9	30	1	3	0	0

From the table 4.4.1it can be observed that majority of the farmers (80%) receiving services through public extension system strongly agreed to the statements "It is good for a farmer to take risk when he knows his chance of success is fairly high" and "Trying an entirely new method in farming by a farmer involves risk, but its worth" it might be due to if success probability is more in any innovation the farmers wants to take risk because they tends to increase productivity and maximize their profits, and they might felt that new practices are risky in nature without predicting the outcome but its worth when it meets the needs of farmers and they got satisfaction. majority of the farmers receiving services through private extension system strongly disagreed to the statements "A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops" and "It is better for a farmer not to try new farming methods unless most other farmers have used them success" it might be due to farmers don't think that growing large number of crops will solve their problems instead they might felt growing large number of crops needs more cultivation operations, labour and more economy, and farmers are less educated and might be not enthusiastic to take risk unless that is adopted by other farmers and is successful.

Innovative proneness

The data in Table 4.5 indicated that more than half of farmers receiving services through public extension system public (77 %) and in private (67 %) extension system had medium level of innovative proneness. In both the public and the private extension systems had high level innovative proneness of (10 %) and (17 %) accordingly. And when it comes to low level of innovative proneness the public extension system had (13 %), the private extension system had (17 %) low level of innovative proneness.

Table 4.5 Distribution of respondents based on their level of Innovative proneness

Category	**farmers receiving service through public extension system (n_1=30)**		**farmers receiving service through private extension system (n_2=30)**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Innovative proneness				
Low	4	13	5	17
Medium	23	77	20	66
High	3	10	5	17

From the Table 4.5 it is apparent that majority of the farmers in public and private extension systems had medium level of innovative proneness this might farmers had good education background and enthusiastic and energetic as they mostly belongs to middle aged category tends the farmers to participate in training of new technologies in each and every stage of crop production to get more profit. Also good extension agency contact made them to learn new technologies and adopt them. The results are in line with findings of Chetan (2011) and Bhanu (2006).

Table : 4.5.1. Distribution of farmers receiving services through public and private extension systems with respect to innovative proneness

Sl.no	Topics	Farmers receiving service through public extension system(n=30)										Farmers receiving service through private extension system(n=30)									
	Innovative proneness	SA		A		UD		DA		SDA		SA		A		UD		DA		SDA	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*F*	%	*F*	%	*f*	%
1	I am very much interested in adopting whatever new practices that are helpful in better faming	4	13	13	43	6	20	7	23	0	0	2	7	19	63	5	17	4	13	0	0
2*	Since, we are not sure of the new practices, I would like to wait till others adopt	0	0	0	0	7	23	19	63	4	13	0	0	4	13	14	47	8	27	4	13
3*	Since new practices are not profitable , I am not interested in adopting them	0	0	5	17	11	37	11	37	3	10	0	0	11	37	6	20	9	30	4	13
4	I try to keep myself well informed about the new practice and will try to adopt as soon as possible.	8	27	10	33	6	20	6	20	0	0	4	13	17	56	9	30	0	0	0	0
5*	New practices are not easily adoptable and hence I do not adopt	0	0	17	57	6	20	1	4	6	20	0	0	4	13	8	27	15	50	3	10

From the table 4.5.1 it is clear that majority of the farmers (70%) receiving service through private extension system strongly agreed to statements "I am very much interested in adopting whatever new practices that are helpful in better faming" and "I try to keep myself well informed about the new practice and will try to adopt as soon as possible" it might be due to farmers are willing to adopt innovations which helps their farming better and more productive and economic and farmers will always enthusiastic to know about the new practices due to their extension agency contact and mass media participation. While farmers receiving service through public extension system strongly disagreed to statement "Since, we are not sure of the new practices, I would like to wait till others adopt" it might be due to farmers belongs to late majority or laggards category in adopting a new innovation. While the contrasting response is observed for the statement "New practices are not easily adoptable and hence I do not adopt" it is agreed by more than 50 % of farmers receiving service through public extension system it might be due to new technologies are not easily accessible in public extension system and they will not adopt the innovation until it is easily accessible.

Scientific orientation

A glance at Table 4.6 indicated that (13 %) of the farmers receiving service through public extension system had high level of scientific orientation followed by low (13 %) and medium (73 %) level of scientific orientation .Whereas, farmers receiving service through private extension system had medium level (57 %) followed by high (20 %) and low level (23 %) of scientific orientation.

Table 4.6 Distribution of respondents based on their level of Scientific orientation

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Scientific orientation				
Low	4	13	7	23
Medium	22	74	17	57
High	4	13	6	20

From the Table 4.6 we depict that majority of the farmers possess medium level of scientific orientation this might be due to new technologies were provided by the

extension facilitator timely and improved methods of cultivation for profit orientation to the farmers are provided. So the farmers have up to date information on new technologies. Medium level of mass media participation and dissemination behaviour would have influenced the farmers to have medium scientific orientation behaviour Similar findings were reported by Sidram (2008), Sharma et.al (2010).

Table :4.6.1 Distribution of farmers receiving services through public and private extension systems with respect to Scientific orientation: -

Sl.no	Topics	Farmers receiving service through public extension system(n=30)										Farmers receiving service through private extension system(n=30)									
	scientific orientation	SA		A		UD		DA		SDA		SA		A		UD		DA		SDA	
		f	%	*f*	%	*f*	%	*f*	%	*F*	%	*f*	%	*f*	%	*f*	%	*F*	%	*f*	%
1	New methods of farming give better results than old method results	0	0	19	64	7	23	4	1	0	0	1	4	18	60	5	17	6	20	0	0
2	Even a farmer with a lot of experience should use new methods of farming	2	7	24	80	4	13	0	0	0	0	1	4	18	60	11	37	0	0	0	0
3	Though it takes time for a farmer to learn new farming methods, it is worth.	0	0	17	57	13	44	0	0	0	0	0	0	15	50	14	47	1	4	0	0
4	In order to have our hands productive, economically more profitable and eco-friendly, the present system of farming needs to be change.	10	33	14	47	6	20	0	0	0	0	0	0	18	60	12	40	0	0	0	0
5	A good farmer experiment with new ideas in farming	0	0	13	43	17	57	0	0	0	0	2	7	12	40	14	47	2	7	0	0
6*	The way our forefather where practicing is still the best way to follow today	1	3	5	17	9	30	11	37	4	13	0	0	2	7	10	33	13	43	5	17

From the table 4.6.1it is clear that it is clear that majority of the farmers (80%) receiving services through public extension system strongly agreed to the statements "Even a farmer with a lot of experience should use new methods of farming" and "In order to have our hands productive, economically more profitable and eco- friendly, the present system of farming needs to be change" it might be due to new farming methods are updating day to day in the objective of cost minimization and profit maximization so, even the farmer having more experience also should try new method of farming and farmer feels that farming needs to be change because present operations and practices in farming are not adoptable and accessible to every farmer and they needed a change so that farmers are more profitable and their fields are more productive. While the farmers receiving services through private extension system strongly disagreed to the statement "The way our forefather where practicing is still the best way to follow today" it might be due to the farmers felt the old practices are not suitable to present situations in agriculture and they need change more new practices of farming so that they will be a successful farmer.

Economic motivation

From the Table 4.7 clearly depict that more than half of the farmers receiving service through public extension system had medium (73 %) level of economic motivation followed by high (17 %) and low (10 %) level of economic motivation. In case of private extension system, more than three fourth of the farmers had medium (80 %) level followed by high (7 %) level followed by low (13 %) level of economic motivation.

Table 4.7 Distribution of respondents on the basis of level Economic motivation

Category	**farmers receiving service through public extension system (n_1=30)**		**farmers receiving service through private extension system (n_2=30)**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Economic motivation				
Low	3	10	4	13
Medium	22	73	24	80
High	5	17	2	67

The findings from the results clearly depict that majority of the farmers nearly 75% of public and private extension system had medium level of economic motivation. Combining medium and high level of perception on economic motivation nearly 90% of farmers are favourable. This might be due to the urge to make money and the desire to compete among the individuals of the society in terms of standard of living and better livelihood. This finding finds the support with the work of Hinge (2009)

Table : 4.7.1 Distribution of farmers receiving services through public and private extension systems with respect to Economic motivation: -

Sl.no	Topics	Farmers receiving service through public extension system(n=30)										Farmers receiving service through private extension system(n=30)									
	Economic motivation	SA		A		UD		DA		SDA		SA		A		UD		DA		SDA	
		f	%	*F*	%	*f*	%	*f*	%	*F*	%	*f*	%	*F*	%	*f*	%	*f*	%	*f*	%
1	A farmer should work towards larger yields and more economic profit	8	27	21	70	1	4	0	0	0	0	0	0	24	80	6	20	0	0	0	0
2	The most successful farmer is the one who makes the most profit	23	77	4	13	3	10	0	0	0	0	1	4	21	70	8	27	0	0	0	0
3	A farmer should try any new farming idea which may earn him more money	8	27	17	57	3	10	0	0	2	7	0	0	19	63	11	37	0	0	0	0
4	A farmer should grow cash crops to increase monetary profits in comparison to growing of food crops for home consumption	0	0	25	83	3	10	1	3	1	3	0	0	17	57	12	40	1	3	0	0
5	It is difficult for the farmers children to make a good start unless he provides them with economic assistance.	0	0	13	43	17	57	0	0	0	0	0	0	16	53	14	47	0	0	0	0
6*	A farmer must earn his living but the important thing in life cannot be defined in economic terms	0	0	2	7	8	27	14	47	6	20	0	0	4	13	9	30	13	43	4	13

From the table 4.7.1 it is clear that majority of the farmers (80%) receiving services through both public and private extension system strongly agreed to statements "A farmer should work towards larger yields and more economic profit" and "The most successful farmer is the one who makes the most profit" this might be due farmers are most concerned about the more production of their field and get more profits from them and also they also believe that the farmers who makes more profit is most successful farmers in the society as he had better standard of living among the community. While majority of the farmers (60%) receiving services through both public and private extension system strongly disagreed to statement "A farmer must earn his living but the important thing in life cannot be defined in economic terms" it might be due to majority of the farmers believes that in rural community economic terms are the most important thing to decide the standard of the farmer.

Extension participation

It could be inferred from the Table 4.8 that, nearly three fourth of the farmers receiving service through public extension system had medium (63 %) level of extension participation followed by high (27 %) and low (10 %) level of extension participation. In case of private extension participation, more than half of the farmers had medium (63 %) level of participation followed by low (20 %) and high (17 %) level of extension participation.

Table 4.8 Distribution of respondents based on their level of Extension participation

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	Percentage	Frequency	Percentage
Extension participation				
Low	3	10	6	20
Medium	19	63	19	63
High	8	27	5	17

It is clear from the results that 27 % of farmers belongs to high level and 63 % of farmers belongs to medium level of extension participation this might be due to the public extension system conducts different programmes and extension activities like field days, demonstrations, group discussion meetings, campaigns, exhibitions etc., to create interest, awareness and promoting adoption of agricultural technologies. This might be the reason of farmers in public extension had high level of extension participation. The results were in line with the studies of Kharamol et.al (2006) and Kavyashree (2016)

Table :4.8.1 Distribution of farmers receiving services through public and private extension systems with respect to Extension participation: -

Sl.no	Source	Farmers receiving service through public extension system(n=30)						Farmers receiving service through private extension system(n=30)					
	Extension participation	Often		Occasional		Never		Often		Occasional		Never	
		f	%	*f*	%	*F*	%	*f*	%	*F*	%	*F*	%
1	Krishimela	10	33	19	63	1	3	1	3	22	73	7	23
2	Demonstration	10	33	2	7	18	60	6	20	3	10	21	70
3	Training programme	11	37	4	13	15	50	7	23	16	53	7	23
4	Group meetings	28	94	1	3	1	3	14	47	15	50	1	3
5	Field days	5	17	24	80	1	3	17	57	7	23	6	20
6	Field visits	10	34	16	53	4	13	11	37	15	50	4	13

MASS MEDIA PARTICIPATION

From the Table 4.8.2 we depict that majority of the farmers receiving service through public extension system had medium level of mass media participation (70%) followed by low level of perception (23 %) and high level of mass media participation (7 %), While farmers receiving service through private extension system majority of the farmers expressed medium level of mass media participation (77 %) followed by high participation (17 %) and low level of participation (7 %).

Table 4.8.2 Distribution of respondents based on their level of mass media participation

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Mass media participation				
Low	7	23	2	6
Medium	21	70	23	77
High	2	7	5	17

It might be due to the fact the farmers in public and private extension had good extension agency contact, need of information related to modern technologies and practices and better information sources made the farmers had medium level of mass media participation. This result finds the support of with the work of Kumar et.al (2013) and Sharma et al. (2015). In results of high level of mass media participation farmers receiving service through private extension system had majority compared to farmers receiving service through public extension system it might be due to reason that farmers in private system will pay for the consultancy and they are more willing to use the commercial communication channels for the use of profit maximization of their crops.

Table : 4.8.3 Distribution of farmers receiving services through public and private extension systems with respect to mass media participation:

Sl.no	Source	Farmers receiving service through public extension system(n=30)						Farmers receiving service through private extension system(n=30)					
	Extension participation	Often		Occasional		Never		Often		Occasional		Never	
		f	%	*f*	%	*f*	%	*f*	%	*F*	%	*F*	%
1	Radio	2	7	8	27	20	66	0	0	8	27	22	73
2	TV	5	17	19	63	6	20	6	20	20	66	4	14
3	News paper	6	20	4	14	20	66	2	7	6	20	22	73
4	Farm magazine	0	0	4	14	26	86	0	0	3	10	27	90

From the table 4.8.3 it is clear that majority (80%) of the farmers receiving services through both public and private extension systems had regularly participated in watching television it is because in this modern era television is available and easily accessible for all the individuals, and majority of the agricultural programmes and

technologies were disseminated through television in available local languages and watching television don't need any education so farmers might felt that it is the best source of information seeking. While majority of the farmers (80%) receiving services through both public and private extension systems never participated in reading farm magazine it might be due to majority of the farmers are uneducated and farm magazine are not easily available compared to newspaper, this might be reason as farmers never used farm magazine as technology dissemination.

EXTENSION CONTACT

From the Table 4.9 revealed that majority of the farmers receiving service through public extension system had medium level (70 %) of extension agency contact followed by high level of perception (17 %) and low level of (13 %) perception to extension agency contact, while farmers receiving service through private extension system expressed that about (87 %) of farmers had medium level of extension agency contact followed by high level (10 %) of extension agency contact and low level (3 %) of perception on extension agency contact.

Table 4.9 Distribution of respondents based on their level of extension contact

Category	**farmers receiving service through public extension system (n_1=30)**		**farmers receiving service through private extension system (n_2=30)**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Extension contact				
Low	4	13	1	3
Medium	21	70	26	87
High	5	17	3	10

Farmers receiving service through public extension system had high level of extension agency contact it might be due to farmers in public service mainly depends on public extension system for information source and supply of inputs used for cultivation. This result was in accordance with Sharma (2015) and Shashikiran (2015).the probable reason for majority of the farmers having medium level of extension agency contact might be due to participation in various extension programmes and experience gained.

Table : 4.9.1 Distribution of farmers receiving services through public and private extension systems with respect to Extent agency contact:

Sl.no	Source	Farmers receiving service through public extension system(n=30)						Farmers receiving service through private extension system(n=30)					
	Extension agency contact	Often		Occasional		Never		Often		Occasional		Never	
		f	%	*f*	%	*F*	%	*f*	%	*F*	%	*F*	%
1	Agril. Assistant	11	37	13	43	6	20	8	27	17	57	5	17
2	Agril. Assistant officer	2	7	17	57	11	37	3	10	11	37	16	53
3	Asst. Director of agriculture	0	0	3	10	27	90	0	0	11	37	19	63
4	Bank officer	10	33	17	57	3	10	3	10	13	43	14	47
5	Extension officer from private consultancy	1	3	10	33	19	63	4	13	13	43	13	43
6	Extension officer from input agencies	0	0	13	43	17	5	5	17	14	47	11	37
7	Extension workers from NGOs	0	0	6	20	24	80	0	0	9	30	21	70
8	Agri-business companies	0	0	17	57	13	44	5	17	12	40	13	43
9	Scientists from UAS	2	67	10	33	18	60	0	0	9	30	21	70

It is clear from the table 4.9.1that farmers (70%) receiving services through both public and private extension systems had regular contact with village agriculture assistant, agriculture assistant officer and agri-business companies, this might be because the extension service providers are distributed in many villages so that they strives to meet farmers and solve their problems, while they are available in every village and mandal agriculture offices. While farmers receiving services through both public and private extension system had less contact with assistant director of agriculture, extension officer from private consultancy, extension workers from NGOs this might be due to extension officer in private consultancy only concerned to some villages and mainly to large farmers rather than small and marginal farmers and there are only few NGO organization available in some villages.

Decision making ability

Regarding decision making ability, nearly three fourth of the farmers receiving service through public extension system had medium (73 %) level of decision making ability followed by both low and high (13 %) of same level of decision making ability. In case of private extension system, more than three fourth of the farmers had medium (87 %) level of decision making ability followed by both low and high (7 %) level of decision making ability.

Table 4.10 Distribution of respondents based on their level Decision making ability

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	Percentage	Frequency	Percentage
Decision making ability				
Low	4	13	2	7
Medium	22	74	26	86
High	4	13	2	7

The data from the results in Table 4.10 shows that majority of the farmers belongs to medium level of decision making ability this might be due to majority of the farmers have good extension agency contact and extension participation. The other reason might be majority of the farmers belongs to middle aged category who are more enthusiastic to involve actively in different farm activities, which increases the confidence to choose the best and make decision among the various alternatives available. The farmers had more responsible as a family head and more working efficiency and can take up more independent decisions. These findings were reported by Shashikiran (2015) and Kavyashree (2016).

Table : 4.10.1 Distribution of farmers receiving services through public and private extension systems with respect to Decision making ability: -

Sl.no	Topics	Farmers receiving service through public extension system(n=30)						Farmers receiving service through private extension system(n=30)					
	Decision making ability	A		UD		DA		A		UD		DA	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
1	It is necessary to seek other peoples advice before taking decision	25	83	5	17	0	0	24	80	6	20	0	0
2	One cannot avoid his worries and problems if he seek the advice from his friends and neighbours	8	27	22	73	0	0	11	37	19	63	0	0
3	One who believes in others advice does his work much better	2	7	28	93	0	0	12	40	18	60	0	0
4*	To do any work with the advice of others is a sign of weakness	2	7	14	47	14	46	5	17	22	73	3	10

From the table 4.10.1 it is observed that majority of the farmers (80%) receiving services through both public and private extension system agreed to" It is necessary to seek other peoples advice before taking decision" because farmers thinks that being more update in farming knowledge by taking other people advices and taking decision to do any work is more healthy in terms of good decision making. while farmers receiving services through public private extension system disagreed to the statement "To do any work with the advice of others is a sign of weakness" it might be because farmers thinks that who take others advice will do his work much better as they agreed to statement it is necessary to seek advice from other so they disagreed that statement .

Management orientation

The result in Table 4.11 indicated that, more than half of farmers receiving service through public extension system had medium (60 %) level of management orientation followed by low (27 %) and high (13 %) level of management orientation. In case of private extension system, nearly three fourth of the farmers had medium (73 %) level of management orientation followed by high (17 %) and low (10 %) level of management orientation.

Table 4.11 Distribution of respondents based on their level Management orientation

Category	farmers receiving service through public extension system (n_1=30)		farmers receiving service through private extension system (n_2=30)	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Management orientation				
Low	8	27	3	10
Medium	18	60	22	73
High	4	13	5	17

From the Table 4.11 with regard to management orientation majority of the farmers from public and private extension system belongs to medium level of management orientation this might be due to the reason their medium level of education level, extension contacts, involvement in the extension activities and discussion with the field extension personnel. These activities might help the farmers to reorient their current management practices. These findings are in accordance with the studies reported by Nagesh (2006), Shashikiran (2015) and Kavyashree (2016).

Table :4.11.1 Distribution of farmers receiving services through public and private extension systems with respect to Management orientation

Sl no.	Statements (planning orientation)	Farmers receiving service through public extension system(n=30)				Farmers receiving service through private extension system(n=30)			
		Agree		DisAgree		Agree		Disagreee	
		F	%	F	%	F	%	f	%
1.	Every year one should think about the enterprise to be taken up during the year	30	100	0	0	30	100	0	0
2.	It is not necessary to make price decision about the type of farming taken up by the family	5	17	25	84	16	54	14	47
3.	selecting enterprise does not depend upon the availability of resource	18	60	12	40	15	50	15	50
4.	The amount of input required for the enterprise should be assessed before starting the work	27	90	3	10	23	77	7	24
5.	It is necessary to think of cost before up an enterprise	29	97	1	3	25	84	5	17
6.	It is possible to increase the output through enterprise production plan	21	70	9	30	25	84	5	17
Sl no.	**Statements (production orientation)**	**Farmers receiving service through public extension system(n=30)**				**Farmers receiving service through private extension system(n=30)**			
		Agree		DisAgree		Agree		Disagreee	
		f	%	F	%	F	%	f	%
1.	Timely planning of an enterprise ensures higher production	30	100	0	0	26	87	4	13
2.	One should use as much as resources as he likes	20	67	10	33	25	83	5	17
3.	Knowing the capacity of resources, saves money on inputs	19	63	11	37	21	70	9	30
4.	Inputs must be used as recommended by specialists	30	100	0	0	23	77	7	23
5.	Regular precautionary measures must be taken irrespectively of happening.	5	17	25	83	18	60	12	40
6.	It is not necessary to consult specialists during production process	3	10	27	90	15	50	15	50
Sl no.	**Statements (marketing orientation)**	**Farmers receiving service through public extension system(n=30)**				**Farmers receiving service through private extension system(n=30)**			
		Agree		DisAgree		Agree		Disagreee	
		f	%	f	%	F	%	f	%
1.	Market news and information is more useful to the farmer	13	43	17	57	21	70	9	30
2.	A farmer can get more income by grading his produce	30	100	0	0	29	97	1	3
3.	Proper storage facility can help to get good price for the produce	27	90	3	10	18	60	12	40
4.	One should sell his produce in the nearest market irrespective of price	4	13	26	87	13	43	17	57
5.	It is little value of record cost and return of particular enterprise	29	97	1	3	26	87	4	13
6.	One should go for such enterprise which has more market demand	27	90	3	10	18	60	12	40

From the table 4.11.1 it is clear that cent per cent farmers receiving services through both public and private extension systems agreed to the statement "Every year one should think about the enterprise to be taken up during the year" it might be because the planning for the future year is more important aspect in their farming life because better planning of enterprise lead to more successful farming and profit oriented production. And also majority of farmers (90%) receiving services through both public and private extension systems agreed to statements "Timely planning of an enterprise ensures higher production" and "A farmer can get more income by grading his produce" this might be due to the reason high production is the outcome of better planning and efficient use of available enterprise, and grading his produce makes his produce more quality product which will have more demand in market which in turn increase income of farmers. While more than half of the respondents disagreed to statements "It is not necessary to consult specialists during production process" and "One should sell his produce in the nearest market irrespective of price" it might be due to selling product irrespective of price may leads farmers to loss and debts, so by good grading of produce as mentioned earlier quality product is obtained so it can be sell in market for more profit. And also available of markets are less in villages so they are willing to sell produce in nearest market available.

4.4. Socio-economic, psychological characteristics of extension facilitator

4.4.1. Age of extension service providers in public and private extension systems

From the Table 4.12 below observed that majority of the extension service providers in public extension system belongs to middle age (80 %) followed by old aged (17 %) and young age about 3 %. In case of extension service providers in private extension system about 17 per cent of them belong to young age followed by middle aged about 70% and old aged about 13 %**.**

Table 4.12 Distribution of extension service providers based on their age

Category	Public extension service provider (n=30)		Private extension service provider (n=30)	
	frequency	**percentage**	**frequency**	**percentage**
Young age	1	3	4	17
Middle age	24	80	21	70
Old age	5	17	5	13

From the Table 4.12 it is clear that Majority of the extension service providers in both public and private extension system belongs to middle age category it might be due to the fact that middle aged extension service providers were more enthusiastic in performing their duty and more energetic and motivates farmers for their better standard of living. The results are in line with Kumar et.al (2016).While comparing to young aged category private extension service providers are more it might be due to private extension facilitator just need a suitable qualifications and experience while public extension facilitator should have high qualification and more experience.

4.4.2 Experience

From the Table 4.13 we observed that extension service providers in public extension had experience in service as follows 30 % have less than 5 years of experience and 40 % had 5-10 years of experience and about 13 % had 10-15 years of experience and 10 % had 15-20 years of experience and about 7 % public extension service providers had more than 20 years of experience, where as in private extension system extension facilitator had experience in service as follows 63 % have less than 5 years of experience and 23 % had 5-10 years of experience and about 3 % had 10-15 years of experience and 3 % had 15-20 years of experience and about 7 % public extension service providers had more than 20 years of experience.

Table 4.13 Distribution of extension service providers based on their Experience

Experience	Public extension service provider (n=30)		Private extension service provider (n=30)	
	frequency	percentage	frequency	percentage
Less than 5 years	9	30	19	64
5 to 10 years	12	40	7	23
10 to 15 years	4	13	1	3
15 to 20 years	3	10	1	3
More than 20 years	2	7	2	7

From the Table 4.13 we observed that majority of the extension facilitator in private extension had less than 5 years of experience it might be due extension facilitator in private extension system are young and seeking for job opportunity and which private service jobs are easily accessible with less experience and need basic qualifications. These results are in line with Pramila et al (2014).

4.4.3 Areas covered

From the Table 4.14 we observed that areas covered in service by extension service providers in public extension as follows 23 % covered up to 5 areas and 23 % covered 5-10 areas and about 17 % covered 10-20 areas and 37 % had covered more than 20 areas, where as in private extension system extension facilitator about 47 % covered up to 5 areas and 7 % covered 5-10 areas and about 7 % covered 10-20 areas and 40 % had covered more than 20 areas.

Table 4.14 Distribution of extension service providers based on their number of villages covered under their service

Areas	Public extension service provider (n=30)		Private extension service provider (n=30)	
	frequency	percentage	frequency	percentage
0 to 5 villages	7	23	14	46
5 to 10 villages	7	23	2	7
10 to 20 villages	5	17	2	7
More than 20 villages	11	37	12	40

From the Table 4.14 it is clear that majority of the extension service providers in public extension system belongs to covered more than 10 villages it might be due to in public extension system the facilitator had to assist and take care of many villages as the extension facilitator to farmer ratio is high and had cover all the farmers. In case of private extension service provider majority of the service providers were less experienced so they have given only less villages and fields to provider services while in caser of public extension service provider based on experience and trainings received more villages and fields are gien to ensure their services to the farmers.

4.4.4 Trainings received

From the Table 4.15.1 and 4.15.2 it is evident that extension service providers in public extension system had low level (7 %) trainings received category followed by high level (13 %) trainings received category and majority of the extension service providers had medium level (80%) training received category, where as in private extension system extension service providers had low level (17 %) trainings received category followed by high level (20%) trainings received category and majority of the extension service providers had medium level (63 %) training received category

Table 4.15.1 Distribution of public extension service providers based on number of trainings received

Category	**Public extension service provider (n=30)**	
	frequency	**percentage**
Low (up to 2 trainings)	2	7
Medium (2 to 13)	24	80
High(more than 13 trainings)	4	13

Table 4.15.2 Distribution of private extension service providers based on number of trainings received

Category	**Private extension service provider (n=30)**	
	frequency	**percentage**
Low (up to 2 trainings)	5	17
Medium (2 to 7 trainings)	19	63
High(more than 7 trainings)	6	20

Majority of the extension service providers in public extension system had high level of trainings received category than private extension facilitator it might be due to the fact that government provide more number of trainings for the better performance and accountability of the extension service providers as they have to deal with more number of farmers and have to motivate them and to bring trust on the system. So the public extension system strives to improve the skills and attitude of service providers by giving more training.

4.4.5. VALUE ORIENTATION

From the Table 4.16 it is evident that nearly half (43 %) of the extension service providers in public extension system had medium level of value orientation followed by most favourable about 37 % followed by least favourable (20 %) while in case of private extension service providers majority of the extension service providers 50 per cent had high level of value orientation followed by medium level about 33 % and about 17 % had least favourable perception on value orientation.

Table 4.16 Distribution of extension service providers based on their value orientation

Sl no.	Category	Public extension service provider (n=30)		Private extension service provider (n=30)	
		frequency	percentage	frequency	percentage
1.	Least favourable	6	20	5	17
2.	Favourable	13	43	10	33
3.	Most favourable	11	37	15	50

Values of an individual is relative importance of their attribute to different objects, phenomena and circumstances and to the large extent it can be influence the individuals behaviour pattern, It might be due to the fact that extension service providers education, experience, expertise and changing scenario may affect the value and resulted in low level of perception on value orientation.

Table : 4.16.1 Distribution of Extension service providers in public and private extension systems with respect to Value orientation: -

Sl.no	Source	Extension facilitator in public extension system (n=30)				Extension facilitator in private extension system (n=30)			
	Value orientation	Yes		No		Yes		N0	
		F	%	*F*	%	*f*	%	*F*	%
1	To get more information about income generating activities we should have frequent contact with different sources of interaction	25	83	5	17	27	90	3	10
2*	Most of the information can be had at village itself rather than going outside the village	5	17	25	83	7	23	23	77
3	Adoption of new income generating activities will certainly give higher returns and better health	22	73	8	27	24	80	6	20
4*	Prospects of enterprises and our home life is predetermined and will of god is the deciding factor	6	20	24	80	5	17	25	83
5	The man who manage their enterprises and have efficient get higher yields and enjoy healthy family life whether god wishes or not	24	80	6	20	23	77	7	23
6*	If one adopts improved practices more problems will be involved. So there are more chances of loss	7	23	23	77	5	17	25	83
7	I propose to better the record of production of the previous year	27	90	3	10	25	83	5	17
8*	I am satisfied with the record of production of the previous year	9	30	21	70	11	37	19	63

From the table 4.16.1it is clear that majority (85%) majority of the extension service providers in public and private extension system agreed to the statements “To get more information about income generating activities we should have frequent contact with different sources of interaction” and “I propose to better the record of production of the previous year” it is because to extension service provider feels that information can collect from different sources, contacts and interaction from which we get knowledge about any technology and we can apply it on field level for more income generation, and keeping the production record of previous year and following the strategies and technologies to reduce the previous year constraints and make improve in present year will make more betterment of the individual this might be the reason for

the positive response of this statement. While majority of the extension facilitators (75%) disagreed to the statement "Prospects of enterprises and our home life is predetermined and will of god is the deciding factor" it is because extension service provider believes that hard work with determination will decide our standard of living rather than will of god, when individual performs their duty with truly, with good accountability and confidence those attributes are the deciding factors of his life, it might be the reason for they disagree this statement.

4.4.6 ACHIEVEMENT MOTIVATION

From the Table 4.17 clearly observed that more than half of the extension service providers (57 %) in public extension system had favourable perception towards achievement motivation followed by most favourable and least favourable about 17 % and 27 % respectively. While in case of private extension service providers majority of them had favourable (60%) perception followed by most favourable about 23 % and low level of perception 17 % on achievement motivation.

4.17 Distribution of extension service providers based on their achievement motivation

Sl no.	Category	Public extension service provider (n=30)		Private extension service provider (n=30)	
		frequency	percentage	frequency	percentage
1.	Least favourable	8	27	5	17
2.	Favourable	7	56	18	60
3.	Most favourable	5	17	7	23

It might be due to the reason that, the inner drive of the respondents to achieve success in fulfilling their service and to achieve all the targets in perception of farmer's betterment made them to have medium level of achievement motivation. These results are in line with Suman (2017) and Priyanka et.al (2017).

Table :4.17.1 Distribution of Extension service providers in public and private extension systems with respect to Achievement motivation: -

Sl.no	Topics	Extension facilitator in public extension system (n=30)										Extension facilitator in private extension system (n=30)									
	Achievement motivation	SA		A		UD		DA		SDA		SA		A		UD		DA		SDA	
		f	**%**	***f***	**%**	***f***	**%**	***f***	**%**	***f***	**%**	***f***	**%**	***F***	**%**	***f***	**%**	***F***	**%**	***f***	**%**
1	One should enjoy work as much as play	15	50	14	47	1	3	0	0	0	0	11	37	10	33	6	20	3	10	0	0
2	One should work like a slave until he is satisfied with results	3	10	15	50	4	13	8	27	0	0	9	30	14	47	2	7	4	13	1	3
3*	Only those who depend on others, get ahead in life	3	10	2	7	5	17	13	43	7	23	0	0	6	20	7	23	8	27	9	30
4	Work should be first priority even if one cannot get adequate rest	8	27	6	20	12	40	4	13	0	0	8	27	4	13	10	33	3	10	5	17
5	One should have determination and driving ambition to achieve certain things in life even these qualities make one unpopular	8	27	13	43	9	30	0	0	0	0	8	27	13	43	4	13	4	13	1	3
6*	Whatever one knows is enough and there is no need of learning new skills for betterment	0	0	2	7	1	3	20	7	7	23	4	13	0	0	9	30	9	30	8	27

From the table 4.17.1 it is clear that majority (90%) of the extension service provider strongly agreed to the statement “One should enjoy work as much as play” it might be due to Publix extension service had good accountability towards the organization and enjoys his work in serving to the benefit of farmers. While majority (70%) of the extension service providers in public and private extension system agreed to the statements “One should have determination and driving ambition to achieve certain things in life even these qualities make one unpopular” it might be due to extension service providers feel that their duty is the priority rather than popularity in life through which they achieve what they deserve with determination so they agreed to this statement. And majority of the extension service providers in public and private extension system disagreed to the statements “Whatever one knows is enough and there is no need of learning new skills for betterment” because extension service providers

might felt life is a continuous learning process as every day the technologies and skills are updating and innovated time to time so they have to continuously get knowledge about them for the betterment this might be reason they disagreed to this statement.

4.5. Relationship between profile characteristics of farmers and their perceptions towards extension system.

In order to study the nature of the relationship between the selected independent variables and dependent variable (perception towards extension systems correlation coefficient (r) were computed and the values are tabulated in Table 4.18.The relationship between the selected independent variables and perception towards extension system of farmers were tested by null hypothesis and empirical hypothesis.

Null hypothesis (H_0)

There is no significant relationship between characteristics of farmers and their perception towards extension systems.

Empirical hypothesis (H_1)

There is significant relationship between characteristics of farmers and their perception towards extension system.

Table: 4.18 Relationship between perception of farmers receiving service through public extension system and independent variables

s.no.	Variable no.	Independent variable	Correlation coefficient (r) values	P-value
1	X1	Age	0.003 NS	0.984
2	X2	Socio-personal status	-0.195 NS	0.300
3	X3	annual income	-0.295 NS	0.112
4	X4	Risk orientation	0.122 NS	0.378
5	X5	Innovative proneness	0.477 **	0.007
6	X6	Scientific orientation	-0.084 NS	0.655
7	X7	Economic motivation	-0.384 *	0.035
8	X8	Mass media participation	0.108 NS	0.568
9	X9	Extension contact	-0.147 NS	0.436
10	X10	Extension participation	-0.147 NS	0.071
11	X11	Decision making ability	0.267 NS	0.153
12	X12	Management orientation	0.589 ***	0.0006

*p<0.05, **p<0.01, ***p<0.001 and NS non-significant

From the Table 4.18 it is clear that correlation between the perception of farmers towards public extension system and innovative proneness (0.477), management orientation (0.589) are positively significantly correlated at five per cent level of significance economic motivation (-0.384) and economic motivation is negatively significant with perception at one per cent level of significance. And the other characteristics like age, socio economic status, annual income, risk orientation, scientific orientation, mass media participation, extension contact, extension participation, decision making ability had shown non-significant correlation with the perception towards public extension. The significant relation of innovative proneness management orientation and economic motivation with their perception might be due to the fact that public extension system mainly focuses on better living of the farmer by encouraging new innovations and management practices and also focuses on increasing farmers income by introducing new schemes like doubling farmers income.

Table 4.19 Relationship between perception of farmers receiving service through private extension system and independent variables

s.no.	Variable no.	Independent variable	Correlation coefficient (r) values	p-value
1	X1	Age	0.266 NS	0.115
2	X2	Socio-personal status	0.150 NS	0.372
3	X3	annual income	0.195 NS	0.301
4	X4	Risk orientation	0.129 NS	0.496
5	X5	Innovative proneness	0.182 NS	0.336
6	X6	Scientific orientation	-0.024 NS	0.901
7	X7	Economic motivation	-0.175 NS	0.355
8	X8	Mass media participation	0.168*	0.022
9	X9	Extension contact	0.416 NS	0.428
10	X10	Extension participation	-0.133 NS	0.484
11	X11	Decision making ability	0.161 NS	0.395
12	X12	Management orientation	0.259 NS	0.167

*p<0.05, and NS non-significant

From the Table 4.19 it is clear that correlation between the perception of farmers towards private extension system and mass media participation (0.168) is positively significantly correlated at five per cent level of significance. And the other characteristics like age, socio economic status, annual income, risk orientation, innovative proneness, management orientation, economic motivation, scientific orientation, mass media participation, extension contact, extension participation, decision making ability had shown non-significant correlation with the perception towards public extension. It might be due to the private extension system is mainly profit oriented as they always promote and advertise their new technology and practices so the farmers who have active participation in mass media have significant relation with their perception.

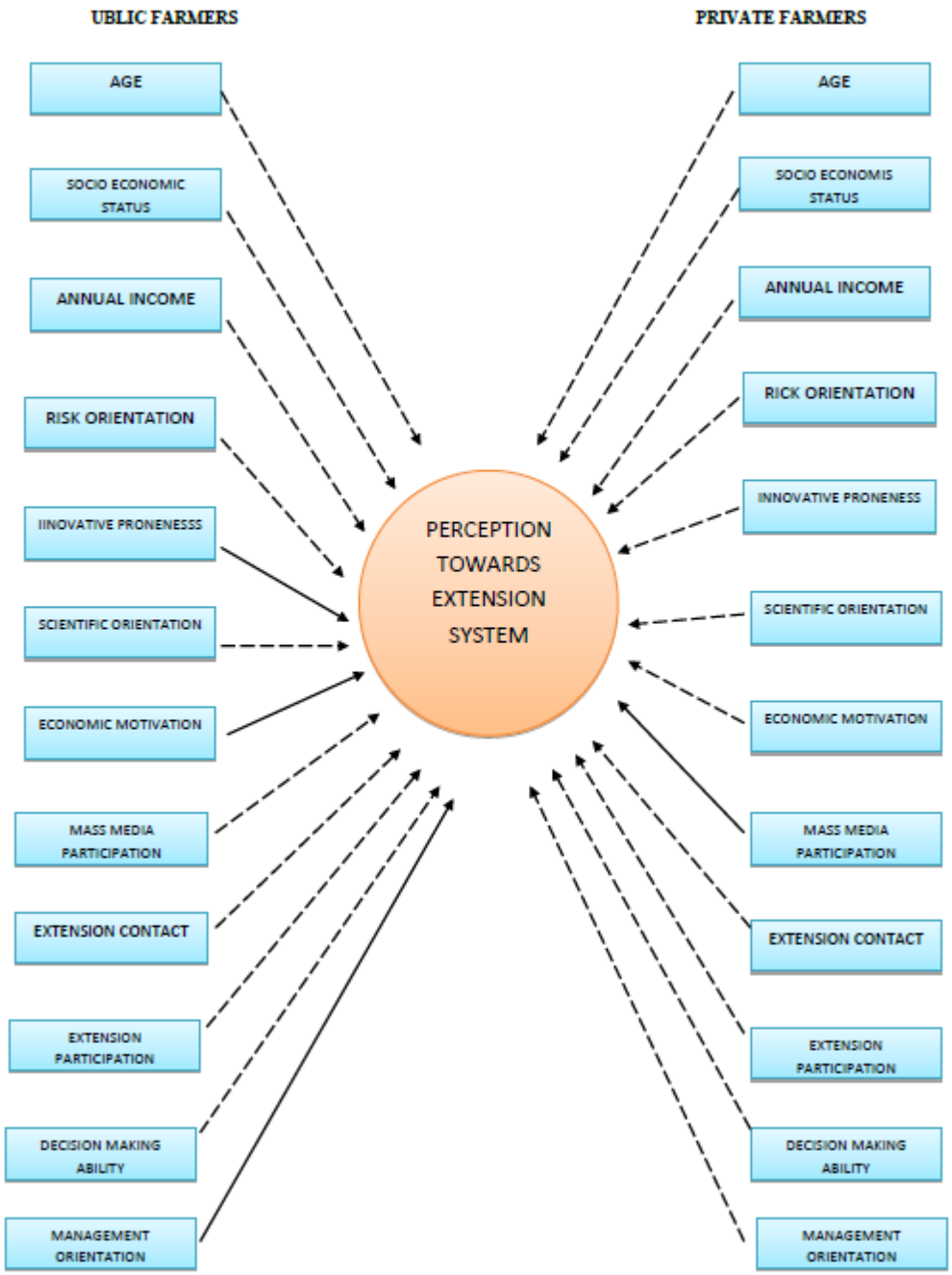

Figure: - 4. Empirical model showing relationship between characteristics of farmers and their perception towards extension system

Table 4.20 Relationship between perception of extension service providers in public extension system and independent variables

S. No.	Variable no.	Independent variable	Correlation coefficient (r) values	p-value
1	X1	Age	0.279 NS	0.135
2	X2	Experience	0.227 NS	0.225
3	X3	Areas covered	0.222 NS	0.237
4	X4	Trainings received	0.042*	0.045
5	X5	Value orientation	0.083 NS	0.661
6	X6	Achievement motivation	0.017 NS	0.926

*p<0.05, and NS non-significant

From the Table 4.20 Extension service provider in public extension system it is evident that characteristics of extension facilitator viz., trainings received (0.042) is positively significant in correlation coefficient with perception on private extension system while the other characteristics like age, areas covered, Achievement motivation and value orientation are in non-significant relationship.it might be due to the fact that public extension system imparts more trainings for extension facilitator to improve more skill, knowledge and attitude for assisting the farmers in their needs and interests.

Table 4.21 Relationship between perception of extension service providers in private extension system and independent variables

S. No.	Variable no.	Independent variable	Correlation coefficient (r) values	p-value
1	X1	Age	0.337*	0.048
2	X2	Experience	-0.031 NS	0.867
3	X3	Areas covered	0.026 NS	0.890
4	X4	Trainings	-0.028 NS	0.882
5	X5	Value orientation	0.232 NS	0.215
6	X6	Achievement motivation	0.303 NS	0.103

*p<0.05, and NS non-significant

From the Table 4.21 it is observed that characteristics of extension facilitator viz., age (0.337) is positively significant in correlation coefficient with perception on private extension system while the other characteristics like age, areas covered, trainings received, Achievement motivation and value orientation are in non-significant relationship. It might be due to majority of the youth are more engaged and have more

competency in conducting the private extension services and unemployment is also catering them to enter in to private system for employment.

PUBLIC extension facilitator **PRIVATE extension facilitator**

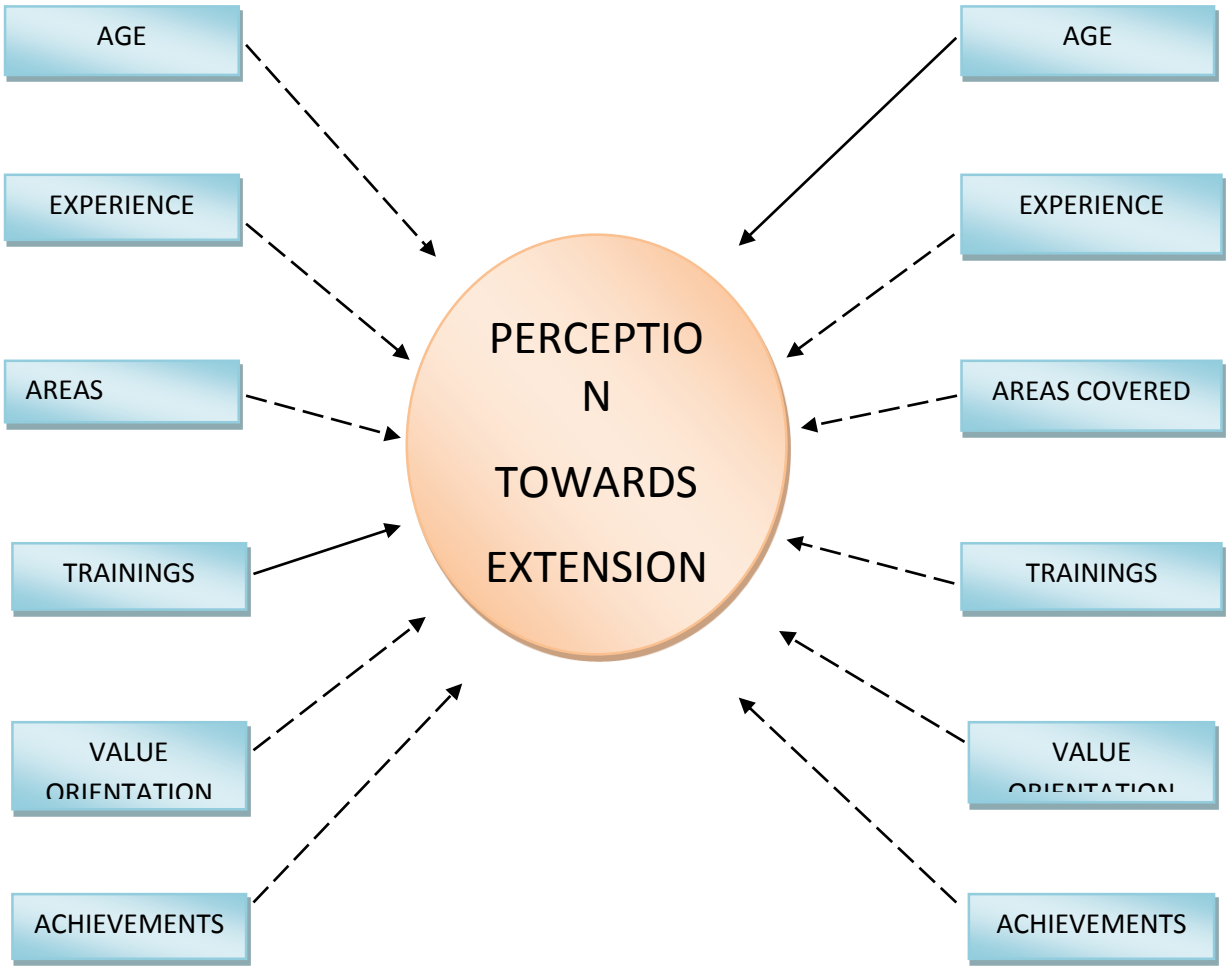

Figure:- 5.Empirical model showing relationship between characteristics of extension facilitator and their perception towards extension system

4.5.5 t-test of farmers receiving services through public and private extension system on the basis of their level of perception towards extension systems

Table: 4.22 t-test of farmers receiving services through public and private extension system on the basis of their level of perception towards extension systems

Group statistics

Perception	**Respondent Type**	**N**	**Mean**	**Standard Deviation**	**Standard Error Mean**	**t-value**
	farmers receiving services through public extension system	30	68.60	3.13	.57255	
	farmers receiving services through private extension system	30	71.03	2.89	.52846	**3.480****

****Significant at 0.01 per cent level of probability**

From the Table 4.22 it is evident that, 't' value (3.480) was found to be significant at 1 per cent level of significance , it indicates that there is significance difference between perception of farmers towards public and private extension systems. The significance difference in perception provide sufficient ground not to accept the null hypothesis (H_0) that there is no significant difference between perception of farmers receiving services through public and private extension system.

4.5.6.t-test of extension service providers in public and private extension system on the basis of their level of perception towards extension systems

Table: 4.23 t-test of extension service in providers public and private extension system on the basis of their level of perception towards extension systems

Group statistics

	Respondent Type	**N**	**Mean**	**Standard Deviation**	**Standard Error Mean**	**t-value**
Perception	Public extension service provider	30	83.866	5.97	1.05	
	private extension service provider	30	80.086	8.77	1.60	**2.017***

*** Significant at 0.05 per cent level of probability**

From the Table 4.23 it is evident that, 't' value (2.017) was found to be significant at 5 per cent level of significance , it indicates that there is significance difference between perception of extension service providers towards public and private extension systems. The significance difference in perception provide sufficient ground not to accept the null hypothesis (H_0) that there is no significant difference between perception of farmers receiving services through public and private extension system.

TABLE 4.24 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of farmers receiving services through public extension system

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.761[a]	.579	.282	2.65740	.579	1.949	12	17	.0101	2.168

a. Predictors: (Constant), age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management orientation.
b. Dependent Variable: perception towards public extension system

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	165.150	12	13.762	1.949	.0101[b]
	Residual	120.050	17	7.062		
	Total	285.200	29			

a. Dependent Variable: perception towards public extension system

b. Predictors: (Constant),), age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management orientation.

Linear regression analysis with perception of farmers towards public extension system as dependent variable and the Personal, socio-persona, annual income, psychological and communication characteristics of the farmers as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variables i.e. age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management have significant effect on perception they jointly contributed about 57.90% variances in perception level. The regression model was also found to be non-significant (p value=0.101). The result for Durbin-Watson test which is a test for auto correlation was found to be 2.168 which indicate absence of significant multicollinearity effect.

Table 4.25 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of farmers receiving services through public extension system

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.606[a]	.367	.320	2.58593	.367	7.825	2	27	.002	
2	.662[b]	.438	.321	2.58439	.071	1.011	3	24	.405	1.918

a. Predictors: (Constant), mass media participation, socioeconomic status

b. Predictors: (Constant), mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation

c. Dependent Variable: perception towards public extension system

Table 4.26 Significance testing of regression model (ANOVA)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	104.650	2	52.325	7.825	.002[b]
	Residual	180.550	27	6.687		
	Total	285.200	29			
2	Regression	124.902	5	24.980	3.740	.012[c]
	Residual	160.298	24	6.679		
	Total	285.200	29			

a. Dependent Variable: per

b. Predictors: (Constant), mass media participation, socioeconomic status

c. Predictors: (Constant),), mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation

Linear regression analysis with perception as dependent variable and the , mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation as independent variables was done using Stepwise method in SPSS 16.0. The result obtained is presented in the table above. From the model summary it was found that two of the independent variables i.e., mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation contributed significantly to the dependent variable perception level. Together, mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation contributed 43.8 per cent towards the perception level of the farmers and that the, mass media participation and socioeconomic status alone contributed 36.7 per cent. The regression model was also found to be significant (p value=0.012). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.918 which indicates absence of significant multicollinearity effect.

It is evident that Together, mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation had a significant relationship with the perception of farmers receiving services through public extension system, it might be due public extension system bring out changes in the individual farmers by encouraging them through motivation, new technologies to increase their socio-personal status which might be the reason for significant relationship of farmers perception.

TABLE 4.27 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of farmers receiving services through private extension system

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.605[a]	.366	-.081	3.00916	.366	.819	12	17	.631	1.746
a. Predictors: (Constant),), age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management orientation										
b. Dependent Variable: perception towards private extension system										

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.031	12	7.419	.819	.631[b]
	Residual	153.936	17	9.055		
	Total	242.967	29			
a. Dependent Variable: perception towards private extension system						
b. Predictors: (Constant),), age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management orientation						

Linear regression analysis with perception towards public extension system as dependent variable and the Personal, socio-economic, psychological and communication characteristics of the farmers as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variables i.e. age, mass media participation, socioeconomic status, extension contact, annual income, risk orientation, innovative proneness, scientific orientation, economic motivation, extension participation, decision making ability, management orientation did not have significant effect on perception they jointly contributed about 36.66% variances in perception level. The regression model was also found to be non-significant (p value=0.631). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.746 which means absence of significant multicollinearity effect.

TABLE 4.28 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of farmers receiving services through private extension system

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.416[a]	.173	.144	2.67812	.173	5.876	1	28	.022	
2	.527[b]	.278	.194	2.59832	.104	1.873	2	26	.174	2.144

a. Predictors: (Constant),extension contact

b. Predictors: (Constant, extension contact ,management orientation, economic motivation

c. Dependent Variable: perception towards private extension system.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.142	1	42.142	5.876	.022[b]
	Residual	200.825	28	7.172		
	Total	242.967	29			
2	Regression	67.434	3	22.478	3.329	.035[c]
	Residual	175.533	26	6.751		
	Total	242.967	29			

a. Dependent Variable: perception

b. Predictors: (Constant), extension contact

c. Predictors: (Constant), extension contact ,management orientation, economic motivation

Linear regression analysis with perception as dependent variable and the extension contact, management orientation, economic motivation as independent variables was done using Stepwise method in SPSS 16.0. The result obtained is presented in the table above. From the model summary it was found that two of the independent variables i.e., mass media participation, socioeconomic status, innovative proneness, scientific orientation, economic motivation contributed significantly to the dependent variable perception level. Together, extension contact, management orientation, economic motivation contributed 27.8 per cent towards the perception level of the farmers and that the, extension contact alone contributed 17.3 per cent. The regression model was also found to be significant (p value=0.035). The result for Durbin-Watson test which is a test for auto correlation was found to be 2.144 which indicate that absence of significant multicollinearity effect.

It is evident that together, extension contact, management orientation, economic motivation had a significant relation with the perception of farmers receiving services through private extension system it might be due to private extension system mainly focuses on profit maximization and commercial aspects of production so they encourage farmers on their economic situation by regular extension contact and management pf planning, production and marketing are regularly being updated so the farmers receiving services through private extension system has significant relation to their perception.

TABLE 4.29 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of extension service providers in public extension system

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.390[a]	.152	-.069	6.910	.152	.687	6	23	.662	1.404

a. Predictors: (Constant), achievement motivation, value orientation, trainings received, experience, areas covered , age

b. Dependent Variable: perception

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	196.805	6	32.801	.687	.662[b]
	Residual	1098.162	23	47.746		
	Total	1294.967	29			

a. Dependent Variable: perception
b. Predictors: (Constant), achievement, value orientation, trainings, experience, areas covered, age

Linear regression analysis with perception of extension facilitators towards public extension system as dependent variable and the Personal, psychological and communication characteristics of the farmers as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variables i.e. achievement motivation, experience, value orientation, trainings received, areas covered, age have no significant effect on perception, they jointly contributed about 15.2% variances in perception level. The regression model was also found to be non-significant (p value=0.662). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.404 which indicates which indicates the multicollinearity effect exceeded tolerance level. Thus there is chance of error in the model.

TABLE 4.30 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of extension service providers in public extension system

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.313[a]	.098	.066	6.45935	.098	3.037	1	28	.042	1.551

a. Predictors: (Constant), trainings received

b. Dependent Variable: perception

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	126.718	1	126.718	3.037	.042[b]
	Residual	1168.249	28	41.723		
	Total	1294.967	29			

a. Dependent Variable: perception

b. Predictors: (Constant), trainings

Linear regression analysis with perception of extension facilitators towards public extension system as dependent variable and the trainings received by public extension facilitator as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variable trainings received had significant effect on perception. Trainings received contributed 9.8 per cent variances to the perception. The regression model was also found to be non-significant (p value=0.42). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.551 which indicates absence of significant multicollinearity effect.

It is evident from step wise regression analysis trainings received by the public extension service is significant to the perception towards public extension system it might be due to public extension system is well organised structure all over national level and maintains highly professional and qualified personnel for service providing so the trainings are given more so the service providers will improve skills and knowledge.

TABLE 4.31 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of extension service providers in private extension system

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.527[a]	.277	.089	8.373	.277	1.472	6	23	.232	1.263
a. Predictors: (Constant), achievement motivation, experience, value orientation, trainings received, areas covered, age										
b. Dependent Variable: perception										

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	618.987	6	103.165	1.472	.232[b]
	Residual	1612.479	23	70.108		
	Total	2231.467	29			
a. Dependent Variable: perception towards public extension system						
b. Predictors: (Constant), achievement motivation, experience, value orientation, trainings received, areas covered, age						

Linear regression analysis with perception of extension facilitators towards private extension system as dependent variable and the Personal, psychological and communication characteristics of the farmers as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variables i.e. achievement motivation, experience, value orientation, trainings received, areas covered, age have significant effect on perception they jointly contributed about 27.77% variances in perception level. The regression model was also found to be non-significant (p value=0.232). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.263 which indicates which indicates the multicollinearity effect exceeded tolerance level. Thus there is chance of error in the model

TABLE 4.32 Extent of effect on dependent variable by the independent variable under study (Model Summary from stepwise regression analysis) of extension service providers in private extension system

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.338[a]	.114	.083	8.40223	.114	3.608	1	28	.058	1.061
a. Predictors: (Constant), age										
b. Dependent Variable: perception										

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	254.739	1	254.739	3.608	.058[b]
	Residual	1976.727	28	70.597		
	Total	2231.467	29			
a. Dependent Variable: perception						
b. Predictors: (Constant), age						

Linear regression analysis with perception of extension facilitators towards private extension system as dependent variable and the age, value orientation, trainings received by private extension facilitator as independent variables was done using stepwise method in SPSS 16.0. The result was tabulated in the table below. Model summary depicts that independent variables i.e. age, value orientation, trainings received have significant effort on perception they jointly contributed about 17.0% variances in perception level. Age alone contributed 11.4 per cent to the perception. The regression model was also found to be non-significant (p value=0.058). The result for Durbin-Watson test which is a test for auto correlation was found to be 1.061 which indicates multicollinearity effect exceeded tolerance level. Thus there is chance of error in the model. Incase of private extension service provider age, areas covered, trainings received, experience, value orientation and achievement motivation are non-significant to their perception level it might be due to private extension system only focuses on profit maximization rather than job satisfaction, values and achievement of the extension service provider.

4.6. Problems faced by the farmers in public and private extension systems

4.6.1 Problems faced by the farmers receiving service through public extension system

From the Table 4.33 it is clear that The major problems encountered by the farmers receiving service through public extension system were political interventions (93 %) followed by inputs were not available in sufficient quantity during the season (93 %) followed by untimely diffusion of the latest technical information (90%) and insufficient training to the farmers (77 %) and subsidies were not given for the required input (67 %). whereas, 63 % and 60 % of farmers expressed extension personnel were not technically sound and poor monitoring and commitment in work respectively. Nearly half of the farmers expressed poor service delivered by firms (57 %) and less than half of the farmers expressed the technologies were not practically applicable(43 %) and lack of participation in socio cultural activities (37%) which are considered as minor problems faced by the farmers.

Table. 4.33 Problems faced by the farmers receiving service through public extension system

(n=30)

Sl no.	Problems	Frequency	percentage
1.	Insufficient training to the farmers receiving service through public extension system	23	77
2.	Untimely diffusion of the latest technical information is not happening in public extension system	27	90
3.	Political interventions are more in public extension system	28	93
4.	Extension personnel were not technically sound in public extension system	19	63
5.	Inputs were not available in sufficient quantity during the season	28	93
6.	The technologies were not practically applicable	13	43
7.	Subsidies were not given for the required input	20	67
8.	Poor monitoring and commitment in work by public extension system	18	60
9.	poor service delivered by the firms in public extension system	17	57
10.	Lack of participation in socio cultural activities	11	37

From the Table 4.33 we depict that majority of the farmers (93 %) expressed inputs were not available in sufficient quantity during the season and political interventions are more in public extension system it might be due to the inputs provided by the public sector are not seasonally i.e. kharif, rabi and based on sowing till harvesting they are not received by the farmers timely this might be due to the unavailability of sufficient number of extension staff and transport facilities for providing the service.

Political intervention are more in public system the reason quoted might be the extension service providers in public extension system might be influenced by the

political representatives and make the service and inputs not to reach the beneficiaries primarily instead to reach their near and dear ones.

About (90%) of the farmers reported that Untimely diffusion of the latest technical information is not happening in public extension system this might be due lack of publicity. The respondents might felt that when compared to earlier periods, the publicity given by extension system on various extension services available to farmers is highly inadequate; this may prevent the respondent to utilize the public extension services.

More than half of the farmers (about 67 %) expressed that subsidies were not given for the required input is a problem in public extension system, this might be due to government has reduced the financial assistance to the farmers now a days and public extension system cannot provide financial assistance in the form of subsidies for all inputs but for some essential inputs the assistance is provided.

Other problems expressed by the farmers receiving service through public extension system were lack of participation in socio cultural activities, the technologies were not practically applicable, poor monitoring and commitment in work, extension personnel were not technically sound and poor service delivery by the firms in public extension system are some of the minor problems faced by the farmers receiving service through public extension system.

In case of public extension system majority of the beneficiaries were small and marginal farmers who were expecting more from the system. But public extension system is failing in fulfilling the requirements of large population of beneficiaries in public sector might have resulted in problems faced by the farmers receiving service through public extension system.

4.6.2 Problems faced by the farmers in receiving service through private extension system

The major problems encountered by the farmers in receiving service through private extension system were There is no government support in private extension system (93 %) followed by Information is provided only to those who pay in private

extension system (87 %) and Lack of availability of extension staff private extension system (80%) and Extension personnel were not technically sound in private extension system (70%). whereas, 57 % expressed Exploitation by the input dealers in private extension system and half of the farmers 50 per cent expressed Information related to market was not provided private extension 'system. Less than half of the farmers expressed Inputs were not available in sufficient quantity in time (47%) and Huge investment made by the farmers put them in debt (43 %) followed by Poor local facilities for input intensive technology (40%) and Insufficient training to the farmers receiving service through private extension system (27 %) which are considered as minor problems faced by the farmers.

Table.4.34 Problems faced by the farmers receiving service through private extension system

Sl no.	Problems	frequency	Percentage
1.	There is no government support in private extension system	28	93
2.	Information is provided only to those who pay in private extension system	26	87
3.	Lack of availability of extension staff private extension system	24	80
4.	Information related to market was not provided private extension system	15	50
5.	Poor local facilities for input intensive technology	12	40
6.	Exploitation by the input dealers in private extension system	17	57
7.	Extension personnel were not technically sound in private extension system	21	70
8.	Huge investment made by the farmers put them in debt	13	43
9.	Insufficient training to the farmers receiving service through private extension system	9	27
10.	Inputs were not available in sufficient quantity in time	14	47

The problems faced by the farmers receiving service through private extension system were documented majority of the farmers (93 %) expressed that there is no government support in private extension system and information is provided only to those who pay in private extension system (87 %) and Lack of availability of extension staff private extension system (80%) this might be due to, if farmers try to adopt the new practices they need to initially invest more money.so they were hoping financial assistance from extension organization especially to purchase inputs. But most of the private organizations are not providing financial support, huge investment made by the farmers put them in debt this might be reason for need of government support.

Exploitation by the input dealers in private extension system (57 %) is one of the problems faced by the farmers in private extension service. Except seeds, for all other inputs farmers mostly depends on input dealers. This might be the possible reason farmer expressed this as a problem.

The other problems faced by the farmers receiving service through private extension system are Information related to market was not provided private extension system, Poor local facilities for input intensive technology, Extension personnel were not technically sound in private extension system, Insufficient training to the farmers receiving service through private extension system and Inputs were not available in sufficient quantity in time it might be due to private extension system focuses on cultivation rather than marketing resulted to following problems.

4.7. Problems faced by extension service providers in public and private extension systems

4.7.1 Problems faced by extension service providers in public extension system

The major problems encountered by the public extension service provider in public extension system were Farmers are less responsible in engaging the new innovations or techniques of farming(97 %) followed by Political intervention made service not to reach farmer effectively (93 %) followed by Lack of co-ordination between different line departments (87 %) and Heavy workload on extension personnel (70%) followed by equal number of farmers (67 %) expressed that Non-availability of

inputs in sufficient quantity during the season and Lack of practical facilities for imparting training as problems in public extension system. Whereas, half of the extension service providers (50 per cent) expressed Lack of timely information is problem in public extension system. Less than half of the public extension service providers expressed Poor capacity building programmes public extension facilitator(43 %) followed by Inadequate demonstration facilities(40%) which are considered as minor problems faced by the extension service providers faced in public extension system.

Table. 4.35 Problems faced by extension service providers in public extension system

Sl no.	Problems	frequency	percentage
1.	Farmers are less responsible in engaging the new innovations or techniques of farming	29	97
2.	Lack of supporting staff for providing the service	22	73
3.	Non-availability of inputs in sufficient quantity during the season	20	67
4.	Lack of co-ordination between different line departments	26	87
5.	Political intervention made service not to reach farmer effectively	28	93
6.	Lack of practical facilities for imparting training	20	67
7.	Poor capacity building programmes public extension facilitator	13	43
8.	Heavy workload on extension personnel	21	70
9.	Inadequate demonstration facilities	12	40
10.	Lack of timely information	15	50

A glance at Table 4.35 revealed that problems faced by the public extension facilitator in public extension system. 97 per cent of the service providers expressed that farmers are less responsible in engaging the new innovations or techniques in

farming this might be due to the risk taking behavior and decision making ability of the farmers are low to medium level might oppose to engage in innovations. Followed by Political intervention made service not to reach farmer effectively and Lack of co-ordination between different line departments further lack of supporting staff for providing the service this might be due to the extension facilitator to farmers ratio too high as they cannot engage the farmers in providing services and different departments of agriculture are less supportive in providing services, followed by heavy workload on extension personnel, Non-availability of inputs in sufficient quantity during the season, Lack of practical facilities for imparting training are the some major problems in public extension system.

4.7.2 Problems faced by private extension service providers in private extension system

The major problems encountered by the private extension service providers in private extension system were equal number of service providers(90 per cent)expressed Lack of transport facilities made the service not to reach the farmers effectively and In time operation is not possible as problems followed by Lack of incentives and recognition for good work by higher authority (77 %) followed by Delayed payment of allowances by the beneficiaries i.e. farmers(73 %) followed by Lack of supporting staff in delivering the service (70 %) are problems faced in private extension system. while nearly half of the extension service providers expressed Poor co-ordination/planning among private extension facilitator (53 %) as a problem. Less than half of the private extension service providers expressed Lack of trust between extension workers (47 %) followed by equal number of extension service providers expressed Poor capacity building programmes for private extension facilitator (43 %) and Heavy workload on private extension personnel (43 %) followed by Farmers were not following the recommended practices (37%) which are considered as minor problems faced by the extension service providers faced in private extension system.

Table. 4.36 Problems faced by extension service providers in private extension system

Sl no	Statements	frequency	percentage
1.	Poor co-ordination/planning among private extension facilitator	16	53
2.	Lack of transport facilities made the service not to reach the farmers effectively	27	90
3.	Lack of incentives and recognition for good work by higher authority	23	77
4.	Lack of supporting staff in delivering the service	21	70
5.	Poor capacity building programmes for private extension facilitator	13	43
6.	Delayed payment of allowances by the beneficiaries i.e farmers	22	73
7.	Lack of trust between extension workers	14	47
8.	Farmers were not following the recommended practices	11	37
9.	Heavy workload on private extension personnel	13	43
10.	In time operation is not possible	27	90

A glance at Table 4.36 revealed that problems faced by the private extension service providers in private extension system

It was observed that majority of the respondents expressed that lack of transport facilities made the service not to reach the farmers effectively and in time operation is not possible followed by Lack of incentives and recognition for good work by higher authority and delayed payment of the allowances by the beneficiaries.

In private extension system the facilitator used to advice farmers for better farming but the farmers were not following better recommended practices in time this might be due to climatic factors, lack of skilled labour force and laziness of the farmers

etc., which in turn result on potentiality of private extension service providers this might be the reason for the problems expressed by the service providers.

4.8. Suggestions given by farmers for improvement in delivery of extension services

4.8.1. Suggestions given by farmers for improvement in delivery of public extension services

From the data depicted in the Table indicate that suggestions offered by the farmers for the improvement in delivery of public extension services. Majority of the farmers expressed that Number of extension staff should be increased in public extension system (93 %) followed by Quality inputs should be supplied in adequate quantity for farmers (87 %) followed by Need to conduct more extension activities at field level (73 %) and nearly half of the farmers suggested Need to conduct more extension activities in field level (57%) and less than half of the farmers suggested Communication skill of extension workers should be improved (47 %).

Table 4.37 Suggestions given by farmers for improvement in delivery of public extension services

Sl no.	**suggestions**	**frequency**	**Percentage**
1.	Number of extension staff should be increased	28	93
2.	Need to conduct more extension activities at field level	22	73
3.	Quality inputs should be supplied in adequate quantity	26	87
4.	Communication skill of extension workers should be improved	14	47
5.	Income generating activities should be a component of training programmes	17	57

A perusal in Table 4.37 observed that about 93 per cent of farmers suggested that number of extension staff should be increased for transfer of technology and dissemination of information and sharing of timely information among farmers. Followed by majority of the farmers suggested that Quality inputs should be supplied in adequate quantity as the inputs supplied by the public extension system should be seasonally and timely which improves better farming followed by Need to conduct more extension activities at field level to identify the problems in aspects of farming and give solutions at field level followed by Income generating activities should be component of training programme and Communication skill of extension workers should be improved for better understanding the technologies developed for farming.

In public extension system, poor delivery of the services might be due to inadequate staff at grass root level. This results in following suggestions given by the farmers receiving service through public extension system.

4.8.2. Suggestions given by farmers for improvement in delivery of private extension services

From the data depicted in the Table 4.38 indicate that suggestions offered by the farmers for the improvement in delivery of public extension services. Majority of the farmers expressed that Frequent visit of extension workers to the farmers field (97 %) followed by Provide technical guidance on innovative technologies (73 %) followed by Need to conduct more extension activities (66 %) followed by Dissemination of information should be in time (63 %) and less than half of the farmers suggested More concentration should be given to field crops (43 %)

Table 4.38. Suggestions given by farmers for improvement in delivery of private extension services

Sl no.	suggestions	frequency	Percentage
1.	Frequent visit of extension workers to the farmers field	29	97
2.	Need to conduct more extension activities	20	67
3.	Provide technical guidance on innovative technologies	22	73
4.	More concentration should be given to field crops	13	43
5.	Dissemination of information should be in time	19	63

A perusal data in Table 4.38 observed that 97 per cent of farmers suggested that frequent visit of extension workers to the farmer fields; in private extension system farmers are entirely dependent on facilitator for the better advice for cultivation. In these situation farmers always requires more frequent visit of the extension facilitator for constant monitoring and interaction about their necessary activities.

4.9. Suggestions given by extension service providers for improvement in delivery of extension services

4.9.1. Suggestions given by extension service providers for improvement in delivery of public extension services

From the data depicted in the Table 4.39 indicate that suggestions offered by the public extension facilitator for the improvement in delivery of public extension services. Majority of the respondents expressed that Provide more number of supporting staff (97 %) followed by Provide adequate transport facilities for villages for conducting activities (90%) followed by equal number of service providers suggested Should provide more number of labours (83 %) and Avoid political intervention (83 %) followed by Promotion based on experience (63 %).

Table 4.39. Suggestions given by extension service providers for improvement in delivery of public extension services

Sl no.	suggestions	frequency	Percentage
1.	Provide more number of supporting staff	29	97
2.	Provide adequate transport facilities for villages for conducting activities	27	90
3.	Should provide more number of labours	25	83
4.	Avoid political intervention	25	83
5.	Promotion based on experience	19	63

A glance at Table 4.39 revealed that majority of the public extension facilitator suggested that more number of supporting staff should be increased as the extension facilitator to farmers ratio is to too high as they feel difficult to take care of needs of all the farmers. Followed by 90 per cent service providers suggested that Provide adequate transport facilities for villages for conducting activities as some of the villages are in remote areas in which transport facilities are not easily accessible and also more number of labours should be provided and avoid political intervention and promotion should be given based on experience are some of the major suggestions given by the public extension personnel in public extension system.

4.9.2. Suggestions given by extension service providers for improvement in delivery of private extension services

From the data depicted in the Table 4.40 indicate that suggestions offered by the private extension facilitator for the improvement in delivery of private extension services. Cent per cent of extension service providers suggested Public private partnership should be promoted (100 %) followed by Majority of the respondents expressed Departments should recognise the private consultants and involve in day to day activities (93 %) followed by Avoid non-technical private consultants (80 %) followed by equal number of service providers suggested Provide practical training on

improved technologies to the extension workers (73 %) and Provide adequate transport facilities for extension workers (73 %)

Table 4.40. Suggestions given by extension service providers for improvement in delivery of private extension services

Sl no.	Suggestions	frequency	Percentage
1.	Departments should recognise the private consultants and involve in day to day activities	28	93
2.	Public private partnership should be promoted	30	100
3.	Provide practical training on improved technologies to the extension workers	22	73
4.	Avoid non-technical private consultants	24	80
5.	Provide adequate transport facilities for extension workers	22	73

A perusal of Table 4.40 revealed that cent per cent of private extension facilitator suggested that Public private partnership should be promoted as it helps private extension system a strong background of public extension system in financial and technical aspects and Departments should recognise the private consultants and involve in day to day activities, Avoid non-technical private consultants, Provide adequate transport facilities for extension workers and Provide practical training on improved technologies to the extension workers are some major suggestions given by the private extension facilitator in private extension system.

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Summary and Conclusion

In India, public agriculture extension programmes have been one of the most successful ways for overcoming food insecurity since the 1960s. However, in recent years, the public agriculture extension system has been less successful in providing adequate and cost-effective services. Because of the limited number of public extension facilitators, the high financial load, and the lack of accountability of public extension workers, many state governments and the federal government have discovered that maintaining public extension services is extremely difficult. Furthermore, the ICAR-NATP (Indian council of agricultural research – national agriculture technology project) declares in 1998 that "there is fairly broad national consensus that, while extension needs for large numbers of and disadvantaged farmers must still be publicly supported, it is no longer appropriate nor fiscally feasible for the public sector to shoulder its past share of agriculture extension responsibilities."

One of the world's greatest knowledge and information distribution institutions is India's public agricultural extension system. In this age of globalisation and liberalism, we have been forced to look for more effective alternatives to the public extension system. Ineffective technology transfer, bureaucratic interference, imposition of target-oriented programmes on farmers, , lack of coordination among different technology transfer agencies, weak research extension farmer linkages and meagre accountability to farmers have all contributed to the rise of alternative extension systems such as private and corporate systems. Furthermore, the commercialization of agriculture and the reduction in funding for public extension programmes have aided the creation of alternative extension systems.

Private extension service providers supply farmers with demand-driven and profit-oriented services at a low cost, and they anticipate payment for their services. They were also accountable to the farmers since they visited the farmers' fields on a regular basis for advisory services, demonstrations, and group meetings, which encouraged them to keep in touch with them. Because their remuneration is intimately

associated to increases in farmers' revenue, the primary goal of the private extension system is to maximise the profit of farmers through advising services.

Consideration of these above facts, it is necessary to know the perception of farmers and extension facilitators and also characteristics of farmers and their association with their perception about extension system. The present study 'comparative analysis of public and private extension systems' was taken up with the following objectives.

Specific objectives of study

1. To study the perception of farmers towards public and private extension systems.
2. To study the perception of extension facilitators towards public and private extension systems.
3. To study the characteristics of farmers and their association with their perception about extension system.
4. To document the problems faced by the farmers in public and private extension system.
5. To document the suggestion given by the farmers in public and private extension system

This study was conducted in Kurnool district of Andhra Pradesh state during 2020-21. Considering the complication and newness in understanding the public and private extension system, the study was planned to involve extension facilitators and progressive farmers. Thirty farmers and thirty extension facilitators were selected from public and private extension system by following simple random sampling procedure. The total of 120 respondents are selected for study. The data is scored, analysed and tabulated by using appropriate statistical tools.

Major findings of the study

1. Perception of farmers towards extension systems

Majority of the farmers had most favourable (43%) perception towards extension system. whereas, more than one third of the farmers had most favourable (36.66%) towards public extension system.

2. Perception of extension facilitator towards extension systems

Majority of the extension service providers had favourable perception towards public extension system (63.33%), and favourable perception towards private extension system (56.66%).

3. Personal, socio-economic, psychological and communication characteristics of farmers

- Majority of the farmers in public and private extension were belonged to middle aged category. Whereras, majority of the farmers in private extension system belongs to high level of socio-economic status and farm annual income compared to farmers in public extension system. Majority of the farmers in public had most favourable perception on innovative proneness, scientific orientation compared to farmers in private extension system. While the farmers in private extension system had most favourable perception on risk orientation, extension agency contact and decision making ability when compared to farmers in public extension system. While farmers in both public and private extension system had medium level of perception on extension participation, mass media participation, economic motivation and management orientation.

- t-test of farmers receiving services through public and private extension system on the basis of their level of perception towards extension systems indicated that there significant difference between perception of farmers receiving services through public and private extension systems.

4. Personal, socio-economic and psychological characteristics of extension service provider

- Majority of the extension facilitators in both public and private extension system belongs to middle age group and extension facilitators in private extension system had least experience, less areas covered under service and less trainings received when compared to extension facilitators in public extension system. Whereas, majority of the extension facilitators in public and private extension systems had favourable perception on value orientation and achievement motivation.

- t-test of extension service providers in public and private extension system on the basis of their level of perception towards extension systems indicated that there significant difference between perception of extension service providers in public and private extension systems.

5. Relationship between characteristics of farmers with perception towards extension system

- The characteristics of farmers receiving services through public extension system viz , innovative proneness and management orientation had positively significant and economic motivation is negatively significant with their perception towards public extension system and other characteristics age, socio-economic status, annual income, risk orientation, scientific orientation, mass media participation, extension participation, extension contact and decision making ability are in non-significant relationship. While, characteristics of farmers receiving service through private extension system only mass media participation is positively significant with perception towards private extension system.

- Highest (0.589) level of correlation was found between management orientation and perception towards public extension system. Also innovative proneness (0.477) and perception towards public extension system, of farmers receiving services through public extension system.

- Highest (0.416) level of correlation was found between extension contact and perception towards private extension system. Also age (0.266) and perception towards private extension system, of farmers receiving services through private extension system.

- The regression analysis for farmers receiving services through public extension system revealed that personal, Socio-personal, economic, psychological and communication profile of farmers had contributed significantly (57.9) to the perception towards public extension system.

- The regression analysis for farmers receiving services through private extension system revealed that personal, Socio-personal, economic, psychological and communication profile of farmers had contributed significantly (36.6) to the perception towards private extension system.

5. Relationship between characteristics of extension service providers with perception towards extension system

- The characteristics of extension service providers in public extension system only trainings received is positively significant to their perception towards public extension system and other characteristics age, areas covered under service, experience, value orientation and achievement motivation are in non-significant relationship. While characteristics of private extension service provider only age is positively significant to their perception towards private extension system.

- The regression analysis for extension service providers in public extension system revealed that extension service provider profile characteristics i.e., age, experience, areas covered under service, trainings received, value orientation and achievement motivation had contributed significantly (15.2) to the perception towards public extension system.

- The regression analysis for extension service providers in private extension system revealed that extension service provider profile characteristics i.e., age, experience, areas covered under service, trainings received, value orientation

and achievement motivation had contributed significantly (9.6) to the perception towards private extension system.

6. Problems faced by the farmers in public extension system

The major problems encountered by the farmers in public extension system were political interventions (93.33%) followed by inputs were not available in sufficient quantity during the season (93.33%) followed by untimely diffusion of the latest technical information (90%).

7. Problems faced by the farmers in private extension system

The major problems encountered by the farmers in private extension system were there is no government support in private extension system (93.33%) followed by Information is provided only to those who pay in private extension system (86.66%) and Lack of availability of extension staff private extension system (80%).

8. Problems faced by the extension facilitator in public extension system

The major problems encountered by the public extension facilitator in public extension system were Farmers are less responsible in engaging the new innovations or techniques of farming(96.66%) followed by Political intervention made service not to reach farmer effectively (93.33%) followed by Lack of co-ordination between different line departments (86.66%).

9. Problems faced by the extension facilitator in private extension system

The major problems encountered by the private extension facilitator in private extension system were equal number of facilitators(90%) expressed Lack of transport facilities made the service not to reach the farmers effectively and In time operation is not possible as problems followed by Lack of incentives and recognition for good work by higher authority (76.66%)

10. Suggestions given by the farmers for improvement in delivery of public extension services

Majority of the farmers expressed that Number of extension staff should be increased in public extension system (93.33%) followed by Quality inputs should be supplied in adequate quantity for farmers (86.66%)

11. Suggestions given by the farmers for improvement in delivery of private extension services

Majority of the farmers expressed that Frequent visit of extension workers to the farmers field (96.66%) followed by Provide technical guidance on innovative technologies (73.33%)

12. Suggestions given by the extension facilitator for improvement in delivery of public extension services

Majority of the respondents expressed that Provide more number of supporting staff (96.66%) followed by Provide adequate transport facilities for villages for conducting activities (90%)

13. Suggestions given by the extension facilitator for improvement in delivery of private extension services

Cent per cent of extension facilitators suggested Public private partnership should be promoted (100%) followed by Majority of the respondents expressed Departments should recognise the private consultants and involve in day to day activities (93.33%)

Implication of the study

1. The majority of farmers had a favourable attitude toward private extension services. This suggests that the private extension system is regarded as a reliable source of knowledge and technology diffusion. For improved extension service delivery, these areas must be highlighted by other extension systems, such as continual monitoring,

timely provision of essential inputs, and timely distribution of technologies and information, among others.

2. The majority of extension facilitators were positive about the public extension system. This shows that continuous training on multiple technologies leads to appropriate identification and better abilities. This serves as an alarm for the region to spotlight things like promotions based on experience, acknowledgement of their work, and appropriate workload, as well as extra trainings to develop their abilities and perform better extension services.

3. Implementing public-private partnerships (PPPs) to strengthen public and private organisations will complement the on-going and advanced agricultural development process.

4. Inappropriate guidance from input dealers and extension facilitators, lack of awareness of various extension services, and a lack of subsidies are issues that extension systems must resolve.

5. The majority of farmers voiced concerns about the high cost of innovations, a lack of financial help, and the lack of subsidies when seeking extension services. As a result, financial institutions must provide lending facilities to help people overcome their issues.

6. The majority of farmers suggested implementing self-employment programmes, as well as programmes for school dropouts, youth training in rural regions, and women's welfare. Rural youth and women are dropping out of school and becoming unemployed as a result of their bad economic situation. As a result, this is a good moment for the government to offer ideas and programmes to help school dropouts, jobless young, and women.

7.To increase their ability and expertise, private extension facilitators should take advantage of the training facilities available at research stations, state agricultural institutions, and public extension organisations.

8. Farmers in the public extension system must be educated on how to assess innovations and technologies based on technical feasibility, as well as the regularity, usefulness, and appropriateness of information and technology transmission to farmers.

9. There is a need to enhance the present model for better delivery of extension services by taking into account all of the significant aspects that play a big role in the public and private extension systems.

Suggestions for future research

1. Present investigation was limited to Kurnool district of Andhra Pradesh state. The same research can be carried out in other large areas, so as to confirm and validate the finding of study.

2. This study will help to draw some general conclusion about the elements of public and private extension process.

3. Case studies may be attempted on the farmers co-operatives, farmers association and input agencies involved in transfer of technology in agriculture.

4. To study the impact and factors influencing public private partnership.

5.To study the attitude of farmers and extension facilitators towards extension system.

6. comparative studies on public and private mass media role in agriculture technology transfer.

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A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE EXTENSION SYSTEMS IN KURNOOL DISTRICT OF ANDHRA PRADESH

Master scholar: Prem kiran Battu

Supervisor : Dr Basavaprabhu Jirli

Questionnaire schedule for farmers

Respondent no:

1. General information

Name of the farmer:

Village: Taluk: District:

2. Personal, socio-economic, psychological characteristics of the farmers

1. Age:

Category	**Years**
Young age	less than 35 years
Middle age	35-50 years
Old age	more than 50 years

2. Education level:

1. Illiterate
2. Primary school
3. Secondary education
4. Intermediate
5. Graduation
6. Post graduation

3. Family size: no. of members

a) adult 1) male 2) female

b) children 1) male 2) female

4. House: hut/ kaccha/ pacca/ banglow

5. Type of family: joint family/ nuclear family

6. Occupation: farming/ business/ other specify

7. Caste:

8. Size of land holding: in acres

category	**Area in acres**
Marginal farmers	Up to 2.50 acres
Small farmers	2.51 to 5.00 acres
Medium farmers	5.01 to 10.00 acres
large farmers	10.01 to 25 acres

9. Farming experience (in years):

category	**Score**
low : up to 21.55 years	
medium : 21.55-30.60 years	
high : more than 30.60 years	

10. Farm annual income

Category	**Years**	**Score**
Low class income	<33,750 rupees	
Medium class income	33,750-1,44,000 rupees	
High class income	>1,44,000 rupees	

11. Social participation

Are you a member of any of the following organisations

Sl no.	organization	member	Office bearer	Extent of participation		
				Regular	occasional	never
1.	Gram panchayat					
2.	Taluk panchayat					
3.	Zilla panchayat					
4.	Mahila mandal					
5.	Village co operative society					
6.	Youth clubs					
7.	Raitha samparka kendras					
8.	SHGs					
9.	Raithu sangha					
10.	Any other specific					
	1)					
	2)					

15. Risk orientation

sl no.	Statements	Response categories				
		SA	A	UD	DA	SD
1.	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops					
2.	A farmer should take more of a chance in making a huge profit than to be content with a smaller but less risky profiles.					
3.	A farmer who is willing to take greater risks than an average farmer, usually does better financially					
4.	It is good for a farmer to take risk when he knows his chance of success is fairly high.					
5.	It is better for a farmer not to try new farming methods unless most other farmers have used them success.					
6.	Trying an entirely new method in farming by a farmer involves risk, but its worth					

16. Innovative proneness

Sl no.	statements	Response categories				
		SA	A	UD	DA	SD
1.	I am very much interested in adopting whatever new practices that are helpful in better faming					
2.	Since, we are not sure of the new practices, I would like to wait till others adopt					
3.	Since new practices are not profitable , I am not interested in adopting them					
4.	I try to keep myself well informed about the new practice and will try to adopt as soon as possible					
5.	New practices are not easily adoptable and hence I do not adopt					

17. Scientific orientation

Sl no.	statements	Response categories				
		SA	A	UD	DA	SD
1.	New methods of farming give better results than old method results					
2.	Even a farmer with a lot of experience should use new methods of farming					
3.	Though it takes time for a farmer to learn new farming methods, it is worth.					
4.	In order to have our hands productive, economically more profitable and eco- friendly ,the present system of farming needs to be change.					
5.	A good farmer experiment with new ideas in farming					
6.	The way our forefather where practicing is still the best way to follow today					

18. Economic motivation

Sl no.	statements	Response categories				
		SA	A	UD	DA	SD
1.	A farmer should work towards larger yields and more economic profit					
2.	The most successful farmer is the one who makes the most profit					
3.	A farmer should try any new farming idea which may earn him more money					
4.	A farmer should grow cash crops to increase monetary profits in comparison to growing of food crops for home consumption					
5.	It is difficult for the farmers children to make a good start unless he provides them with economic assistance.					
6.	A farmer must earn his living but the important thing in life cannot be defined in economic terms					

19. Cosmopoliteness

Sl no.	statements	Response categories		
		A	UD	DA
1.	A farmer can learn everything he needs only through experience in his own village			
2.	All the things that a farmer needs to know for his own benefit are not necessarily found in his own village			
3.	All the needs and inputs of the farmer can be entirely met with in his own village			
4.	In the present situation of increased transport and communication facilities a farmer should know more about the things happening outside his own village			

20. Mass Media Participation

Sl no.	Mass media	owning		subscription		Frequency of participation		
		OW	NO	sub	N sub	R	O	N
1.	Listening to radio (general programme)							
2.	Listening to radio (agril programme)							
3.	Watching TV (general programme)							
4.	Watching TV (agril programme)							
5.	Reading newspaper							
6.	Reading farm magazine							

21. Extension agency contact

Sl no.	Designation	Frequency of contact			
		often	Sometimes	rarely	never
1.	Agril. Assistant				
2.	Asst. Director of agriculture				
3.	Bank officer				
4.	Asst. Agriculture officer				
5.	Extension officer from private consultancy				
6.	Extension officer from input agencies				
7.	Extension workers from NGOs				
8.	Scientists of UAS				
9.	Agri-business companies				
10.	If any others specify				
	1.				
	2.				
	3.				

22. Extension participation

Sl no.	Extension activities	Pattern of participants		
		regular	occasional	never
1.	Krishimela			
2.	Demonstration			
3.	Training programme			
4.	Group meetings			
5.	Field days			
6.	Field visits			

23. Decision making ability

Sl no.	Statements	Response categories		
		A	UD	DA
1.	It is necessary to seek other peoples advice before taking decision			
2.	One cannot avoid his worries and problems if he seek the advice from his friends and neighbours			
3.	One who believes in others advice does his work much better			
4.	To do any work with the advice of others is a sign of weakness			

24. Management orientation

a) Planning orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Every year one should think about the enterprise to be taken up during the year		
2.	It is not necessary to make price decision about the type of farming taken up by the family		
3.	selecting enterprise does not depend upon the availability of resource		
4.	The amount of input required for the enterprise should be assessed before starting the work		
5.	It is necessary to think of cost before up an enterprise		
6.	It is possible to increase the output through enterprise production plan		

b) Production orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Timely planning of an enterprise ensures higher production		
2.	One should use as much as resources as he likes		
3.	Knowing the capacity of resources, saves money on inputs		
4.	Inputs must be used as recommended by specialists		
5.	Regular precautionary measures must be taken irrespectively of happening.		
6.	It is not necessary to consult specialists during production process		

c) Marketing orientation

Sl no.	Statements	Response categories	
		A	DA
1.	Market news and information is more useful to the farmer		
2.	A farmer can get more income by grading his produce		
3.	Proper storage facility can help to get good price for the produce		
4.	One should sell his produce in the nearest market irrespective of price		
5.	It is little value of record cost and return of particular enterprise		
6.	One should go for such enterprise which has more market demand		

PART-B

PERCEPTION OF FARMERS TOWARS PUBLIC EXTENSION SYSTEM

Sl no.	**statements**	**SA**	**A**	**UD**	**DA**	**SD**
1.	Timely supply of inputs by public extension service based on the needs of farmers					
2.	Public extension facilitators Regularly attend field meetings with farmers					
3.	Technology given timely to farmers by public extension service					
4.	Public extension service has personal bias					
5.	Public extension service cares about farmers personal problems and strive to solve them					
6.	No service charges are taken from farmers in public extension					
7.	Only resourceful farmers be benefited by public extension service					
8.	Extension programmes were conducted according to the situation ,farmers need and season by Public extension service					
9.	Public extension service Solve production problems by providing advisory services					
10.	Lot of political interventions made the benefit not to reach the real beneficiary[farmers]					
11.	Public extension service had Less concentration on environmental issues					
12.	Lack of sufficient staff leads to ineffective public extension services in regular technology dissemination					
13.	Help farmers in difficult situation and proper guidance is given by Public extension service					
14.	Inputs provided by public extension services are of poor quality					
15.	Innovative farmers were not encouraged by Public extension service					
16.	Timely provide solution to farmer problem at field level by Public extension service					
17.	Public extension service Helps in socio-economic transformation in rural areas					
18.	Public extension service Does not concentrate on individual farmers					
19.	Public extension services were less efficient when compared to private extension services.					
20.	All the categories of farmers/farm women and youth were getting benefit by this system					

PERCEPTION OF FARMERS TOWARDS PRIVATE EXTENSION SYSTEM

SL. NO	**STATEMENTS**	**SA**	**A**	**UD**	**DA**	**SD**
1.	Services are highly charged in private extension service					
2.	Less number of farmers covered by private extension service					
3.	Private extension service had personal bias					
4.	Constant monitoring is followed in this private extension service					
5.	Lack of personal relationship with the farmers in private extension service					
6.	Only resourceful farmers can get benefit of private extension services					
7.	Private extension service ignoring small and marginal farmers as they cant afford the prices to pay for the service					
8.	All production risk lies within the extension service provider					
9.	Timely supply of required quality inputs to farmers					
10.	private extension service Extension service are profit oriented					
11.	private extension service Encourage and motivate farmers to try new technology					
12.	private extension service helps in proper crop planning to get good profit					
13.	Regular monitoring is doing by the consultant made possible to take in time activity for better production					
14.	private extension service Helps in getting better marketing channel for the produce					
15.	Private extension service providers give the information to those who pay money					
16.	Private extension restricts free flow of information to the farmers					
17.	Private extension system facilitates management of agriculture production such as farmlands and livestock facilities to the farmers					
18.	Loans due to climatic factor , the private extension system is not taking the responsibility					
19.	private extension service has Loyalty and humbleness towards farmers					
20.	private extension service encourages and motivates farmers to try new technology					

PROBLEMS FACED BY THE FARMERS IN PUBLIC EXTENSION SYSTEM

Sl no.	**problems**	**A**	**UD**	**DA**
1.	Insufficient training to the farmers in public extension system			
2.	Ultimately diffusion of the latest technical information is not happening in public extension system			
3.	Political interventions are more in public extension system			
4.	Extension personnel were not technically sound in public extension system			
5.	Inputs were not available in sufficient quantity during the season			
6.	The technologies were not practically applicable			
7.	Subsidies were not given for the required input			
8.	Poor monitoring and commitment in work by public extension system			
9.	poor service delivered by the firms in public extension system			
10.	Lack of participation in socio cultural activities			

Suggestions given by farmers for improvement in delivery of public extension services

Sl no.	suggestions	Yes	No
1.	Number of extension staff should be increased		
2.	Need to conduct more extension activities at field level		
3.	Quality inputs should be supplied in adequate quantity		
4.	Communication skill of extension workers should be improved		
5.	Income generating activities should be a component of training programmes		

PROBLEMS FACED BY THE FARMERS IN PRIVATE EXTENSION SYSTEM

Sl no.	problems	A	UD	DA
1.	There is no government support in private extension system			
2.	Information is provided only to those who pay in private extension system			
3.	Lack of availability of extension staff private extension system			
4.	Information related to market was not provided private extension system			
5.	Poor local facilities for input intensive technology			
6.	Exploitation by the input dealers in private extension system			
7.	Extension personnel were not technically sound in private extension system			
8.	Huge investment made by the farmers put them in debt			
9.	Insufficient training to the farmers in private extension system			
10.	Inputs were not available in sufficient quantity in time			

SUGGESTIONS GIVEN BY THE FARMERS FOR IMPROVEMENT IN DELIVERY OF private EXTENSION SERVICES

Sl no.	suggestions	Yes	No
1.	Frequent visit of extension workers to the farmers field		
2.	Need to conduct more extension activities		
3.	Provide technical guidance on innovative technologies		
4.	More concentration should be given to field crops		
5.	Dissemination of information should be in time		

A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE EXTENSION SYSTEMS

Questionnaire for extension personnel

Respondent no:

Name of the respondent:
Address :
1. Age:
2. Post held:
3. Experience in present field:

Experience	**score**
Less than 5 years	
5 to 10 years	
10 to 15 years	
15 to 20 years	
More than 20 years	

4. Areas covered under extension service:

acres	**score**
0 to 5 areas	
5 to 10 areas	
10 to 20 areas	
More than 20 areas	

5.Trainings received

Have you attended the training programme at any time conducted by Agricultural department/ KVK/ RRS/ MANAGE? Yes/ No
If yes,

Number attended		Number of days	

6. Value orientation

S.No		**Statements**	**A 3**	**UD 2**	**DA 1**
1	a	To get more information about income generating activities we should have frequent contact with different sources of interaction			
	b	Most of the information can be had at village itself rather than going outside the village			
2	a	Adoption of new income generating activities will certainly give higher returns and better health			
	b	Prospects of enterprises and our home life is predetermined and will of god is the deciding factor			
3	a	The man who manage their enterprises and have efficient get higher yields and enjoy healthy family life whether god wishes or not			
	b	If one adopts improved practices more problems will be involved. So there are more chances of loss			
4	a	I propose to better the record of production of the previous year			
	b	I am satisfied with the record of production of the previous year			

7. Achievement motivation

S.No	Statements	SA 5	A 4	UD 3	DA 2	SDA 1
1.	One should enjoy work as much as play					
2.	One should work like a slave until he is satisfied with results					
3.	Only those who depend on others, get ahead in life					
4.	Work should be first priority even if one cannot get adequate rest					
5.	One should have determination and driving ambition to achieve certain things in life even these qualities make one unpopular					
6.	Whatever one knows is enough and there is no need of learning new skills for betterment					

PERCEPTION OF PUBLIC EXTENSION FACILITATOR TOWARDS PUBLIC EXTENSION SYSTEM

Sl no.	Statements	SA	A	UD	D	SD
1.	Active participation in meetings, campaigns and exhibitions to solve the problems of farmers					
2.	Public extension service bring team spirit through coordination and cooperation among extension facilitators					
3.	Organised training programs to enhance farmers knowledge and performance					
4.	Public extension cares to the need of all categories of farmers					
5.	Public extension facilitators feel that Public extension service perceived poor administration					
6.	Public extension service conduct production oriented and need based training programs for the farmers					
7.	Public extension services were not easily accessible					
8.	Developed skills through practical field training					
9.	Lot of political intervention leads to poor dissemination of inputs to farmers					
10.	Under certain conditions they feel uncomfortable in perform their professional duties					
11.	Work was recognised and appreciated by the higher authorities					
12.	Provided strategic leadership and guidance for extension and advisory services to extension facilitators in this public extension service					
13.	Provide production and profit oriented service					
14.	Service provider should have up to date knowledge on marketing trends					
15.	Insufficient supply of inputs reduces credibility of the extension personnel					
16.	Public extension service were not having accountability					
17.	Public extension services can supply all agricultural inputs required for demonstration , training and other purposes timely depends on season					
18	Public extension system is practically suitable to adopt and can be trusted to be as accurate as possible					
19	Dishonesty/corruption among extension worker reduces the trust of farmers on public extension system					
20	Less support and co-ordination of higher authority					
21	Extension facilitator to farmer ratio is too high, so full-fledged justification to all farmers is difficult					
22.	Public extension system provide forum for improving knowledge and skills of extension worker					
23	Public extension facilitators were trained village facilitators on latest farm technology and help them in solving field problems					

PECEPTION OF PRIVATE EXTENSION FACILITATOR TOWARDS PRIVATE EXTENSION SYSTEM

Sl no.	Statements	SA	A	UD	DA	SD
1.	Service provided based on interest and needs of farmers					
2.	Private extension system is not suitable for farmers who have poor resources					
3.	Private extension services not covered wide range of farmers and only covered less area					
4.	Work was recognised and appreciated by the higher officials					
5.	Private extension service provide credit, insurance and infrastructure facilities for farmers					
6.	Private extension services are profit oriented					
7.	Private extension Provides demand-driven services					
8.	Private extension Service provider should have up to date knowledge on marketing trends, processing and profit maximising farm advisory services					
9.	They should participate in regular capacity building programme to enhance their knowledge and performance					
10.	Private extension service had poor accountability					
11.	Well qualified persons were appointed for this service and Innovative workers are encouraged					
12.	Individual communication and technical skill play an important role in providing effective service					
13.	Private extension system lacks residential facilities for the extension workers who are working at remote areas					
14.	Extension worker feel uncomfortable in performing their professional duties					
15.	Private extension services are available but farmers were not ready to take risk at any stage of crop production					
16.	Service provider is the master in private extension system					
17.	Only resourceful farmers can get the benefit of the private extension service					
18.	Private extension facilitator feel Difficult to establish credibility among farming community in some villages					
19.	Overload of the work for the private extension service provider					
20.	Private Extension worker needs to update their knowledge and technical know-how, because of competitive nature of the service					
21	Private extension service ensures timely supply of require quality inputs to the farmers					
22.	Innovative extension facilitators are encouraged and more importance is given					
23	Extension agents making use of farmers suggestions in subsequent activities					

PROBLEMS FACED BY THE PUBLIC EXTENSION PERSONNEL IN PUBLIC EXTENSION SERVICE

Sl no.	problems	A	UD	DA
1.	Farmers are less responsible in engaging the new innovations or techniques of farming			
2.	Lack of supporting staff for providing the service			
3.	Non-availability of inputs in sufficient quantity during the season			
4.	Lack of co-ordination between different line departments			
5.	Political intervention made service not to reach farmer effectively			
6.	Lack of practical facilities for imparting training			
7.	Poor capacity building programmes public extension facilitator			
8.	Heavy workload on extension personnel			
9.	Inadequate demonstration facilities			
10.	Lack of timely information			

SUGGESTIONS GIVEN BY EXTENSION FACILITATORS FOR IMPROVEMENT IN DELIVERY OF PUBLIC EXTENSION SERVICES

Sl no.	suggestions	yes	no
1.	Provide more number of supporting staff		
2.	Provide adequate transport facilities for villages for conducting activities		
3.	Should provide more number of labours		
4.	Avoid political intervention		
5.	Promotion based on experience		

PROBLEMS FACED BY THE PRIVATE EXTENSION PERSONNEL IN PRIVATE EXTENSION SERVICE

Sl no	Statements	A	UD	DA
1.	Poor co-ordination/planning among private extension facilitator			
2.	Lack of transport facilities made the service not to reach the farmers effectively			
3.	Lack of incentives and recognition for good work by higher authority			
4.	Lack of supporting staff in delivering the service			
5.	Poor capacity building programmes for private extension facilitator			
6.	Delayed payment of allowances by the beneficiaries i.e farmers			
7.	Lack of trust between extension workers			
8.	Farmers were not following the recommended practices			
9.	Heavy workload on private extension personnel			
10.	In time operation is not possible			

SUGGESTIONS GIVEN BY EXTENSION FACILITATORS FOR IMPROVEMENT IN DELIVERY OF PRIVATE EXTENSION SERVICES

Sl no.	Suggestions	yes	no
1.	Departments should recognise the private consultants and involve in day to day activities		
2.	Public private partnership should be promoted		
3.	Provide practical training on improved technologies to the extension workers		
4.	Avoid non-technical private consultants		
5.	Provide adequate transport facilities for extension workers		

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