UNIVERSITY OF RWANDA
COLLEGE OF AGRICULTURE, ANIMAL SCIENCES
AND VETERINARY MEDICINE
YEAR 4 CROP SCIENCES DEPARTMENT

Technology transfer skills and strategies

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General objective:

At the end of this course the students must be able to understand different kind of Systems that are currently most used in agricultural extension in Rwandan rural areas in a particular way as well as worldwide in general.

Specific objectives:

➢ To describe Technology, transfer, Agricultural Extension and its role in Rural Development;
➢ To understand Major components of Extension system;
➢ To assimilate the existing different schools of rural Extension adopted in Rwanda;
➢ To get insight on the most used Extension systems applied worldwide;
➢ To master the techniques and modern methods of Agricultural Extension;
➢ To "better understand the roles of an agricultural extension agent in rural areas;
➢ To master the National Agricultural Extension Strategic Plan of Rwanda.

HISTORY OF AGRICULTURAL EXTENSION IN RWANDA

1. **The colonial period until the Independence-Day, 1st July 1962**

Until the end of the colonialism in Rwanda, the effort of Agricultural Extension was concentrated on the cash crops as Coffee, Tea and Cinchona (Quinquina in French that is a tree originated from Peru whose peel is rich in quinine, good enough to treat Malaria disease). At that time, the objectives of production so much in quantity and quality were overseen by the colonial authorities and then fixed one-sidedly by the expatriates and the local public civil servants from the administration who had also to supervise the farming works done by the farmers at the same time. So, the produced total quantity was function of the rigor used in the control of the agricultural sector, what means the use of the coercive methods (obligations on behalf of the colonial state towards the peasant).

The main role of the technical managers was to provide the progress reports or the training follow-up activities in agriculture domain while being especially based on the top-down approach called nowadays "Transfer of the Technologies (ToT) of agricultural knowledge/skills without worrying too much about the farmers' propositions emanating from the previous knowledge & skills of these rural people engaged in rural agriculture domain.

2. **Postcolonial period: 1962 - 1980**

During this period, the strategy applied concerning agricultural extension was always the one of the production imposed and controlled in the domain especially of the Cash Crops. Therefore, when the production didn't reach the limit prefixed by the colonial authority, a tax of fine or penalty probably fell on the peasants. There were Public Agents named agricultural technicians Instructors or MONAGRI (*Moniteurs-Agricoles* or *MONAGRI* in French) who were put in charge of increasing the productivity to the level of the Sectors, the Districts (*Communes* in French) and the Provinces (the *Prefectures* in French).

During this period, Rwanda as most of other African countries would have tempted to apply the approach of the Rural Development and/or the one of the Integrated Development that we have already talked about previously. Sometimes the two approaches were applied altogether at the same time to give what one can call the Rural Integrated Development (RID) that had to rely on the use of several methods at once, as following:

- Supervision/training of the Extension agents named the MONAGRIs;
- Installation of the zones of Pilot research as ISAR (currently RAB);
-Demonstration Plots of the agricultural techniques as model fields to be used in public;

- Training of the peasants installed into the *paysannats* (in French that means peasants' dwellings);
- Settling of farmers groups or the agricultural associations;
- Installation of the Extension commissions to the different levels of the administrative entities.

In short, during this period as in the previous one, the Extension services' Agents was concentrated on the Transfer of technology from top to bottom (knowledge and skills or know-how, were disseminated using cooperative movements (the Cooperatives) trained and encouraged by the government.

3. Postcolonial period (1980 - 1994)

During the first 2 decades (20 years), since the independence onward, the growth rate of the Rwandan global agricultural production was superior to the rate of the demographic growth. This situation was then after reversed during the 1980s because of the demographic pressure constantly acting on the arable lands. It had to entail economic and social unrests sooner or later because the ***agricultural production per capita (agricultural productivity)*** had not quit to lessening. However, the services of Extension were assured until then by the government through the MINAGRI. It was then current to use the system of command in chain named the System of Transfer of Technologies (ToT).

It is during this same period that was introduced, for the first time to Rwanda as everywhere worldwide, the Participative approach of Extension. This will be soon developed as part of the very common Extension systems in vogue nowadays, because it is often used by NGOs in charge of socio-economic Development. It is also during this period that most of the Non-Governmental Organizations well known as Developmental NGOs was set out in Rwanda as well as around the World.

This period also contains the years that plunged into mourning Rwanda by the unspeakable events of the Genocide against the Tutsi, which events resulted in a loss without precedent example of human lives in all socio-economic sectors of our country including the agricultural domain. This has led to a total decay of our farming-based economy in rural areas as well as in urban centers, entailing the unprecedented exodus of millions of people toward outside the country, including agricultural technicians of that time that had got some training before the war in agricultural extension services. Apart from the lost human lives, there were also a lot of losses in term of natural resources of our country like the agricultural products and some inestimable quantity of the livestock generally composed with domestic and pet animals. One cannot forget that these enormous losses didn't spare the very useful infrastructures necessary to ensure a sound Rural Integrated Development to our country.

4. Postcolonial period of 1994 - 1998

After the Genocide against the Tutsi, nearly all activities in social or economic sectors were paralyzed and needed to restart, especially in the agricultural sector that had less equipment to use or agricultural material and most of competent human resources were decimated or had fled abroad. First of all, the emergence period has been established to ensure relief to people, followed by the rehabilitation of the administrative institutions, the farming infrastructures as well as the national reconciliation that continues until our days somewhere. All these aforementioned actions were considered like important to the detriment of the training of the agriculturists (farmers in general). During the aftermath period some administrative institutions had only 1 to 3 agricultural agents by Sector or just 4 agents per Commune. Hence, there were not enough agents to take care of the agricultural extension services. It's then after that NGOs hurried up to fill this emptiness while getting involved in functions of

Extension a long time monopolized by the public sector of before the war. These last encouraged the regrouping of the agricultural peasants in various associations in order to facilitate their financing by group rather than individual according to the known principle presently under the name of solidarity guarantee. This system is used presently by some associations of micro - finance under the approach of so-called Empowerment and social inclusion.

5. Postcolonial period of 1998 to nowadays

The year 1998 was characterized by the layoff without mercy of all agricultural extension agents known as " MONAGRI or Monitor-Agriculturist", either the Veterinary assistant, the rice growing Monitors and the Forest protectors, who worked again to the level of the Sectors and some villages. It marked a big turn into the history of the agricultural extension in Rwanda. The authorities justified this massive layoff of agricultural extension agents by the fact that there was a big deficiency of competent extension agents in matters of agricultural techniques dissemination as well as the insufficient budget which was very limited to support effectively the public service of extension. Hence, a few rare extension agents that remained finally on the market entrenched themselves into NGOs of Integrated Rural Development or simply began to set up their own business while opening private cabinets/Bureaus for consultancy studies related to rural extension services especially.

After the creation of the Districts in replacement of the *Communes*, some extension agents were hired as agricultural technicians who had to work under the authority of the Mayor. These few technicians were overloaded at the moment of agricultural, veterinary and forest extension services as they had no others under their control to back up them in their unlimited responsibilities. There was also, at the level of the Provinces some posts of DAEF (Directorate of Agriculture, Animal raising and Forests) to oversee everything in agricultural field and those agents were placed directly under the administrative authority of the MINALOC. However, in spite of the creation of this new structure, there was always a huge gap into the new system between the public authorities in charge of the agricultural problems and the peasant agriculturists considering the elimination of the extension services to the lowest echelon or level that acted before as relay between the peasant agri-breeder, the services of public administration and the Research Centers like ISAR as well as the Secondary or Tertiary agricultural learning institutions as ISAE.

After the above remarks, some new actors, as NGOs, improvised themselves to fill the gap created by the government that has refused to maintain extension units under its proper sponsoring. Besides that, several new Consultancy offices flourished in private sector dealing with agricultural issues by establishing extension contracts with some public Organisation/Agencies like RADA (Rwanda Agriculture Development Agency) or RSSP (Rural Sector Support Project).

Technology transfer

- What comes to mind when you hear the word "Technology"?

Refers to the process by which humans modify nature, products, process, etc. to meet their needs and wants

What is technology transfer?

➢ Transfer of new technologies from universities and research institutions to parties capable of commercialization.

➢ Technology transfer is the process of sharing of skills, knowledge, technologies, methods of manufacturing, samples of manufacturing and facilities.

- A process for conceiving and implementing a new/ novel application for an existing technology (Reisman, 1989).

- Technology transfer is the process of sharing of skills, knowledge, technologies, methods of manufacturing, samples of manufacturing and facilities among governments and other institutions to ensure that scientific and technological developments are accessible to a wider range of users who can then further develop and exploit the technology into new products, processes, applications, materials or services.

Why do Universities have technology transfer offices (TTOs)?

- Recognition to the University

- Compliance with regulations

- Attraction and retention of talented faculty and students

- Local economic development

- Attraction of corporate research support

- Licensing revenue to support further research and commercialization

Purposes of University Technology Transfer

- Participate in innovation process

- Facilitate the commercialization of research results for the public

- Retain and recruit researchers

- Create closer ties to industry

- Generate income for further research and education

- Promote economic growth

- Social responsibility

- New products and medicines

- Bring new technology into industry for economic competitiveness

- Encourage entrepreneurship for local and national economic development

University Strategy

- Create a positive atmosphere at the University

- Establish good and clear policies as an incentive to researchers

- Budget incentives

- New opportunities

- Awards/prizes for achievements

Technology Competitiveness in Developing countries – Factors

- ➤ Level of Interventions

    - Smaller firms find difficult to finance and coordinate the requisite level of technological activity

    - Low participation in network of organizations and institutions involved in diffusing information on technologies.

- ➤ Availability of Skilled Manpower

    - Shortage of trained personnel

    - Lack of continuous capability development of manpower in technical dimensions

    - New technologies are not adopted due to lack of skilled people thus widening the technology gap.

POSSIBLE SOLUTIONS

- Have knowledge of systematic process.

- Have access to various stakeholders.

- Have access to expertise and resources.

- Have experience in negotiating barriers and applying carriers.

Barriers to Technology Transfer

- Lack of awareness – what technologies are available to them

- Lack of knowledge – If staff of company is lacking technical knowledge, it may not be able to capitalize on the technology being offered in the transfer

- Lack of funds – company may not be able to afford the development costs of the technology being transferred

- Lack of common interests – Individuals putting the interests of their own company ahead of the alliance.

- Conflict of interest – Even in collaborations on the technical level, it has been found that collaboration between competing companies doesn't work.

- Lack of Trust – If little trust exists between companies, it is doomed to fail.

- Poor communications – Fail to keep each abreast on everything relevant to the collaboration, activities, thoughts, processes, goals, direction of venture

- Lack of infrastructure – company may lack equipment and facility in infrastructure to take on the transfer

- Over-committed – The company may be over-committed on current projects and simply lacks the time needed for success.

Five Stakeholder Groups

❑ Technology Producers.

❑ Technology Consumers.

❑ Product Producers.

❑ Product Consumers.

❑ Resource Providers.

Members of the Five Stakeholder Groups

Stakeholder Group	Members of Stakeholder Group
Technology Producers	Independent inventors; researchers in university, federal or corporate laboratories.
Technology Consumers	Private sector manufacturers; government agencies; intellectual property brokers.
Product Producers	Private sector manufacturers; distributors; value-added retailers.
Product Consumers	End-users; family members; professional service providers.
Resource Providers	Government agencies; private insurance companies; technology transfer intermediaries.

Technology transfer in Rwanda

Five priorities technologies for the agriculture sector:

- Seeds and grain storage

- Agroforestry

- Radical terraces

- Drip irrigation

- Rainwater harvesting.

Agricultural Extension

Unit –1: Concept, Objectives, Principles, Philosophy, and Process of Extension

In agriculture, knowledge and decision-making capacity determine how production factors – soil, water and capital – are utilized. Agricultural extension is central in formulating and disseminating knowledge, and in teaching farmers to be competent decision makers. Therefore, extension plays an important role in most of agricultural development projects.

The primary goal of agricultural extension is to assist farming families in adapting their production and marketing strategies to rapidly changing social, political and economic conditions so that they can, in the long term, shape their lives according to their personal preferences and those of the community.

Agriculture Extension is generally described as a process and a system in which information, knowledge and skills relating to farming practices are transmitted through various channels and methods to its clients. Agricultural extension is generally perceived as central in formulating and disseminating knowledge and in teaching farmers to be competent decision makers.

Differences between formal and informal education

Formal education	Informal education
The teacher starts with theory & works up to practical	The teacher (extension worker) starts with practical & may take up theory on
Students study subjects	Farmers study problems
Students must adapt themselves to the fixed curriculum offered	There is no fixed curriculum. The farmers help to formulate it
Authority rests with the teacher	Authority rests with farmers
Class attendance is compulsory	Participation is voluntary
Teacher instructs the students	Teacher teaches & also learns from the farmers
Teaching is only through instructors	Teaching is also through local leaders
The teacher has homogeneous audience	The teacher has heterogeneous audience
It has all pre-planned & pre-decided programmes	It has freedom to develop programmes locally which are based on the needs and expressed desires of the people
It is more theoretical	It is more practical

1.2 Concept of Agricultural Extension
The Concept of Extension
The use of the term `extension' originated in England in 1866 with a system of university extension which was taken up first by Cambridge and Oxford Universities, and later by other educational institutions in England and in other countries. The term `extension education' was first used in 1873 by Cambridge University to take the educational advantages of universities to ordinary people. There are many experts and practitioners who have defined and opined extension in various ways encompassing many facets of extension's functions.

Historically, extension has meant education in agriculture and in home economics for rural people. This education is practical, aimed at improving farm and home.

According to Ensminger (1957), extension is education and that its purpose is to change attitudes and practices of the people with whom the work is done. Leagans (1961) conceptualized extension education as an applied science consisting of content derived from research, accumulated field experiences and relevant principles drawn from the

behavioural sciences synthesized with useful technology into a body of philosophy, principles, content and methods focused on the problems of out-of-school education for adults and youth.

In addition to practicing in the field, extension is formally taught in colleges and universities leading to the award of degrees. Research is also carried out in extension. What is unique for extension is the application of the knowledge of this discipline in socio-economic transformation of the rural communities. In this context, ***Extension may be defined as the science of developing capability of the people for sustainable improvement in their quality of life.*** The main aim of extension is human resource development.

The concept of extension is based on the following basic premises.

1. People have unlimited potential for personal growth and development.

2. The development may take place at any stage of their lives, if provided with adequate and appropriate learning opportunities.

3. Adults are not interested in learning only for the sake of learning. They are motivated when new learning provides opportunity for application, for increased productivity and improved standards of living.

4. Such learning is a continuous level of rural populations and should be provided on a continuing basis, because the problems as well as the technologies of production and living are continuously changing.

5. Given the required knowledge and skills, people are capable of making optimal choices for their individual and social benefits.

1.3 Extension Objectives and Functions to Support Achieving Agricultural Development

Extension objectives

The general objectives of extension are –

1. To assist people to discover and analyze their problems and identify their felt needs.

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

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

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

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

Functions of Extension

Change in knowledge - means change in what people know. For example, farmers who did not know of a recent high yielding varieties (HYV) crop came to know of it through participation in extension programmes. The Extension Agents (EAs) who did not know of Information Technology (IT) came to know of them after attending a training course.

Change in skill - is change in the technique of doing things. The farmers learnt the technique of growing the HYV crop which they did not know earlier. The EAs learnt the skill of using IT.

Change in attitude - involves change in the feeling or reaction towards certain things. The farmers developed a favourable attitude towards the HYV crop. The EAs developed a favourable feeling about the use of IT in extension programme.

Change in understanding - means change in comprehension. The farmers realized the importance of the HYV crop in their farming system and the extent to which it was economically profitable and desirable, in comparison to the existing crop variety. The EAs understood the use of IT and the extent to which these would make extension work more effective.

Change in goal - is the distance in any given direction one is expected to go during a given period of time. The extent to which the farmers raised their goal in crop production, say, increasing crop yield in a particular season by

five tons per hectare by cultivating the HYV crop. The EAs set their goal of getting an improved practice adopted by the farmers within a certain period of time by using IT.

Change in action - means change in performance or doing things. The farmers who did not cultivate the HYV crop earlier cultivated it. The EAs who earlier did not use IT in their extension programmes started using them.

Change in confidence - involves change in self-reliance. Farmers felt sure that they have the ability of raising crop yield. The EAs developed faith on their ability to do better extension work. The development of confidence or self-reliance is the solid foundation for making progress.

To bring desirable change in behaviour is the crucial function of extension - For this purpose, the extension personnel shall continuously seek new information to make extension work more effective. The farmers and home makers also on their own initiative shall continuously seek means of improving their farm and home. The task is difficult because millions of farm families with little education, scattered in large areas with their own beliefs, values, attitudes, resources and constraints are pursuing divers enterprises.

1.4 Principles of Agricultural Extension
Principles of Extension

Principles are generalized guidelines, which form the basis for decision and action in a consistent way. The universal truth in extension, which have been observed and found to hold good under varying conditions and circumstances are presented.

1. **Principles of cultural difference.** Culture simply means social heritage. There is cultural difference between the extension agents and the farmers. The differences may be in their habits, customs, values, attitudes and way of life. Extension work, to be successful, must be carried out in harmony with the cultural pattern of the people.

2. **Grass roots principle.** Extension programmes should start with local groups, local situations and local problems. It must fit to the local conditions. Extension work should start with where people are and what they have. Change should start from the existing situation.

3. **Principle of indigenous knowledge.** Indigenous knowledge systems have developed through generations of work experiences and problem solving in their own specific situations. The indigenous knowledge systems encompass all aspects of life and people consider it essential for their survival. Therefore, the extension agent should try to understand them and their ramifications in the life of the people, before proceeding to recommend something new to them.

4. **Principle of interest and needs.** People's interests and needs are the starting points of extension work. Identifying the real needs and interests of the people are challenging tasks of Extension Agents. The extension agents should not pass on their own needs and interests as those of the people. Extension work shall be successful only when it is based on the interests and needs of the people as they see them.

5. **Principle of learning by doing.** Learning remains far from perfect, unless people get involved in actually doing the work. Learning by doing is most effective in changing people's behaviour. This develops confidence as it involves maximum number of sensory organs. People should learn what to do, why to do, how to do and with what result.

6. **Principle of participation.** Most people of the village community should willingly co-operate and participate in identifying the problems, planning of projects for solving the problems and implementing the projects in getting the desired results.

The participation of the people is of fundamental importance for the success of an extension programme. People must share in developing and implementing the programme and feel that it is their own programme.

7. **Family principle.** Family is the primary unit of society. The target for extension work should, therefore, developing the family as a whole, economically and socially. Hence, the farmers, the farm women and farm youth are also to be involved in extension programmes.

8. **Principle of leadership.** Identifying different types of leaders and working through them is essential in extension. Leadership traits are to be developed in the people so that themselves shall seek change from less desirable to more desirable situation. The leaders may be trained and developed to act as carriers of change in the villages. The involvement of local leaders and legitimization by them are essential for the success of a programme.

9. **Principle of adaptability.** Extension work and extension teaching methods must be flexible and adapted to suit the local conditions. This is necessary because the people, their situation, their resources and constraints vary from place to place and time to time.

10. **Principle of satisfaction.** The end product of extension work should produce satisfying results for the people. Satisfying results reinforce learning and motivate people to seek further improvement.

11. **Principle of evaluation**. Evaluation prevents stagnation. There should be a continuous built-in method of finding out the extent to which the results obtained are in agreement with the objectives fixed earlier. Evaluation should indicate the gaps and steps to be taken for further improvement.

1.5 Philosophy, Needs and Levels of Agricultural Extension

The Philosophy of Extension

According to Kelsey and Hearne (1967), the basic philosophy of extension education is to teach people how to think, not what to think. Extension's specific job is inspiring, supplying specific advice and technical help, and counseling to see that the people as individuals, families, groups and communities work together as a unit in `blueprinting' their own problems, charting their own courses, and that they achieve their objectives. Sound extension philosophy is always forward looking. This philosophy becomes the foundation of needs and levels of extension.

Need for Extension

The need for extension arises out of the fact that the condition of the rural people in general, and the farm people in particular, needs be improved. There is a gap between what is – the actual situation and what ought to be – the desirable situation. This gap has to be narrowed down by the application of science and technology in their enterprises and bringing appropriate changes in their behaviour.

According to Supe (1987), the researchers neither have the time nor are they equipped for the job of persuading the villagers to adopt scientific methods, and to ascertain from them the rural problems. Similarly, it is difficult for all the farmers to visit the research stations and obtain first-hand information. Thus, there is need for an agency to interpret the findings of research to the farmers and to carry the problems of the farmers to research for solution. This gap is filled by the extension agency.

Levels of Extension

Extension is generally thought of at two levels, extension education and extension service. Extension at these two levels are interrelated, but at the same time maintain their separate identity.

Extension Education – The extension education role is generally performed by the higher learning institutions like the Agricultural and other Universities and Colleges, and Extension Organizations. At the university level, extension is integrated with teaching and research, while at the research institutes, extension is integrated with research. At the other organizations, extension is generally integrated with training in extension.

Extension service – It is mainly to provide educational service to the people according to their need, for improving their life through better working. The main responsibility of extension service is with the State Government. The departments of Agriculture, Horticulture, Animal Husbandry, Veterinary, Forestry, Fishery, Sericulture, etc. of the State Government carry out extension work with the farmers and rural people over the entire State. The departments maintain close contact with the relevant Universities and Research Institutes for obtaining appropriate technology and methodology for extension work, and for providing them with feedback information from the field for research.

1.6 Process and Steps involved in Agricultural Extension

The Extension Educational Process

Extension education is a participatory process and involves five essential and interrelated steps. The sequence of steps is discussed on the basis of concept developed by Leagans (1967).
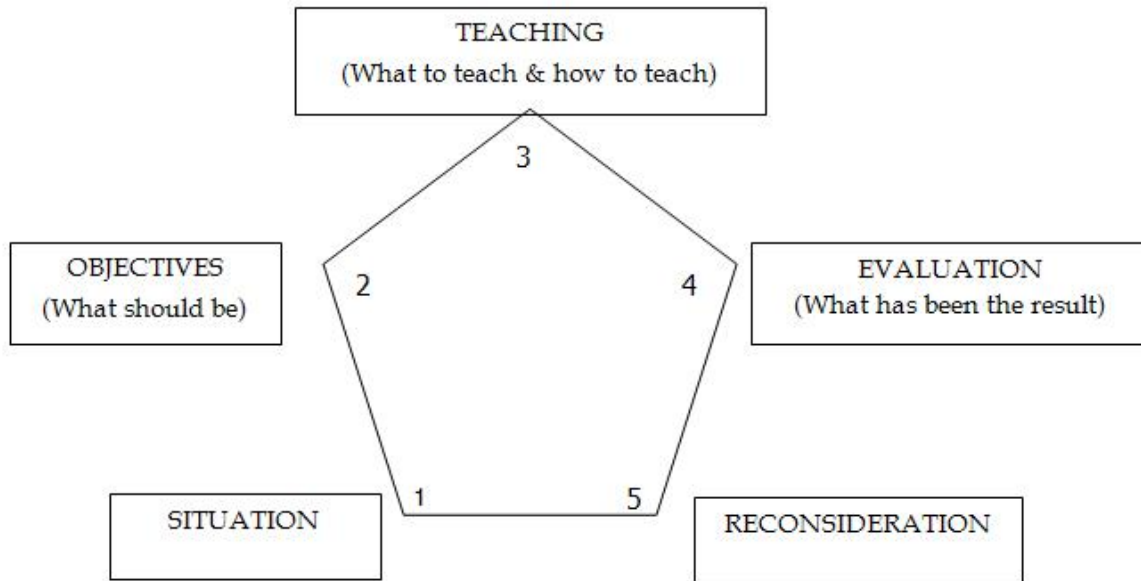
First Step. The first step consists of collection of facts and analysis of the situation. Facts about the people and their enterprises: the economic, social, cultural, physical and technological environment in which they live and work. These may be obtained by appropriate survey and establishing rapport with the people.

Second Step. The next step is deciding on realistic objectives which may be accomplished by the community. A limited number of objectives should be selected by involving the local people. The objectives should be specific and clearly stated, and on completion, should bring satisfaction to the community. Objectives should state the behavioural changes in people as well as desired economic and social outcomes.

Third Step. The third step is teaching, which involves choosing what should be taught (the content) and how the people should be taught (the methods and aids to be used). It requires selecting research findings of economic and practical importance relevant to the community, and selection and combination of appropriate teaching methods and aids.

Fourth Step. The fourth step is evaluating the teaching, i.e. determining the extent to which the objectives have been reached. To evaluate the results of an educational programme objectively, it is desirable to conduct a re-survey. The evidence of changed behaviour should be collected, which shall not only provide a measure of success, but shall also indicate the deficiencies, if any.

Fifth Step. The fifth step is re-consideration of the entire extension educational programme on the light of the results of evaluation. The problems identified in the process of evaluation may become the starting point for the next phase of the extension educational programme, unless new problems have developed or new situations have arisen.

Thus, the continuous process of extension education shall go on, resulting in progress of the people from a less desirable to a more desirable situation.

Unit –2: Extension Methods – Individual, Group and Mass

The extension worker is essentially a teacher. He must visualize the problems in proper perspective and organize the meaningful learning situation for effective learning. It calls for appropriate use of different teaching techniques. Most of the success in bringing about the desired changes in behaviour of learners depends upon the skill of the extension worker as teacher in choosing the teaching techniques most effective to the relevant situations.

In case of Agricultural Extension, the main theme of teaching happens to be the adoption of innovation by individual farmer and subsequent diffusion of the same in the community. Thus, the innovation or idea of innovation becomes hard core, raw material or the message which needs to be treated in palatable way with the help of the extension teaching methods for effective communication. This is a complex phenomenon for the reason that the adoption of an innovation is an individual decision making process. This process involves the stages of awareness, interest, evaluation, trial and adoption. In each stage of this process, it calls for an effective and thoughtful grouping of effective teaching methods to lead the learners towards the desirable changes.

Added to this, the farmers do not adopt an innovation at the same rate or extent as they get distributed into different categories such as innovators, early adopters, early majority, late majority and laggards. For each group of this clientele, the extension worker has to design and arrive at appropriate combination of teaching methods. Still further, the characteristics of innovation itself dictates to certain extent the method that need to be selected for dissemination of agro-information.

Extension workers' main job is to educate the rural people. Extension methods are the tools of the extension workers. These tools are called extension-teaching methods. Extension teaching methods may be defined as the devices used to create situations in which communication can take place between the extension worker and learner. Effectiveness of the teaching methods depends on the combination of the same. Research studies have conclusively shown that the adoption of innovation is positively related to the combinations of different extension teaching methods, at different stages of learning.

The choice of a channel or method of communication, also known as extension teaching method, generally depends on the number and location of the target audience and the time available for communication. They are categorized as individual, group and mass methods. Each of the methods has both advantages and limitations. The extension agent has to choose a particular method or combination of methods according to the needs of the situation.

Extension Through Individual Contact Methods

Individual Method

In individual method the extension agent communicates with the people individually, maintaining separate identity of each person. This method is followed when the number of people to be contacted are few, are conveniently located close to the communicator, and sufficient time is available for communication. Some examples of individual method are : Farm and home visit, farmers' call, personal letter, adaptive or mini kit trial and farm clinic.

The advantages of the individual method are :

• Helps the extension agent in building rapport.

• Facilitates gaining first hand knowledge of farm and home.

• Helps in selecting administrators and local leaders.

• Helps in changing an attitude of the people.

• Helps in teaching complex practices, and

• Facilitates transfer of technology effectively.

The limitations of the individual method are:

• This method is time consuming and relatively expensive.

• It has low coverage of audience, and

• Extension agent may develop favoritism or bias towards some persons in the method.

The individual methods are :

Farm and Home Visit: It is a direct face-to-face contact by the extension agent with the farmer or homemaker at their farm or home for extension work.

Objectives

1. To get acquainted with and gain confidence of farmers and homemakers.

2. To obtain and / or give firsthand information on matters relating to farm and home.

3. To advise and assist in solving specific problems, and teach skills.

4. To arouse interest.

Farmers' Call: It is a call made by farmer or home maker at the working place of the extension agent for obtaining information and assistance.

Objectives

1. To get quick solution of problems relating to farm and home.

2. To enable the farmer and homemaker to bring specimens of diseased plants or insects, pests etc. for proper identification of the problem.

Personal Letter: This letter is written by the extension agent to particular farmer or home maker in connection with extension work. This should be regarded as a substitute for personal contact.

Objectives

1. To answer inquiries relating to problems of farm and home.

2. To send information or seek cooperation on important extension activities.

Adaptive or Minikit Trial: It is a method of determining the suitability or otherwise of a new practice in farmers' situation. This may be regarded as an on farm participatory technology development practice in which farmers choice and farmers opinion about the practice are most important.

Objectives

1. To test a new and promising practice under the resources, constraints and abilities of the farmer.

2. To find out the benefits of the new practice in comparison to the existing one.

Farm Clinic: Farm clinic is a facility developed and extended to the farmers for diagnosis and treatment of farm problems and to provide some specialized advice to individual farmers. The extension agency may set up farm clinics in the village and / or in the organization's headquarters and sub-centres, where the relevant subject matter specialists, in collaboration with the extension agents, discuss, diagnose and prescribe treatment to farmers' problems, meeting those persons individually, on fixed place, day and time.

3.3 Extension Through Group Contact Methods

Group Method

A group may be defined as an aggregate of small number of people in reciprocal communication and integration around common interest. In this method, the extension agent communicates with the people in groups and not as individual persons. This method is adopted when it is necessary to communicate with a number of people simultaneously, who are located not far off from the communicator and reasonably good time is available for communication. The examples of group methods are result demonstration, method demonstration, group meeting method, small group training, field day or farmers day and study tour or exposure visit.

The advantages of the group method are:

• Enables, extension agent to have face to face contact with a number of people at a time.

• Can reach a select part of the target group.

• Facilitates sharing of knowledge and experience and thereby strengthen learning of the group members.

• Satisfies the basic urge of people for social contacts.

• Motivates people to accept a change due to group influence.

• Less expensive than individual method due to more coverage.

The limitations of the group method are :
• Wide diversity in the interest of the group members may create a difficult learning situation.

• Holding the meeting may be regarded as an objective in itself and

• Vested interests, caste groups and village fractions may hinder free interaction and decision making by the group members.

The group methods are:
Result demonstration: It is a method of motivating the people for adoption of a new practice by showing its distinctly superior result. The demonstrations are conducted in the farm or home of selected individuals and are utilized to educate and motivate groups of people in their neighbourhood. This is a very effective method for the transfer of technology in a community.
Objectives
1. To show the advantages and applicability of a newly recommended practice in farmer's own situation.

2. To motivate groups of people in a community to adopt a new practice by showing its result.
Method demonstration: It is relatively short-time demonstrations given before a group of people to show how to carry out entirely new practice or a old practice in a better way. It is essentially a skill training, where the emphasis is on effectively carrying out a job, which shall improve upon the result.
Objectives
1. To teach skills and stimulate people to action.

2. To get rid of inefficient or defective practices

Group meeting: It is a method of democratically arriving at certain decisions by a group of people, by taking into consideration the members' point of view. Group meetings and discussions aim at collective decision making and at improving individual decision making by using the knowledge and experience of group members.
Objectives
1. To prepare a favourable climate for discussion and help in better understanding of the problem by pooling the knowledge and experience of a number of persons.

2. To facilitate in-depth discussion by involving a small number of participants.

Small group training: It is a technique of imparting specific skills to a group of people who need them by creating appropriate learning situation. This is an effective method for transfer of technology.
Objectives
1. To impart the needed skills to a small group of people.

2. To motivate people to adopt new practices through skill training.

Field day or farmers day: A method of influencing the people to adopt a new practice by showing what has actually been achieved by applying the practice under field conditions. A field day or farmers' day may be held in a research farm or in a farmer's field or home.
Objectives

1. To convince the participants about the applicability of the practice in their own situations.

2. To motivate them to adopt the practice by showing its performance and profitability under field conditions.

Study tour or Exposure visits: In study tour, a group of interested persons accompanied and guided by one or more extension agents moves out of their neighbourhood to study and learn significant improvements in farm and home elsewhere.

Objectives

1. To expose the visitors to a new and different situation which shall help in changing their outlook and extend their mental horizon.

2. To understand the gap in technology adoption.

3.4 Extension Through Mass Contact Method

Mass Method

In this method, the extension agent communicates with a vast and heterogeneous mass of people, without taking into consideration their individual or group identity. Normally group boundary gets obliterated. This method is valid when a large and widely dispersed audience is to be communicated within a short time. There may be a few communicators such as the extension agent and some subject matter specialists. The size of the audience may be a few 100s in mass meeting, few 1000s in campaign and a few 100Ks in newspaper, radio and television. A few examples of mass methods are farm publications, mass meeting, campaign, exhibition, newspaper, radio and television.

Advantages of mass method are :

• It is suitable for creating general awareness among the people. It helps in transferring knowledge in farming and changing opinions.

• Large number of people are communicated within a short span of time.

• Facilitates quick communication in times of emergency.

• Less extensive due to more coverage.

Few limitations in mass methods

• It is less intensive method.

• Little scope for personal contact with the audience.

  Generalized recommendations hinder application by individuals.

• Little control over the responses of the audience, and

• Difficulty in getting feedback information and evaluation of results.

Mass methods are:

Farm publication: It is a type of publication prepared by the extension agency in printed form, containing information relating to the improvement of farm and home. Farm publications are of various types such as leaflet, folder, bulletin, newsletter, journal and magazine. Farm publications may be used singly or in combination with other extension methods.

Objectives

1. To reach a large number of people quickly and simultaneously at a low cost.

2. To provide accurate, motivating, credible and distortion free information.

Mass meeting: It is held to communicate interesting and useful information to a large audience at a time. The size of the audience for mass meeting may be a few hundreds, but at the time of fairs or festivals, it may be few thousands.

Objectives

1. To focus attention of the people on some important topic.

2. To create general awareness about a programe or project and to announce its progress.

Campaign: It is an intensive educational activity for motivating and mobilizing a community to action to solve a problem or specify a need urgently felt by it. The duration of a campaign may be for a single day on a theme like 'Water for Life', for a few weeks as in Rat control, for a few months as in tree planting and for a few years as in 'Grow More Food' campaign. Campaign on certain themes (say, environment, disease control etc.) may be organized over the whole world. Rat control can effectively done through campaigns only by involving all the farmers in the villages.

Objectives

1. To create mass awareness about an important problem or felt need of the community and encourage them to solve it.

Exhibition: It is a systematic display of models, specimens, charts, photographs, pictures, posters, information etc. in a sequence around a theme to create awareness and interest in the community. This method is suitable for reaching all types of people. Exhibitions may be held at the village, block, sub-division, district, state, national and international levels.

Objectives

1. To promote visual literacy.

2. To acquaint people with better standards.

Newspaper : It is a bunch of loose printed papers properly folded, which contains news, views, events, advertisements etc. and is offered for sale at regular intervals particularly daily or weekly. Newspapers are usually printed on a special type paper, known as newsprint.

Extension agent cannot exercise any control over the newspaper, big or small. However, by establishing a good rapport with the editor, reporter etc. a reasonable support for extension work may be obtained. Newspapers may support extension work by publishing news of extension activities and achievements, extension recommendations and package of practices, success stories, market news, focusing farmers problems, advertisements issued by extension organizations, input dealers etc. Newspaper is a good medium of communication in times of crises and urgent situations. Most of the Indian language daily newspapers devote a page or a part of it on agriculture and rural development on a fixed day of the week.

Radio: It is an electronic audio medium for broadcasting programmes to the audience. This medium is cosmopolite in approach and is suitable for communication to millions of people widely dispersed and suited in far-flung remote areas. Availability of low cost transistor sets has helped radio to penetrate deep into the rural life.

Radio is suitable for creating general awareness amongst the people, help change their attitude and reinforce learning. The medium is extremely convenient for communication in times of crises and urgent situations. People with no education or very little education and those who are not in a position to attend extension programmes personally, can take advantage of this medium and build up adequate knowledge and skill. It reaches a large number of people at a very low cost. The programmes may be listened to while one is engaged in farming or household work.

Farm and Home broadcasting

The scope and structure of Farm and Home broadcasts have since changed and enlarged to meet the diversified needs and interests of the rural audience which grew in size over the years. The broad objectives of Farm and Home broadcasts are –

1. To inform the farming community about the latest scientific techniques of increasing production in all important farm enterprises.

2. To inform the non-agricultural rural population about the subsidiary and agro-based enterprises for improving their earnings.

3. To help the rural people to participate in constructive agricultural and social programmes for betterment of rural life.

4. To inform the rural women on improved home making, on supporting their male counterparts on improved farming and to encourage them to participate in decision-making for progress of scientific farming.

Television:
It is an electronic audio visual medium which provides pictures with synchronized sound. Television combines immediacy of radio with the mobility of cinema and can carry messages over long distances at all relatively low unit cost. It is cosmopolite in approach and can be used to create instant mass awareness.

Unit –3: Farm schools and Farm Field Schools – Concept and their Operationalisation

3.1 History of FFS

By the end of 1980s, a new approach to farmer training emerged in Indonesia called the 'Farmer Field School' (FFS). The term "Farmer Fields Schools" came from the Indonesian expression *Sekolah Lapangan* meaning just *field schoo*l. The first Field School was established in 1989 in Central Java during a pilot season by 50 plant protection officers to test and develop field training methods as part of their IPM training of trainers course. The name *Sekolah Lapangan* was created to reflect the educational goals; the course took place in the field, and the field conditions defined most of the curriculum, but real field problems were observed, and analysed from planting of the crop (rice) to harvest. Group decisions on the crop management was evaluated at the end of season by measuring the yield. A field was established by the participants with a research study to compare IPM methods and farmer's conventional methods. Pre- and post-tests were given, the same farmers and facilitators attended throughout the season, and graduation was based on attendance and learning performance. Graduation certificates were awarded to farmers. Thus, the Field School was a school without walls that taught basic agro-ecology and management skills. There is no right way to do Farmer Field Schools, only participatory ways.

Farmer Field School on Integrated Pest Management (IPM) was developed to help farmers alter their practices to diverse and dynamic ecological conditions. Policy-makers and donors were impressed with the results of farmers field school and the program rapidly expanded. Eventually, IPM Farmer Field School programs for rice were carried out in twelve Asian countries and gradually branched out to vegetables, cotton, and livestock and other crops. From the mid-nineties onwards, the experience generated in Asia was used to help initiate IPM Farmer Field School programs in other parts of the world. New commodities were added and local adaptation and institutionalization of these programs was encouraged. At present, IPM Farmer Field School programs, at various levels of development, are being conducted in over 30 countries worldwide.

3.2 Meaning of Farmer Field School
The Farmer Field School is a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. In regular sessions from planting till harvest, groups of farmers observe and discuss dynamics of the crop's ecosystem. Simple experimentation helps farmers further improve their understanding of functional relationships (e.g. pests-natural enemy population dynamics and crop damage-yield relationships). In this cyclical learning process, farmers develop the expertise that enables them to make their own crop management decisions. Special group activities encourage learning from peers, and strengthen communicative skills and group building.

3.3. Basic Concepts of Farmer Field School
The basic concept of Farmer Field School is:
• If I hear it, I forget it

• If I see it, I remember it

• If I discover it, I own it for life

1. Adult non-formal education: Field schools assume that farmers already have a wealth of experience, and knowledge. It also assumes that there may be misconceptions and bad habits learned during intensification programmes (e.g. little knowledge of natural enemies, basic fear of any insect that is seen in the field, etc.). Therefore the field Schools are oriented to providing basic agro-ecological knowledge and skills, but in a participatory manner so that farmer experience is integrated into the programme. For example, when observing in the field, facilitators will ask farmers what something is such as a natural enemy and ask who know what it might eat. Farmers

give their response, and the facilitator adds his/her knowledge. If there is a disagreement between anyone, the facilitator and participants will set up simple studies to find the correct answer. In one field school farmers were discussing whether a certain lady beetle was a predator of pests or a pest of the plant. One farmer bet another on their choice. The facilitator showed how to put the lady beetle in a jar one jar with pest prey and the other with leaves. The result was that the lady beetle ate the insects and the loser had to carry the winner around the village on his back. In fact there are both kinds of lady beetles but one type is 'hairy' and the other not. This was seen by the farmers.

2. Technically strong facilitator: The field school is usually initiated by an extension staff member of the government, farmers' organization, or NGO. But in all cases the person must have certain skills. Most important is that the person is skilled at growing the crop concerned. In most countries, the extension staff has never grown crops 'from seed to seed' and most often lack confidence. For this reason, most IPM programmes have begun with training field staff in season – long courses which provide basic technical skills for growing and managing an IPM crop. Some people have called this the "Farmer respect course" in that field staff comes to realize how difficult farming is, and why farmers do not immediately "adopt" their "extension messages". Facilitation skills and group dynamic/group building methods are also included in this season to strengthen the education process in the field Schools. An uncertain trainer is a poor trainer. A confident trainer can say "I don't know – let's find out together" much easier when the inevitable unknown situation is encountered in the field.

3. Based on crop phenology and time limited: The field Schools and season long training for trainers are based on the crop phonology; seedling issues are studied during the seedling stage, fertilizer issues are discussed during high nutrient demand stages, and so on. This method allows to use the crop as a teacher, and to ensure that farmers can immediately use and practice what is being learned. Meeting on a weekly basis means that farmers are participating in a course for a whole season.

4. Group study: Most field schools are organized for groups of about 25 persons with common interests can support each other, both with their individual experience and strengths, and to create a "critical mass". As individuals, trying something new is often socially inappropriate (e.g.reducing sprays, cover crops), but with group support, trying something new becomes acceptable. The number of 25 is roughly the number that can comfortably work together with one facilitator.

Usually these 25 are sub-divided into groups of five persons so that all members can better participate in field observations, analysis, discussion, and presentations.

5. Field School site: The field schools (learning field) are always held in the community where farmers live so that they can easily attend weekly and maintain the field school studies. The extension officer travels to the site on the day of the field school

6. Building groups: One of the jobs of the facilitator is to assist the field school to develop as a support group so that participants can support one another after the field school is over.

7. Basic science: Field schools try to focus on basic processes through field observations, season-long research studies, hands-on activities. It has been found that when farmers have learned about basics, combined with their own experiences and needs, they make decisions that are effective.

8. Study fields [non-risk] : In the learning field of two acres, one acre is meant for conducting long term experiments. Out of which a small (usually about 1000 m2) field kept for each group study. This is the core of the Field Schools. This field is essential for a field school because farmers can carry out studies without personal risk allowing them to make management decisions that they might not otherwise attempt in trails on their own farm. This provides farmers a way of testing a new method themselves before applying it to their own farm. This provides farmers a way of testing a new method themselves before applying it to their own fields. It also allows for more interesting research topics such as defoliation simulations in which leaves are removed. The arrangement of this field varies based on local conditions.

3.4. Principles of the Farmer Field School

1. "Grow a healthy crop" means use Proper crop and plant management methods to allow plants to recover better from environmental or pest injury, avoids nutrient deficiencies related with pest attack (insects and disease), and promotes natural defenses to many insects and diseases inherent in plants.[Academic term: cultural controls].

2. "Conserve natural enemies" provides free biological control of insects and diseases. Parasites, predators and pathogens have long been recognized to control pest insects, but recent research shows microbial antagonists, and competitors of plant diseases are also important. Vertebrate natural enemies are also essential for control systems.

Conservation usually implies avoiding inappropriate pesticide applications (herbicides, fungicides and insecticides all have impact on insect and disease natural enemies) or improving soil organic matter necessary for beneficial soil micro - organisms. Natural enemy habitat protection and development are more effective methods of conserving natural enemies (e.g. owl houses, mulching for spiders, floral nectarines for parasites). Inoculation or inundation of reared natural enemies may be possible under special circumstances but usually only after conservation efforts have already been implemented.
[Academic term: biological control].

3. "Observe crops regularly" means informed decision making for appropriate interventions to be made quickly for water, soil and plant management. Inputs used are based on an ecologic economic assessment: [Academic term: Input analysis].

4. "Farmers become experts" in their own fields is crucial for long term management of soils, pests and crops. Expertise implies a basic understanding of the agro-ecological system, and decision making processes. Simple rules and directives may provide short term benefits but cannot sustain long term local developments.

The farmer field school deals not only with the practice that farmers want to learn about but with farmers as farmers. Farmer field schools are conducted for the purpose of helping farmers to master and apply field management skills. The farmer implements his or her own decisions in his or her own field.
In farmer field school problems are seen as challenges, not constraints. Farmer groups are taught numerous analytical methods. Problems are posed to groups in a graduated manner such that trainees can build confidence in their ability to identify and tackle any problem they might encounter in the field.

The Farmer Field Schools teaches several principles, which bring cause and effect relationships and help farmers to discover and learn. In contrast packaged approaches increase the dependence of farmers on central planners as they are neither cost effective nor effective at improving the quality of farmers management skills.

Hence, the key principles of Farmer Field Schools are, what is relevant and meaningful is decided by the learner, and must be discovered by the learner. Learning flourishes in a situation in which teaching is seen as a facilitating process that assists people to explore and discover the personal meaning of events for them; Learning is a consequence of experience; People become responsible when they have assumed responsibility and experienced success; Co-operative approaches are enabling; As people invest in collaborative group approaches, they develop a better sense of their own worth ; Learning is an evolutionary process, and is characterized by free and open communication, confrontation, acceptance, respect and the right to make mistakes; Each person's experience of reality is unique; As they become more aware of how they learn and solve problems, they can refine and modify their own styles of learning and action. (*Jules N. Prettty*).

3.5. Characteristics of the Farmer Field School Approach

Farmers as Experts: Learning by doing is the training approach used. Farmers learn by carrying out for themselves the various activities related to the particular farming practice they want to study and learn about. This could be related to annual crops, livestock/fodder production, orchards or forest management. The key thing is that farmers conduct their own field studies. Their training is based on comparison studies (of different treatments) and field studies that they, not the extension/ research staff conduct. In so doing they become experts on the particular practice they are investigating.

The Field is the Primary Learning Material: All learning is based in the field. The field is where the farmers learn. Learning field (2.00 acre) is selected in one of the trainee of the farmer's field school. Working in small sub-groups they collect data in the field, analyse the data, make action decisions based on their analyses of the data, and present their decisions to the other farmers in the farmer field school for further discussion, questioning, and refinement.

Extension Workers as Facilitators Not Teachers: The role of the extension worker is very much that of a facilitator rather than a conventional teacher. Once the farmer know what they have to do, and what they can observe in the field, the extension worker takes a back seat role, only offering help and guidance when asked to do so. Presentations during meetings are the work of the farmers not the extension worker, with the members of each working group assuming responsibility for presenting their findings in turn to their fellow farmers. The extension worker may take part in the subsequent discussion sessions but as a contributor, rather than leader, in arriving at an agreed consensus on what action needs to be taken at that time.

The curriculum is Integrated: The curriculum is integrated. Crop husbandry, animal husbandry, horticulture, silviculture, are considered together with ecology, economics, sociology and education to form a holistic approach. Problems confronted in the field are the integrating principle.

Trainings follows the Seasonal Cycle: Training is related to the seasonal cycle of the practice being investigated. For annual crops this would extend from land preparation to harvesting. For fodder production would include the dry season to evaluate the quantity and quality at a time of year when livestock feeds are commonly in short supply. For tree production and such conservation measures as hedge rows and grass strips training would need to continue over several years for farmers to be able to see for themselves the full range of costs and benefits.

Regular Group Meetings: Farmers meet at regular intervals. For annual crops such meetings may be every 1 or 2 weeks during the cropping season. For other farm/forestry management practices the number of meetings depend on specific activities need to be done.

Learning materials are learner generated: Farmers generate their own learning materials, from drawings of what they observe, to the field trials themselves. These materials are always consistent with local conditions, are less expensive to develop, are controlled by the learners and thus can be discussed by the learners with others. Learners know the meaning of the materials because they have created the materials.

Group dynamics/team building: Training includes communication skill, problem solving, leadership, and discussion methods. Farmers require these skills. Successful activities at the community level require that farmers can apply effective leadership skills and have the ability to communicate their findings to others.

MAJOR STEPS IN FFS IMPLEMENTATION

• FFS-Structure & Characteristics

• Participants

• Facilitators

• Classroom

• Duration

• Meeting Frequency

• Curriculum

• Session details

.Field Day

Bench Mark Survey:

Bench mark survey was conducted at the preliminary meeting in which base line data was collected for the last season from the farmers to know their farming practices, local pest problems and also the lacunae in the farming. This data is needed to prepare an action (curriculum) for conducting IPM programmes successfully. Based on the base line survey the gaps are identified and to bridge the gaps appropriate interventions are proposed in the curriculum to be taken up at various stages of crop growth in order to reduce the cost of cultivation and increase the productivity.

Farmers Field Schools:

The farmers field schools are different from traditional type of teaching in having participatory approach. The sessions were conducted from 8.00 A.M. to 1.00 P.M. on the selected day in every week. During the sessions different exercises such as pre and post evaluation through Ballot Box Test (to assess the knowledge level of farmers), Agro-Ecosystem Analysis, identification of pest/defenders, PAR (Participatory Action Research), Insect Zoo activities were conducted. Most of these activities were field oriented. These 14 weeks farmers field school programme helped to study the changes in the pest complex, population dynamics of pest and defenders corresponding to the stage of the crop growth. These field exercises, Group Dynamics etc., made the farmers to understand the IPM approaches and become IPM experts in their own fields.

3.9. Farm School

There are numerous agricultural 'bright spots' covering crops, fruit trees, farm animals and fisheries in the country. These bright spots are the results of the work of innovative and hard working farm women and men. Farm schools are established in the fields of such innovative farmers or farmer achievers who are actually enhancing productivity and profitability in their farms through scientific and sustainable agriculture. Farm School is powerful instrument for participatory research and knowledge management. It is an alternative extension tool and facilitate farmer-to-farmer learning. It also reduces the widening gap between scientific know-how and farmers practices. This would facilitate development of farming situation / system specific packages.

The host achiever farmer is designated as Farmer Scientist / Farmer Professor in the respective crops / enterprises considering his area of expertise. The establishment of such Farm Schools would also add the dimension of engagement with farm families, to extension. Priority need to be given in the areas of horticulture, crop-livestock, mixed farming, organic farming, agro-forestry and aquaculture for establishing Farm Schools.

1. The key features of the Farm Schools to be promoted under the ATMA programme are given below:

Farm Schools would be operationalized at Block/Gram Panchayat level.

• These would be set up in the field of outstanding farmers and awardees of nationally recognized awards for farmers. These could also be set up in a Government/ Non-Government Institution.

• "Teachers" in the Farm Schools could be progressive farmers, extension functionaries or expert belonging to Government or Non-Government Sector.

• One of the main activities of Farm Schools would be to operationalize Front Line Demonstrations in one or more crops and/or allied sector activities. These demonstrations would focus on Integrated Crop Management including field preparation, seed treatment, IPM, INM, etc.

• Farm Schools would provide season long technical backstopping/ training to target farmers.

• The "students" of Farm Schools would be leaders of Commodity Interest Groups (CIGs) formed in different villages and other farmers.

• "Students" would visit Farm Schools as per specified schedule or as may be necessary. "Teachers" may also visit students as may be necessary.

1. Knowledge and skills of 'teachers" would be upgraded on a continuous basis through training at district/ state/ national level institutions and exposure visits, etc.

2. In addition to technical support through Farm Schools, knowledge and skill of "students" may also be upgraded through training at district/ state level and exposure visits, etc.

3. "Students" would have the responsibility of providing extension support to other farmers in the respective village or neighboring villages.

Integration of Farmer Field School and Farm School

The technologies and innovations of the achiever farmers of field school may be disseminated following the same procedure of Farmer Field School. Here the facilitator or teacher would be the achiever farmer and disseminating the proper technologies in his farm.

COMMUNICATION OF AGRICULTURAL INNOVATIONS

Unit –4: Concept, Meaning, Process and Factors Affecting Communication

4.1. Introduction

Communication is sharing information by observing, listening, speaking, writing etc. People communicate in many ways, including talking by moving their hands and even by making faces. People also use telephone calls and letters for personal communication. Without communication parents would not know what their children need. Teachers could not help their students learn. People could not share knowledge. Each person would have to learn everything for himself or herself. Friends could not make plans with one another. Infact human beings probably could not survive for long without communicating each other.

Mass communication is another important type of communication to send message to large audience. Books are one of the oldest methods of mass communication. Television is one of the networks. Newspaper and radio are other ways that information can be sent to many people. Modern nations probably could not exists without mass communication.

For example, in the morning when Mr. X. enters his office he reads his incoming mail (written communication). In sorting his mail he found a number of pamphlets which are designed to describe the merits of various business

machines (pictorial communication). Through the open window the faint noise of a radio is heard, as the voice of an announcer clearly praises the quality of a brand of toothpaste (spoken communication).

When his secretary enters the room she gives him a cheerful "good morning" which he acknowledges with a friendly nod of his head (gestural communication) while he continues with his conversation on the telephone (spoken communication) with a business associate. Later in the morning he dictates a number of letters to his secretary, then he holds a committee meeting (group communication), where he gathers the advice of his associates. In this meeting a number of new governmental regulations (mass communication) and their effect upon the policies of the firm are discussed. Later in the meeting a resolution to the employees of the firm concerning the annual bonus (mass and group communication) is considered.

After the committee has adjourned, Mr. X, engaged in thoughts concerning unfinished business (communication with self), slowly crosses the street to his restaurant for lunch. On the way he sees his friend Mr. Y, who in a great hurry enters the same luncheon place (communication through action), and Mr. X decides to sit by himself rather than to join his friend, who will probably gulp down his coffee and hurry on (communication with self). While waiting, Mr. X studies the menu (communication through printed word) but the odour of a juicy steak deflects his gaze (chemical communication); it is so appetizing that he orders one himself.

After lunch he decides to buy a pair of gloves. He enters a men's store and with the tips of his fingers carefully examines the various qualities of leather (communication through touch). After leisurely concluding the purchase, he decides to take the afternoon off and to escort his son on a promised trip to the zoo. On the way there, son, watching his father drive through the streets, asks him why he always stops at a red light and why he does not stop at a green light (communication by visual symbol). As they approach the zoo, an ambulance screams down the street, and Mr. X pulls over to the side of the road and stops (communication by sound). As they sit there he explains to his son that the church across the street is the oldest in the state, built many years ago, and still standing as a landmark in the community (communication through material culture).

After paying admission to the zoo (communication through action), they leisurely stroll over to visit the elephants. Here his son laughs at the antics of an elephant who sprays water through his trunk at one of the spectators (communication through action), sending him into near flight. Later on in the afternoon Mr. X yields to the pressure of his son, and they enter a movie house to see a cartoon (communication through pictures). Arriving home, Mr. X dresses in order to attend a formal dinner and theater performance (communication through the arts).

4.2. Concepts of communication

1.2.1. Communication is the process by which two or more people exchange ideas, facts, feelings or impressions in ways that each gains a common understanding of the meaning, intent and use of message (Leagans, 1960)

1.2.2. Communication is the discriminatory response of an organism to stimulus (Berlo 1966).

1.2.3. Communication is the process by which the message is transmitted from the source to the receiver (Rogers, 1983)

4.3. Meaning of communication:

Communication was a Latin root 'communis' which means common – It also requires a degree of commonness between individuals for communication to occur. The purpose of communication is to establish commonness. Communication, thus refers to the process of sharing information, feeling ideas in a manner that there is common understanding of meaning, intent and use of the message.

Communication involves the complete transfer of an idea or thought from one's mind to that of another. It is not, therefore, enough if you tell the farm people about a new idea. They must hear it, understand it and remember it. In other words, communication is telling someone something in such a manner that he gets it. People get an idea when they receive it through one or more of their senses – when they are seeing, hearing, smelling, feeling, tasting. When they get it, you say that your communication has produced a interest in them and it leads them to think and to act.

Communication is the process of unfolding understanding and meaning. It is about achieving a communion of understanding – a coming together in mind. If understanding has not occurred, communication has not happened.

4.4. Process of communication

Most of us are familiar with the five-step process occurring between a sender and receiver when they communicate Communication being a process, requires at least two persons — a sender and a receiver—irrespective of the mode of communication. The sender conceives the idea, gives it a shape, decides the mode of communication which may be used to convey the idea, and conveys it. The receiver receives it, tries to understand it, and finally takes an action which may be either to store the information or to send the message to the original source or take any other line of action as required by the source. The whole process, discussed as follows:

4.5. Factors affecting communication:

The communication task thus consists of the skillful handling of six key elements. These elements will now be considered in the light of the guides already mentioned and in an attempt to show their singular function, their relationship to each other and how they are to be dealt with in the total process of communication for rural development.

The successful communication requires a skillful communicator sending a useful message through proper channels effectively treated to an appropriate audience that responds as desired. Extension Worker is the communicator who starts the process of communication. The extension worker and mass media like radio are sometimes visualized as sources or originators of messages, which is not correct. Knowledge generates through research and as such the Research Institutes, Research Projects, Universities are the originators of sources of message. The extension worker obtains the required information from research and carries it to the audience, the farmers. The extension worker is the communicator, a carrier of information. To enhance the process, extension workers may take the help of some aids, known as audio-visual aids. They also carry back the reactions of the farmers, their problems etc. as feedback information to research, for finding out solutions for the same and the six factors are discussed in details bellow.

4.5.1. Communicator

A good Communicator knows
i. The objectives specifically defined;

ii. the audience – needs, interests, abilities;

iii. the message – concept, validity, usefulness, importance;

iv. channels that will reach the audience;

v. organization and treatment of the message;

vi. the professional abilities and limitations

The Communicator is interested in:
i. the audience welfare;

ii. the message and how it can help people;

iii. the results of communication and their evaluation;

iv. the communication channels –use and limitations;

v. improvement of the communication skil.l
The Communicator prepares
i. a plan for communication – a teaching plan;

ii. Communication materials and equipments;

iii. a plan for evaluation of results.

The Communicator has skill in
i. Selecting messages;

ii. Treating messages;

iii. Expressing messages;

iv. the selection and use of channels;

v. understanding the audience;

vi. collecting evidence of results.

1.5.2. Message
Messages which are relevant, interesting, useful, profitable, credible (latest and best, based on research findings) and complete (neither too much, nor too little) are likely to motivate the people. A good message clearly state what to do, how to do, when to do and what would be result.
A good message should be………
i. in line with the objective to be attained

ii. clear, understandable by the audience

iii. in line with the mental, social economic and physical capabilities of the audience;

iv. significant – economically, socially or aesthetically to the needs, interest and values of the audience

v. covering only one point at a time

vi. scientifically sound, factual and current

vii. timely - important and issues are current

viii. appropriate to the channel selected

ix. appealing and attractive to the audience

x. applicable –to one's own particular situation

xi. manageable – can be handled by the communicator and within the limits of time

1.5.3: Channel
Channel of communication constitutes the medium through which information flows from a sender to one or more receivers. Face-to-face, word-of-mouth is the simplest and yet one of the most widely used and effective means of communication, particularly for the developing countries. The channels of communication may be classified into a number of ways according to different criteria.
According to form
Spoken: Farm and home visit, farmer's call, meetings, radio talk ec.,
Written: Personal letter, farm publications, newspaper etc.
According to nature of personal involved
Personal localite: They are the local leaders and local people who belong to the receivers own social system. Personal localite channels are important in traditional social system
Personal cosmopolite: These are the channels of communication from outside the social system of the receiver. They are the extension agents of various organizations and are important in changing the farmers from traditional to modern.
According to nature of contact with the people
Individual contact: The extension agent communicates with the people individually, maintaining separate identify of each person. Examples are farm and home visit, farmer's call, personal letter etc.
Group contact: The extension agent communicates with the people in groups and not as individual persons. Examples are group meeting, small group training, field day or farmer's day, study tour etc.

Mass contact: The extension agent communicates with a mass of people, without taking into consideration their individual or group identity. Examples are mass meeting, campaign, exhibition, radio, television etc.

Many obstructions can enter channels. These are often referred to as 'noise' that prevents the message from being heard by or carried over clearly to the audience. 'Noise' emerges from a wide range of sources and causes. The following are some of them

1. Failure of channel to reach the intended audience

2. Failure on the part of the communicator to handle channels skillfully

3. Failure to send channels appropriate objective of a communicator.

4. Failure of an audience to listen or look carefully.

5. Failure to use channels enough in parallel.

6. Use of too many channels in series.

To help overcome some of the problems of communication, one should take the following factors into account:

i. The specific objective of the message

ii. The nature of the message – degree of directness versus abstractness, level of difficulty, scope, timing etc.,

iii. The audience – size, need, interest, knowledge of the subject etc.

iv. Channels available that will reach the audience, or parts of it

v. How channels can be combined and used in parallel

vi. Relative cost of channels in relation to anticipated effectiveness

vii. Time available to the communicator and to the audience

viii. Extent of seeing, hearing or doing that is necessary to get the message through; and

ix. Extent of cumulative effect or impact on the audience necessary to promote action.

1.5.4. Treatment of message
Treatment means the way a message is handled, dealt with, so that the information gets across to the audience. It relates to the technique or details of procedure or manner of performance, essential to effective presentation of the message. The purpose of treatment is to make the message clear, understandable and realistic to the audience
Treatment usually requires original thinking, deep insight into the principles of human behaviour and skill in creating and using refined techniques of message presentation. The following are the three categories of bases useful for varying treatment
Matters of general organization
i. repetition of frequency of mention of ideas and concepts

ii. contrast of ideas

iii. chronological – compared to logical and psychological

iv. presenting one side compared to two sides of an issue

v. emotional compared to logical appeals

vi. starting with strong arguments compared to saving them until the end of presentation

vii. proceeding from the general to the specific and vice-versa and

viii. explicitly drawing conclusions compared to leaving conclusions implicit for the audience to draw

Matters of speaking and acting
i. Limit the scope of presentation to a few basic ideas and to the time allotted

ii. Be yourself –you can't be anyone else, strive to be clear, not clever

iii. Don't tread your speech – people have more respect for a communicator who talks to the audience

iv. Know the audience – each audience has its own personality, be responsive to it

v. Avoid being condescending (patronizing) do not talk or act down to people, or over their heads. Good treatment of message results in hitting the target.

vi. Decide on the dramatic effect desired – effective treatment requires sincerity, smoothness, enthusiasm warmth, flexibility and appropriateness of voice, gestures, movements and tempo

vii. Use alternative communicators when appropriate, as in group discussion, panels, interviews etc.

viii. Quit on time-communicators who stop when they have 'finished' are rewarded by audience goodwill

Matters of symbol variation and devices for representing ideas
Spoken words, written materials, audio-visual aids etc. belong to this category

1.5.5. Audience

An audience may consist of a single person or a number of persons. It may comprise men, women and youth. An audience may be formed according to occupation groups such as crop farmers, fruit farmers, dairymen, poultry keepers, fish farmers, home makers etc. Audience may also be categorized according to farm size such as marginal, small, medium or big farmers; or according to whether they belong to scheduled caste, scheduled tribe etc.,

The attitude of the audience toward the message largely depends upon who gives what message through which channel; to what extent the content of the message satisfy their needs and intentions; to what measures the suggestions contained in the message are in line with their preheld experiences and preexisting preferences; and how far the message is compatible with group norms and value system to which the audience belongs.

The communicator should, therefore, be careful in selecting message which are relevant to the audience, choose channels compatible to their cultural pattern and make treatment of the message appropriate to their levels of interest and understanding.

In addition to knowing the identity of an audience and some of its general characteristics, there are other somewhat more specified aspects that help to clarify the exact nature of an audience and how to reach it. The following are some of these

i. Communication channels established by the social organization

ii. The system of values held by the audience – what they think is important

iii. Forces influencing group conformity – custom, tradition etc.

iv. Individual personally factors – change proneness etc.

v. Native and acquired abilities

vi. Educational, economic and social levels

vii. Pressure of occupational responsibility – how busy or concerned they are;

viii. People's needs as they see them, and as the professional communicators see them;

ix. Why the audience is in need of changed ways of thinking, feeling and doing; and

x. How the audience views the situation

1.5.6. Audience response:

Response of the audience is the ultimate objective of any communication function. Response of an audience to messages received may be in the form of some kind of action, mental or physical. Until the desired action results, extension communication does not achieve its most essential objective.

The possible kinds of response to messages received are almost infinite. The following gives an idea of possible variety in response that may result when a useful message is received by a typical village audience

i. **Understanding versus knowledge:** People usually do not act on facts alone, but only when understanding of facts is gained. Understanding is attained only when one is able to attach meaning to facts, see the relationship of facts to each other and to the problem. Communication must promote understanding

ii. **Acceptance versus rejection**: Audience response may be either way. Communication should lead to understanding and acceptance of the idea

iii. **Remembering versus forgetting:** When opportunity for action is not immediately available or action is delayed, the message may be forgotten. Transmitting the right message to the right people at right time is often a crucial factor is successful communication

iv. **Mental versus physical action:** Changes in the minds of the people must always precede changes in the action by hands. People should not only understand and accept the message but shall also act on it; and

Right versus wrong: The goal of communication is to promote desirable action by the audience as specified in the objective. If the response of the audience is in line with the objective, it is assumed to be 'right' action. However, 'noise' may prevent in getting the desired response from the audience.

Unit – 5 : Feedback - Problems in Communication

5.1. Introduction
The importance of feedback cannot be overemphasized and needs no special elucidation. Feedback is the yardstick which measures the effectiveness of communication and is used for evaluation review and to amend the message in the light of response. Efficient workers have reliable feedback and they succeed in their effective communication.
In a continuing human relationship, successive cycles of communication have a cumulative meaning and effect. Every human relationship is always in a state of change. It is constantly getting better or worse. Unfortunately, all change is not necessarily progress. For, progress results from change should occur only in desirable direction. There are powerful forces that tend to slow down changes in people's behaviour. To overcome these forces, a powerful communication effort by extension workers must be constantly exerted. Progress sometimes is as difficult for rural development worker to achieve as it is for a swimmer to make his way upstream in a swift current.
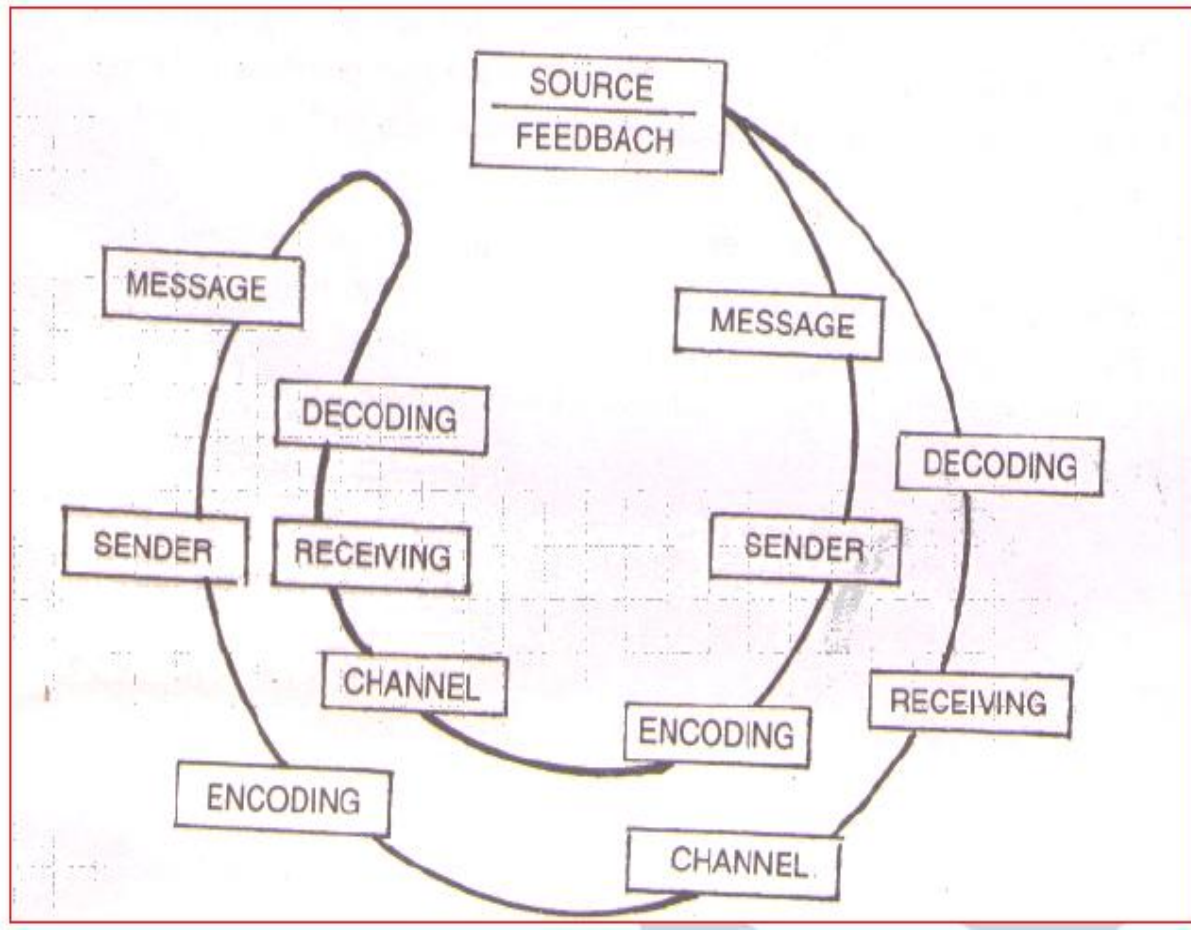
5.2. Meaning and characteristics of feedback

5.2.1 Meaning of feedback
The only real hope of an improvement in our communication system is for the sender to assure himself that his communication has been thoroughly understood by the receiver. All the way through a communication, he must use a control that will ensure the degree of meaning which has placed on his words is appreciated when received. A peace of message transmitted is said to be effective only when there is a provision for feedback in communication. A communication process is said to have feedback, when the receiver of the message has given his response to the sender's message. On the other hand the communicator must known how well the message has been received by the receiver, understood, interpreted and acted upon.
Feedback helps to determine this process. Sending back the knowledge about the message to the communicator is known as feedback. Thus, feedback is one of the important elements of the communication process. A communication process without a provision for feedback is not an effective communication. Two-way communication is essential in good feedback between the sender and receiver which promotes good relations between them and motivates them to do their best.
An effective two-way communication occurs when the sender transmits message and the receivers involves in feedback to the sender which is illustrated below.

5.3. Characteristics of feedback

i. **Intention:** Effective feedback is directed towards improving work performance and making the worker a more valuable asset. It is not a personal attack. Feedback is directed towards aspect of the job.

ii. **Specificity:** Be specific rather than saying things like "you always" or "you never" . Vague criticism causes resentment.

iii. **Description:** Effective feedback can also be characterized as descriptive rather than evaluative. It tells the receivers what he or she done in objective terms, rather than presenting a value judgement.

iv. **Usefulness:** Effective feedback is information that the receiver can use to improve performance. If it is not something the receiver can correct, it is not worth mentioning.

v. **Timeliness:** There are considerations in timing feedback properly. As a rule, the more immediate the feedback, the better. This way the receiver has a better chance of knowing what the sender is talking about and can take corrective action.

vi. **Clarity:** Effective feedback must be clearly understood by the recipient. A good way of checking this is to ask the recipient to restate the major points of discussion.

vii. **Validity:** In order, for feedback, to be effective, it must be reliable and valid.

viii. **Readiness:** In order, for feedback, to be effective, the receiver must be ready to receive. When feedback is imposed upon the receiver it is much less effective.

Feedback should be a continuous process as the audience and communicators are neither always the same persons, nor they are interacting in the same situation. The extension agent shall take steps to analyze the responses of the audience, which may be positive, negative or no response. If there has been no response or negative response to a

message, the extension agent shall find out reasons for the same. If it pertains to research, the problem should be referred as feedback information to research, to find out solutions for the same.

5.4. Problems in communication

Extension workers and farm advisers often find to their disappointment that farm people do not seem to show the desired response after a message has been communicated.

There can always be something that can stand between you and the person with whom you are communicating, which prevents the easy and complete transfer of the information. This is the problem in communication. You must be to able to trace out what and where this block is and remedy it as soon as you can.

5.4.1. Insufficient information:

One common block occurs when you are not careful enough in preparing yourself and your information for communication. Sometimes you fail to provide complete information. This happens when you take it for granted that the farm people already know some of the things, and hence do not include them in the information you give out. One way out of this would be to put yourself in the position of the receiver and ask yourself, if I were him, what is the information I would like to have on this subject? This empathy or putting yourself in the shoes of someone else, and taking up the line of thinking which he normally is expected to do, helps in overcoming the defect easily.

5.4.2. Information overload:

When you provide information in detail covering all aspects of a subject without any thought to whether it is needed or not. You will be creating a strong problem to the reception and understanding of the information by the receiver. He would need both time and energy to sieve and sift the material, and pick out and use it. A good advice often given to communicators is decide what you want to say, say it, and then stop.

5.4.3. Overconfidence:

A block appears when you take it for granted that your communication is clear and people understand you all right, little suspecting that the opposite may be the case. Trying out the material before hand on a person typical of the audience can help you in getting over such a block to some extent. You can then find out whether what you communicate will be in a form that will be quickly and clearly understood.

5.4.4. Language or code:

Language or code becomes a problem in communication, if the sender and receiver do not understand each others language. The problem of semantics is created between them. Communication can be made effective if the message is conveyed in the language which is understood by the receiver. The problem of language in communication cannot be taken lightly. It can cause problems of a serious nature.

5.4.5. Not listening:

Another common block occurs if your talk (person-to-person on the radio) when people are not listening. Listening has to be preceded by a desire to listen. Besides, a listening audience is a voluntary audience, not a captive one, and it is not bound to give you rapt attention. Even while seeming to listen, the listener may be thinking of something else, in which case he is giving you as good as a deaf ear.

5.4.6 Too ahead of audience understanding:

The failure on your part to keep in mind that the level and speed of understanding of your farm audience is rather low results in a problem. Farm people are not so happily placed as you are not exposed to ideas as your are, not familiar with words that appear so common to you. They may not think very far into the future as you do. The information you provide may be far ahead of the situation they are in. If your information is on the treatment of seed, and if the audience is not aware that the seed carries disease germs on its coat, you are one step ahead of their understanding, and thus the information does not get taken in.

5.4.7. Lack of empathy:

There is the failure on your part to see the other person's point of view. You may with all sincerity advise fertilizer use but the audience may have a deep-rooted feeling that fertilizer burns the corps. Unless you are able to clear this point, your information on fertilizer application will meet with a strong block.

5.4.8. Ignoring the leaders:

The key people or the leaders in a community exert a certain influence over a others. If you ignore them or do not take them into confidence or do not direct your communication at them, you are bound to fail. This block will be a strong one, and it is always good to keep in mind the role these key people play in the community while preparing for your communication. This is also called the concept of opinion leadership.

5.4.9.Prejudices:

Do not let your own prejudices or dislikes influence your communication. If people do not need information on certain points, satisfy them rather than ignore them just because such information is unnecessary or unimportant in your opinion. Quite likely, such information is both necessary and important to them.

5.4.10. Beliefs:

Do not ignore the beliefs, customs, prejudices, dislikes and habits of the people with whom you are communicating. These are a strong block against your communication. You have to help get over these gradually. Use tact when your message has to go against any of their beliefs, and shape your information in such a manner that you do not hurt them.

5.4.11. Physical environment:

Noise due to telephonic interruptions, or noise created by the machines can cause distraction. Whispers or even the movements of people can come in the way of effective communication.

5.4.12. Egoism, complacency, over-confidence, Dogmatism and the feeling of omniscience that seeing one knows everything:

These barriers come from within an individual from out of the inner works of his mind and conflicting feelings. Such a person is difficult to deal with, because he will not listen to others.

5.4.13. Difference in thinking or perceptions:

Our thinking patterns or perceptions may differ, human as we are. If two persons watch the same event and give a description of it, there will be considerable difference in observation. It is based upon experience, values, attitudes, expectations, emotional state etc.,

Unit – 6: Interpersonal communication skills

6.1. Introduction

Interpersonal communication skills are much more important than technical skills if you want to become a senior manager. Good communication is a very important aspect of interpersonal relationships. Listening is one part of communication which sounds fine in theory but is rare to find in practice. Empathy will help you to understand people and respond to their needs more effectively. Understanding the basic communication model should help to improve your communication skills. Experts maintain that, as much as 65 per cent of the message communicated is non-verbal or body language. There are some practical tips you can apply to help people to like you more.

Similarly, an extension worker fails to achieve results in the absence of interpersonal communication skills though it may be endowed with the best of the technology or even the best of the strategies. The ability to get along with others is immensely helpful for getting success in almost all walks of life. Whether one acts in role of extension worker, farmer, Village Developmental Officer, Scientist, Research worker, the manner in which we interact with people would determine very largely if life remains buoyant or miserable.

Researchers reveal that there is a positive correlation between good relationship and productivity, profit. Success of an extension worker will largely depends upon an effective communication which in turns depends upon the interpersonal communication skills such as empathy, listening, positive attitudes, perception, presentation skills, written communication skills etc.,

6.2. Interpersonal communication skills

6.2.1. Communication is two-way

Communication is the art of sharing ideas, information, instruction or feelings. The basic ingredients of good communication are clear thinking, clear speaking and clear writing. We spend about 75 per cent of our waking hours in some form of communication such as talking, listening, reading and writing.

There are 1 million words in the English language (about 200,000 of them are technical). The average person has a recognition vocabulary of 10,000 wards and a conversation vocabulary of 2000 words. However, in everyday usage most people manage or a vocabulary of as little as 300 words. In everyday conversation therefore, you should choose words that are most frequently used and understood. It is also wise to keep sentences short and to the point. Avoid jargon and 'in-company' phrases, particularly when dealing with outsiders such as suppliers and customers.

6.2.2. Listen to learn – learn to listen

The average speaking rate is 175 words per minute, but we think at about 400 words per minute. This gives each of and a lot of spare capacity for mental doodling. Try to counteraet this natural phenomenon by concentrating on what the speaker is saying and meaning. Focus an central ideas rather than details, use your spare mental capacity for summarizing main points anticipating what is going to be said and observing body language.

6.2.3. Concentrate

Experts in communication estimate that only about one-quarter of all listeners are able to understand the main idea when listening to a speaker. If you find your mind wandering when leistering to somebody, you must get back into focus. You can use the spare capacity productively. It makes good sense to summarize in your own mind the key concepts and ideas the speaker is trying to convey. If you are unsure about the message, be brave and repeat it back to the speaker's satisfaction. This is called feedback and ensures that two-way communication has taken place. Remember, communication does not take place until it is understood. Speaking quickly and indistinctly may also prove a barrier to communication.

You are now beginning to realize that communication is not as easy as it seems. We talk, listen, read and write each day but we don't give it much thought. However, we must continually work at each of them if we are to become skilled in that most underrated art, communication.

Ask questions Ask, don't tell use open-ended questions. Questions beginning with who? What? Where When? How and why? In dealing with enquiries we need to elicit information in order to identify and solve the problem. So use this questioning technique.

6.2.4. Effective listening

Have you ever been at a meeting when nobody seems to listen to anybody else? Of course, you have the meeting consists of a series of monologues the people are not really listening to each other but thinking and planning what to say as soon as the other person pauses for a breath. Experts maintain that the best way to make friends is to become an attentive listener. Many people fail to make a favorable impression on others, simply because they do not take the trouble to listen. Communication is a two way process and listening is every important aspect of it somebody once said that the reason we have two ears and only one mouth is because we should listen twice as much as we talk. Apart from anything else, it is just plain good manners to listen.

Wishful thinking: Most people only hear what they like to hear. This phenomenon is known as wishful thinking.

Attention: Don't permit your thoughts to stray or your attention to wander.

Semantics: This is the science, which deals with the development of the meaning of words. Do not put an interpretation on words and phrases other than that intended by the speaker.

Talk person to person: Don't be too formal. Be sincere and sympathetic in your manner. Build trust. Never breach confidence. Make the other person feel welcome and important. Use little courtesies such as 'Good morning', "please"'thank you', and so on.

Attitude: Develop a positive attitude to other. Don't close your mind to other people's opinions and viewpoints. There are enough 'know all' in the word. Show respect for their opinions. Don't consider yourself too good to learn from others. Pride is one of the seven deadly sins. Listen, you may learn something.

Get the facts: Don't prejudge a person or situation. Many people stereotype others by their nationality, color, race, and religion or appearance. Listen, understand and then judge. Don't jump to exclusions.

Excessive talking: How many of us are infatuated with the sound of our own voice? We cannot listen and talk at the same time. Comment on what the speaker is saying without interrupting the flow. Occasionally paraphrase what you have heard. This provides vital feedback and ensures that the message is being received and understood.

6.2.5. Empathy

Sensitivity is probably the most important factor in successful communication. Sensitivity in a nutshell is the ability to see things from the other person's point of view. Empathy, which means listening with understanding, is the modern expression for the same idea. People have feelings, opinions, fears and prejudices. Empathize with them and show concern and respect. People like to be appreciated and made to feel important.

6.2.6. Self awareness

Self-awareness is a key factor in good personal relationships. Be aware of your strengths and weaknesses. Optimize your strengths and minimize your weaknesses. You must become aware of your personal biases, likes and dislikes and shortcomings. If they are interfering with your social skills, then you must eliminate them from your behavior. Before you develop the ability to cope with others, you must first have the ability to live with yourself. Keep your emotions under control. Be cool, calm and collected. Never lose your temper with others. Remember, the best way to win an argument is to avoid it and the best way to cook your goose is with a boiling temper.

6.2.7. The communication model

In the basic communication model there is a sender, a message and a receiver. In other words, a speaker, words and a listener.

Sender

First the sender conceives an idea which must be translated into words. The effectiveness with which the sender conveys the message will depend on choice and appropriateness of words, vocabulary, tone and gestures. All these factors help to project the message with precision and clarity. The message may be distorted, ignored or misunderstood, if any of these is mishandled by the sender.

Message

The message consists of words and non-verbal cues, what are words? Words are symbols which represent concrete objects and concepts. It is important to remember that words can create understanding and inspire people to great deeds or they can create misunderstanding, distrust, annoyance and bad feeling. So pick your words with care and discretion.

Words are not necessarily the precision tools of description that they are made to be.

For example:

• Words mean different things in different contexts. In the context of a training programme, 'course' means curriculum, but in the context of a horse or a greyhound race it means route. Therefore meaning of words lies in the people and not in the words

• Words mean different things in different cultures.

• Words mean different things to different people. A bull to a farmer means livestock. On the other hand, to a stockbroker, it means a person who buys shares.

Receiver

The third ingredient in the communication model is the receiver. The involvement of the receiver can be considered in three ways. Firstly, the receiver recognizes what the speaker is saying and tunes in. Secondly, the receiver interprets the meaning of what is being said by mentally summarizing and reorganizing the idea. Thirdly, the receiver understands the message, which has been assimilated, associates and consolidates with existing

knowledge and only then responds to what has been said. You can now see just how complicated communication is. Mishaps can occur at any stage and interfere with the message. This is the communication cycle.

6.2.8. Verbal and non-verbal communication

The experts tell us that only 35 per cent of what we mean is in the verbal message. The other 65 per cent of the meaning is contained in the non-verbal communication. Facial expressions, Eyes and other body movements must consider when interpreting meaning. In any social interaction with other people you must be aware of the non-verbal cues and signals. Psychologists have been paying increasing attention to these non-verbal aspects of communication. The following are some of their findings.

Boredom: The hand over mouth to cover a yawn can mean boredom. Glances at watches, frequent recrossing of legs, constant repositioning on seat, fidgeting and eyes wandering can also indicate boredom, disinterest, impatience or tiredness.

Arms folded: Folded arms usually indicate resistance. But beware, it can also mean other things.

Frown: The frown may suggest disagreement, lack of understanding or annoyance. Several responses are possible. You can back up and restate your last point. You can pause and ask for questions, or ask you can clarify your point.

Upward glance: Watch people's eyes. The eyes are the mirror to the soul; upward glances may mean "I have heard that one before". Eye contact is essential for good communication.

6.2.9.Memory

The average person has a poorly trained memory. Both the long-term and short-term memories are important factors in communication. Research has shown that we forget 50 per cent of what we forget 90 percent within 48 hours. Don't rely on your over worked memory that we tend to remember what we like and forget what we dislike.

6.2.10. Encouraging people to like you

Positive Thinking

Many books have been written about the power of positive thinking. The problem with negative thinking is that it becomes a self-fulfilling prophecy. The good news is that positive thinking is likewise a self –fulfilling prophecy. Shakespeare said: There is nothing good or bad except that thinking makes it so. Believe in yourself. Think positive experiences. Think about your successes rather than your failures. Develop a mindset for success. Positive expectations are more likely to lead to positive outcomes. Positive thoughts precede positive actions and positive actions produce positive results. Negative expectations are more likely to lead to negative outcomes. Positive thinking is about developing a favorable image of yourself. Remember there is often little correlation between success and a positive self-image. Many successful, Hollywood stars have a very negative self-image and commit suicide. Unless you have a favorable image of yourself you cannot impress others favorably. You must be able to like yourself before you can like other people. Develop faith in your own ability to handle colleagues and bring work task to completion. The more successful you are the more confidants you will become in the future. Don't underestimate yourself and never sell yourself short.

Show Interest

Take a genuine interest in the people around you and in the work environment. To be interesting, be interested. Ask questions that the other person will enjoy answering. Encourage them to talk about themselves and their achievements. Disraeli said: Talk to a man about himself and he will listen for hours. Develop a friendly and helpful attitude. Always try and be sincere. If you are artificial, people will eventually see through you. Be positive. If you don't know something, say: 'I don't know, but I ll certainly find out and let you know', rather than a curt: 'Don't know'. Develop a reputation for reliability. If you say you're going to do something, do it!

Remember to smile

A smile is like a piece of sunshine. You'll be surprised at the friendly way people will react. Smiling facilitates positive thinking by giving you a psychological lift. You can't smile and entertain negative thoughts at the same time. Develop a cheerful disposition.

Name: People like to hear the sound of their own names. One of the best ways of creating goodwill is to remember names and use them. The remember names, relate them to the person's features and repeat the name frequently during the conversation.

Manners: Good manners are a sign of good breeding. Manners help make living pleasant. Like smiling, good manners cost nothing but reap many benefits.

Learning is a lifelong continuous process: Seek out opportunities for self-development, not only in your work life but also in your personal life. Action cures fear. Don't procrastinate. Undertake that educational programme now-whether formal, such as certificate, diploma or degree programme, or informal, such as challenging recreational pursuits. It will make you a more interesting person.

Practice: Practice the previous advice. It's like driving a car, if you practice these, they will become automatic confident responses. Bernard Shaw once remarked: 'If you teach

a man anything, he will never learn'. Learning is an active process. We learn by doing. Only knowledge that is used sticks in your mind.

Some experts maintain that the ability to handle people is three times more important than technical expertise in determining the suitability of people for senior managerial positions. So all the technical knowledge (or job knowledge) in the world is of relatively little use if you aspire to senior management, without the social skills to handle people.

6.2.11. Handling of people

Tact. Don't argue: The best way to win an argument is to avoid it. Let the other person do most of the talking. Use the feedback technique. Ask questions in a friendly voice. Use the open-ended questioning technique – Why? What? When? Where? How? And Who? Arguing encourages emotional responses such as anger. Anger leads to irrational behavior and anything that encourages anger should be avoided. If, despite everything, a person gets angry, don't get angry back. 'Anger blows out the light of reason, but, after a roaring hurricane expends its fury, the full of calm sets in.' Let the angry person blow themselves out.

Respect: Show respect for the other person's feelings and opinions. Tact and diplomacy are the watchwords here. Never say directly, or suggest to a person, 'You 're wrong'. You could say you may be right, but let's look at the facts'. Nobody likes being told directly that they're wrong especially in front of a third party. Lord Chesterfield said to his son: 'be wiser than other people, if you can; but do not tell them so'. You may praise but never criticize in front of others. If you use diplomacy and tact, they may admit to themselves that they are wrong. But never, if you crudely try to ram the fact down their throats.

Empathize: See things from the other person's point of view. How would you feel if you were in their shoes? That is what empathy means. Think ahead and try and anticipate reactions. Henry Ford said: 'If there is any one secret of success it lies in the ability to get the other person's point of view and see things from his angle as well as from your own'.

Simple: Speak in simple language. Remember the KISS technique-Keep It Short and Simple. Avoid jargon or technical terms. Don't try to impress others by using big words. Always use the simple work in preference to the long work. Keep your sentences short. Big words and long-winded sentences amount to woolly thinking, confusing others as well as yourself.

Praise: Most people are very reluctant to praise others, even when it is due. We spend most of our time knocking others. Treat people as winners and they will live up to your expectations. A sincere compliment for work well done is a boost to morale and an incentive for sustained excellence in the future. 'You can always catch more bees with honey than you can with vinegar'. However, insincerity is counterproductive. If you criticize for whatever reason, always soften the criticism with praise first. Criticize the act not the person.

Appeal to senses: Dramatize your ideas and involve the other person. Appeal to as many of the senses as possible – hearing, sight, taste, smell and touch. When making a presentation to a group use visuals-a picture speaks a thousand words. Remember the old proverb: 'I hear, I forget; I see, I remember; I do, I understand'.

Synchronization with listener: Watch for body language and non-verbal communication. Try and synchronize your words with the speed of receptivity of the listener (you can gauge this from the actions and expressions of the listener). Mirror your body language to that of the other person.

Sell: Make the other person feel the idea is theirs. This is the best way to implement your ideas. Use the open-ended questioning technique to obtain viewpoints. Concentrate and develop those on which there is common ground and agreement. Show what's in it for them. Most people are motivated by self-interest.

6.2.12. Making an impression on others

The critical points about making an impression on other people are

Posture: Your posture can indicate clearly whether or not you are going to be friendly and helpful. Indifference, nerves, restlessness and lack of confidence can all be indicated by posture.

Look, listen and learn: For the total message listen for the words and observe the accompanying body language. Pay attention to what they say and show that you are really interested in them. People prefer to talk about themselves, rather than listen to you. Don't interrupt the speaker or change the subject or you will show lack of interest and may create resentment.

Expression: Most people look at your face, and particularly your eyes, at some point during your conversation. Shakespeare said that the eyes are a mirror of the soul. Remember, your face and eyes reveal your feelings. They show the other person not only how you yourself feel – tired, interested, uninterested – but also how you feel about the other person. It's polite and a sign of attentiveness to look at the person who is talking to you (but avoid staring). Looking at a person also gives you an opportunity to notice their expression. Use your mouth. A smile, especially when greeting someone, can be the biggest icebreaker of all. Your mouth can show friendliness as easily as it reveals boredom ad hostility.

Appearance: When somebody comes up to you, both you and your work area are on view. Do you give the impression that you are friendly, neat, well-groomed, smart and organized? Remember, if you look untidy, your work may be untidy too. People act on impressions. Make sure that you are neatly turned out and look after your appearance and personal hygiene.

Speech: Your first words create an impression, which colour the other person's reply. If they are friendly and positive, they invite a smile and a thank you from the other person.

Nothing is more annoying than unhelpful, negative remarks. Remember to use the person's name. There is nothing sweeter to a person's ear than the sound of their own name. Use the name frequently during the conversation. Link some outstanding feature with the person's name to remember it better. To be heard and understood, you need to speak clearly and look at the person as you speak. Do not use bad language or slang in conversation. If you use bad language you will let yourself down and people will judge you by the way you speak.

Eagerness to help: Adopt a positive attitude and helpful manner in your dealings with people. Show in a positive way that your are enthusiastic, eager and willing to help solve problems. If you want to make friends you must be seen to be obliging, unselfish and thoughtful.

Communication Skills for Extension Personnel

WRITING SKILLS

Any written document is a verbal structure consisting of words, sentences, phrases, clauses which form paragraphs and text. To get an effective writing style, it is not that much easy and It is very difficult requires rigorous practice. The organizations are also unable to realize what heavy price they are paying because of miscommunication.

Good writing is writing that works. It is clear at 1st reading it demands no further explanation. For most of the professionals, writing is not something that comes easily. The present age of ICT it seems unnatural and old fashioned to use written communication yet it has its own place in organizational communication. Effective writing is a skill which can be learnt, but people generally complain of the following:

• I lack confidence.

• I know what I want to say, but I cannot put it down.

• I waffle.

• I don't have time to improve.

Choice of words & phrases:

1. Original sentence: Fuel tank deformation was present.

Revised sentence: Fuel take was deformed.

2. Original sentence: Accident frequency depends on the adequacy of road seen visibility.

3. Revised sentence: Accident frequency depends on how well the road can be seen.

Prefer specific to general words:

1. Original sentence: The Company has brought out 40 publications this year.

2. Revised sentence: 'Books' replaced at publications.

3. Original sentence: She has developed a new gas lighter.

4. Revised sentence: She has designed a new gas lighter.

Prefer to be objective than subjective

Ex: (1) Prepare a formulation - formulate

(2) Tender resignation - resigned

Clichés

He felt no stone unturned in his efforts to achieve tenure finally, a sadder but wiser man, he learned that in this day & age, tenured professorships are few and far between.

His campaign ground to a halt and yet subsequent faculty meetings, he was conspicuous by his absence. He concluded his farewell to his students with these words of wisdom 'Last but not least follow the advice' – Do as I say, not as I do.

Use of Jargon

Jargon ridden: The responsibility of a person involved in pedagogical pursuits is to impart knowledge to those sent to his for instruction.

Jargon free: The teacher's job is to instruct students.

The biota exhibited a 100% mortality response.

All the plants and animals died.

Tautology – Redundancy

Eg:

1. The preliminary studies required a total of 240 man hours.

2. Total and complete protection of all control components is impracticable under all conditions.

ACTIVE-PASSIVE VOICE

1. Decision was made by supervisor to call in the workers for overtime.

2. The supervisor decided to call in the workers for overtime.

To be an effective writer, a profession should cultivate certain habits, attitudes and qualities of mind. Some of them are:

a. Visualize what you want/wish to say. If you are clear about what to communicate words would automatically follow to express it clear thinking and clear writing go together.

b. Prepare first draft .

c. Stop when you finished saying what you wanted to say. Remember professional writes to express but not to impress.

d. Revise the draft carefully by editing.

e. Approach the problem a scientist's objectivity, detachment and passion for both.

f. Don't elaborate point unnecessarily to make your writing crisp and sharp.

A systematic approach for effective writing:
Any writing should involve following stages:

• Preparation & planning

• Writing

• Checking

I Preparation & planning

The best way to prepare for writing is to answer series of questions – 5W's and 1 H. They are why, who, what, where, when and how. This helps to clarify certain issues before writing. Instead of preparing list of contents to be covered in document, it is better to follow pattern plans. Pattern plans are increasingly popular for organization of information. It allows to access info through associates as well as logical connections. Following are steps to develop pattern plan.

1. Take plain sheet of paper and draw a circle in middle.

2. Write down subject (title) or picture in the circle.

3. Write down any idea connected with subject omit nothing.

4. Highlight the key ideas using different colours.

5. Group info around these key ideas using branches and twinges. Add and edit items.

6. Continue the process until pattern plan is complete. Now list key ideas as headings in a logical sequence.

Pattern plans harness creativity and link logically. The advantages of pattern plans are:

Rapidity: More ideas in shortest time.

Completeness: We can get whole picture of the subject at a glance.

Efficiency: Gather and structure material simultaneously.

Individuality: It is our record of thinking. If it makes sense to us, it is much likely to make sense to reader.

II WRITING: Produce the first draft fast, write as you speak. It is not time to think but to put words flow on to the page.

III CHECKING: Follow 10 point plan for checking

1. **Paragraphs:** Page should not have less than two paragraph breaks. Use short paragraphs, isolate action points. Use sub-heading and be consistent in layout. Open each paragraph with topic sentence i.e. it is short summarizing. Use link words and phrases to guide the reader from one paragraph to another. Ex: However, moreover, as a result, in addition, etc.

2. **Sentences:** Short sentences are easier to read than long ones. Average length is 17 words per sentence, 25 and above is difficult to understand.

3. **Subject and verb:** Each sentence should have subject and verb. Verb must be finite having tense.

4. Sentence land scope: Put important ideas at the beginning or end of sentence as attention will be more. Ideas buried in middle will risk being lost. Break long sentences to chunks of 5-10 words.

5. **Passive-active verbs:** Beware of writing impersonally. Use of passive voice lacks personal touch. Always use active voice.

6. **Adjectives and adverbs:** Keep or use adjectives and adverbs which are absolutely necessary.

7. **Accuracy:** Use of right word for the right expression or action. Use jargon in its rightful place.

8. **Brevity:** Use short words; eliminate clinches. Ex: As matter of fact, as such, by and large etc. And watch out for tautology – why to say same thing twice. Eg: True facts are, enclose herewith, declined to accept.

9. **Clarity:** Clarity is hallmark of plain English/any language. The text written must leave no room for ambiguity. Avoid vague phrase, loaded words; replace abstract nouns with concrete nouns.

10. **Spelling and Punctuations:** Spelling matters as it contributes to our professional and public image. Do not use words unfamiliar to you, always use simpler, shorter words, use dictionary for correct usage of world. Beware of the spell checker. Use thesaurus to improve vocabulary. Punctuation provides expression and voice to words. Less punctuation is better.

SPEAKING SKILLLS

If you're like most people, you spend a lot of time talking. Yet the thought of making a speech before an audience may fill you with dread. If so, you're not alone. Many people are terrified if they have to make a public speech.

The guidelines given here for preparing and delivering a speech can help you become a confident speaker. You may never have to address a huge audience. But as an extension worker, you'll give a variety of oral presentations. Learning how to handle speaking situations with ease is a skill well worth developing. It will help you communicate more effectively in a wide variety of everyday situations.

Preparing a speech

There are six basic steps to follow in preparing a speech. They are (1) analyzing the audience (2) choosing a topic, (3) determining the purpose of the speech, (4) gathering information, (5) organizing the content, and (6) choosing a format.

Analyzing the audience:

To speak effectively before a group of people, you need to know something about them. You need to know such abilities. Also consider how much knowledge about the topic your audience already has.

Attitudes:

If you are presenting a controversial topic, try to find what attitude your audience already holds toward the topic. Are most of the members inclined to agree or disagree with the

position you will present? Or are they indifferent? If they're indifferent or likely to disagree, you may have to gather more facts and present them more forcefully to be effective.

Size:

A large group may require a more formal speech presentation than a small group. If the group is large, you may be speaking behind a podium or on a stage. If the group ;is mall, you simply may be seated at a table with the other members of the group. These factors may influence your choice of speech format and your delivery techniques.

Choosing a topic:

There are several points to consider in choosing a topic. First, choose a topic that interests you or that you already know something about. You're more likely to enjoy preparing and delivering a speech on a topic you like than on one you don't particularly care about. You're also more likely to get a good response from your audience. Second, consider the probable interests of your audience. A speech on how to improve scores on video games might win a enthusiastic response from a sixth-grade class. But such a speech would probably be of little interest to a group of senior citizens. Third, make sure the topic and tone of your speech fit the occasion. You would not make the same kind of speech at a graduation ceremony that you would at a pep rally Forth, if your topic requires research, se that the necessary information is readily available. Finally make sure you can cover your topic adequately within the time allowed. Limit your topic so you can present your main idea and support it with meaningful details.

Determining the purpose:

Almost every speech has at least one of there main purposes: To inform, (2) to persuade, or (3) to entertain. An informative speech provides information and consists largely of facts presented in a straightforward manner. A persuasive speech tries to convince an audience to do something or adopt a particular point of view. Persuasive speeches may rely on emotional appeals as well as facts to achieve their purpose. An entertaining speech provides a pleasant experience for the audience and may have a more informal tone than the other two kinds of speeches.

Many speeches have two or three main purposes. For example, you may try to entertain the members of your audience in order to win them over- or persuade them- to accept your point of view.

Gathering information:

If your speech requires information you don't already have, you'll need to do research. Here are three ways to go about it:

1. Observe the subject matter itself. If your speech is about how newspapers are recycled, for example, you could visit recycling plant to observe the process.

2. Use the library. The books, magazines, newspapers, pamphlets electronic databases and other materials you'll find will provide information on almost any speech topic.

3. Interview an expert or others who have firsthand knowledge. If you're preparing a speech on the effects of budget cutbacks on elementary schools, for example, you might interview the principal and some of the l teachers at a local elementary school.

Organizing the content:

Like a written report, a good speech requires careful organization. Most speeches are organized in three parts:

(1) The introduction,

(2) The body, and

(3) The conclusion

As you develop the content of your speech, always keep in mind the importance of attracting your audience's interest in the beginning and holding it to the end. The introduction to your speech needs to tell the members of your audience what your speech is about – but in a way that will make them want to listen. Don't begin by saying. "This speech is about . . . "Instead, try using a personal anecdote or lead in with a dramatic statement.

In the body of the speech, present your main points and supporting details. Make sure the details are closely related to your topic and interesting to your audience, You can present; your main points in several ways, depending on your topic. You can arrange them in order of importance, putting the most important points first. You can use chronological order, describing events in the order in which they occurred. In some speeches, you might discuss a topic that is new to your audience or difficult to understand. In such cases, begin with the simplest facts and work your way upto the more difficult ones. Or think of something that the members of your audience already know about that could help them understand the new or more difficult topic.

The conclusion of your speech is your last opportunity to impress the members of your audience. Try to leave them with something to think about. In many cases, a quotation from a famous person could provide a memorable conclusion to your topic.

Choosing a format:

You need to decide what kind of format to use in delivering your speech. You have four choices" (1) reading the speech, (2) memorizing the speech, (3) speaking impromptu, and (4) speaking extemporaneously. In choosing a speech format, make sure it is one you are comfortable with and one that suits the occasion. Each format has advantages and disadvantages.

Reading the speech may seem like the sagest format. You don't have to worry about forgetting anything, and you can make sure your speech precisely fits the allotted time. But reading your speech also has disadvantages, You may become so engrossed in your manuscript that y0our forget to look up at the audience. You may begin speaking in a monotone, causing your listeners to lose interest,. Once they've lost interest, the point of your speech may never get across. Reading your speech also makes it difficult to adjust the content in response to audience reactions.

If you choose to read your speech, type it double-spaced or write it out neatly so that you can read it easily. Some people write their speeches on large note cards and make an effort to look up at the audience at least at the end of each card.

Memorizing the speech requires that your first write it out and then memorize it word for word. Depending on the length of the speech, this type of delivery could mean hours of days of extra preparation time and effort. The format also has several other disadvantages. You might concentrate so hard on remembering the speech that your voice sounds unnatural. And you'll be unlikely to add remarks or otherwise adjust your speech to suit the mood of the audience. If you decide to memorize your speech, you'll have to keep in mind the need to make your delivery natural and relaxed.

Speaking impromptu requires little or no preparation. As a result, it is rarely used for a formal speech. An impromptu speech enables you to give a lively, spontaneous delivery what you say can be suited specifically to the mood of the audience. But an impromptu speech risks being unorganized. Without adequate preparation, you may ramble and never get your point across effectively,. If your know ahead of time that you'd like to say something at a meeting of other occasion, take at least a few minutes to organize your thoughts and perhaps jot down your main ideas.

Speaking extemporaneously is the most commonly used type of delivery in public speaking. You organize your ideas in a written outline and use it as a guide when you give your speech.

An extemporaneous speech has the advantage of being both organized and spontaneous. Although you don't write down the complete speech, you can refer to the key words or sentences of the outline to keep; yourself "on track." You can easily add or omit details on the basis of audience reaction. And it's not as difficult to maintain eye contact with your audience when you speak extemporaneously as it is when you read from a manuscript.

To take full advantage of the flexibility of the extemporaneous speech, learn about your topic in depth. Gather more details than you'll actually need. That way, you'll have a full stock of material to draw upon to keep your speech interesting. You can also vary the content, depending on the audience's reaction.

Rehearsing and Delivering a Speech

After you've completed all the steps in preparing your speech, you're ready to begin rehearing, unless you're going to give an impromptu speech. Rehearsing is obviously necessary for a memorized speech, but it is also vital to a good extemporaneous speech or to a speech you plan to read. The more you rehearse your speech, the more confident you'll be when the time comes to deliver it.

As you rehearse, remember that you want to convey more than information. You also want to convey enthusiasm for your topic. If you sound interested, your audience will be more likely to listen to, and enjoy, your speech.

How to rehearse:

Begin rehearsing by using your outline or reading aloud from your manuscript. As you repeat the speech many times, you'll come to depend less and less on your written words. If possible, make a tape recording of your speech and listen to it critically. You may find that you're not pronouncing all your words clearly or that you're going too fast or too slow.

Next, practice in front of a mirror, paying attention to your posture and gestures. Then, ask someone to listen to your speech and give an honest reaction to both content and delivery. Your listener may be able to spot distracting mannerisms that you should correct, such as clenching your fists at your sides or shuffling your feet. You can also videotape yourself to observe your own strengths and weaknesses. Finally if you will be delivering your speech; in an unfamiliar place, try to practice it there atleast once. That way, you can practice with a podium and microphone if they are to be provided.

Your voice: The way you use your voice can add greatly to the impression you make when delivering your speech. As you speak, pay special attention to the volume, speed, and pitch of your voice and to clarity of pronunciation.

Volume, obviously, you'll want to speak loudly enough so that the audience can easily hear you. You'll have to consider such factors as the size of the room, whether you'll be using a microphone, and whether there are outside noises you must speak over. Try to vary your volume to make your voice sound more interesting. At times, you might spe4ak more loudly to emphasize an important point. At other times, you might gain attention by speaking more softly, making the audience listen more carefully.

Speed:

Don't speak so fast that you slur words or become difficult to understand. If; you have a time limit, pace yourself so that you can finish your speech without having to hurry at the end,. Varying your speed from time to time can make your speech more effective. You can slow down to emphasize a point. And a dramatic pause at the end of a particularly important statement can be an effective technique.

Pitch is how high or low your voice sounds. You vary your pitch automatically during normal conversation. Your voice sounds higher when you are excited and lower when you are

serious. During a speech, your voice should follow this natural pattern of pitch variation. Try to avoid speaking in a monotone.

Clarity of pronunciation:

Speak as distinctly as you can without sounding unnatural. Avoid saying "er" or " uh" between words or phrase4s,. Enunciate word endings, such as ing. Clearly.

Your appearance

The way you use your body can be almost as important as your voice when you give a speech. Dress nearly in comfortable clothing that is appropriate to your audience. Avoid wearing unusual clothes or jewelry that might distract the audience or get in your way as you speak. Stand up straight but in a relaxe4d manner. Don't slouch or lean on the podium, if yo0u're using one. Try to keep a pleasant expression on your face.

As you speak, keep eye contact with your audience. Don't look up at the ceiling or down at the floor. If you're reading from a manuscript, hold it up slightly so that you can easily glance at the audience from time to time.

Gestures can help emphasize important parts of your speech. But don't overdo them. If you gesture constantly, you'll lessen the effect and make the audience more aware of your gestures than your words. And make sure your gestures look natural and blend smoothly with what you're saying.

Audio – visual aids:

Can enliven your presentation. Such aids include drawings, photographs, maps, charts, graphs, diagrams, chalkboards, models, slides, films, records, tape recordings and videotapes. Audio-visual aids can add welcome variety to your speech and help hold the audience's attention. They can enable the audience to understand exactly what you mean. They can also make your speech more memorable by leaving the audience with a more vivid impression of your topic than words alone can convey.

Rehearse with your audio-visual aids so you can incorporate them smoothly into your speech. Here's a list of points to remember when using audio-visual aids:

1. Have them set up and ready to use before your speech. If an aid is particularly interesting or unusual, it may be good idea to have the aid handy, but hidden, until the appropriate time in your speech. Other-wise, your audience may be too distracted to pay close attention to the earlier parts of your speech.

2. Mount illustrations and set them up on an easel, rather then trying to hold them while speaking.

3. If you're going to write on a chalkboard or paper, remember to keep turning back to your listeners to keep your eye contact with them.

4. If you'll be using such equipment as a film or overhead projector or a tape or videotape recorder, be sure it's in good working order and that an electrical outlet is nearby.

5. Don't pass a visual aid around during your speech. It's too distracting. If you have material to pass out, do it before or after your speech.

6. Don't stand in front of a visual aid or block the view of part of the audience.

7. Remember to talk to the audience, not to the aid.

Stage fright:

When the time finally comes to deliver your speech, you'll probably suffer from that common ailment – stage fright. To keep your nervousness from working against you, concentrate on what the person speaking before you is saying, rather than worrying about your own presentation.

When your turn comes, take a deep breath or two to help stay calm. Act confident, even if you don't feel confident. Remember that your audience is rooting for you to do well, Walk

briskly to your place and look directly at the audience to gain the group's attention. Then begin. Once you begin speaking, your nervousness will decrease.

LISTENING SKILLS

Listening:

Listening is a process of receiving, interpreting and reacting to the messages received from the communication sender. Listening is a process involving awareness, reception, and perception.

TYPES OF LISTENING

1. **Ignoring:** Completely not listening to others.

2. **Pretending:** Yeah! Right, uh-huh are some of the expressions of those who practice pretending.

3. **Fake Listening**: Many listeners mistake silence for listening. They steadfastly fix their eyes on the speaker and try to project themselves as good listeners. In fact they miss many important points.

4. **Marginal Listening**: A poor listener is a marginal listener. Day dreamers, poor listening habits, wandering attention and avoiding understanding of complex points by finding escape routes are the characteristics of marginal listeners.

5. **Evaluate Listening**: This traps the listener into the temptation of passing hasty judgments or unfounded evaluations about the speaker.

6. **Selective Listening**: Hearing only certain part of the speech/conversation **etc,** and think that is important to them.

7. **Attentive Listening**: Paying attention and focusing energy on the words that are being said. It is a process to observe and understand what is said and to assimilate the viewpoint of the speaker. Listening to this type is more useful in solving complex problems.

8. **Empathic Listening or Active Listening**: This is the highest form of listening. This is listening with intent to understand how they feel. This type of listeners practices a lot of mental paraphrasing.

Listening for success:

The problems are almost the same in a one-to-one conversation particularly when the other side is your superior and group listening. Here your self-confidence, integrity, and character will play a significant role. Many a times people do not talk to you for getting solution to their problems, they want an empathetic ear. Psychiatrists make their living listening and helping patients feel better by just lending a friendly ear.

In conclusion, what we urgent need is awareness about the huge benefits of effective listening amongst all categories of people: students-teachers, children-parents civil servants-citizens, superiors-subordinates. All of us, irrespective of age and status can improve our aural skills. People who listen will have a much better chance for success.

Developing listening skills are very important for various reasons. Here are some fo the many benefits you get out of becoming a good listener.

Benefits of being a good listener:

When you listen to other person with full attention, it shows that you are giving respect to the person. By giving the person respect, you gain his respect and love.

The other guy in turn will listen carefully to what you have got to say.

Listening skills will help you in knowing more about the person which can be helpful in your professional life as well as personal like.

By knowing more about the other person, you increase your chances of making friends with him/her. You endear yourself in their eyes.

You can improve relationships with people by being a good and sympathetic listener to their concerns and problems.

Listening skills help in improving conversation skills, and you can avoid many confusions, misunderstandings and conflicts if only you develop the willingness to lend more attentive ears to the speaker.

READING SKILLS

Reading skills are extremely important as they improve one's ability to communicate effectively. They are useful for immediate accomplishment like keeping up to date information, improving writing ability. In fact, proficiency in reading is a prerequisite to good writing ability. But reading along will not help you unless you develop ability to comprehend what you have read. Listening and reading are strictly individual traits and are often taken for granted. We can pretend to read and listen which is not the case with speaking and writing. We may be hearing a speech but not listening (with mind) it is as much as we may be seeing a page of book but not reading it. What one effectively listens and reads becomes a valuable raw material for effective speaking and writing.

Reading is one 3R's of elementary education. The only one literally beginning with the letter R, the other two R's being (w)riting and (a)rithmetic, the principle focus of reading is on comprehension or understanding.

Reading is a process:

It is a visual process: Eye movement, eye span, and perception span.

It is a brain process: Word resources (or) vocabulary, background knowledge, general education etc.

Defining reading:

• Means learning to pronounce words.

• Learning to identify words and get their meaning.

• Learning to bring meaning to a text in order to get meaning from it.

An average reader reads 250 words/minute, a very good reader reads 500-600 words/minute and an exceptional reader reads 1000 or more words/minute.

Good reading depends upon you,

Your sharpness of your thinking facilities

Your ability to remember and retain what you read

Your word power.

For effective reading: you have to read twice

First a quick reading to follow author's patter of thinking and organization of thoughts and to get to know the general meaning (overview).

In the **second reading,** you get to know the particular details (what you are looking for). You can understand details more effectively and remember them more easily once you have grasped the central theme. This approach is very useful to study and subject.

Comprehension is the main aim of reading. Rapid perception and thinking help good comprehension. Mind can also be trained for aggressive comprehension. Your word vocabulary has to be simultaneously increased. (Read regularly "It pays to enrich your word power" sector in readers digest).

One of the best tools for a rapid, effective reading is skimming. But it depends upon the purpose and also whether the material before you lands itself to skimming.

Reading skills enable:

1. To read the written form as meaningful language

2. Read anything fluently.

To mentally interact with the message one should have the following skills:
Word attack skill: Ability to convert graphic symbols to intelligible language.
Comprehensive skills: Ability to use context and prior knowledge to aid reading and to make sense of what reads and hears.
Fluency skill: Ability to see larger segment and phrases as whole as an aid to reading and writing more quickly.
Critical reading skills: Ability to analyze, evaluate and synthesize what one reads, and ability to see relationship of ideas and use them as an aid in reading.

For developing reading skills and accomplishing success in reading are listed below.
1. **Objectives of reading** should be clear in mind. Normally people read things in which they are interested.
2. **Use the technique of skimming** which means reading for major ideas and not each word while scanning the material one should continue a silent communication with the author of the material i.e. responding to the materials is one's means of understanding the author's concepts.
3. **Take brief notes along with reading** to remember what has been read.
4. One should read critically and then **write down his own views** related to the concepts. In conclusion, some tips for faster and better reading:

In conclusion, some tips for faster and better reading:
• Make a quick survey of chapter headings, table of contents, introductory chapter, graphs, and illustrations, and the preface. (it will give an insight about the contents and nature of the material. It also helps deciding whether to read details)

• Learn to read by PARAGRAPHS. A paragraph generally contains one leading idea around which supporting details are arranged. Find this idea rapidly.

• Reading the "main idea" in each paragraph may be sufficient.

• If details are important, reading proficiency can be increased by organizing subsidiary ideas and facts.

• Watch for the directional word.

• Real fast reader knows how to glean the essential ideas by SKIMMING.

• These readers generally have a comprehensive knowledge of language and subject matter and know how to synthesize. They seek really essential or specific ideas of facts.

A word of caution:
> Best readers cannot read everything with the same speed.
> Reading speed depends upon reading objectives. Eg: Novels, Fiction, Economic theory.

> Motivation to read determines reading speed. Eg: Sports news by sports lover.
> Psychological barriers that impedes effective reading.

DOCUMENTATION SKILLS
> In general terms it is any communicable material (text video audio etc.) used to explain some attributes of an object system or procedure Its a tool to help individuals and development organizations learn from their own experiences

• It's an accumulation of our rich experiences to widely share with its an organized systematic process of note taking and recording that could later be used for policy advocacy fund raising and monitoring and evaluation.

• It's a key to knowledge management

• It's an effective source for providing relevant information and data that could be used for all purposes as appropriate.

An extension worker should develop good documentation skills to record and document their experiences and perceptions related to their work and performance.

The means of documentation could be through photographs, videos and documentaries, case studies, note taking, reports, articles, news stories, etc.

FARMERS & INNOVATION DECISION PROCESS

Unit – 7: Diffusion and Adoption Process

7.1 Introduction

One of the most important function of Extension is to bridge gulf between research centers and the farmers in the matter of introduction of improved methods of agriculture. In other words successful communication is the main job of an extension worker. We have already considered the term communication and its elements in the units earlier discussed. An extension worker's job does not end with merely informing the farmers about improved practices, he should ensure practical application (by the farmers) of the result of research and field trials. Extension officer's efficiency can be measured (a) by the speed or quickness with which the gulf between what is known and what is done by the farmers is bridged. (b)by the number of new practices adopted; and (c) also by the number of farmers and communities that adopt the new practices.While discharging the technology dissemination function by the extension worker, they are often faced with some of the following questions:

1. There is lag between what is known and what is done by most farmers. Why?

2. Where do most farmers get their new ideas?

3. In some villages, people seem to accept new ideas quickly and in others, nearly all the people are slow to take to new things. Why?

4. Some farmers accept new ideas and put them into practice faster than others. Why?

5. Some new ideas and practices are accepted quickly and with little apparent efforts, while others are accepted only after years of effort put forth by extension agencies. Why?

These questions have been focus of considerable research by the behavioural scientists in several countries including India. An understanding of the adoption and diffusion processes shall help the extension agents to accelerate the adoption of the innovations.

7.2 Diffusion and diffusion process

7.2.1 Diffusion:

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in

that the messages are concerned with new ideas. It is this newness of the idea in the message content of communication that gives diffusion its special character.

7.2.2 Diffusion process

Diffusion of innovations refers to the spread of those innovations through a population, and is simply the result of a host of individual adoption decisions. If individual adoption decisions are, to an extent, predictable, then the larger diffusion process is also predictable. Therefore the diffusion process can be explained with the terms given by Rogers as "the spread of a new idea from its source of invention or creation to its ultimate use of adopters". The diffusion of innovations is essentially a social process in which subjectively perceived information about a new idea is communicated.

7.3 Adoption and adoption process

7.3.1 Adoption:

A diffusion of innovation with in a social system takes place through its adoption by individual or groups. Adoption is a decision to make full use of an innovation as the best course of action available.

7.3.2 Adoption process:

The "Adoption process" is a decision – making process goes through a number of mental stages before making a final decision to adopt an innovation.

Wilkening(1953) described that the adoption of innovation as a process composed of learning, deciding and acting over a period of time. The adoption of a specific practice composed of learning, deciding and acting over a period of time. The adoption of a specific practice is not the result of a single decision to act but series of action and thought decision. He identified four adoption stages namely, awareness, obtaining information, conviction, trial and adoption. So adoption is essentially a decision making process. Decision making is a process comprising a sequence of stages with a distinct type of activity occurring during each stage. Similarly, the way in which an individual adopts an innovation is viewed as process, a series of related events in a time sequence.

7.3.3 Innovation

An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption. Perception is an activity through which an individual becomes aware of objects around oneself and of events taking place. The technologies, practices developed through research are innovations. These may be new varieties of crops and plants, new breeds of livestock, new chemicals and medicines, new technique of doing things etc. Farmers themselves may develop some new practices, which are also innovations programmes.Turmeric intercropped with maize in Karimnagar and Nizamabad districts of Andhra Pradesh is a farmer innovation. Irrespective of the time period the idea or practice was originally developed, when a person first become aware of it, it is an innovation to that person.

7.4 Diffusion of Innovations:

The process by which an innovation spreads within a social system is called "diffusion". An innovation, however, diffuse within a social system through its "adoption" by individual and groups. Diffusion and adoption are thus closely interrelated even though they are conceptually distinct. It takes time for an innovation to diffuse throughout a social system. It

is unrealistic to expect that all farmers in a community will adopt an innovation immediately after its introduction.

Hence, there is always a variation among the members of a social system in the way they respond to an innovative idea or practice. While there is always a few members in a social system who are so innovative that they adopt an innovation almost immediately after they come to know about it, the majority take a long while before accepting the new idea or practice. It is the first few adopters of an innovation who influence the other members of a community to adopt the innovation as they interact with them. This is referred to as the "interaction effect." After the innovation is adopted by a few farmers, they influence a few others to adopt it who, in turn, offer a new stimulus to the remaining ones. There is a definite pattern in which innovations diffuse within a community.

Attempts to plot the cumulative proportion of adopters of innovation over time within a social system have shown that the resulting curve assumes the form of an S-shaped growth curve. This is called the "diffusion curve". Although all diffusion curves tend to be S-shaped, their exact forms vary by particular innovations in specific social systems. The traits which characterize an innovation affect its rate of diffusion within a social system and the resulting diffusion curve. The rate of diffusion of an innovation and the form of its diffusion curve are also influenced by the characteristic features of a social system.

When an innovation is first introduced in a social system, a small proportion of farmers adopt it. Through interaction with these first adopters and observing the results of its use on their farms, a few more farmers come to know about the innovation and its usefulness, and eventually adopt it. Over the period of time a large number of farmers become familiar with the innovation through interaction with farmers who have already adopted is reflected in the upward slope of the S-shaped diffusion curve. After the majority of the farmers of the social system have adopted the innovation, only a few hard-core resisters are left who have not yet adopted the practice, and they upward slope comes to an end. The remaining part of the curve now has a more gentle slope until the entire village adopts the innovation.

The diffusion process of an innovation thus involves four major stages. At the first stage, only a few innovative farmers try out and adopt the innovation after its introduction in a village. This group of farmers is often referred to as "innovators" who have been described to be prosperous and venturesome enough to be able to take the risk of trying out an innovative idea or practice.

In the second stage, a larger group of farmers, but still a small majority in the village is influenced by the innovators to adopt the recommended practice, referred to in the literature as "early adopters", the group of farmers is not too different from the average farmer, of a village although they are often respected for their farming ability and successful and "discrete" use of new ideas and practices. Because of their respectability in the village, the early adopters serve as the role model for other farmers who seek opinion and advice on farming matters from them. It is primarily this influence of early adopters which makes the large majority of the farmers in a village, called the "late adopters", to adopt the innovation in the third stage of the diffusion process.

This is when the diffusion curve takes a rather steep upward climb. In the final stage, the diffusion process slows down and the diffusion curve gently levels off as the proportionately few remaining farmers of the village gradually adopt the innovation. The small group of farmers who take the longest time to adopt an innovation is called the "laggards".

7.5. Elements in Diffusion Process and their Functions:

The four main elements involved in diffusion are the innovation, communication channels, time and the social system .Let us understand about these four elements in diffusion.

7.5.1 Innovation

An innovation is an idea, practice, or object that is perceived as new or an improvement over the existing one by the individual or members of a social system. If the idea seems new, it is an innovation. As the innovation may represent a slight modification of, or a significant departure from, the existing idea or practice. The "idea" constitutes the central element of an innovation which often manifests itself in a material or behavioural form.

An innovation do not diffuse at the same rate. An innovation which represents only a slight modification of an existing idea or practice will obviously diffuse at a faster rate than the one which represents a significant departure from it. Some of the important traits of an innovation which influence the rate of adoption are relative advantage, compatibility, complexity, trialability and observability. These traits are a matter of perception to farmers rather than being inherent qualities of an innovation. The perceived qualities of an innovation vary for individual farmers and social system.

Most of the new ideas are technological innovations and we often use the word "innovation" and "technology" as synonyms. A technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in advising and desired outcome".

7.5.2 Communication Channels

A communication channel is the means by which messages get from one individual to another. Mass media channels are all those means of transmitting messages that involve a mass medium such as radio, television, newspapers and so on, which enable a source of one or a few individuals to reach an audience of many. On the otherhand, interpersonal channels are more effective in perusal an individual to accept a new idea, especially if the interpersonal channel links two or more individuals who are similar in socio-economic status, education, or other important ways. Interpersonal channels involve a face-to-face exchange between two or more individuals.

Most individuals do not evaluate an innovation on the basis of scientific studies of its consequences, although such objective evaluations are not entirely irrelevant, especially to the very first individuals who adopt. Most people depend mainly on subjective evaluations conveyed to them from individuals like themselves who have previously adopted the innovations. This dependence on the experience of near peers indicates that diffusions a social process and the heart of diffusions process consists of the modeling and imitation by potential adopters of their network partners who have adopted previously. More effective communication occurs when two or more individuals belong to the same groups, live or work near each other, and share the same interests (homophilous). More effective communication occurs in homophilous condition. When homophily present, communication is is therefore likely to be rewarding to both participants in the process.

One of the most distinctive problems in the diffusion of innovations is that the participants are usually quite heterophilous. An extension officer, for instance, is more technically competent draw his or her farmers. This difference frequently leads to ineffective communication as the participants do not talk the same language. In fact, when two individuals are identical regarding their technical grasp of an innovation, no diffusion can occur as there is no new information to exchange. The very nature of diffusion demands that at least some degree of heterophily be present between two participants.

7.5.3 Time

The time is involved in diffusion in (1) the innovation – decision process (2) Innovations, and (3) and innovations rate of adoption.

The innovation – decision process is the mental process through which as individual or other decision making unit passes from first knowledge of an innovation to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. We conceptualize five steps in this process (1) Knowledge, (2) persuasion, (3) decisions, (4) Implementation, and (5) confirmation.

An individual seeks information at various stages in the innovation – decision process in order to decrease uncertainty about innovation's expected consequences. The decision stage leads to adoption, a decision to make full use of an innovation as the best course of action available, or (2) to rejection, a decision not to adopt an innovation.

Innovativeness is the degree to which an individual or order unit of adoption is relatively earlier in adopting new ideas then other members of a social system. Based on innovativeness, the adopters can be classified into five categories viz., (1) innovators, (2) early adopters, (3) early majority, (4) late majority and (5) laggards.

7.5.4. Social System

A social system is defined as a set of interrelated units that are engaged in joint problem sowing to accomplish a common good. The members or units can be individuals, informal groups, organizations, or sub systems. The sharing of common objective binds the system together. Diffusion occurs within a social system. The social structure of the system influence how and what information is disseminated. Knowledge of social structure is important to consider when studying diffusion. A village as a social system is made up of a variety of individuals and groups with distinctive statuses, roles, norms and goals all of which, at least in ideal terms, functionally relate to each other to attain its major goals and objectives.

The structure of a social system constitutes a set of boundaries within which innovation items diffuse. The differences in the adoption of agricultural innovations at the village level can often to explained in terms of their differences in structural characteristics.

7.5.5 System norms

Norms are the established behaviour patterns for the members of a social system. They define a range of tolerable behaviour in a social system. They define a range of tolerable behaviour and serve as a guide or a standard for the members' behaviour in a social system. The norms of a system tell an individual what is expected behaviour. A system's norms can be a barrier to change. In our country, for example, sacred cows roam the country side while millions of people are malnourished. Pork is not consumed by Muslims. Polished rice is eaten in most of our Asian countries even though the whole rice is nutritious. These are examples of cultural and religions norms. Norms can operate at the level of nation, a religious community, an organization, or a non local system like a village.

7.5.6 Opinion leadership and change agents

The most innovative members of a system is very often perceived as a deviant from the social system, and is accorded low credibility by the average members of the system. This individual's role in diffusion is likely to be limited. Other members of the system function who provide information about innovation to many in the system function as opinion leaders. Opinion leadership is the degree to which an individual is able to influence other individuals' attitudes or overt behaviour informally in a desired way with relative frequency. This informal leadership is not a function of the individual's final position or status in the system.

Leadership is earned and maintained by individuals' technical competence, social accessibility, and conformity to the system's norms. By their close conformity to the system's norms, opinion leaders serve as an apt model for the innovation behaviours of their followers. Opinion leaders thus exemplify and express system's structure. Opinion leaders are exposed to more external communication, higher social status, greater social participation, more cosmopolitans and more innovativeness.

Opinion leaders as individuals who receive information from the media and pass it along to their peers. They are individuals who are knowledgeable about various topics and whose advice is taken seriously by others. Opinion leaders can be found in all types of groups:

occupational, social, community, and others. They often tend to be very socially active and highly interconnected within the community.

Opinion leaders also play important roles in movements of social change. Opinion leaders can bring legitimacy to a social movement. Known as "legitimizers," these social opinion leaders are judges, politicians, business executives, clergy members, sports figures and entertainers. Such people help "legitimize" a cause in the eyes of the public by marching in demonstrations, appearing at rallies, donating money, speaking in favor of the cause, and so forth.

Reinvention: Reinvention is the degree to which a technology is changed or modified by a user in the process of its adoption and implementation. Re-invention is beneficial to adopters. Flexibility on the process of adopting technology may reduce mistakes and encourage customization of the technology to fit it more appropriately to local and / or changing conditions. Reinvention may occur because the technology advocate influences the clients to modify or adopt a technology.

Re-invention occurs due to the following reasons:

1. Technologies that are relatively more complex and difficult to understand

2. Re-invention can occur only to adopter's lack of selected knowledge about the technology such as when there is relatively little direct contrast between the adopters and the change agent or the previous adopter

3. A technology that is a general concept or that is a tool with many possible applications is more likely to be reinvented.

4. When a technology is implemented in order to strive a wide range of user's problems re-invention is more likely to occur.

Forced discontinuance: Sometimes the technology itself is banned due to several reasons. For example, DDT and BHC were banned by the Government due to their deleterious effects.

One of the two major issues of modern agricultural technology, in general draw special attention i.e. stability of adoption behaviour of farmers. Based on the role switching behaviour of farmers, the farmers may be classified as adopters, partial adopters and non-adopters and so on. A total of adopter is one who adopts the entire package at recommended levels. He may not commit all his land to the new technology. He is like the adopter at the trial stage of adoption. On the contrary, a partial adopter accepts only a few of the recommended practices or uses them at adjusted or modified levels. He may again, be a full scale or limited scale partial adopter. A total or partial adoption may, in course of time turn into non-adoption by discontinuation of the technology. Thus adopters, partial adopters and non-adopters, are not fixed categories or have stable roles

Extension worker is an individual who influences client's innovation – decisions in a direction deemed desirable by a change agency. The change agent usually seeks to obtain the adoption of new ideas, but may also attempt to slow down diffusion and prevent the adoption of undesirable innovations. Change agents use opinion leaders in diffusion campaigns.

7.5.7 Types of Innovation – decisions:

The social system has yet another important kind of influence in the diffusion of new ideas. Innovations can be adopted or rejected by an individual member of the systems/ or by the entire social system, which can decide to adopt an innovation by a collective or an authority decision.

1.Optional innovation – decisions:- Choices to adopt or reject an innovation are made by an individual independent of the decisions of other members of the system.

2. Collective innovation – decision:- Choices to adopt or reject an innovation are made by consensus among the members of a system. All units of the system must conform to the system's decision once it is made.

3. Authority innovation – decision: Choices to adopt or reject an innovation are made by relatively few individuals in a system who possess power, status, or technical expertise. Individual has little or no influence; he or she simply implements the decision. Collective and authority decision types are much more common than optional. Authority decisions have the fastest rate of adoption, but can be circumvented during their implementation. Contingent innovation decision type is the fourth type in which choices to adopt or reject can be made only after a prior innovation – decision. For example, an individual member of a social system may be free to adopt or not to adopt a new idea only after his/her system's innovation decision.

The social system is involved directly in collective, authority and contingent innovation – decisions.

7.5.8 Consequences of Innovation

Consequences are the changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation. We can classify these consequences into three categories.

1. Desirable versus undesirable consequences

2. Direct versus indirect consequences

3. Anticipated versus unanticipated consequences,

Change agents usually introduce innovations into a client system that they expect changes which can be desirable, direct and anticipated, but often soon innovations result in some unanticipated consequences that are indirect and undesirable for the systems members. Change agents can anticipate and predict and innovation's form and perhaps its function but not its meaning for the client.

Unit – 8: Stages in Adoption and Innovation-Decision Process

8.1 Introduction

As an extension officer you might have seen in the villages that even the farmers are aware of innovations they do not adopt immediately. They take some time, think and act. That means

there is a lag between what is known and what is done by the farmers in adopting the farm practices. The decision to adopt an innovation, however, "is not normally a single, instantaneous act" is a decision-making process involving a period of time during which an individual goes through a number of mental stages before making a final decision to adopt an innovation. First the farmer comes to know the idea, then collect information and form an attitude and finally take decision to adopt or reject. Some times it so happens, farmer may reject even after taking the decision to adopt due to some conflicting messages. At all the stages communication sources actively help the farmer to take appropriate decision. This situation is better explained in terms of stages in adoption and innovation decision process.

8.2 Stages in Adoption Process

In their pioneering work of diffusion of hybrid corn seed in two Iowa communities in the United States, Ryan and Gross first drew attention to the existence of a sequence of stages in the process of adoption by farmers (1) "awareness" of the existence of an innovation, (2) "conviction" of usefulness, (3) "acceptance" in the sense of willingness to try the innovation which is followed by its (4) "complete adoption". The existence of an adoption process involving four interrelated stages was also outlined by Wilkening. According to Wilkening (1953) adoption of an innovation is a process composed of learning, deciding, and acting over a period of time. That means the adoption of specific practices is not the result of a single decision to act but series of actions and thought decisions. He identified four adoption stages – awareness, obtaining information, conviction and trial, and adoption. It indicates that initial knowledge of a ractice, its mental acceptance as a "good idea", its use on a trial basis and finally its full adoption. Wilkening's first two stages were later extended into three and the resulting five stages identified by the North Central Rural Sociology Sub Committee for the study of Diffusion of Farm practices (1955) are widely accepted and received world wide attentions. The five stages of adoption process are:

(1) Awareness (2) Interest (3) Evaluation (4) Trial (5) Adoption

They were first presented in a widely circulated publication, *How Farm People Accept New Ideas* published by Iowa Agricultural Extension Service in 1955. They also indicated that adoption of an innovation by the farmers is not an instantaneous act. It is a process that occurs over a period of time and consists of a series of actions.

Let us look at how a farmer does at each stage and passes through one stage to another over a period of time.

1. Awareness

This is the starting stage wherein the farmer comes to know the existence of the new idea but he doesn't have full information about the idea. At this stage farmer is aware of the idea, but lacks detailed information about it. For instance, the farmers may know SRI cultivation in Rice only the name and may not know what (SRI) is, what it will do and how it will work.

2. Interest

The farmer develops interest in the innovation and seeks additional information about it either from extension officer or from fellow farmers or from any source, which he feels credible. That means the farmer at the interest stage acquires more information about an innovation or idea. Farmer wants to know, what the innovation/idea is, how it works and what its potentialities are.

3. Evaluation

The farmer here makes mental application of the new idea in the present and anticipated future situations and decides whether or not to try it. The farmer at this stage judges the utility of the innovation. He/she makes an assessment whether the idea is applicable to own situation and if applied what would be the result. For instance, the farmer after hearing to SRI

cultivation in Rice and acquiring more information at the invent stage what are the components and how they improve and save yield & water respectively, he/she mentally judge whether SRI cultivation improves rice yields it adopted.

4. Trial

You are aware that at the first instance, the farmers may not take up any new idea & an innovation right away on a large scale because he/she doesn't want to take risk even though the potential of the idea has been proved. The farmer actually applies the new idea on a small scale in order to determine its utility or feasibility & applicability in own situation. Even though, the farmer takes a decision to try the idea by virtue of its plus points or merits, generally the effectiveness of the idea is tested taking this as small scale trials in their own field standards, even though farmers has thought about it for longtime and gathered information concerning it.

5. Adoption

Being satisfied with the performance of the new idea tested on small scale in his own situation, the farmer uses the new idea continuously on a full scale. Trial may be considered as the practical evaluation of an innovation. The innovation becomes a part of his normal farming activity. It provides the advantage of the innovation and hence the farmer takes final decision and applies the innovation in a scale appropriate to own situation on a continued basis.

REJECTION is decision not to adopt an innovation. This may be of two types Active rejection and passive rejection. When a farmer rejects after adopting the innovation including even its trial is called Active rejection and simply non- adoption is called Passive Rejection.

Discontinuance

Discontinuance is a decision to reject as innovation after having previously adopted it. Discontinuance also may take two forms.
i) Replacement discontinuance is a decision to reject an idea in order to adopt a better idea that supersedes. Eg. Hybrid over variety.
ii) Disenchantment discontinuance is a decision to reject an idea as a result of dissatisfaction with the performance. Eg. Crop varieties generally deteriorate after number of years. They are then replaced by superior varieties, if available, or may not be cultivated at all.
iii) Forced Discontinuance Farmers are forced to discontinue the existing practices because of Government Policies. For Eg. The Government has banned the use of chemicals like D.D.T. and B.H.C.

Over adoption

You are well aware that some farmers continue to adopt an innovation, rather vigorously, when experts (Scientists or extension officers) feel that it should not be so done. This is overadoption.

An example of this phenomenon is indiscriminate sinking of shallow tuber wills in a limited area, which may result in lowering of the water table, ultimately making the irrigation system ineffective. Excessive use of pesticides is another example of over adoption.

Over adoption produces negative effect and may cause distortion or deterioration of the related systems. In sufficient knowledge about an innovation and inability to predict its consequences generally leads to over adoption. As a change agent, your role is to prevent the excessive adoption of the innovation by providing adequate knowledge about the innovation through training and communication.

Active adoption is the process by which the farmer who takes up an innovation influences other farmers to do so. In other words, other farmers got influenced by the farmer who adopts the innovation. For example, a farmer takes up a practice of double ring method of irrigation for citrus orchards and not only adopts but also he influences other orchard growers to do the practice for better results. On the other hand passive adoption means the farmer who adopts the practice do not influence the other farmers to do the practice. The farmer who has taken up double ring method of irrigation in his orchard do not influence other faremrs to take up the practice. The innovation is confined to the farmer who has adopted. In the former situation, diffusion effect is more compared to latter.

Innovation – Decision Period
The innovation – decision period is the length of time required to pass through the innovation – decision process. The time elapsing form awareness-knowledge of an innovation to decision for an individual is measured in days, months, or years. This period is thus a gestation period in which a new idea is fermenting in the individual's mind.

Unit – 9: Adopter Categories and Attributes of Innovation

9.1 Introduction
In any social system, when innovation is introduced, there are very few people to immediately accept and put them into use and some farmers take very long time to accept and put into use. There is a variation among the farmers. Innovativeness is one of the concepts that brings variation among farmers besides other factors. Accordingly farmers can be classified into different categories. You have been observing very closely with regard to the adoption of various innovations in the villages under your jurisdiction, some of the innovations readily

accepted by the farmers and some other are not easily accepted by the farmers even after a considerable period and some innovations are not at all accepted by the farmers. This entire situation happens because of certain attributes of an innovation. Even though certain innovations are economically beneficial they may not be accepted because of their culture and beliefs and system norms.

9.2 Adopter categories
There are different categories of farmers. According to Rogers (1971), the farmers based on their innovativeness can be classified as
1. Innovators (Venturesome)
2. Early adopters (Respectable)
3. Early majority (Deliberate)
4. Late majority (Skeptical)
5. Laggards (Traditional)
All individuals in a social system do not adopt an innovation at the same time. Rather, they adopt in an ordered time sequence, and they may be classified into adopter categories on the basis of when they first begin using a new idea. In technology transfer programme, it is of great practical utility for the extension workers to identify the individuals who are likely to adopt innovations early and who may lag behind.
The adoption of an innovation over time follows a normal, bell-shaped curve when plotted over time on frequency basis. If the cumulative number of adopters is plotted, it results in an S-shaped curve. The S-shaped curve rises slowly at first when there are few adopters in a time period, accelerate to a maximum when about half of the individuals in the system have

adopted and then increases at a gradually slower rate as the few remaining individuals finally adopt (Fig. 3.1). The S-shaped curve is like that of a 'learning curve' as propounded by the psychologists. Each adoption in the social system is in a sense equivalent to a learning trial by an individual. Both of these curves are for the same data, the adoption of an innovation over time by the members of a social system. But the bell-shaped curve shows these data in terms of the number of individuals adopting each year, whereas the S-shaped curve shows these data on cumulative basis.
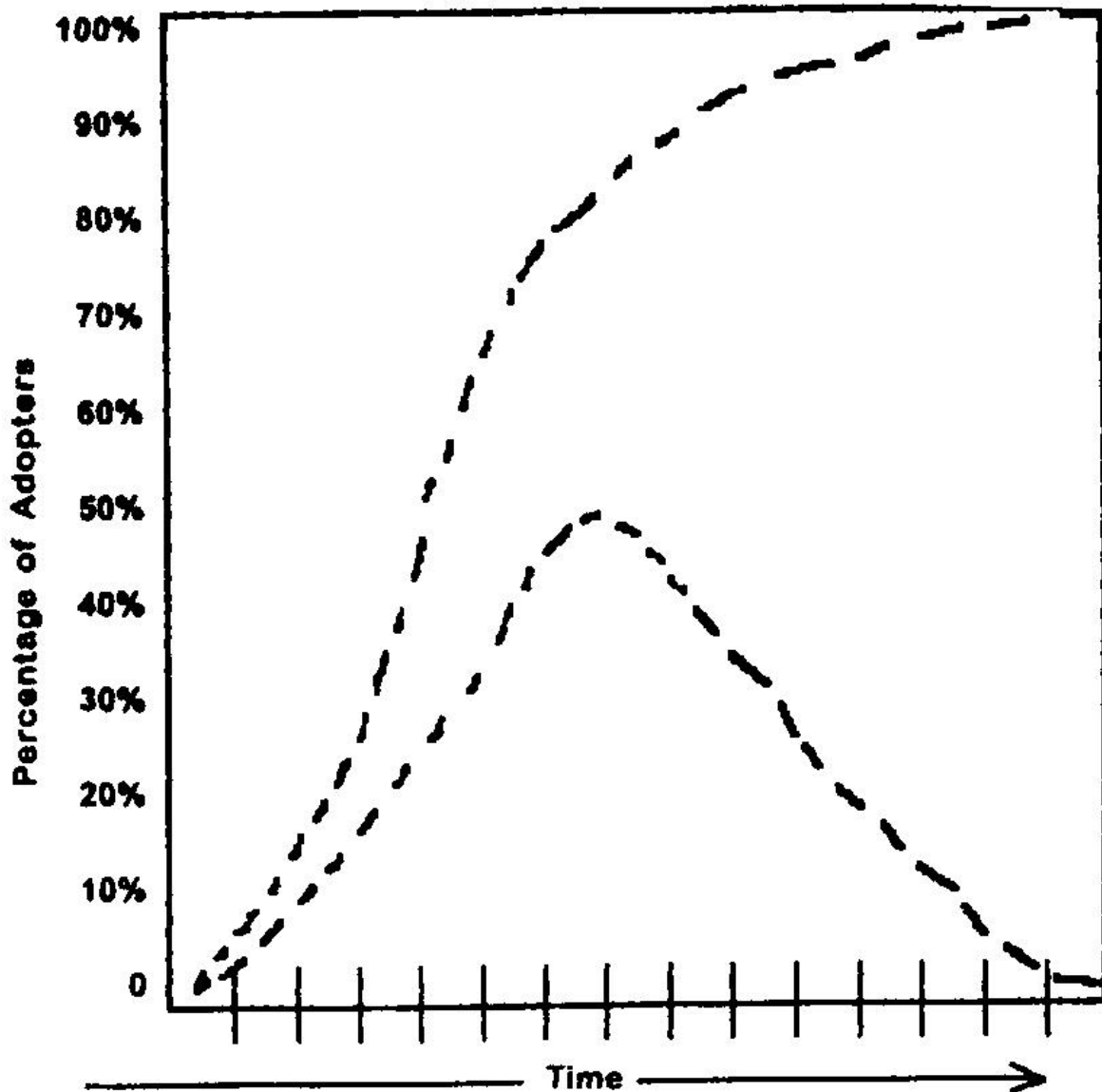
Fig.3.1 The bell shaped frequency curve and the S-shaped cumulative curve for adopter categories

9.3 Distinguishing characteristics of adopter categories
9.3.1 Innovators: (Venturesome)
These are the first people to adopt a new idea, much ahead of other people. They are very few in numbers, probably not more than one or two in a community.
Characteristics:
a) Have larger farms.

b) High net worth and risk capital.

c) Willing to take risks.

d) Usually not past middle age

e) Generally well educated

f) Have respect and prestige in progressive communities but not in conservative type of communities.

g) Mentally alert and actively seeking new ideas.

h) Their sphere of influence and activity often goes beyond the community boundaries.

i) They have many formal and informal contact outside the immediate locality.

j) They often by-pass the local extension worker in getting information from the originating sources, and may learn about new things even before he does. They sometimes manage to get samples of seeds or chemicals even before they are released for public use.

k) They subscribe to many farm magazines and specialised publications.

l) Other farmers may watch the innovators and know what they are doing but the innovators are not generally named by other farmers as "neighbours and friends" to whom they go for information.

9.3.2 Early Adopters: (Respectable)

Early adopters are a more integrated part of the local social system than are innovators. Whereas innovators are cosmopolites, early adopters are localities. This adopter's category, more than any other, has the greatest degree of opinion leadership in most social systems. The early adopter is respected by his peers. He is the embodiment of successful and discrete use of new ideas. And the early adopter knows that he must continue to earn this esteem of his colleagues if his position in the social structure is to be maintained.

Characteristics:

a) Younger than those who have a slower adoption rate, but not necessarily younger than the innovators

b) They are not the persons who test the untried ideas but they are quickest to use tried ideas in their own situations.

c) Have large farms.

d) Higher education than those who adopt more slowly.

e) High income.

f) They participate more in the format activities of the community.

g) They also participate more in government programmes.

h) This group usually furnishes a disproportionate amount of the formal leadership (elected positions) in the community.

i) They read papers and farm journals and receive more bulletins than people who adopt later.

j) They may be regarded as community adoption leaders.

9.3.3 Early Majority: (Deliberate):

The early majority adopt new ideas just before the average member of a social system. The early majority interact frequently with their peers, but leadership position; are rarely held by them. The early majority's unique position; between the very early and relatively late to adopt make; them an important link in the diffusion process.The early majority may deliberate for some time before completely adopting a new idea. Their innovation-decision is relatively longer than that of the innovator and the early adopter

Characteristics:

a) Slightly above average in age, education and farming experience.

b) They take a few more farm journals and bulletins than the average.

c) They have medium high social and economic status.

d) Less active in formal groups than early adopters, but more active than those adopting later.

e) In many cases, they are not formal leaders in the association

f) They also attend extension meetings and farm demonstrations.

g) They are most likely to be informal resources than early adopters and innovators, and so cannot afford to make hasty or poor decisions.

h) They associate mainly with people of their own community.

i) They value highly the opinions their neighbours and friends hold about them; for this is their main source of status and prestige.

j) They are mostly mentioned as "neighbours and friends" from whom the majority of farmers seek information.

9.3.4 Late Majority (Skeptical):

The late majority adopt new ideas just after the average member of a social system. Adoption may be both an economic necessity and the answer to increasing social pressures. Innovations are approached with a skeptical and cautions air, and the late majority do not adopt until most other in their social system have done so. The weight of system norms must definitely favour the innovation before the late majority are convinced. They can be persuaded of the utility of new ideas, but the pressure of peers is necessary to motivate adoption.

Characteristics:

a) Those in this group have less education and are older than the early majority.

b) They form the major part 9(formal organisational membership, although they participate less in such formal groups.

c) They take fewer leadership roles than the earlier adopters.

d) They take and read fewer papers, magazines and bulletins, than the early majority.

e) They do not participate in as many activities outside the community as do people that adopt earlier.

9.3.5 Laggards (Traditional):

Laggards are the last to adopt an innovation. They possess almost no opinion leadership. They are the most localite in their outlook of all adopter categories, many are near isolates. Decisions are usually made in terms of what has been done in previous generations. This individual interacts primarily with others who have traditional values. When laggards finally adopt an innovation, it may already have been superseded by another more recent idea which the innovators are already using. While most individuals in a social system are looking to the road of change ahead, the laggards has his attention fixed on the rear-view mirror.

Characteristics:

a) Least education.

b) Oldest people

c) Participate least in formal organisations, cooperatives and government programmes.

d) They hardly read farm magazines and bulletins.

e) No opinion leadership

9.4 Attributes of Innovation and their influence in transfer of technology
9.4.1 Relative Advantage

The degree to which an innovation is perceived as better than the idea it supersedes. The relative advantage may have number of dimensions. For example, if a new technology or practice gives more yield or income or saves time, labour and cost: or has less risk than the existing one; it has more relative advantage. Multiple use of an innovation may be a form of relative advantage. For example, an equipment or material which may be used for a number of activities has more advantage than an equipment or material which can be used for a single purpose. The advantage of location for specific enterprises in specific areas, may provide some relative advantage. The innovations which have more relative advantage are likely to be adopted quickly. The degree of relative advantage is often expressed as economic profitability,

social prestige, or other benefits. The nature of the innovation determines what specific type of relative advantage (such as economic, social and the like) is important to adopters, although the characteristics of the potential adopters also affect which sub dimensions of relative advantage are most important.

9.4.2 Compatibility

Compatibility is the degree to which an innovation is perceived consistent with the existing values, past experiences and needs of the receivers. An idea that is not compatible with the salient characteristics of a social system will not be adopted so rapidly as an idea that is compatible. Compatibility ensures greater security and less risk to the receiver and makes the new idea more meaningful to him. An innovation may be compatible (1) with sociocultural values and beliefs (2) with previously introduced ideas or (3) with client needs for innovations.

Several studies in India made a distinction between "physical" and "cultural" compatibility. Physical compatibility refers to the degree which a new idea or practice is consistent with existing practices relating to economic activities. The mould board plough, for example, was found physically incompatible by many West Bengal farmers because their bullocks were not strong enough to pull the ploughs which dug deep into soil to turn heavy sod. High yielding varieties of wheat have been found to be physically incompatible with their farming situation by farmers who do not have irrigation facilities or the capital to invest.

Cultural compatibility refers to the degree to which an innovation is consistent with the existing values, beliefs, habits and tradition in a social system. Innovations with obvious economic advantage are often reflected because they are found by farmers to be socially disadvantageous. The social advantage of an innovation is often measured in terms of its cultural compatibility.

9.4.3 Complexity

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Any new idea may be classified on the complexity – simplicity continuum. Some innovations are clear in their meaning to potential adopters others are not. Diffusion of an innovation which is too complex to communicate and to apply is slow. As has been described, the relative simplicity of plant protection chemicals in terms of their use and application enabled them to be diffused rapidly in the village of Baraset region of West Bengal. It took them only ten years to be used by atleast four-fifths of the farmers in the Baraset villages. On the other hand, the Japanese method of rice cultivation, a much more complex innovation, was adopted by a rather insignificant proportion of farmers in the same villages even though the innovations of both types were introduced in the region at the same time.

The complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption. That means higher the complexity of the technology, lower the rate of adoption in transfer of technology.

9.4.4 Trialability:

Trialability (divisibility) is the degree to which an innovation may be experimented with on a limited basis before deciding to adopt. New ideas that can be tried on the installment plan will generally be adopted more rapidly than innovations that are not divisible. Trialability of an innovation is important for its diffusion for several reasons. The feeling of insecurity associated with the adoption of something new and previously unknown is greatly minimized if it can be tried out on a small scale. The result of the trial, if successful, not only minimizes the risk and insecurity, it also gives the farmer the opportunity to evaluate the innovation in terms of its feasibility and applicability to his own situation.

Not all innovations, however, are easily trialable, plant protection chemicals, for example, are more trialable than the Japanese method of rice cultivation which has to be used in a relative large area of land even when tried out in a small scale involving a significant investment of land, labour, time and capital. Some innovations, such as a shallow tube well for irrigation, cannot be tried out at all. Adoption of new seeds and fertilizers are more, compared to new farm machinery, simply because seeds and fertilizers may be purchased in small units and tried. Whereas, purchase of a farm machinery, requires large investment and can not be tried in parts.

Earlier adopters appear to be more concerned about the trialability of an innovation than later adopters. The trialabiltiy of an innovation, as perceived by members of a social system, is positively related to its rate of adoption. Transfer of technology is faster with the technologies which can be demonstrable on small scale basis i.e. on trail basis.

9.4.5. Observability:

Observability is the degree to which the results of an innovation are visible/observable, demonstrable and communicable to farmers. The results of some ideas are easily observed and communicated to others, where as some innovations are difficult to describe to others. The observability of an innovation as perceived by members of a social system, is positively related to its rate of adoption. The visible impact of an innovation facilitates its diffusion in the social system.

For example, the results of dusting and spraying against pest attack on crops are not only immediate but also clearly observable and demonstrable. The usefulness of plant protection chemicals is thus easily communicable to farmers. Application of balanced fertilizers in crop plants has almost always been recommended to the farmers. In practice, farmers generally use more of nitrogenous fertilizers. It is because, the effect of nitrogenous fertilizer is very obvious in the eyes of the farmers – the plants 'jump', the leaves turn green, whereas, the

effect of balanced fertilizers by the farmers, which is more profitable in the long run, requires high level comprehension, which may be brought by intensive training and communication.

9.4.6 Predictability

Predictability has also been perceived as an attribute of innovations. Predictability refers to the degree or certainty of receiving expected benefits from the adoption of an innovation. Subsistence farmers are often very cautious when making adoption decisions, because crop failure or substantial reduction in output due to failure of agricultural innovations to achieve expected production goals, can result in loss of meager landholdings and starvation of the family. Under such conditions farmers are reluctant to adopt any technology or technique which introduces a higher level of uncertainty into the operation of the farm enterprise

It may be generalized that the attributes relative advantage, compatibility, trialability, observability and predictability of an innovation, as perceived by the members of a social system are positively related to its rate of adoption. The complexity of an innovation as perceived by the members of a social system is negatively related to its rate of adoption.

9.5. Factors influencing adoption of innovations

9.5.1 Personal Factors

1. Age: Elderly farmers seem to be somewhat less inclined to adopt new practices than younger ones. (However, the findings of several Indian studies do not support the existence of a negative relationship between the age and adoption)

2. Education: More than eight years schooling is almost always associated with higher adoption rates than lesser amounts.

3. Psychological characteristics:

a) Exposure to reliable sources of farm information may create a state of rationality which in turn predisposes an individual to the adoption of new practices

b) A mentally flexible person has higher adoption rates than one with mental rigidity.

c) Some people are found to be more prone to change than others

4. Values and attitudes (cultural characteristics):

a) Values found to be positively related to farm practice adoption rates are: a desire by farmers and their wives for a high school or college education for their children, a high emphasis on science and material comfort, and also wide contacts within and beyond the community.

b) A high emphasis on traditionalism, isolationism, and security (e.g., owning farm free of debt) has been found to be negatively associated with adoption of improved practices.

9.5.2 Situational Factors

1) The nature of the practice: The speed with which adoption will take place is partly dependent on the nature of practice itself.

A) Complexity: Generally speaking, the more complex a practice and the more change it requires in the existing operations, the more slowly it will be adopted.

a) **A simple change:** A change in materials and equipment only, without a change in techniques or operations (e.g. new variety of seed)

b) **Improved practice:** Change in existing operation with or without a change in materials or equipment (e.g., change in rotation of crops)

c) **Innovation:** Change involving new techniques or operations (e.g., contour cropping)

d) **Change in total enterprise:** e.g., from crop to livestock farming

B) Cost: Those practices, which cost little, seem to be adopted more rapidly than those, which are more expensive.

C) Net returns: Those practices which yield, the greatest marginal returns per rupee invested, and in the shortest time seem to be adopted most readily.

2) Farm income: High farm income nearly always is associated with high adoption level.

3) Size of farm: Size of farm is nearly always positively related to the adoption of new farm practices

4) Tenure status: Adoption scores are usually higher for owner cultivators than for tenant cultivators.

5) Level of living: Since successful farm practice adoption is instrument in providing the means for supporting a higher level of living a positive correlation between the two would be expected and is generally found.

9.5.3 Social Factors

Community standards and social relationships provide the general framework wherein the process of change occurs, and they account for the differences between one community (or group) and another.

1) Social values:

In some groups and communities, people place a higher value upon material gains and money than they do in others. In some other groups; changes in farming are encouraged and expected, prestige is attached to the adoption of new ideas and techniques. In others, more value is placed upon tradition and little freedom is allowed for the individual to deviate from the group's pattern in adopting innovations.

If the adoption of new practices goes contrary to the established customs and traditions of the people, the innovator may be ridiculed or lose prestige.

The extent to which changes are adopted depends on the values and expectations of the group and upon the extent to which the individual is expected to conform. Where there is great emphasis on maintaining traditions and values rooted in the past, change occurs more slowly. On the other hand, where emphasis is upon individualism and personal success, change occurs more rapidly.

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