

CHAPTER 2: APPLY AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY/ APPLYING AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

2.1 Introduction

This unit specifies competencies required to understand agricultural extension and rural sociology. It involves understanding of paradigm shift, Government procedures, rural sociology, farmers' training and visits. The significance of studying agricultural extension and rural sociology is that it changes the behavior of farmers as desired therefore, provides knowledge and understanding about the farmer as compared to rural social system.

The critical aspects of competency to be covered include: demonstration and understanding of paradigm extension, Government procedures, rural sociology and understanding of farmers training and visits. The basic resources required for this particular unit include: Textbooks, notebooks, flipcharts, projector, computers, manuals, whiteboards, masking tapes and font pens.

The unit of competency covers four learning outcomes. Each of the learning outcome presents; learning activities that covers performance criteria statements, thus creating trainee's an opportunity to demonstrate knowledge and skills in the occupational standards and content in curriculum. Information sheet provides; definition of key terms, content and illustration to guide in training. The competency may be assessed through written test, demonstration, practical assignment, interview/oral questioning and case study. Self assessment is provided at the end of each learning outcome. Holistic assessment with other units relevant to the industry sector workplace and job role is recommended.

2.2 Performance Standard

Demonstrate understanding of paradigm extension, government procedures, rural sociology and farmers training and visits as per farmers requirement, government objectives and guidelines, community and farmer's needs.


2.3 Learning Outcomes

2.3.1 List of Learning Outcome

- a) Demonstrate understanding of paradigm extension
- b) Demonstrate understanding of government procedures
- c) Demonstrate understanding of rural sociology
- d) Demonstrate understanding of farmers training and visits

2.3.2 Learning Outcome No 1: Demonstrate understanding of paradigm extension

2.3.2.1 Learning Activities

Learning Outcome No 1: Demonstrate understanding of paradigm extension	
 Learning Activities	Special Instructions
1.1. Transfer Agricultural technologies to farmers as per technological invention. 1.2. Advice farmers on technology as per the farmers requirement 1.3. Train farmers as per human resource development plan 1.4. Fund of the farmers activities as per government policy	Discussion on how technology is helpful Having a meeting to train farmers- field

2.3.2.2 Information Sheet No2/LO1: Demonstrate understanding of paradigm extension



Introduction

This learning outcome covers; paradigm approaches such as technology transfer, advisory service, human resource development, facilitation for empowerment.

Definition of key terms

Technology transfer: This is the process of transferring technology from one person to another.

Paradigm: A distinct set of concepts or a thought patterns, including theories, research methods and standards of what constitute to legitimate contribution to the field.

Content/Procedures/Methods/Illustrations

1.1. Agricultural technologies are transferred to farmers as per technological invention

Technology transfers is an integral part of the extension process involving transfer and spread of technical innovation and know how to farming population.

The transfer of technology (TOT) model of research -extension -farmer linkage is based on the tenants of DOI theory. In particular on a description of the diffusion process as a normal bell-shaped curve with farmers being in one of the five categories according to their appearance on the curve.

The process of transferring agricultural technology

Agricultural extension is aimed at transferring agricultural technology and persuading farmers to adopt and use these technologies on their farms because farmers need the new technology to increase on their agricultural production.

The agricultural technologies to be transferred to the farmers must be good and superior to the old agricultural techniques used by farmers in order to be adopted.

Process of agricultural technology transfer is done through two basic stages: i.e.

- i. Transfer and dissemination of agricultural technology to the farmers.
- ii. Convince farmers to adopt this technology in their farms.

Agricultural Extensions are usually recommended experts who have practical experience in the dissemination of agricultural technologies and knowhow to deal with farmers. The process can be defined as the transfer of technologies integrating and interconnecting a series of sub-process.

- i. A transfer or delivery of the new technology from the source to the target area.
- ii. A process of localization of technology which is intended to make the technical shift with the environmental conditions in the target area and if it is compatible with the prevailing agricultural systems in the region.
- iii. Persuading farmers to adopt new technology.
- iv. Enabling the targeted farmers to apply the technology in their farms by giving the knowledge and skill required.
- v. The provision of technical application requirements.
- vi. A diagnosis and treatment of problems that may arise during the application and dissemination of the new technology.

The transfer of agricultural technology to farmers

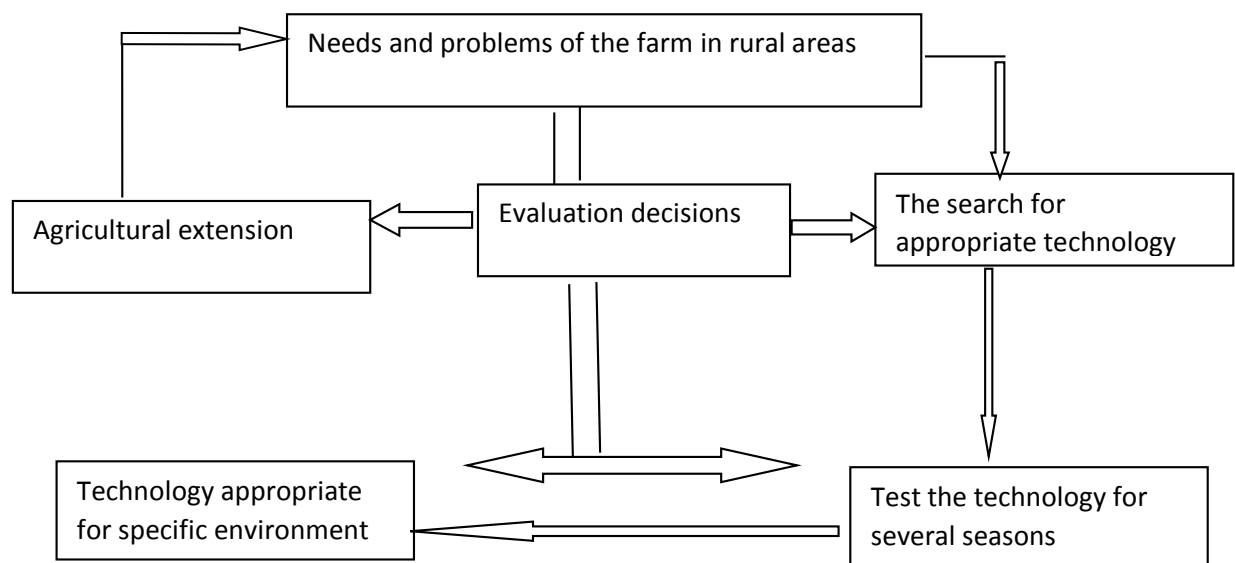


Figure 1. Farmers are advised on technology as per the farmers requirement

After the transfer of agricultural technologies to farmers based on their needs for the techniques, it is necessary to convince them to adopt these new techniques. Adoption is a mental process which consists of several stages and relates to the farmers decision to accept or reject a particular technique.

Stages in adoption

- a. **Stage of knowledge:** At knowledge stage the farmer will receive the information about the new technology because farmers tend to adopt these technologies that are compatible with their needs for agricultural techniques.
 - b. **Stage of persuasion:** After the farmer gets sufficiently familiar with the new agricultural knowledge, a stage of persuasion starts. This stage involves analysis and evaluation of the available information on the technology. If the results are positive, the farmer will adopt the technology and will first use it in small scale and later on expand the application but if the result is negative, the farmer will reject.
 - c. **Stage of decision:** At this stage which means an individual's choice to adopt or reject the new idea, if the technology is not useful to a farmer, he/she will reject but if it is useful, he/she will adopt.
 - d. **Stage of confirmation:** At this stage of confirmation knowing that the decision is not the end of the adoption process, an individual try to verify the choice he has made and obtain information whether it was a good decision.
 - e. **Stage of consequences:** According to information obtained by the individual in the previous four stages in the individual phase of consequences he will make decision on whether to adopt the agricultural techniques for good or no
- N/B:** Not all farmers are equal in the adoption of agricultural technologies.

Categories of farmers adopters for modern agricultural techniques

The adopters are divided into five categories.

1. **Early adopters:** Constitutes of 13.5% of the group so they are an integral part of the society system. They usually depend on the opinion of the leader in most cases.
2. **Early majority:** Amounts to 34% of the individual adopters of new technology in the social system
3. **Late majority:** They constitute of about 34% of the social system. Members of these categories adopt agricultural idea after they have been adopted by the members at the social system in order to get the best benefits.
4. **Laggards/ late adopters:** Constitutes ration 16% of the members of the social system. They accept agricultural technologies slowly because they are worried and fear for new agricultural techniques and ideas.
5. **Adventurers:** They constitute ration 2.5% of individual adopters at the idea of social system. They are very eager to experiment new idea

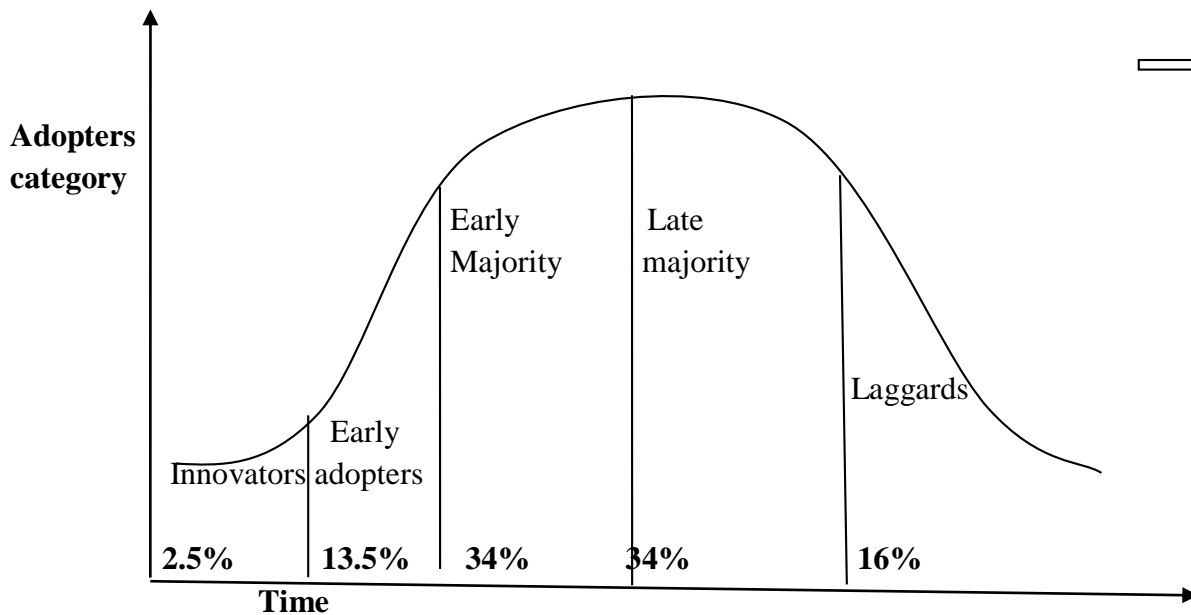


Figure 2. Adopters Categories

After the extension officer has disseminated the new technology to the farmers and has known the adopters of the technology, he/she will go on and advice the farmer depending on the requirement at the farm. The advice mostly given to the farmers includes characteristics such as on the use, what is required to be done when using the technology in order to improve on productivity, effect of the technology when used inappropriately either to the environment or individual, operation and maintenance of the techniques among others.

1.2. Farmers are trained as per human resource development plan

Training is an organized activity aimed at imparting information, improving on the recipient's performance or to help him acquire knowledge and skill about something. Farmers are usually trained on some new innovations and ideas in order to increase on agricultural knowledge thus increasing on agricultural production. Farmers are also trained in order for them to improve on their ways of farming to modern so as to increase productivity.

Methods used to train farmers

These are ways used to create situation in which information can pass freely between the extension worker and the farming community.

They are the methods of extending new knowledge and skills to the rural people by drawing their attention towards them, arousing their interests and helping them to have a successful experience of the new practice.

Conditions necessary for effective use of teaching methods include;

- Learning situation
- Learning objectives
- Learning experiences
- Use of a variety of teaching methods

Learning situation: Comprises of the extension clear objectives, knows the subject matter to be taught and is able to communicate freely with the farmers. The learning situation also includes the people who are capable and interested in learning and the subject matter which must be pertinent to farmers needs which is taught at people's intellectual levels.

Essential elements from effective learning situation

- An instructor
- Learners
- Subject matter
- Training material
- Physical facilities

Extension methods may be classified into three categories.

- Individual methods
- Group methods
- Mass methods

1. Individual methods

These are used in extension training in recognition to the fact that learning is an individual process and that the personal influence of the extension worker is an important factor in securing people's participation in extension activities. The various methods which come under the classification of individual methods include farm and home visits, office call, telephone call, personal letter, informal contracts and result demonstration.

Farm and home visits

This is essential element of extension education.

They provide a means of personal communication between the farm family and the extension officer in an environment where they can discuss matter of common interests in privacy and without distractions and interruptions commonly experienced in group extension activities.

Purposes of farm and home visits

- a) To acquaint extension worker with the farmers and the family.
- b) To answer specific requests for help.
- c) To gain firsthand knowledge on problems faces by farmers.
- d) To explain a recommended practice.
- e) To plan an activity such as demonstration.
- f) To invite the farmer to participate in the planned activity.
- g) To discuss policies and programs.
- h) To recruit train, encourage a local volunteer leader.

Office calls: They are made by farmers for the purposes of satisfying a felt need. They are an expression of interests by the farmer in a need which he/she hopes the extension worker can help him/her meet. Office calls provides the extension worker with knowledges of needs of the farming community.

Telephone calls: Are mitigated by either the farmer or the extension officer. They are useful in giving specific information relating to the treatment of known diseases, control of insects, pest or to answer questions on interesting broad categories.

Personal letters: Are useful in answering requests for information as follow-up after visits and offices calls and in contracting local volunteer leaders.

Result demonstration: Is a method of teaching designed to show by example the practical application of an established fact or group of facts. This shows after a period of time what happened after a practice is adopted.

Advantages of result demonstration.

- Furnishes local proof of the desirability of adopting a recommended practice.
- Is an essential method of introducing of a new subject.
- Appeals to the eye and reaches the “show me” individuals.
- Provide good source of information for meeting new items.
- Furnishes cost data and other basic information.

Disadvantages

- Requires large amount of time.
- The cost is high per practice change. Teaching value is frequently destroyed by unfavorable conditions.

2. Group extension teaching method.

Group method take into account the inclination of individual to respond to the pressures and opinions of the groups in which he participates and listen to the views of other before arriving to a decision about making changes in his farming operations.

Group method includes; general meetings, group discussion, exhibitions, tours and field trips, method demonstration, extension schools and farmer training.

Group meetings

Includes all kind of meetings held by the extension worker except demonstration meetings. The method of conducting the meetings may be lectures, discussion, showing of slides and motion pictures or any combination of these. Towards the end of the meeting the extension worker should allow for questions and answers in order to clarify specific ideas.

General types of meetings involved in extension work

- a. **Organizational meetings:** Includes board of directors meeting, youth clubs.
- b. **Planning meetings:** Requires preparation of a large amount of situation materials.
- c. **Special interest meetings:** Are engaged to serve the educational needs of groups within common interests.
- d. **Training meetings**
- e. **Community meetings**

3. Mass methods

Individual and group methods cannot reach everyone who wants and needs information so mass methods which have wide coverage such as radio, television, cinema van and public address are used.

Forms of extension training methods.

The extension teaching methods can be classified according to forms such as written, spoken and audio visual.

Important methods under each of these three categories are:

Table 2: Extension training methods

Written	Spoken	Objective or visual
Bulletings	General meetings	Result demonstration
Leaflets	Farm and home visits	Demonstration posters
Articles	Office calls	Motion pictures or movies chart
Personal letters	Telephone calls	
Circular letters		

Selecting and using teaching materials.

For an effective use of extension teaching method, it is not enough to know these methods and their techniques. What is more important is the appropriate selection of a method for a particular situation.

Farmers learn about the new practices through several stages. The stages are:

- a. **Awareness stage:** When a person comes to know of a new practice but lacks the complete idea.
- b. **The interest stage:** When the farmer becomes interested in a new idea and wants to know more about it.
- c. **The evaluation stage:** When the farmer mentally applies the new idea to his present situation and evaluates it.
- d. **The trial stage:** When he applies the new idea on a small scale in order to determine its utility under his own situation.
- e. **Adoption stage:** When he decides to continue. The full use of the practice.

1.3. Farmers activities are funded as per government policy

Funding: The provision of financial resources to farmers.

- Access to finance is critical for the growth in agricultural sector.
- Agriculture is a very unique enterprise requiring money to purchase equipment and materials, initiate projects in an area, purchase teaching materials.
- It is impossible to teach agriculture as an extension officer without funding.

Why extension activities need to be funded

1. For transport purposes in order to reach the target group.
2. To be able to purchase the agricultural demonstration materials for farmers to be able to have a practical knowledge about the new technology for easy and faster adoption

Sources of Funding for Extension Activities

i. Government budget

Government disburses money to the agricultural sector every financial year. This money can be given to extension officers in various sub sectors where there is need of improved agricultural knowledge for them to go and educate the farmers on new farming methods and technologies that when used appropriately can lead to increased productivity thus the economy of a country is also boosted.

ii. Grants

Most agricultural activities that are carried out are supported by grants from NGOs and other project developers.

iii. Research institutions

Research institutions for agriculture fund extension officers to carry out extension services in their areas of interests in order to come up with solutions of the problems of the farmers in terms of new technology.

iv. Organizations

Organization dealing with agriculture are greater sources of funds to most agricultural related organizations.

They provide funds to extension activities in order to come up with valid ways of boosting agriculture in the world so as to have food security in the countries affected by low food supply.

v. Local farmers

Local farmers can also fund extension activities when they need to have a clear knowledge about something especially new innovations that may boost their productivity thus profitability.

vi. Donations

Other agricultural related organizations in an area can donate funds to the extension officer to enable them carry out extension activities on a particular area of interests so that they can persuade the farmers to adopt what they have to offer to them for a win situation.

vii. Bank loans

Farmers may borrow loans from the banks by use of security e.g. title deed in order to get finances to venture into production agricultural activities.

viii. Family and friends

Extension activities can be funded by family and friends who have accepted that what you are doing will be beneficial at long last.

Conclusion

This learning outcome covered on paradigm approaches such as technology transfer, advisory service, human resource development and facilitation for empowerment as used in agricultural extension and sociology.

Further Reading



1. Abrew S.de (2003) Uganda: Promotion and strengthening of sustainable farmer group and associations, FAO/TCP/UGA/2904(T). FAO

2.3.2.3 Self-Assessment



Written assessment

1. Agricultural technologies transferred to farms must be _____ and _____ to old Agricultural techniques.
 - a) Good and superior
 - b) Compatible
 - c) Resemble

2. Process of agricultural technology transfer is done through two basic stages which one is not?
 - a) Transfer and dissemination of agricultural technology to the farmer
 - b) Adoption of new technology by the farmer
 - c) Demonstration of how the new technology is used
3. The following are stages of adoption. Which one is not?
 - a) Stage of knowledge
 - b) Stage of confirmation
 - c) Stage of rejection
 - d) Stage of decision
4. Stage of precaution involves analysis and _____ of the available information on the technology.
 - a) Monitoring
 - b) Evaluation
 - c) Picking
5. People who are eager to adopt new technologies ideas are known as
 - a) Laggards
 - b) Investors
 - c) Earl majority
 - d) Adventures
6. The following are conditions for effective teaching methods apart from.
 - a) Learning situation
 - b) Learning experiences
 - c) Learning objectives
 - d) Teachers experience
7. Extension method can be classified into _____ groups.
8. _____ methods are used in extension training in recognition to the fact that learning is an individual process.
9. Methods that come under individual methods includes.
10. State two purposes of farm and home visits.
11. General types of group meetings involved in extension work include.

Oral Assessment

1. Discuss selecting and using of teaching materials.
2. Explain different types of funding of extension activities.

Case Study Assessment

You are an extension officer of a particular area and you have a duty to disseminate a new technological information to the farmers in the area. Which methods of teaching will you use to pass information to a number of people in order for the adoption to be carried out on time?

Practical Assessment

1. Carry out extension teaching to farmers around your area on the following areas.
 - a) Crop production practices
 - b) Good livestock production activities
 - c) Use of knowledge on teaching methods in agricultural extension.

2.3.2.4 Tools, Equipment, Supplies and Materials

- Textbooks
- Notebooks
- Flipcharts
- Projector
- Computers
- Manuals
- whiteboards
- Masking tapes
- Felt pens

2.3.2.5 References




Alex, G. (2002). Rural extension and advisory services: New directions. http://www.worldbank.org/wbi/sdruralpoverty/ag_extension1/Materials/additional/Rural_extension.pdf.

Okuthe, I. K., Ngesa, F. U., & Ochola, W. W. (2000). Socio-economic determinants of adoption of improved sorghum varieties and technologies among smallholder farmers in Western Kenya. *Ministry of Agriculture and Egerton University, Kenya*.

Wolf, S. A., & Wood, S. D. (1997). Precision Farming: Environmental Legitimation, Commodification of Information, and Industrial Coordination 1. *Rural sociology*, 62(2), 180-206.

2.3.3 Learning Outcome No.2: Demonstrate understanding of government procedures

2.3.3.1 Learning Activities

Learning Outcome No.2: Demonstrate understanding of government procedures	
 Learning Activities	Special Instructions
<p>Formulate Policies on agricultural matters as per government objective</p> <p>Disseminate information to farmers as per the government guidelines</p> <p>Procure products for farmers use as per procurement procedures</p> <p>Prepare financial reports on farmers activities as per accounting guidelines</p> <p>Prepare periodic report on agricultural occurrences as per the reports format</p>	Class Discussion

2.3.3. Information SheetNo2/LO2: Demonstrating understanding of government procedures



Introduction

This learning outcome covers; Policies on agricultural matters, dissemination of information to farmers; how to prepare financial reports.

Definition of key terms

Data collection: The process of gathering and measuring information on variables of interest in an established systematic fashion.

Data analysis: The process of evaluating data using analytical and statistical tools to discover.

Content/procedures/methods/illustrations

2.1. Policies on agricultural matters are formulated as per government objective

Public policy formulations are the main steps followed by the law makers drafting a bill to law.

Public policy formulation process in Kenya

The following stages are followed when formulating a policy:

- Problem identification
- Agenda setting
- Policy design
- Committee approval
- Parliamentary or county assembly approval

Problem identification

Public policy making starts by clearly defining the policy problem or question. A problem is identifiable when there exists an unsatisfactory set of conditions for which relief is sought from the government. Usually, the problem is identified ministries, departments and agencies. At this stage, the following questions should be answered.

- a) What is the nature and magnitude of the problem?
- b) What group in the population suffers from the identified problem?
- c) How did the problem come about and why does it continue?
- d) What are the immediate and underlying causes?
- e) What should be done about the problem?

Agenda setting

This is the process by which problems and alternative solutions gain government attention. Since many problems require government responses, a fitting process is used to ensure that only a few come to the attention of the government officials. When the policy issue and alternative policies occupy a slot on agenda, then policy drafting begins.

Policy Design

This is the development of an effective course of action to reach policy goals through specific projects, programmes and activities. This stage involves; policy analysis, planning and resource scheduling.

- a) Policy analysis. Involves critical thinking about causes of public problems, the various ways the government might act on them and which policy choices make most sense.
- b) Planning. Involves goal setting, developing strategies, outlining the implementation arrangements and allocating resources to achieve these goals. Inputs from policy analysis and planning are consolidated into a draft policy. In the spirit of public participation, the draft policy is widely shared with stakeholders for their input. After all these, a final policy document is prepared.

Cabinet or county executive committee approval

The cabinet secretary or the county executive committee member reviews the final policy document to ensure that proper analysis has been conducted.

Different approaches have been identified and discussed and the policy document provides the best option available to readdress a situation. They also ensure that fiscal, constitutional and other possible implications of the policy are clearly brought out in the policy. Once satisfied, the policy document is submitted to the county executive or cabinet committee for approval.

Parliamentary or county assembly approval

Once the policy document is approved by the cabinet, it is published and tabled in the respective house or assembly for debate and approval. The policy document may be approved by the house with or without amendments. The views of the executive may be sought of value addition and further clarification.

- Asset

Once the policy is passed by the respective house, the speaker of the respective house submits the approval policy to the president of the government for formal endorsement. This is done by affixing the national and county seal and signing.

- Publication

Upon assent, the policy is published as a white paper which is a statement of intent and detailed policy plan which often forms the basis of the legislation. The executive is expected to widely circulate the policy and keep the public informed of the likely effects of the policy.

- Draft Bill

If it is determined that the new law is necessary to achieve objectives and the implementation of the policy, the concerned MDAs will commence the process of drafting the bill.

Information is disseminated to farmers as per the government guidelines

Information dissemination is the passage of information to the people concerned. The process of disseminating information largely depends on communication. Communication is the process of transmitting and receiving messages.

Elements of communication process

Communication process starts with a sender who has a message for a receiver. Communication involves two or more people. The sender has the responsibility for the messages. The sender's message travels to the receiver through one or more channels chosen by the sender. The channels may be verbal or non-verbal. They may involve only one of the senses hearing for example or they involve all five of the senses: Hearing, sight, thoughts, smell and taste. Non-verbal communicators rely on seeing rather than hearing. Communication is therefore more than just an exchange of words as all behaviors convey some message and are therefore a form of communication. In

communication, the understanding of meanings and interpretations of messages is crucial to positive communication. In order for positive communication to occur, individuals need to be responsible in both speaker and listener roles so that they share a clear and accurate understanding of the messages.

The process of communication

- i. The intentions, feelings or ideas which lead to sending a message that carries some content.
- ii. The sender encoding the message by translating the ideas into a message appropriate for sending.
- iii. Sending the message to the receiver.
- iv. The channel through which the message is translated.
- v. The receiver decoding the message by taking it and interpreting its meaning depending on how well the receiver understands the content of the message and the intentions of the sender
- vi. The receiver responding internally to this interpretation of the message.
- vii. The interfering with communication.

Communication process illustration

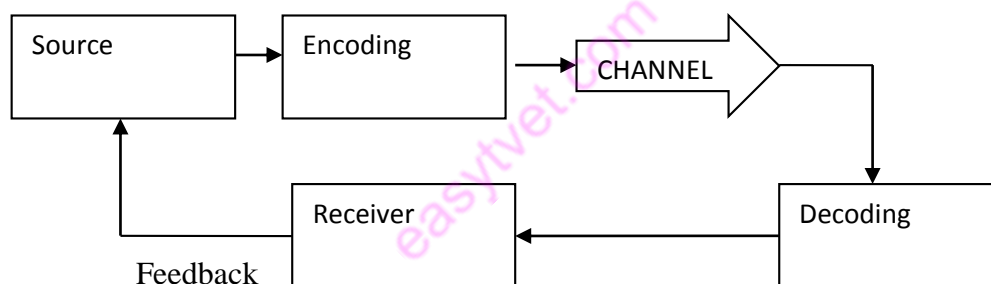


Figure 3. Communication process illustration

Types and levels of communication

Communication exists on a number of levels and in a variety of forms. These levels include:

- **Intrapersonal communication:** Refers to ways we communicate with ourselves.
- **Interpersonal communication:** Takes place when there are more than two people involved but interact and converse with each other.
- **Small group communication:** Takes place when there are more than two people involved but small enough to allow each participant to interact and converse with each other.
- **Public communication:** This refers to public speeches that are delivered in front of an audience.

Forms of communication

- **Non-verbal communication:** It involves physical ways of communication. It also refers to the use of symbols other than words to transmit messages. It includes gestures, body language and how we utter words.
- **Written verbal communication:** This is the writing of words you want to communicate. Good written communication is essential for extension communication. Posters, flyers, leaflets, magazines, emails, reports, memos and articles are some of the ways of using written communication in extension.
- **Visual communication:** This is the visual display of information like topography, photography, signs, symbols and designs. Effective communication is essential for the success of any type of information delivery. Therefore, developing communicative skills is a must. By using all these forms of communication, information is easily disseminated to the target groups with ease.

2.2. Products for farmers use are procured as per procurement procedures

Regardless of the uniqueness, every procurement management process consists of 3Ps namely; Process, People and Paperwork.

- **Process:** This is the list of rules that need to be followed while reviewing, ordering or obtaining and paying for goods or services. Checkpoints increase with complexity of the purchase.
- **People:** These are the stakeholders and their specific responsibility in the procurement cycle. They take care of the initiating or authorizing every stage of the process. The number of people involved is directly proportional to the risk and value of purchase.
- **Paperwork:** This refers to the paperwork and documentation involved in every stage of the procurement process flow, all of which are collected and stored for reference and auditing reasons.

The procurement process flow

To keep the procurement management process fair, transparent and efficient, a good understanding of procurement process flow is key.

Stages of a procurement process



Figure 4: Procurement process

<https://kissflow.com/wp-content/uploads/2018/08/Procurement-Process.png>

The following are the stages involved in procurement process

- i. Needs recognition
- ii. Purchase requisition
- iii. Review of request
- iv. Negotiation and contract
- v. Quotation requests
- vi. Budget approval
- vii. Receive goods and services
- viii. Three-way matching
- ix. Invoice approval and payment
- x. Record keeping

2.3. Financial reports on farmers activities are prepared accounting guidelines

Financial reports are documentation on the financial uses in an organization. Examples of financial reports include; Balance sheets, cash flows, income statements among others.

Importance of financial reports

- Helps farmers to comply with various statues and regulatory requirements.
- Facilitates statutory audit
- Forms the backbone of financial planning, analysis, benchmarking and decision making.
- Helps the farmers to raise capital both domestic as well as oversees.
- For the purpose of bidding, labor contracts, government supplies etc.

Types of financial statements

There are four main types of financial statements. These are:

- Statement of financial positions
- Income statement
- Cash flow statement
- Statement of changes in equity

Statement of financial position

This is commonly known as a balance sheet. It presents the financial position of an entity at a given date. It is comprised of the following:

- Assets:** This is something a business owns or controls.
- Liabilities:** This is something a business owes to someone.
- Equity:** This is what the business owns to its owners. This represents the amount of capital that remains in the business after its assets are used to pay off its outstanding liabilities

Income statement

Also known as the profit and loss statement, it reports the farms financial performance in terms of profit or loss over a specified period.

Elements of income statement

- Income:** What the farm business has earned over a period. E.g. revenue dividend income.
- Expense:** The cost incurred by the business over a period of time.

NB: Net profit or loss is arrived by deducting expenses from income.

Cash flow statement

Cash flow statement presents the movement in cash and bank balances over a period. The movement in cash flows is classified into the following segments:

- Operating activities. This represents the cash flow from primary activities of business.
- Investing activities. This represents cash flow from the purchase and sale of assets other than inventories.
- Financing activities. This represents cash flow generated or spent on raising and repaying share capital and debt together with repayments of interest and dividends.

Statement of changes in equity

Details the movement in owners' equity over a period of time. The movement in owners' equity is derived from the following components:

- Net profit or loss during the period reported in the income statement
- Share capital issued or repaid during the period
- Dividend payments
- Gains and losses recognized directly in equity
- Effects of change in accounting policy or correction of accounting error

NB: Examples of the financial reports i.e. Statement of financial report, income statement, cash flow statement, statement of change and equity are on the website.

FINANCIAL STATEMENTS		Historical Results					
	2012	2013	2014	2015	2016	2017	
Income Statement							
Revenue	102,007	118,086	131,345	142,341	150,772	158,311	
Cost of Goods Sold (COGS)	39,023	48,004	49,123	52,654	56,710	58,575	
Gross Profit	62,984	70,082	82,222	89,687	94,062	99,736	
Expenses							
Salaries and Benefits	26,427	22,658	23,872	23,002	25,245	26,913	
Rent and Overhead	10,963	10,125	10,087	11,020	11,412	10,000	
Depreciation & Amortization	19,500	18,150	17,205	16,544	16,080	15,008	
Interest	2,500	2,500	1,500	1,500	1,500	1,500	
Total Expenses	59,390	53,433	52,664	52,066	54,237	53,421	
Earnings Before Tax	3,594	16,649	29,558	37,622	39,825	46,314	
Taxes	1,120	4,858	8,483	10,908	11,598	12,968	
Net Earnings	2,474	11,791	21,075	26,713	28,227	33,346	
Balance Sheet							
Assets							
Cash	167,971	181,210	183,715	211,069	239,550	272,530	
Accounts Receivable	5,100	5,904	6,567	7,117	7,539	7,807	
Inventory	7,805	9,601	9,825	10,531	11,342	11,715	
Property & Equipment	45,500	42,350	40,145	38,602	37,521	37,513	
Total Assets	226,376	239,065	240,252	267,319	295,951	329,564	
Liabilities							
Accounts Payable	3,902	4,800	4,912	5,265	5,671	5,938	
Debt	50,000	50,000	30,000	30,000	30,000	30,000	
Total Liabilities	53,902	54,800	34,912	35,265	35,671	35,938	
Shareholder's Equity							
Equity Capital	170,000	170,000	170,000	170,000	170,000	170,000	
Retained Earnings	2,474	14,265	35,340	62,053	90,280	123,627	
Shareholder's Equity	172,474	184,265	205,340	232,053	260,280	293,627	
Total Liabilities & Shareholder's Equity	226,376	239,065	240,252	267,319	295,951	329,564	
Cash Flow Statement							
Operating Cash Flow							
Net Earnings	2,474	11,791	21,075	26,713	28,227	33,346	
Plus: Depreciation & Amortization	19,500	18,150	17,205	16,544	16,080	15,008	
Less: Changes in Working Capital	9,003	1,702	775	903	827	375	
Cash from Operations	12,971	28,239	37,505	42,354	43,480	47,980	
Investing Cash Flow							
Investments in Property & Equipment	15,000	15,000	15,000	15,000	15,000	15,000	
Cash from Investing	15,000	15,000	15,000	15,000	15,000	15,000	
Financing Cash Flow							
Issuance (repayment) of debt	-	-	(20,000)	-	-	-	
Issuance (repayment) of equity	170,000	-	-	-	-	-	
Cash from Financing	170,000	-	(20,000)	-	-	-	
Net Increase (decrease) in Cash	167,971	13,239	2,505	27,354	28,480	32,980	
Opening Cash Balance	-	167,971	181,210	183,715	211,069	239,550	
Closing Cash Balance	167,971	181,210	183,715	211,069	239,550	272,530	

Figure 5: Statement of financial report

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/three-financial-statements/>

2.4. Periodic report on agricultural occurrences are prepared as per the reports format

Occurrence: This is an incident or event that happens. Occurrence may apply to a happening without intent volition or plan.

Examples of occurrences that occur in agriculture include:

- Drought
- Floods
- Outbreak of pests and disease
- Geographical e.g. earthquakes

Agricultural occurrences must be written down by the farmers for further reference. Reporting of agricultural occurrences is written following the guidelines of the report format. While writing a report, the following format should be followed:

- i. Title
- ii. Summary
- iii. Introduction
- iv. Body
- v. Conclusion
- vi. Recommendations
- vii. Appendices

The following should be put into consideration when writing a report

- Use names and pronouns
- Limit yourself to one idea per sentence
- Be clear and specific as possible
- Use simple language
- Stick to observable facts
- Write in paragraphs
- Use active voice
- Use bullet style

Conclusion

This learning outcome covered; the formulation of policies on agricultural matters, dissemination of information to farmers and procurement of farmers produce.

Further Reading



1. Singh, S., AhlAwAT, S., & SANwAl, S. A. R. I. T. A. (2017). Role of ICT in Agriculture: Policy implications. *Oriental Journal of Computer Science and Technology*, 10(3), 691-697.

2.3.3.3 Self-Assessment



Written assessment

1. Which one of the following is a stage in public policy formulation process?
 - a) Policy design
 - b) Conclusion
 - c) Title
2. Planning involves the following activities which one is not?
 - a) Goal setting
 - b) Developing strategies
 - c) Allocating resources
 - d) Problem identification
3. The following are elements of communication process. Which one is not?
 - a) Sender
 - b) Receiver
 - c) Written source
 - d) Channel
4. Which one among the following is a type of communication?
 - a) Intrapersonal communication
 - b) Verbal communication
 - c) Written communication
5. The following are forms of communication which one is not?
 - a) Non-verbal communication
 - b) Written-verbal communication
 - c) Visual communication
6. Every procurement management process consists of the following except?
 - a) Process
 - b) People
 - c) Paper
 - d) Partner
7. Communication process starts with a sender who has a message for a _____
8. Nonverbal communication relies on _____ rather than _____
9. Upon assent, the policy is published as a _____ which is a statement of intent and detailed policy plan.
10. _____ Form of communication involves physical ways of communication.
11. Balance sheet, cash flow statements, statement of equity are examples of _____

Oral Assessment

1. Explain the term communication, forms of communication and giving examples, discuss the different categories of barriers to communication.

2. Explain and give examples of the following categories extension methods
 - a) Individual methods
 - b) Group methods
 - c) Mass methods

Case Study Assessment

You are an extension field officer of a particular area and you have been given a new technology to transfer from the research centers. Formulate ways through which information will be disseminated to the farmers for adoption.

2.3.3.4 Tools, Equipment, Supplies and Materials

- Textbooks
- Notebooks
- Flipcharts
- Projector
- Computers
- Manuals
- Whiteboard
- Masking tapes
- Felt pens

2.3.3.5 References




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Das, D. (2012). Sources of agricultural information among rural women: a village level study in Assam. *International Journal of Economics and Research*, 3(5), 1-2.

Baumüller, H. (2012). Facilitating agricultural technology adoption among the poor: The role of service delivery through mobile phones.

2.3.4 Learning Outcome No 3: Demonstrate understanding of rural sociology

2.3.4.1 Learning Activities

Learning Outcome No 3: Demonstrate understanding of rural sociology	
 Learning Activities	Special Instructions
3.1. Determine farmers culture, beliefs and norms as per the community 3.2. Involve local leaders in farmers activities as per farmers needs 3.3. Resolve farmers conflicts as per the conflict resolution methods 3.4. Form Farmers groups as per the farmers needs	Class discussion on conflict resolution methods

3.3.4.2 Information Sheet No2/LO3: Demonstrate understanding of rural sociology



Introduction

Livestock tools and equipment are tools and equipment used for routine, management practice in livestock. they are used for identification, castrations, dehorning, disease and parasite control, breeding milking and restraining animals depending on the type of the tool. Livestock tools and equipment are maintained to manage durability of the user; there are several reasons for maintenance of farm tools and equipment which will be discussed below.

Definition of key terms

Livestock: It is commonly defined as a domestic animal which are kept in agricultural surrounding to provide labor and products.

Livestock tools: These are livestock items that are mainly used to achieve a particular goal.

Livestock equipment: Set of tools that are to achieve a particular livestock objective.

Machines: Mechanical structures that use power to apply forces and control movements to apply forces and control movement to perform an intended action

Content/procedures/methods/illustrations

1.1. Tools, equipment and machines are assembled as per manufacturers manual.

Assembling of tools, equipment and machines should be done by experienced crew or personnel to cut off equipment setting cost which may arise if they are wrongly assembled. For example, during cleaning of machines, some parts need to be removed so that cleaning is effectively carried out.

Reasons for assembling tools

- To carry out maintenance practices
 - For salvage purposes
 - To put or store them according to their specific functions
- Equipment are put together and the intended purpose for assembling is carried out. Assembling area should be near the store

1.2. Tools, equipment and machines are cleaned as per manufacturers manual.

Cleaning tools regularly is essential for their proper functioning. After day of work, machines and equipment will be dirty and should be cleaned after use to maintain long shelf life. During cleaning it's advisable to use manufacturer's guidelines for proper cleaning and maintenance. Extremely harsh chemical should be avoided when cleaning them.

To clean and maintain tools, the operator needs the following tools

- **Cleaning supplies:** They include detergents sprayer, sponge, old rags or towels
- **Cleaning tools:** For example, steel wool, scrub brush and a rotary wire brush attachment for drill
- **Sandpaper:** Used to work on both wood and metal works
- **Lubricating oil:** Such as boiled in seed oil, tang oil, lane oil or cooking oil the best preferred oil are in seed and tang oils
- **Safety equipment:** wearing protective devices e.g. gloves, eye protection and dust mask when cleaning.

How to clean livestock tools, equipment and machines

Step1: Clean tools. Start by giving tools a good scrubbing to remove mud and grit from the blades and handles, dry them with old towels and set them aside overnight so that they dry completely, e.g. milking tools and equipment. If they are machines to be cleaned the cleaning site should have the following conditions:

- Close to the working area to minimize further contamination
- Accessible in all weather
- Contained for safe disposal of waste
- A way for water sources and public drains
- Flat for safety when working and to reduce run off

- Stable surface to prevent pre-contamination access to suitable cleaning equipment
- Identifiable for monitoring and controlling any pest that may establish on the site

Step 2: Oil or grease metal parts

This will rust of the metal parts of the tools and equipment. oiling the moving parts makes the easy to work with and increases the efficiency of the tool and equipment.

Step 3: waste disposal

Waste in the form of contaminated water, debris, dust of chemical will often be left on the cleaning site.

Step 4: Hang tools and equipment

Tools and equipment should be hanged to prevent rusting while which may arise if placed on the floor.

Step 5: Sterilization

Tools and equipment, machines for livestock should be sterilized especially for treating animals to control spread of diseases.

Step 6: Store in their original cases

Tools and equipment should be in specific cases to protect them from damage. Machines should be packed or stored under shade

Reasons for cleaning tools, equipment and machines

- To last longer when maintained
- To make them work more efficiently
- To reduce the risk of injury to the people
- To reduce cost of maintenance

1.3. Tools, equipment and machines are sharpened as per manufacturers manual.

Sharpening is done for tools used in cutting e.g. castrating knife, hoof trimming knife and tooth clipping knife to avoid injury to the animals.

Steps followed when sharpening tools and equipment

Step 1: Clean the blades

Clean the blade with stiff brush and soapy water to remove any dirt rust or debris. Dry them and wipe the blades with light coat of motor oil. e.g. hoof trimming knife

Step 2: Examine the sharpness

Check first the manufactures guidelines and instructions for specific sharpening and cautions. Examine the blade edge to determine the correct sharpening angle.

Step 3: Begin grinding the blades

Place the grinding stone in either water or vegetable oil to make it wet and act as a lubricant.

Press the blade against the concave side of the stone while sharpening to maintain the correct angle. Keep the stone wet by periodically applying lubricant

Step 4: Smoothen the edges

Use finer grain stone and continue sharpening until you achieve a razor-sharp edge after you have achieved proper sharpness and angle in step 3 above. Do not reduce the leveled edge to prevent breakage.

Step 5: Test the sharpness

Holding the cutting edge onto a light source if bits reflecting the light it's not ready. Retest sharpness until it is achieved.

Step 6: Finish sharpening the blades by rubbing a light coat of oil on them to prevent rusting. Remove any dirt that has accumulated during the sharpening. Finally fix the tools to their store.

Reasons for sharpening

- To prevent injury to the animal during operation
- To increase efficiency of the tool
- To save time

Materials for sharpening

- Wire brush
- Sand paper
- Oils
- Sharpening stones
- Files
- Bench vise
- Grinding wheel
- Scissor sharpeners

Tools and equipment should be sharpened when they become blunt because work will be inefficient. In case of an injury to the animal, it may predispose it to secondary infections

1.4. Tools, equipment and machines are greased or oiled as per manufacturers manual.

Steps followed during greasing /oiling

- i. Start by choosing the grease gun loaded with grease as per manufacturer's instructions and precautions
- ii. Locate the greasing points on the tool so that it will be easy to locate each day
- iii. Quick inspection is to ensure grease nipples are not damaged

- iv. If they are hand tools grease the blade and oil the rotating parts to prevent wear and tear
- v. Wipe down the grease points with a rag to ensure there is no dirt accumulation
- vi. Attach your grease nozzle and give a few pumps until you see grease exiting

Reasons for greasing /oiling

- To prevent wear and tear of livestock tools, equipment and machines
- To control rusting
- To reduce cost of maintenance
- To make the tool last long
- To increase efficiency
- Used to minimize power loss and heat generation

Tool used for greasing and oiling

- Greasing gun
- Fluids; oil and grease

Type of base oils groups

- **Mineral base oils**

These are derived from crude oil. They are used as lubricants in the automotive industry as well as industrial applications

- **Synthetic base oils**

They are derived from the chemical reactions of several components. They are higher in viscosity components compared to mineral base oils which require additive to improve viscosity.

Greases: They consist of base oil of base oil additives which increase viscosity of the lubricants. Greases create a water proof barrier against external elements e.g. water

Types of greases

- Silicon greases
- Food grade lubricants

Tools, equipment and machines are replaced as per the work policy.

Replacement is done when part or whole of the equipment breaks down. The tools can be repaired if possible because the replacement cost is high. There should be a data driven decision to determine whether to repair or replace a piece of equipment.

Factors to consider during repairing and replacement

Analyze the cost: If it's a new tool consider its purchase cost, profit it will earn, salvage value, operating cost and service life. If the cost or replacement is higher than its value, the farmer should leave it

Consider the age of the equipment: If the equipment is old, it requires a lot of maintenance, which is costly. Its effective to replace the old equipment with a newer and technology advanced model will give better efficiency and longevity

Consider the cost of repair: The farmer should have a documenting asset repair events to provide information of repair. Its assist in making firm decisions

Consider downtime. Is the equipment takes a lot of time to repair, it will lead to low productivity? Decision should be made whether to repair or replace it

Consider safety: Old machinery may pose as hazard during operation if it malfunctions. The equipment will eventually wear out and therefore a decision should be made

Reasons for replacing the equipment

Deterioration: It is caused by decline of performance due to wear and tear or misalignment indicated by

- Increase in maintenance cost
- Increase in labor cost
- Loss of operating time due to breakdown

Obsolesce: Equipment become obsolete due to advancement in technology and unwanted manufacturing cost

Inadequacy: If the equipment cannot meet, the demand it was designed for replacement is required

Working conditions: If the machine or equipment leads to increased accidents, it should be replaced

Economy: If the existing equipment have outlived their effective life and it is not economical to continue with them

Parts to repair: Old equipment and machines should be replaced to increase productivity

Broken parts: Bend blades should be strengthened

Conclusion

This learning outcomes covered on assembling, fitting, cleaning, sharpening greasing and replacing of tools, equipment and machines as per manufacturers manual. Failure to follow such instructions and precautions will lead to high maintenance cost and productivity will be low

Further Reading



1. [https://www.extension,issitate .edu/small/clean-and-maintain-garden-tools](https://www.extension.issitate.edu/small/clean-and-maintain-garden-tools)
2. [https://garden solutions.ifas.ifl.edu/care/tools-and-equipment](https://garden.solutions.ifas.ifl.edu/care/tools-and-equipment)
3. peak revision K.C.S, E AGRICULTURE Chapter 4

3.3.5.3 Self-Assessment



Written assessment

1. Which one of the following is a sharpening tool?
 - a) Bortuzzo
 - b) Milking churn
 - c) Files
 - d) Stir cup
2. The following lubricants are used equipment and machinery. Which one is more effective in lubrication?
 - a) Oil
 - b) Grease
3. Which one of the following reasons for replacement refers to the replacement of outdated equipment due to technology?
 - a) Deterioration
 - b) Obsolete
 - c) Inadequacy
 - d) Working condition
4. The following factor are considered when analyzing cost of replacement
 - a) Salvage value
 - b) Purchase cost
 - c) Operating cost
 - d) Technology
5. Which one of the following describes best the replacement of a tool or equipment?
 - a) Age of the machine
 - b) Cost of the equipment
 - c) Cost of replacing the higher than the value of the equipment
 - d) Salvage value
6. Which one of the following is not a tool of lubrication?
 - a) Greasing gun
 - b) Oil
 - c) Grease
 - d) Petrol
7. Greasing lubricants contains the following components except one. Which one is the odd one out?
 - a) Additives
 - b) Base oil

- c) Natural oil
 - d) Gelling agent
8. What do you mean by the term lubrication?
 9. Differentiate between a livestock tool and equipment
 10. Name two type of oils
 11. Give one reason for maintaining tools and equipment
 12. Give one reason for sharpening tools
 13. Name two types of livestock

Oral Assessment

1. Give two examples of lubricants
2. Give examples of sharpening tools

Case Study Assessment

Visit the school farm store on the livestock tools, equipment and stationery section

- a) Observe and identify each equipment state the function of the equipment
- b) Describe how to maintain the tools
- c) Give general reasons for maintain tools

Practical Assessment

1. You have been provided with the following tools after they have been used in a livestock production unit

Bortuzzo, wool shear, ear tagging, tattooing machine, disbudding wire and hoof trimming knives

Questions

- a) Perform the cleaning of each of the above tools
 - b) Store them properly
2. You have been provided with the following blunt equipment; wools shear, hoof trimming knife and teeth clipping knife and grease Grease the above tools appropriately
3. On the above tools provided in questions 2 above. For each of the above tool carry out sharpening techniques in each.

3.3.4.4 Tools, Equipment, Supplies and Materials

- Hoof trimming knives
- Burdizzo
- wool shear
- ear tagging machines
- hammer
- tattooing machines
- trocar and Cannula
- teeth clipping knife
- pig restraining
- equipment feeding troughs
- disbudding iron dehorning wire

- milking pails
- sieve
- Ropes
- bolus guns
- DE wormers


3.3.4.5 References



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2.3.5 Learning Outcome No 4: Demonstrate understanding of farmers training visits

2.3.5.1 Learning Activities

Learning Outcome No 4: Demonstrate understanding of farmers training visits	
 Learning Activities	Special Instructions
4.1. Identify farmers to be trained as per the farmers needs 4.2. Training resources are sourced as per training requirement 4.3. Identify methods of training as per the farmers needs 4.4. Train Farmers as the training manual 4.5. Carryout follow up on farmers activities as per training objectives	Organize group discussions

2.3.5.2 Information Sheet No2/LO4: Demonstrate understanding of farmers training visits



Introduction

The learning outcome to be covered includes training methods, monitoring and evaluation.

Definition of key terms

Monitoring: This is the process checking progress on quality something over a period of time, keep systematic review.

Evaluation: Making assessment about quality of something to gauge the progress.

Content/procedures/methods/illustrations

1.1. Farmers to be trained are identified as per the farmer's needs, training resource are sourced as per training requirements.

i) Training of farmers for organic farming practice

This is an extension training that gives the improve farmers on environmentally friendly farming methods that discourage environment pollution. They include use of organic manure instead of fertilizers, weeding instead of using herbicides, natural pest control method instead of using pesticide and minimum tillage practices that aim to maintain good characteristics e.g. soil structure and other components. Materials required include manure samples from livestock, weeding machines and instructors to demonstrate the activities.

ii) Training of farmers for waste management

For proper agricultural production, water is a key component to enhanced crop farming and livestock survival. Water is essential for crop growth biological processes and other metabolic functions. Therefore, water management is essential. This can be done through provision of materials such as plastic tools, underground tanks construction, water canals (irrigating canal construction and small holding dams for water conservation for agricultural purpose).

iii) Training of farmers or pest and disease control

Pest and disease have adverse negative impact on production and therefore through clinical analysis and strategic control measures should be put ready for emergency in case of widespread risk of pest or disease. One way of pest and disease identification is by identifying symptoms of disease or presence of dangerous pest as gazette by relevant entities. Material needed include handbook, demonstration equipment diagram, photos of effects of pest and diseases and instructors who are well versed with technology about pest and diseases.

iv) Training of farmers on input management

Input includes fertilizers, seed and agro-chemicals. All this need application knowledge and skills about their usage. Farmers can be trained on efficient use of fertilizers since too much can lead to burning effects. They can also be trained on sources of ratified seeds with high germinating percentages and low dormancy, resistant to pest and diseases for high productivity. Training resources required include samples of input, demonstration farms where the use of inputs succeeded, trainers etc.

v) Training farmers on agribusiness role /entrepreneur

Agriculture production is a business just like other enterprises. Farmers should not produce for household consumption only but also for commercial, their financial benefits and therefore they need to intermarry aspects of farming and business ideas existing in agriculture sector. They need market information; linkage charts for market information may be provided to farmers and also be trained in market gaps for higher gains.

1.2. Methods of training are identified as per farmers needs

Farmers training involve number of methods in disseminating information to meet the needs especially in information gap these methods include:

i) Establishment of farmer training school/ resource information centers

Farmer's field schools are school without wall where demonstration, training session, and lecture setting usually take place

Participants observe, analyze, experiment, consult, and identify solutions among themselves when confronted with patterns.

ii) Farm, home, field visit

This is a tour that involves instructors interacting with the farmers of interest to share out the diagnosed problem and selectively coming up with a favorable solution to the

problem. The Trainers of Trainers (TOT) also gives any other relevant information to farmers for either future use or general consumption if use be. This boost farmers confidence and objectivity towards involvement in the chain of production.

iii) Individual extension approach

An extension worker can decide to use one on one approach where he/she visit the area of interest, meet people, know their ideas and what project they are thinking about, their needs, how they have organized their work duty roster and finally submit the findings to the governments' relevant entities for diagnosis and coming up with solution. This approach provides mutual discussion between extension workers and farmers.

iv) Commodity specialized training approach

Institutions and persons concerned with one particular commodity sometimes become impatient with other extension approaches that take time. Therefore, they organize a fast and highly specialized approach. This approach may focus on one aspect e.g. for crop, the organizer can decide to major on one crop or livestock sector.

This is mostly done by parastatal, especially when they want to increase productivity of commodity. It involves supporting functions such as research, input supply and output marketing. This approach aims to produce and market relatively high value commodities efficiently and effectively. A good example is when the government uses marketing board for efforts of crop simply to capture both foreign exchange and surplus in come without sharing with farmers.

v) Education institution approach

This involves participating in agricultural, School College, universities in agricultural extension activities. These institutions try to disseminate information to participants and other shareholders to improve quality and relevance of agriculture role. This form the basis/origin of information of most instructors who later forms a major part in carrying out extension in labour levels.

vi) Project approach

This approach comes as a substitute where a large government bureaucracy features in some approaches many be slow or may fail to have impact on agricultural production and therefore these approaches can achieve better results in a particular location during a specific time with large infusion of outside resources. The project within a specific time frame and therefore its continuity is not anticipated. Sometimes it is assumed that successful methods, and techniques demonstrated inside the project will be later replicated in other location.

vii) Train and visit approach (T and V approach)

This is a professional monitoring approach that test group of the farmers about instructed idea. This method aims to have competent, well-informed village and level extension officers with relevant techniques messages and bring formers problem to research.

viii) Farming system research approach

This method includes;

- Viewing the whole farm as a system
- Focuses in inter-dependence between the components under control of members of the farm household.
- Consider opportunities and problems
- Set priorities and correct problem to improve productivity.

1.3. Farmers are trained as the training manual

A manual is a booklet/template that provides step-by-step guideline that takes the facilitators through key contents of the farmer training programmer. Each sub-sector can have a specific training manual that comprehensively covers quality information about the sector and the information becomes a knowledge base for training farmers. Some of the manual identified include:

i. Organic agricultural training manual

This covers all farmers training about adoption of organic agricultural practice to enhance low residue in products. The emphasis is on friendly cultivation methods, less use of agro-chemicals and soil and water conservation measures. Farmers therefore have a specific guide on organic farming and it's used during training.

ii. Trading system training manual

This handbook covers training of farmers on market structure, composition, gaps and customer. It intensively covers market information that is needed for a tool for successful agri-business enterprise. Provision of information about demand and supply of essential in farming to reduce risks resulting from misdiagnose of existing market.

iii. Training manual for small holder dairy farm

This guide covers all information about dairy industry. Its analysis aspect for successful and profitable dairy enterprises. Farmers are trained on management, production, quality, product, sustainability and potential risk and general husbandly practices that a farm should adopt as minimum standard for success on the industry. Aspect of disease to avert effects and potential losses is also covered to verse farmers with knowledge that can make them flexible in collaboration with veterans' section for help.

iv. Agricultural values addition training manuals

This covers agricultural innovation systems. It emphasizes on improvement of the by-products and also some products that many use qualities up scaling. It looks at aspect of transforming quality of a product into a more valuable from that can be easily liked by customers. e.g. tomatoes can be processed into tomato sauce that can be used in most hotels. Therefore, farmers are trained on use of technology in value addition to enhance quality of the products.

1.4. Follow-up on farmers activities are carried out as per training objectives

This is a post training exercise carried out to find whether what was offered during training has been adopted practically by trainees. Some of the follow-up activities/ methods include:

i) Role play/ test visualization

This involves telling the trainees to do practically what they have been taught to demonstrate their full understanding.

ii) Abrupt farm unit

The trainer may decide to let the trainees go and practice what they have learnt at their farm and they make visit without issuing notice to know if the trainees are actually doing what was taught on their own without supervision.

iii) Train and visit approach

This is a management extension monitoring approaches where farmers are followed to their farms to assess whether they have implemented what they were trained on. However, this method is disadvantageous since farmers may only be active when they know the assessor is coming and fail to be productive after visit.

iv) Farmer to farmer post training extension

This is where farmers consult among themselves to gauge whether they understand the context and objectives of the training and therefore provides ground for each farmer to assess him/herself in comparison to his fellow farmers. This approach is advantageous because it is interactive since farmers belong to the same class level. There are no hierarchy, fears and differences.

v) Performance assessment monitoring approach

This entails analysis pro and post training performance and gauging whether there is a resultant improvement due to training. Any significant positive change therefore is termed as effect of the given training therefore appreciate the importance of the given training. Stagnation or reduction in performance may mean the training never had any positive impact or it affected farmers performance negatively e.g. through time wastage.

Conclusion

This learning outcome covered training methods, monitoring and evaluation of farmers and how they are important when carrying out an agricultural project.

Further Reading



1. www.Youtube.com//agriculturaltraininginstituteroleinextensionanddessemintaion of information to farmers
2. Anderson and Feder, Ca, (2004). Agricultural extension. Good intention and hard realities. The World Bank Research Observer, 19 (1) 41-60.
3. Adams ME (1982) Agricultural extension in developing caution (NO.04;5544, A3) Harlor Longman.

2.3.5.3 Self-Assessment



Written assessment

1. Extension education to farmers on organic farming is a waste of time rather than investment in modern agricultural practice.
 - a) True
 - b) False
2. Commodity specialized approach is a method of farmer extension training. True or False?
 - a) True
 - b) false
3. The following manual can be available for training farmers objectively to enhance agricultural extension except?
 - a) Dairy Farmers manual
 - b) Organic agriculture manual
 - c) product and disease central manual
 - d) product advertisement manual
4. Value addition is not important in agriculture. It increases production cost. True or False?
 - a) True
 - b) False
5. Role play is not a method of post-training monitoring. True or False?
 - a) True
 - b) False
6. Training farmers based on need gaps is important in extension.
 - a) True
 - b) False
7. Monitoring is a waste of time to follow already evaluated people
 - a) True
 - b) False

8. Give three manuals important to extension farmers
9. Highlight 4 training approaches for agricultural farmers
10. Name two monitoring methods after train of farmers

Oral Assessment

1. State the main aim of project approach as a method of farmers training
2. Give two areas specialized in daily training manuals.

Case Study Assessment

After training farmer and giving them training manual, the trainees should employ community approach and make farms visit and as methods of methods evaluation to gauge level of implementation of what the farmer were trained on and make report with viable recommendation that serve as a feedback to the agricultural education and extension institutions concerned.

Practical Assessment

1. Students to go and practice content of organic farming manual offer the training and assessment will be done using abrupt visit method.

2.3.5.4 Tools, Equipment, Supplies and Materials

- Hoof trimming knives
- Burtizzo
- Wool shear
- Ear tagging machines
- Hammer
- Tattooing machines
- Trocar and Cannula
- Teeth clipping knife
- Pig restraining
- Equipment feeding troughs
- Disbudding iron dehorning wire
- Milking pails
- Sieve
- Ropes
- Bolus guns
- DE wormers

2.3.5.5 References



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