TRAINING OF TRAINERS MANUAL FOR LIVESTOCK FARMER FIELD SCHOOLS

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Contents

AESA	Agro-Eco-System Analysis
CAPE	Community based Animal health and Participatory Epidemiology unit
CBPP	Contagious bovine pleuropneumonia
D.O.	District officer
DAO	District Agricultural Officer
DEC	District Extension Officer
DFID	Department For International Development
FAO	Food and Agriculture Organisation
FFS	Farmer Field School
FMD	Foot and mouth disease
FTC	Farmer Training Centre
IIED	International Institute for Environment and Development
ILRI	International Livestock Research Institute
IPM	Integrated pest management
KETRI	Kenya Trypanosomiasis Research Institute
NFE	Non-formal education
NGO	Non- governmental organisation
OAU-IBAR	Organisation of African Unity/ Inter African Bureau for animal resources
PACE	Pan African programme for the control of Epizootics
PAR	Participatory Action Research
PE	Participatory epidemiology
PA	participatory appraisal
PTD	Participatory technology development
TOT	Training of trainers
UNDP	United Nations Development Programme

PREFACE

The FFS approach was developed in the late 80's by FAO in South East Asia as a way for small-scale rice farmers to investigate, and learn for themselves the skills required for, and the benefits to be obtained from adopting integrated pest management (IPM) practices in their paddy fields.

Since then, the approach has been extended to several countries in Asia, Africa and Latin American. At the same time there has been a shift from IPM for rice-based systems towards other annual crops and vegetables and integrated soil fertility management. The number of FFS in the world has risen greatly but the question still remains unanswered whether the FFS extension approach would be suited in even more complex situations where no quick responses may be expected such as animal health and husbandry.

The animal health programme of the Department For International Development (DFID-UK) and FAO decided to support a research and development project lead by the International Livestock Research Institute (ILRI) to adapt the Farmer Field School methodology for livestock production systems. The present manual is the first output of this project and the product of a participatory workshop on the training of trainers (TOT) for livestock FFS held on the 17-29 September 2001, Mabanga FTC, Bungoma, Kenya. This manual is a compilation of notes taken during the workshop, existing FFS TOT reports (from FAO FFS co-ordinators: G. Khisa, D. Maye and B. Mweri,) and participatory epidemiology handouts from the AU/IBAR Cape Unit (Dr. A. Catley)

The FFS approach is, in most circumstance a major change in attitude and approach to extension service. It is essential that extension officers that will conduct FFS are trained to understand the philosophy, principles and methods underlying the FFS approach. The conventional extension agents have been trained in a traditional manner based on a "top-down" approach. This approach is contrary to the FFS philosophy, which emphasises participatory approaches. Consequently, the attitudes and skills of most trainers will need to be radically modified if they are to be successfully transformed from being instructors to becoming facilitators. This transformation is the main objective of the Training of Trainers. Instructors impart knowledge to farmers who adopt a passive role of receiving information. In contrast, a facilitator creates conditions for farmers to learn, in observing and interpreting differences in productivity, in carrying out simple experiments and exercises and through discussions.

The facilitator encourages farmer to adopt an active role in the learning process.

The manual has been designed as guide and source of material for FFS facilitators in charge of organising a Training of Trainers (TOT). Although the basic principles are identical, this manual differs slightly from other FFS manuals as it gives specific examples for livestock production system purposes. The TOT was therefore run as a learning workshop where participants learned and at the same time developed adaptation of the basic principles suitable for the smallholder dairy production system. The TOT was not a refresher course on animal production and health issues, therefore no technical information is included in this manual. The major difference between crop and livestock FFS resides in the understanding of the impact of animal health issues to productivity and how to control disease occurrence. A specific chapter on participatory methods modified for basic epidemiology studies provides assistance to facilitators to integrated animal health activities in their FFS programme.

Part 1 TRAINING OF TRAINERS ORGANISATION

1.1 Logistics

1.1.1 Workshop invitation
♦ Arrange for all invitations to be sent out well in advance, together with workshop agendas
♦ Arrange for travel permits and tickets to be sent
♦ Ensure all participants know what is expected of them, including the timings of the workshop and if expenses or a *per diem* will be paid.

1.1.2 Venue
♦ The venue will preferably be in a relatively isolated place where participants will not be disturbed by urban activities. Accommodation should be close to workshop facilities and provided for everyone throughout the training.
♦ The food should be of sufficient quality and quantity to satisfy the participants. The biggest complaints in workshops are often about food.
♦ If possible, the workshop will be situated near existing FFS to enable field exercises and visits. Field visits can also be organised in neighbouring farms independent of their involvement in FFS or not. Since participants are divided into sub-groups, means of transport will have to be provided for independent field trips.

1.1.3 Classroom and teaching facilities
♦ Since the course runs for 2 weeks, it is important to have a minimum of two master FFS trainers and reasonable communication and accommodation facilities.
♦ The seating arrangement should be a cluster of tables reflecting the sub-group, allowing the trainers to walk easily amongst group.
♦ Are a slide projector, video player and overhead projector available? What about the electricity supply?
♦ Are flipcharts, newsprint, pens and paper available.

1.1.4 Participants
All the participants should have a similar background and if possible involvement in livestock extension programmes. The optimal number of participants is considered to be 20 and it is not advisable to run a TOT with more than 30 participants.

Some essential information about the participants is needed before proceeding with the TOT (Source: IIED; 1995):

- How many people will be present?
- Why are they attending; is it their own choice or has a superior instructed them to be present?
- What are their fears and concerns?
- What range of experience, discipline, age, gender, status is likely to be represented?
- Do they have any biases towards or against you or your organisation?
- What prior knowledge might they have about the subject matter of the training?

Participants should be selected for their ability to acquire the skills and the main features of attitude and role of a facilitator:

- To accept that there is no monopoly of wisdom or knowledge
- To listen to farmers and respect their knowledge, experiences and perceptions
- To give farmers the confidence to share their knowledge and experiences
- To create suitable conditions and activities from which farmers can learn
- To be responsive to farmers' needs and flexible in organising the course
- To increase farmers' knowledge, problem-solving ability, capacity for innovation and skills so that the role of the facilitator is changed with time from that of facilitator to coordinator

1.1.5 Grouping

The group of participants represent a fictitious FFS group and are grouped randomly into sub-groups of +/- 5 participants. Each group gives themselves a name and a slogan. Each sub-group or team perform all tasks assigned by the facilitators in there respective groups. When presenting their output to the plenary they call out their slogan and the rest of the group respond. Example:

TEAM NAME	SLOGAN	TEAM LEADER
1. Bidii	Nanguvu	J.C.
2. Friesian	Maziwa	John
3. Ayrshire	Champion	Anthony
4. Jersey	More cream	Francis

1.1.6 Documentation

Handouts and relevant materials should be prepared for each participant. It is better that they listen or participate than write notes during sessions. Materials for exercises and group dynamics should also be prepared in advance.

It is essential to give each participant a minimum of stationary (pen, pencil, eraser and note book) for his or her individual work.

1.2   FACILITATION PRINCIPLES

Prior to carrying out participatory introduction by participants, the facilitation principles and core value of FFS are expanded to the participants as follows:
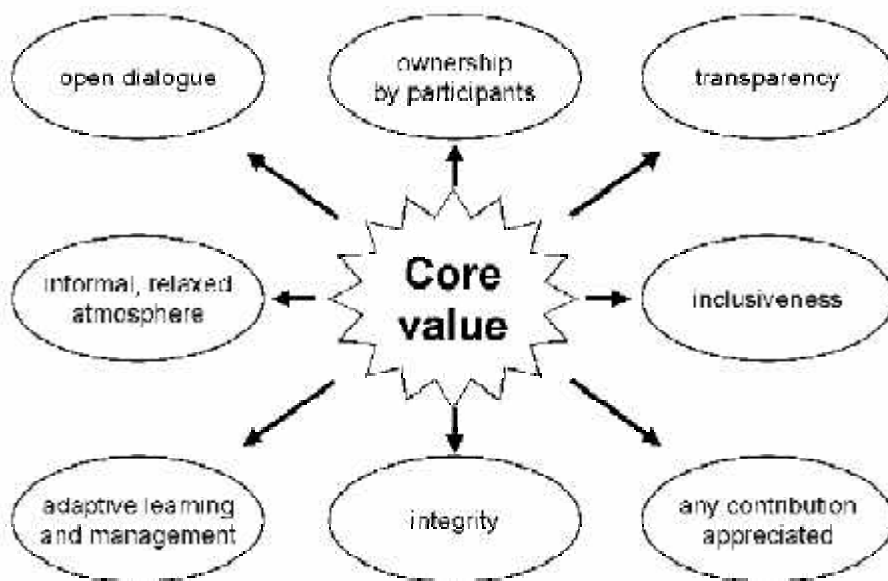
The basic methods to be used in the TOT and in FFS are presented and are summarized as below:
- Visualization
- Group dynamics
- Large and small group discussions
- Informal and structured discussions
- Field visits

1.2.1 Participatory introduction by the participants

Objectives

- To discover what participants want to get from the session, workshop or training course and learn a little about their personalities
- To help evaluate the course at the end of the training
- To help participants relax at the beginning of the course

Procedure

1. Split participants into pairs. Ask each participant to interview their partner by focusing on questions such as:

- What is your name? What is your background and experience?
- Why are you attending this course? What do you hope to get from it?
- Do you have any past experience of participatory methods in the field?
- Name two good things that happened to you in the past year.

2. After five minutes of interviewing each other, participants then report to plenary about their partner, summarising the main information in one minute.

Comments
The key to the exercise is that participants do not report on themselves -
in this way they not become nervous while waiting for their turn. In addition,
the exercise is neutral to seniority; neighbouring participants interview each
other - you as the trainer may find only later that a junior officer is
reporting on a director or vice versa.

1.2.2 Levelling of Expectations
Each group answers the 2 first questions presented below. A summary
poster is prepared by the host team and decorates the classroom for the
entire course. The facilitators also present their own expectations.
- What are the expectations of the participants from the course?
- What are the expectations of the participants from the facilitators?
- What are the expectations of the facilitators from the participants?

If expectations have been discussed, the trainer can write these down on
flipchart paper, which can then be stuck to the wall during the workshop.
Participants are then able to use the list to monitor whether their
expectations have been met or not or have changed.

Remarks
You may find that this exercise is also valuable for evaluations. To use it for
that purpose, change the questions that the pairs ask of each other to:
- To what extent did the course meet my (your) expectations?'
- 'What did you find most valuable?"
- What did you find least valuable?
- How would you like to see the course changed before it is run again?

Example of expectations of the participants from the course
- Fully understand the concept of the FFS and the skills required to
  run them.
- How to identify and form a group and run FFS.
- Learn how to develop a curriculum and networking of participants
- Learn how to incorporate FFS approach in scaling integrated
  livestock management technologies
- Group dynamics
- Learn techniques of sustaining the farmer led FFS
- Acquire skills in training other trainers
- Colourful graduation
- Certificate of participation to be given

Examples of expectations of the participants from the facilitators

- Learn about FFS
- Acquire new extension methodology
- Expect certificates at the end of course
- Clarity in presentation
- A well presented handout
- Practical field experience
- Package on group formation
- Highly qualified professionals
- Time conscious team
- Financial facilitation

Examples of expectations of the facilitators from the participants

- Commitment
- Cooperation
- Respect opinions
- Exchange of experience
- Discovery based farming

1.2.3 Setting of learning norms

For their two weeks stay at the training venue, participants develop their own learning norms (rules). Each team prepares 3 norms and the list is completed by open discussion.

Example of norms set by participants:

- All sessions must start with a prayer and a motto for the group
- Punctuality should be observed
- Participation through discussion and presentation without intimidation
- Absenteeism without permission not allowed
- Members should be alert and respect each other's opinion
- No drinking or smoking
- No wrong answers
- Use understandable language with one speaker at a time
- Collective responsibility with democratically elected leaders
- Minimal movement during session
- Group assignment taken seriously
- Close with a prayer

1.2.4 Functions of host team

The process of sharing responsibilities and participating in the TOT are outlined in the functions of host teams, where each group is responsible for the days activities on a rotational basis and additional responsibilities in the farming tasks assigned per commission as below.

The host team should:
- Facilitate the whole week/day(s) activities
- Prepare the opening program and schedule of activities
- Arrange the training venue
- Keep the training hall and premises clean
- Provide the energiser/ice breaker exercises to relax the atmosphere
- Introduce the resource person/guest speaker
- Check the weekly attendance of the FFS PAR
- Serve as the timekeeper
- Distribute the reading and other materials
- Assist the FAX or reporter in the reporting and discussion
- Do other functions assigned by FAX

1.2.5 Commissions

Each sub-group has a responsibility for the day. Every day the task changes for each group. Example:

Group 1 – Bidii	Disciplinary matters
Group 2 – Friesian	Entertaining and catering
Group 3 – Ayrshire	News and cleanliness
Group 4 – Jersey	Logistics and Communication

Part 2   FARMER FIELD SCHOOL PRINCIPLES

2.1   BACKGROUND

The FFS approach was developed by an FAO project in South East Asia as a way for small-scale rice farmers to investigate and learn, for themselves the skills required for, and benefits to be obtained from, adopting practices in their paddy fields.

The term "Farmer Field School" comes from the Indonesian Sekolah Lampangan meaning simply "field school". The first Field Schools were established in 1989 in Central Java during the pilot phase of the FAO-assisted National IPM Programme. This Programme was prompted by the devastating insecticide-induced outbreaks of brown plant hoppers (*Nilaparvata lugens*) that are estimated to have in 1986 destroyed 20,000 hectares of rice in Java alone. The Government of Indonesia's response was to launch an emergency training project aimed at providing 120,000 farmers with field training in IPM, focused mainly on recording on reducing the application of the pesticides that were destroying the natural insect predators of the brown plant hopper.

The technicalities of rice IPM were refined in 1986 and 1987 and a core curriculum for training farmers was developed in 1988 when the National IPM Programme was launched. It was based, not on instructing farmers what to do but on empowering them through education to handle there own on-farm decisions, using experiential learning techniques developed for non-formal adult education purposes.

Since then, the approach has been replicated in a variety of settings beyond IPM. The FARM Programme (FAO/UNDP), for example, has sought to adapt the FFS approach to tackle problems related to integrated Soil Fertility Management in the Philippines, Vietnam and China. The themes studied by farmers' groups include soil mapping of village lands, physical and chemical analysis of soils, fertilizer application and the influence of cropping practices on fertility. With the knowledge thus gained, farmers can more easily recognize differences in soils and take better informed decisions on the use of organic and inorganic fertilizers, alternative tillage systems and cropping practices so as to improve the conservation and management of soil productivity.

Subsequently the FFS approach has been extended to several countries in Africa and Latin American. At the same time there has been a shift from IPM for rice-based systems towards other annual crops and vegetables. The curriculum has been enriched with other crop management aspects.

In Kenya, the approach was introduced in 1995 under the special Programme for food security on maize based farming systems with only 4 FFS schools in Kakamega District, Western Province. The number has since risen to over 500 FFS spread over in Western, Coast, and Central province.

The question that still remains unanswered is whether the FFS extension approach would be suited in even more complex situations where no quick responses may be expected such as animal health and husbandry. The animal health programme of DFID and FAO are funding the present project, executed by the International Livestock Research Institute (ILRI), to develop and adapted the FFS methodology for dairy production system.

2.2   APPROACH AND CONCEPT

Farmer field schools (FFS) are a participatory approach to extension, whereby farmers are given opportunity to make a choice in the methods of production through discovery based approach.

A Field School is a Group Extension Method based on adult education methods. It is a "school without walls" that teaches basic agro-ecology and management skills that make farmers experts in their own farms.

It is composed of groups of farmers who meet regularly during the course of the growing seasons to experiment as a group with new production options. After the training period, farmers continue to meet and share information, with less contact with extension workers.

FFS aims to increase the capacity of groups of farmers to test new technologies in their own fields, assess results and their relevance to their particular circumstances. They interact on a more demand driven basis with the researchers and extension workers, looking to these for help where they are unable to solve a specific problem amongst themselves.

In summary a Farmer Field School (FFS) is a forum where farmers and trainers debate observations, apply their previous experiences and present new information from outside the community.

The results of the meetings are management decisions on what action to take. Thus FFS as an extension methodology is a dynamic process that is practiced and controlled by the farmers to transform their observations to create a more scientific understanding of the crop/livestock agro-ecosystem. A field school therefore is a process and not a goal.

2.3 OBJECTIVES OF FIELD SCHOOLS

Broad Objectives
To bring farmers together to carry out collective and collaborative inquiry with the purpose of initiating community action in solving community problems

Specific Objectives
- To empower farmers with the knowledge and skills to make them experts in their own fields.
- To sharpen the farmers' ability to make critical and informed decisions that render their farming profitable and sustainable.
- To sensitise farmers in new ways of thinking and problem solving.
- Help farmers learn how to organize themselves and their communities.

FFS also contribute to the following objectives:
- Shorten the time it takes to get research results from the stations to adoption in farmers' fields by involving farmers' experimentation early in the technology development process.
- Enhance the capacity of extension staff, working in collaboration with researchers, to serve as facilitators of farmers' experiential learning. Rather than prescribing blanket recommendations that cover a wide geographic area but may not be relevant to all farms within it, the methods train extension workers and researchers to work with farmers in testing, assessing and adapting a variety of options within their specific local conditions.
- Increase the expertise of farmers to make informed decisions on what works best for them, based on their own observations of experimental plots in their Field schools and to explain their reasoning. No matter how good the researchers and extensions, recommendations must be tailored and adapted to local conditions, for which local expertise and involvement is required which only farmers themselves can supply.

♦ Establish coherent farmer groups that facilitate the work of research and extension workers, providing the demand of a demand driven system.

2.4   PRINCIPLES OF FARMER FIELD SCHOOLS

In the field school, emphasis is laid on growing crops or raising livestock with the least disruption on the agro-ecosystem. The training methodology is based on learning by doing, through discovery, comparison and a non-hierarchical relationship among the learners and trainers and is carried out almost entirely in the field.

The four major principles within the Livestock FFS process are:
♦ Raising a healthy animal
♦ Observing the animal regularly
♦ Understanding the relationship between ecosystem and productivity
♦ Understanding ecology and become experts in their own field

2.5 CHARACTERISTICS OF THE FARMER FIELD SCHOOL

Farmers as experts. Farmers 'learn-by-doing' i.e. they carry 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, or livestock/fodder production. They 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 learning place. All learning is based in the field. The maize field, banana plantation, or grazing area is where farmers learn. Working in small subgroups they collect data in the field, analyse the data, make action decisions based on they analyses of the data, and present their decisions to the other farmers in the field school for 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 farmers know what it is they have to do, and what it is that they can observe in he field, the extension worker takes a back seat role, only offering help and guidance when asked to do so. Presentations during group 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 leaders, in arriving at an agreed consensus on what action needs to be taken at that time.

Scientists/subject matter specialists work with rather than lecture farmers: The role of scientists and subject matter specialists is to provide backstopping support to the members of the FFS and in so doing to learn to work in a consultative capacity with farmers. Instead of lecturing farmers their role is that of colleagues and advisers who can be consulted for advice on solving specific problems, and who can serve as a source of new ideas and/or information on locally unknown technologies.

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

Training 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 conservation measures such as hedgerows and grass strips, training would need to continue over several years for farmers to see for themselves the full range of costs and benefits.

Regular group meetings. Farmers meet at agreed 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 time between each meeting would depend on what specific activities need to be done, or be related to critical periods of the year when there are key issues to observe and discuss in the field.

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 can thus be discussed by the learners with others. Learners know the meaning of the materials because they have created the materials. Even illiterate farmers can prepare and create simple diagrams to illustrate the points they want to make.

Group dynamics/team building. Training includes communication skills building, 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.

Farmer Field Schools are conducted for the purpose of creating a learning environment in which farmers can master and apply specific land management skills. The emphasis is on empowering farmers to implement their own decisions in their own fields. Examples of group dynamics are given in Annex 1.

2.6 KEY CONCEPTS UNDERLYING THE FFS APPROACH

Communication
Within educational approach, communication must take place at the field level, dealing with field issues in a dialogue with learners. The field school deals not only with the practice that farmers want to learn about but also with farmers as farmers. The FFS purpose is to help the farmers to master and to apply field management skills. The farmer implements his/her decisions in his/her own field.

Problem-posing/problem-solving
Problems are presented as challenges, not constraints. Farmers' groups learn different analytical methods to gain ability to identify and solve any problem they might encounter in the field.

Field based education
Having the classroom directly in the field allows the field to be the learning material and the farmer to be able to learn from real life experiences.

Principles not packages
The FFS approach teaches principles more than packages of information. Principles, such as: cause and effect relationships, how to discover and learn, learning to be able to learn more; enable farmers to improve their skills and enable them to access information by themselves. Packages increase the dependence of farmers on central planners.

Training driven research
In the FFS approach research is based on training needs or is a part of the training itself. Through their participation in the field schools, farmers can become part of a wider program of local, district or national research networks investigating agricultural production problems and developing local solutions for improving the sustainability and productivity of the country's farming systems.

PART 3 FFS METHODOLOGY

3.1   STEPS IN CONDUCTING FFS (CLASSICAL APPROACH)

8. Follow up by facilitators

7. Farmer run FFS

6. Graduations

5. Field days

4. Evaluate PTDS

3. FFS establishment and its meetings

2. Training of Facilitators

1. Groundworking activities

Conduct Groundworking activities (see page 44)
- Identify focus enterprises
- Identify priority problems
- Identify solutions to identified problems
- Establish farmers' practices
- Identify field school participants
- Identify field school sites
- Prepare grant proposal

Training of Facilitators
- Identified Crop/livestock production and health technologies suitable for application
- Field guides on how to effectively deliver crop/livestock production and protection topics using participatory non-formal education methods
- Participatory technology development (PTD) with emphasis on the approaches and developing guidelines on how to conduct PTD
- Participatory methodology and non-formal education methods
- Group dynamics
- Special topics to be addressed at every stage of training.

FFS establishment and its meetings
- Implement PTDs (Test and Validate)
- Conduct AESA and Morphology and collect data
- Process and present the data
- Group dynamics
- Special topics

Evaluate PTDs
- Analyse collected data
- Interpret
- Economic analysis
- Presentation

Field days
- When and how to organise field days
- Who to invite to field days
- Define objective of field days
- Activities to be undertaken during the field day

Graduations
- Farmers with a good record of attendance are graduated for the specific activities completed during the FFS meetings

Farmer run FFS and follow up by facilitators
- Facilitator identifies a few farmers willing to play the role of facilitator with a new group of farmers to replicate one activity during the FFS meeting. The so called "farmer run FFS" is backed up by the facilitator

Philosophy of FFS

TOT: Technically sound facilitators trained

FFS: Basic field course: e.g. dairy production
                        Group organisation
                        Research methods
                        Assures participatory diagnosis and interventions

Farm led FFS: Farmer-to-farmer training
                        Formation of other group
                        Farmer to farmer extension

3.2   CONCEPT OF ECO-SYSTEM

What is an ecosystem?

Definition: An ecosystem entails both living and non-livings things found in an area and the environment they are in.

Learning objectives:
♦ Facilitate learning by discovery in the FFS
♦ To guide farmers to critically analyse and make better decisions on their field problems

3.2.1 Tropic levels in the livestock ecosystem

Each element in a tropic level plays different roles. Simplistically, plants are producers, providing food for herbivores; herbivores are eaten by carnivores; insects and microorganisms are decomposers, disintegrating organic materials to be incorporate into the soil to feed the plants. At all levels, they are multiple interactions and the absence of some of these actors will greatly affect the balance of the ecosystem. Tropic level refers to the feeding level/position of the living components in a given ecosystem.

Example: Where do cattle fall in the livestock tropic level?

1st Level   Producers
2nd Level   Herbivores
3rd Level   Predators
4th Level   Decomposers

3.2.2 The disease triangle
Diseases/Nutritional deficiency of a dairy cow:

What is a disease?
- A disease is an abnormal condition that injures the animal or causes it to function improperly, diseases are readily recognized by their symptoms (Clinical signs)
- Various agents acting either singly or in combination cause disease. The agents can be biotic (living) or abiotic (non-living).
- Living disease causing organisms are called Pathogens.
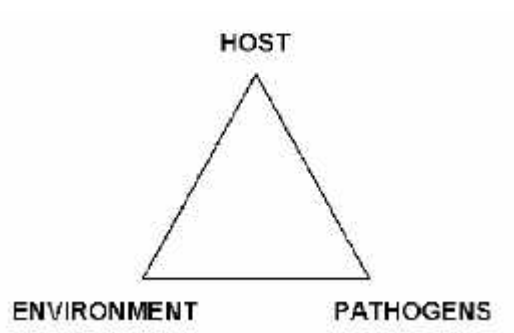
Factors required for disease to occur
- Host should be susceptible
- Pathogen should be virulent
- Environment favorable – Weather, rain/dry, moisture
- Biological factors like immune response and condition of the animal (nutrition)

Learning objectives
- To create awareness and understanding of the ecosystem functions of each tropic level.
- To aid facilitators in assessing the level of knowledge of the participants regarding the ecosystem

3.2.3 Transect walk in a grazing field
Objectives:
- Build awareness of the relationships that exists between so many of the living and non-living things that are found in our environment.
- To become more aware of the elements and interactions that makes up the ecosystem of our field – the agro-ecosystem.
- To start using our understanding and observation of the livestock – ecosystem as a basis for decision making about dairy management.

Exercise Instructions:
Each group walk to the grazing field, carry notebooks and pen.
- Look around as far as the eye can see and as close as they can see
- List all the living and non -living things you see.
- Discuss how they are connected or how they affect each other

3.2.4 Concept of what is this? What is that?
 (Learning to answer questions with other questions)

Definition
- It is a discovery-based learning in which questions are used to answer questions. It leads the learner to the answer by asking questions.
- It promotes learning by discovery and leads learners towards their own analysis.
- It guides farmers to critically analyse and make better decisions on their own fields.

The goal of discovery-based learning is to provide a more enlightened educational opportunity for participants. The methodology of learning is very important or achieving the goal of education. One important method is to ask questions that allow the participants to develop their own analysis and understanding. You are stealing an opportunity for education if you reply directly with an answer.

How to Ask questions.
It is important to use only open questions in contrast with leading questions where the answer is suggested:
e.g.:   What is this? Is an open question
          Is this a tick? Is a leading question where the answer is included?

The facilitators should try to answer question by another question.
There are many ways to answer the common question: *What is this*? For most of us, the natural response is to give the name of the object, often in a foreign language. The question is often answered by saying: "Oh! That is a ..." or "This is …….!". The result of this answer is that an education process has been stopped.

A better way to answer the question is to ask a question: *Where did you find it? What was it doing? Were there many of them? Have you seen this before?*

The idea is to promote learning by discovery and to lead the person toward his or her own analysis. Most of the time, people know the answer of their question, they just need to be guided to it.

Learning Objectives
To facilitate learning by discovery among farmers in the FFS.
To guide farmers to critically analyse and make better decisions on their field problems

Exercise
Only 1 or 2 persons from the team are interviewers, the rest are reporters. The reporters record every question and answer to enable the team to analyse their interview together. One of the team members acting the role of the farmer. Each team interview a neighbouring farmer.

Steps:
1. Form groups of three or four persons per group
2. If possible have one animal per group
3. In this group, take turns in the following roles: a technician conducting the interview, a farmer and the rest of the group are recorder
4. The 'farmer' should imagine or identifiy one problem to the animal (ecto-parasite, wounds, emaciation, swollen lymphnode, etc…) and ask, "What is this?" The other members will act as a "recorder" and must write down questions and responses. The "technician" should respond with one of the following type of responses: 'That is a good questions'. "Where did you find it?" 'What was it doing' 'Did you ever see it before'? 'What do you think it is'? (Keep asking questions). Use this especially when you know what the specimen is. Try not to give the answer! If the question is to be answered, the "technician" should avoid the answers, which give more emphasis to dentification. Rather, the function of the organism should be emphasized.
   Example: 'This is an insect that sucks the blood of the animal. It is not actually a problem until there are very many' or you could say: 'It is a problem because they transmit diseases' or any other responses that only gives biological/ecological information.

NEVER GIVE THE ANSWER WITH A NAME. THAT ONLY KILLS THE QUESTION. THE QUESTION IS A CHANCE TO LEARN.

5. After the members had taken their turns, return to session hall/ shade and analyse the results.

The exercise can also be done as a group exercise:

Walk through the field/farm as a group

In the group take turns in the following action:-

One member picks/takes points at anything in the farm ecosystem and ask: what is this?

One member will ask questions

The remaining member should record both Q and A.

Example 1:

Farmer   What is this?

Technician Looks like an insect (dudu)

F   Is it a bad dudu?

T   Yes, and even more so if they are many

T   Where did you find it?

F   On the ear of my calf

T   Do you see them throughout the year

F   No, only in the wet season

T   What are they doing?

F   They were many and some were swollen

T   What do they eat?

F   They suck blood

T   Is your calf alright?

F   It's ok, but sometime when there are a lot of dudu, some of my animals get sick

T   Can they be removed easily?

F   Not really, but they are some drug you can use to kill them

T   When did you spray your calf for the last time?

F   A month ago

T   Did you see other dudus like that on you calf?

F   I looked only in the ears

The technician could check the calf with the farmer and show other tick hidden in other part of the body.

F   Are they all the same dudus?

T   Do they look different?

F   Yes, some are brown and others are colourful. Are some more dangerous than other?

T   Yes, each dudus or ticks are able to transmit a different disease. They also prefer different places where to feed.

F   How can I prevent them to be on my animal

T   You have to spray your animal more often during the wet season. We will design a tick control plan together for you cattle.

Example 2

F   What is this?

T   What about it?

F   I found it in my Napier grass plantation

T	Why did you decide to bring it to me?
F	I wanted to find out what it is
T	Which effects did you says it has on Napier?
F	It made the Napier to perform poorly
T	How do you manage your Napier field?
F	Usually weed and put manure
T	Do you have a name for it in your area?
F	No, it came only recently
T	Is all the field affected?
F	No, just a few lines
T	How have you been controlling it before?
F	By cutting it and using it as cattle feed
T	Cutting is good but do not give it to your cattle. You are better to destroy the plant affected and burn them t as it can spread to the rest of your field. We will try together some new variety that are resistant to that disease. It's called smut.

Example 3:

F:	What is this?
T:	Where did you get it?
F:	From my neighbors feed lot
T:	How was it being used?
F:	Chopped and fed to animals.
T:	How much of it was fed to animals?
F:	It was being fed in small quantities, added to the Napier grass.
T:	How was it assisting neighbors' animals?
F:	Neighbors said it was increasing milk production when fed.
T:	Had your neighbor grown it on farm or he bought it?
F:	He had grown it.
T:	Have you seen a similar plant in your farm?
F:	It looks like desmodium but with bigger leaves.
T:	This is called sweet potato vines and it increases milk production like desmodium and also good for calf rearing
F:	So it is good for milk yield?
T:	Are you going to plant it?
F:	If I get the planting materials.
T:	Where are you going to get it?
F:	I will try to borrow my neighbor.
T:	Thank you I will visit you next time.
F:	Thank you very much for your visit and assistance. Hope for your next visit.

3.2.5 Feedback from Fieldwork/Appreciating types of ecosystem
Each group goes in the field and observes the entire biotic and abiotic elements around them. Then each group makes a picture showing all things that they observed, and draw lines to show which things are connected or affect each other. Each group makes a presentation in which they explain what they have drawn to the plenary.

Example 1
Observations
Blue sky, clouds, birds, cows, dung, houses, cyprus, acacia, various shrubs, dry thickets, dry grass, butterflies, grasshoppers, herbs, mole hills, soil, ants
Relations:
Clouds: provide rain, drinking water
Houses: shelter
Cows: eat grass, produce dung, insect host
Dung: gives nutrient to the soil, feeds insects, contain parasites
Trees: timber, firewood, fodder, shade, birds housing, micro-climate
Birds: eat insects; help pollination
Insects: eat grass; help in pollination and decomposition
Grass: feed on soil nutrients
Soil: feed all vegetation,

3.2.6 Agro-Eco-System Analysis (AESA) – making a group management decision
The AESA exercise helps to establish by observation, the interaction between a crop/livestock and other biotic and abiotic factors co-existing in the field. This involves regular observations of the crop/livestock system. It is a way of assembling what we are studying and putting a useful process in place for decision making based on many factors.

Why AESA?
The AESA exercise helps to improve decision-making skills, through a field situation analysis by observing, drawing and discussing. It improves decision-making skills by presenting small group decisions for critique in the large group.

Field exercise

Each sub-group is sent to the neighboring farms to collect data in observing the animals and their interaction with the environment:

- Get information to help you make a decision of improving the health and nutrition of the animal in order to maximize profits (milk sales)
- Disease: Discuss how the animal should be examined for pests and disease (Ecto and Endo parasites). How should this be recorded? How shall it appear on the drawing?
- What else is important to notice in the production system visited (zero grazing, extensive, semi-extensive)
- Indicate the weather conditions, for example by drawing a sun, clouds, rain strong wind etc.
- Make a list of important observations and recommendations at the bottom
- Each group present their poster to the larger group

As the group present their observations, each observation is discussed in term of importance and relevance to its effect to animal productivity. At the end of all presentation, the host team prepare a flipchart combining all the key points presented by the sub-group. Finally, the host team presents the prototypical of the AESA developed by the group for final modification.

AESA format developed at the Bungoma workshop

General Information

The AESA should include all background information needed to evaluate the animal. Such as:

- Breed
- Name/tag
- Sire's name and breed
- Dam's name and breed
- Date of birth
- Age
- Time of observation
- Weather condition
- Last treatment: date and drug used

Parameters

The parameters section should include all parameters that farmers can measure or estimate. This section should encourage the farmers to improve their record keeping.

This is the poster format developed at Bugoma

Examples of parameters are:
- Body weight
- Last weight
- Weight gain:
- Daily milk yield
- Milk yield status: improving or decreasing
- Number of calves
- Date of serving
- Date last calving
- Pregnancy status

- Calving interval
- Feed quality
- Feed quantity
- Supplement
- Water quality
- Water quantity

Observations

The objective of the AESA exercise is to improve the observation skill of the farmer. This should become an automatic checklist that the farmer will mentally go through every time he sees his animal. Observations are performed in 3 steps: observations from a distance, close-up observation and attention to the environment.

Step 1 Observation from a distance
- Hair/coat
- Body condition
- Rumination
- Movement/temperament
- Respiration

Step 2 Close-up observation
- Temperature
- Ecto-parasites
- Discharges
- Dung
- Urine
- Wounds
- Eye condition
- Mucus membrane color
- Lymph nodes

Step 3 Environment
- Housing and shading conditions
- Presence of other animal/insects
- Noises

Recommendations

The recommendations section gives an opportunity to the farmers to suggest some solutions to improve the overall condition of the animal examined.

How to improve the AESA records?

- ♦ Parameter to be included
- ♦ Quality of observation

What need to be done to improve productivity?
Which treatment should be done?

3.2.7 Principles of Integrated Livestock Management

The AESA exercise emphasise the importance of analysing livestock productivity in a holistic manner including all the elements present in the ecosystems. This is the basis of the Integrated Livestock Management where animal health and animal production issues are not taken into consideration separately but in an integrated manner as they are interrelated. Good animal husbandry practices include reducing diseases risk and improving nutrition status but also understanding the correlation between these two factors and their influences to the level of productivity achieved.

Skills required by farmers

Each sub-group is asked to prepare a flipchart about issue affecting dairy production and to list all the elements to be considered to analyze this particular problem.

Group 1: Clean milk production

Factors:	Solutions
Healthy cow	Balanced diet
Proper housing	Zero grazing unit
Clean water	Water source, river, stream
Clean utensils	Water and soap
Appropriate milking techniques	Trained milker
Proper storage	Store, good container
Quick sale	A good mode of transport

Group 2: Fertility of dairy cow

Factors	Solutions
Poor Heat Detection	Well trained herd man/farmer
Poor nutrition	Lack of minerals Poor quality and quantity of fodder
Time of service	Well trained herd man/farmer
Artificial insemination availability	A good mode of transport or communication
Diseases (Brucelosis, Vibrosis, Trichomoniasis, Leptospirosis)	Artificial insemination Hygene Diagnostic test

Group 3: Calf mortality

Factors	Solutions
Housing	Appropriate housing protect against rain, excessive heat and predators
Nutrition	Proper colostrum feeding Clean milk right quantity Proper timing, concentrate on feeding Mineral supplementation Clean and adequate water High quality forages Good grazing management
Disease control	Control ectoparasites – Dip or spray Deworming Vaccination programme

Group 4: Mastitis prevention in a milking cow

Factors	Solutions
Good cow	Genetic predisposition to the disease
Equipment	Strip cup and disinfectant
Housing	Disinfections of parlor/unit Dung pit Removal of harmful objects that can injure the udder
Milking techniques	Well trained milker Hygiene of the udder Complete milking
Prophylactic	Dipping of teats Avoid flies and ticks

Part 4   ORGANIZATION AND MANAGEMENT OF FARMER FIELD SCHOOLS

4.1   PROJECT CONDITIONS FOR A SUSTAINABLE FFS

For a group of farmers to be a successful Livestock FFS group should:
- Have a common need/interest
- Should be registered as a social group if legislation permits
- Preferably have a bank account
- Have an income generating activity on the ground or willing to start one like a cash crop (onion, tomatoes, beans, etc.) or a proportion of milk produced
- Engage in some farming activities
- Members ready to contribute a certain amount of money to the group
- Volunteer land
- Form a group: Minimum – 25, Maximum – 35
- All members should be active farmers
- Encourage gender balance
- Available Technology options to be taken to the farms
- Technical backstopping - feedback from farmers
- Provide labour for school activities
- Some members should be able to read and write
- Group members should be able to initiate more FFS
- Establish group norms
- Existence of a clear demand for technology

Criteria for site selection
- Identify a problem area
- Central and accessible by farmers as well as facilitators
- Security
- An expressed need for information
- Social community - able to work in groups
- Representative of the region, district.
- Suitable for technology development
- Should be ideal for school activities
- Democratically selected by farmers

Criteria for the selection of FFS participants
- Must be an active farmer
- Must be committed
- Must agree to the rules of the group
- Must belong to the same village
- Must be willing to attend all lessons during the FFS season.
- People who are willing to work in a team
- People willing to work and share ideas with others, particularly non-members
- Willing to contribute financial or material inputs to the school/work in consensus
- Practicing farmer
- Must be interested in new technology

4.2 Groundwork

Definition
A collective term for activities conducted at the village with the end view of preparing or paving the way for the introduction of a new concept or program in the area. Ideally, the activities should begin a season or at least a month prior to a planned farmers field school (FFS)

Objectives
Identify or determine the actual needs of the area, these will be the basis in developing FFS activities at various levels. Such activities should address farmers' needs and a set of relevant trials to tackle the major constraints to production should be designed. It also includes a variety of team building exercises employed during training.

Participants sub-group and class
- All learning is done in sub-groups
- Each group is responsible for a treatment or a series of different treatments for comparison studies
- Treatments/experiences are performed at the learning sites (i.e. in the field)
- There is no replication in the same field school
- Each sub-group plays host team role on day of FFS activities
- Each FFS has officials

4.3 FFS CURRICULUM

4.3.1 Content
The FFS are based on a solid tested curriculum, which covers the entire crop/livestock cycle. The field guides, study fields plus a collection of group dynamic exercises provide the basis for the field school curriculum. These materials are used according to their appropriateness.

Training in the farmer field school is experiential and discovery based. The training activities are designed to have participants learn by doing. Most of the training time is spent in the field. Exchange of information and generation of knowledge are facilitated through sharing observations, brainstorming and long discussions.

A corner stone of the FFS methodology is agro-ecosystems analysis (AESA) that is the establishment by observation of the interaction between crop/livestock and other biotic and abiotic factors co-existing in the field. This involves regular (usually weekly) observations of the livestock. Participants work in sub groups of 4 or 5 and learn how to make and record detailed observations including:

- Live weight gain
- Milk production
- Incidence of disease
- Treatment frequency
- Presence of ecto and endoparasite
- Evaluation of infrastructures
- Weather conditions
- Overall health status
- Growth stage and production level of fodder crop

The farmers then take management decisions based on these observations. An important aspect of FFS is helping and encouraging farmers conduct their own experiments, to test out ecological livestock management methods.

There are no standard recommendations or packages of technology offered. Farmer groups collectively decide which methods or aspects of livestock management should be studied and undertake action based on their own findings. In this way, farmers become active learners and independent decision-makers through a process of learning by doing.

These, together with a group dynamic activity and a special topic concerning what is happening in the field, form the core of the field school curriculum.

FFS day is divided into:
- AESA and its relevance to animal husbandry
- PTD activity
- Group dynamic activity
- Special topic related to specific village level conditions or problems

4.3.2 Field school schedule
FFS meets for half a day on the mutually agreed days between the farmers and the facilitators.

A typical day for a field school is divided into:
- Prayer/roll call
- Review of the previous FFS day
- Briefing on today's activities
- Field observation of the livestock or the fodder field
- Discussion and presentation of field observation for decision making
- Group dynamic activity in small or large groups
- Special topic activity and discussion in the small or large group.
- Planning for next week
- Summary and closure

Example of a FFS typical day guide:

Time	Activity	Objectives	Materials	Responsible Persons
8.00 a.m.	Prayer	To commit the days activities to the Lord		Host team
8.05 a.m.	Field monitoring (AESA)	To collect the data	Note books and pencils	FFS members
9.00 a.m.	Processing of AESA	To present the output of the analysed data		Representative farmer of each sub-group
10.00 a.m.	Group dynamic	To revitalize the participants		Host team
10.30 a.m.	Special Topic (selection of mother stock)	To input on the specific topic	Pens, pencils Note books	Facilitator
11.30 a.m.	Planning for next week	To plan for the activities of the following week		Everybody
11.50 a.m.	Prayer	To thank God for the day's activities		Host team
12.00	END			

4.3.3 Lessons learnt in farmer field school
- Facilitators should have local knowledge in terminologies used (pests/diseases)
- FFS has in built monitoring and evaluation methods
- Can effectively integrate other participatory methods
- Access to micro-credit enhances adoption of technology through FFS
- Concept and procedure are flexible enough so that it could be modified to fit in with local conditions
- FFS can be made cost effective
- Effective linkages between stakeholders are established
- Need to document the process and the results

4.3.4 Conditions for successful FFS:

- ♦ Organized community, dedicated, committed and willing
- ♦ Well trained facilitators
- ♦ Well defined priority problem
- ♦ Adequate resources and logistical support
- ♦ Clear understanding of the concept and procedure by all stakeholders
- ♦ Support and goodwill of the Authorities at various level
- ♦ Availability of appropriate technologies

Example of timetable of a typical FFS session

Part 5 FFS PARTICIPATORY METHODOLOGY AND TECHNIQUES

5.1 INTRODUCTION TO NON-FORMAL EDUCATION METHODS

5.1.1 Definition of " learning"
♦ Learning is an experience, which occurs inside the learner and is activated by the learners
♦ Learning is the discovery of the personal meaning and relevance of ideas
♦ Learning (behavioural change) is a consequence of experience
♦ Learning is a co-operative and collaborative process
♦ Learning is an evolutionary process
♦ Learning is sometimes a painful process
♦ One of the richest resources for learning is the learner himself
♦ The process of learning is emotional as well as intellectual
♦ The process of problem solving and learning is highly unique and individual

5.1.2 Basics facts about adult learning processes (IIED, 1995)
♦ Adults are voluntary learners. They perform best when they have decided to attend the training for a particular reason. They have a right to know why a topic or session is important to them.
♦ Adults have usually come with an intention to learn. If this motivation is not supported, they will switch off or stop coming.
♦ Adults have experience and can help each other to learn. Encourage the sharing of that experience and your sessions will become more effective.
♦ Adults learn best in an atmosphere of active involvement and participation.
♦ Adults learn best when it is clear that the context of the training is close to their own tasks or jobs.
♦ Adults are best taught with a real-world approach.

5.2 TYPES OF NON-FORMAL EDUCATION APPROACHES USED IN FFS

Key non-formal education (NFE) approaches used in the Farmer Field School learning include:
1. Sharing
2. Case studies
3. Role play (dramatized sessions)
4. Problem solving exercises
5. Panel discussions
6. Group dynamics
7. Small group and large group discussion
8. Brainstorming
9. Simulation game

5.2.1 Sharing
Method: Knowledge, ideas and opinions on a particular subject are freely exchanged among trainees and facilitators.
Objective: The method is suitable where the application of information is a matter of opinion. It is suitable when attitudes need to be induced or changed. Trainees are most likely to change attitudes after discussion. The method is also suitable as means of obtaining feedback about the way in which trainees may apply the knowledge learned.
Comments: The trainees may be led away from the subject matter. The whole session may be vague. Trainees may become entrenched in their attitude rather than be prepared to change them.

5.2.2 Case study
Method: A history of some event or set of circumstances with relevant details is examined by the trainees. Case studies give the opportunity to trainees to diagnose the case of a particular problem.
Objective: This method is most suitable when participants need to view a problem objectively or free from the pressures of actual events. It provides opportunities for exchange of ideas and consideration of possible solutions to problems the trainees will face in their work situation.

5.2.3 Role-play
Method: Trainees perform, in the training situation, the role they will be called upon to play in their job. Use role-playing mainly for the practice of dealing with face-to-face situations, i.e., where people come together in the work situation.

Objective: This method works better when it reflects a near-to-life practice relevant to the training situation. The trainees can practice and receive expert advice or criticism and opinions from fellow trainees in a "protected" training situation. This gives confidence and offers guidelines. The trainees get the feel of the pressures of the real-life situation.

5.2.4 Problem Solving Exercise

Method: Participants undertake a particular task that should lead to a required result. The facilitator provides rules. It is usually a practice or a test of knowledge put over before the exercise.

Objective: Before further information or new ideas are introduced the method may help to discover trainees' existing knowledge or ideas. Use problem-solving exercises with individuals or with groups. Use problem-solving exercises to find out the extent of assimilation of participants. There is a big room for experimenting and trying out things using this method for the imaginative facilitator.

Comments: The exercise must be realistic and the expected result reasonably attainable by all participants or they will lose confidence.

5.2.5 Panel Discussion (as a method for presenting case studies)

Method: Divide participants into small groups of five members each. Write questions on the board to be answered by groups. A facilitator will serve as moderator, timekeeper and at the same time set the rule and regulations for the activity. Ask the groups to draw lots as to which one will be the first discussant and the first to act as panel of interrogators, and so on. Assign questions for each group to answer. After a group has presented its answers to their assigned questions, the panel of interrogators can ask questions related to the discussions/answers made. This questions and answer activity will go on until all groups have been able to present their part. While the activity is going on a panel of facilitators may rate the participants as to: - Answers and questions raised
                                - Group and individual performance/participation
Objective: This exercise is appropriate for assessing learning and participants' performance in trainers' training. It is also effective in farmers' training with 20-25 participants where group members share their learning/experiences through questions and answers. The activity helps develop capability to communicate ideas and knowledge with other participants.

5.2.6 Group dynamics

Methods: Put participants in situations where:

- The behaviour of each participant is subject to examination and comment by the other trainees.
- The behaviour of the group or groups as a whole is examined.

Objectives: This method is a suitable way for participants to learn the effects of their behaviour on other people and other people's behaviour on them. It increases participants' knowledge of how and why people at work behave as they do. It increases skills in working with other people and in getting work done through other people. This method is valuable in learning the skills of communication.

There are many games and exercises that can be used to enhance group dynamics. The principal emphasis is on creating an environment in which individuals and the group feel free to experience, reflect and change. In particular games and exercises are valuable for:

- Relaxing the participants
- Stimulating the flow of communication between strangers
- Bringing private expectations and group reality closer
- Encouraging everyone to participate and learn
- Rounding off or introducing a session
- Developing new skills
- Exposing participants to new ways of judging their own actions, particularly in relation to the impact on group work

Comments: Problems may arise if what the participant learns about himself is distasteful to him. It is important that problems are shared-problem and not particular individual problem.

5.2.7 Small group and big group discussion

Method: Divide participants into small groups, giving each group a particular task to accomplish and discuss. Give every member of the small group the chance to share his ideas about the assigned task. Leaders that each of the groups choose lead the discussions. After a certain given time, each sub-group convenes and processes its discussion with the assembly .

Objective: This method is suitable to obtain participation and sharing of experiences as well as ideas from individuals in groups. It is easier for an individual to share his ideas with a small group than in a big group. This is particularly the case at the beginning of the training program when participants do not know each other well. The ideal size for small group discussions is at least five and not more than ten members.

Big group discussions should not exceed thirty members.

Comments: Some members of the group may impose on others, i.e., insist on their ideas. There is also a danger that some participants may use up much time in presenting their opinions. These situations may lead to others not having the chance to speak. The facilitator should always be sensitive to these behaviours and be able to handle the group so that each member is given a chance to be heard. Accept all opinions to show respect for individual members. The facilitator's role is to clarify inputs and tasks to avoid problems that may arise as a result of differences in personalities. Facilitators must maintain good judgement and not be swayed by opinions of any one of the group members.

5.2.8 Brainstorming

Method: Either in small groups or as a big group, give participants an issue or problem to be discussed about and deliberated on exhaustively. Accept all ideas during the discussion. After a thorough deliberation on the issue or problem, the entire group comes up with a consensus as a final output. Objectives: The method is suitable when tackling issues and problems that need or call for group decision-making. It is particularly helpful when participants are expected to actively join in the deliberation and share their ideas, experiences as well as knowledge about the issue on hand. A group of not less than five and not more than ten members should give the best results.

Comments: Be sure that that the issue or problem is clear to everybody and that groups stay focus on the issue as discussions often has a tendency to move away from the topic.

Comments for the "Small group and big group discussion" are also valid for brainstorming.

5.2.9 Simulation game

Method: A simulation is a simplified reproduction of some real life situation or process. In simulation, participants usually play a role that involves them in interactions with other people and/or with elements of the simulated environment. A veterinarian simulation for example, might put the participants into the role of the veterinary officer of a District. Provided with statistics about a disease situation, he designs a new disease control strategy with a team of consultants.

A simulation game combines the attributes of a simulation (role playing, a model or reality) with the attributes of a game (striving towards a goal specific rules). Like a simulation, it may be relatively high or low in modelling or reality. Like an ordinary game, it may or may not entail competition.

Objective: This method is a suitable way for participants to learn the effects of their behaviour on other people and other people's behaviour on them. It increases participants' knowledge of how and why people at work behave as they do. It increases skills in working with other people and in getting work done through other people. This method is valuable in learning the skills or negotiation. It is also a fun exercise and it is particularly suitable when the trainees are getting tired.

Comments: Simulation can vary greatly in the extent to which they can fully reflect the realities of the situation they are intended to model. A simulation that incorporates too many details of a complex situation becomes complicated and time consuming for the intended audience. On the other hand, if the model is over-simplified it may fail completely to communicate its intended point. A well-designed simulation provides a faithful model of those elements that are most salient to the immediate objective. It informs the facilitator and participants about elements that have been simplified, abbreviated, and eliminated completely.

5.2.10 Ballot box exercise: Evaluating knowledge and skills

When is this exercise most appropriate?

In the FFS, and TOT as a pre-and post-training evaluation of the participants ability in identifying diseases, ecto-parasite, treatment, prevention methods, fodder species and their quality etc… It becomes meaningful because actual field situation or problems are presented.

Participants do not need to know how to write to be able to participate in the activity. In cases where some participants cannot read, facilitators must make it a point to walk with those concerned and assist them by reading out the questions to them.

Learning Objectives
♦ To measure participants' knowledge and skills in identifying animal health and production problems, the damage they cause and methods for their control/solution.
♦ To develop participants skills in the preparation of "ballot box" questionnaires.

Materials
Pieces of cardboard or folders
Vials, rubber bands, marking pens, thread, thumb tacks
Bamboo sticks
Actual, live or preserved specimens

Steps
Collect live, actual specimens and preserve insect pests and natural enemies in vials and mount the same on pieces of cardboard or folders.

Prepare questions focused on identification of first signs of diseases, ecto-parasites, malnutrition, quality of feed. The questions should be in the dialect or vernacular.
Write the questions on the cardboard or folders. They should be of a selection type where participants only choose the letter of the correct answer. Questions may be as follows :-
What gives cow energy?
    a)   Water
    b)   Protein
    c)   Carbohydrates
Which dudus transmit ECF?
    a)   ticks
    b)   tsetse fly
    c)   flies

Each farmer has cards with his ID number. They put a card in the corresponding box: A, B, or C.
Process the activity to determine participant's performance and to solicit comments on how to improve the exercise for future use.

5.3 Participatory discussion on Folk Media
Principles of FFS folk media
Community based (avoid sophistication)
Involves people participation especially FFS
Self-reliance - use locally available materials
Use of indigenous language to put a clear message to the community (i.e. song/dance combination)
Should be within the programme perspective (Integrated Livestock Management)

Application of human creativity and theatre art
This is a simple way to pass information on a desired subject. The principles and types of folk media were described and each group was asked to present some form of folk media.

Type of folk media:
♦ Poem
♦ Song
♦ Prayer
♦ Poster
♦ Story
♦ Drama

Elements of creative communication
POEM
Ask each group to write a poem describing one livestock topic. You can also use the broken sentences to make it easy
Example of poem created during the TOT:

MILK MILK MILK
How precious you are
Many days to be seen
When you come you quickly go
As a passing cloud

MILK MILK MILK
Plea am I making to you now
Your secrets wound i like to know
For you to settle in my house

MILK MILK MILK
Yearning for you are my children
Each day never passes without them remembering you
How precious you are

FFS FFS
Equip us with skills
For the battle is just to be won
On you is the only hope

The workshop participants wrote a song to illustrate the integrated livestock management philosophy. This song written in Kiswahili is the anthem of the livestock FFS:

Kanuni za ILM ziko nne twazijua (x2)
The rules of ILM are 4 as we know

Kuzalisha kustawisha ngombe nzuri wa maziwa
To produce and prosper with nice dairy cattle

Kutunza kuzuia kutokana na magonjwa
To take care, to prevent from diseases

kuchunguza ngombe wetu mara kwa mara
To inspect our cattle often

Hatimaye nkulima huwa ndiye mtalaam (x2)
Finally the farmer is usually the expert

5.4 Participatory technology developement (PTD)

5.4.1 Definitions

Participatory Technology Development (PTD) or Participatory Action Research (PAR) is a process of collective and collaborative inquiry with the purpose of initiating community action on solving local problems. PTDs in farmers field schools are being implemented to empower participants (both farmers and facilitators) with analytical skills to investigate the cause/effect relationships of problems in farming practices, thereby stimulating them to design a set of actions for participants learning from other farmers' response at each stage of intervention and draw lessons for future field school program implementation strategies. In addition, the participants develop analytical skills and attitudes in working within participatory framework in planning, organizing and evaluating development activities.

Participatory Technology Development (PTD) means all relevant stakeholders do what only researchers usually do. It can be seen primarily as a learning strategy for empowering participants and secondarily as producing research results in conventional sense. PTD as a learning process empower in three ways:

- Empowers the farmers because of the specific insight, new understandings and new possibilities that participants discover in creating better explanations about their social world
- Participants learn how to learn
- Create new opportunities as participants learn how to create new possibilities for action.

5.4.2 Considerations in Establishing PTDs In FFS Sites

The following considerations are utilized as a guide in establishing PTDs in FFS sites to ensure that specific local farm problems are addressed effectively:

- Sufficient groundworking activities by the facilitators and village immersion activities by the participants should prioritise local field problems.
- PTD activities to be set up in the FFS sites shall be jointly identified, established and managed by the FFS participants and facilitators based on the prioritised local field problems in close co-ordination and consultations with researchers.

- Innovation, technology gaps and new problems resulting from the PTDs activities shall be utilized as additional basis for prioritising problems and activities in future PTDs to be established in the community.
- PTD methodologies shall be standardized and data base system shall be established with the community. A compilation of all possible studies form previous PTD activities shall be made available as reference for conducting future PTD activities.

5.4.3 Steps in Establishing PTD in TOT and FFS Sites

PTD in farmer's field schools can be best operated by combining local farmers' knowledge and skills with those of external agents to develop site specific and socio-economically adapted farming techniques. It is a process of purposeful and creative interaction between local communities and outside facilitators which involves:

- Gaining joint understanding of the main characteristics andchanges of that particular agro-ecological system by conducting sufficient groundworking and village immersion activities in the proposed PTD sites
- Defining priority problems in the area
- Experimenting locally with a variety of options derived from indigenous knowledge (i.e. from local farmers elsewhere and from researchers of formal science), by properly planning, designing, and implementing PTD activities for the community

♦ Enhancing farmers' experimental activities and farmer to farmer communication by properly collecting interpreting and utilizing PTD results.

Step 1: Conducting Groundworking activities
The TOT participants introduce themselves and the programme to build up a good relationship with the local government officials (e.g. D.O. Chiefs, Assistant Chiefs, DEC's, DAO's and local leaders). In the process, board ideas on field problems, indigenous farm practices and cultural management techniques are gathered.
Likewise, initial contact with local researchers and NGO's are established, these are useful at this stage to determine existing technologies that may be necessary in addressing perceived field problems. Board ideas about the attitudes, values and norms of the people in the community can also be shared during this stage.

Step 2: Conducting village immersion activities
The TOT participants, backstopped by the facilitators are immersed in the villages identified as possible FFS sites, based on suggestions of the agricultural officials. Similarly, they introduce themselves and the program to build up a good relationship with village leaders and farmers. During this stage, local field problems and current farming practices, gathered during groundworking activities by the facilitators, are validated by participants with farmers in the community.

Step 3: Prioritising field problems
Utilizing the data obtained in the groundworking and village immersion activities a baseline survey tool is utilized to obtain more specific details of the field problems in the proposed FFS sites. Field problems are then prioritised by analysing the agricultural situations, which will eventually form a basis for cooperation with farmers and facilitators to start the process of participatory technology development. This includes widening the understanding of all involved, about ecological, socio-economic, cultural, and political dimensions of the current situations.

Step 4: Plan and design of PTD activities
After prioritising field problems, the planning and designing of PTD activities commence within the identification of promising solutions, in order to set up an agenda for experimentation. In this stage, the participants (facilitators and farmers) in close consultation with local researchers identify which PTD activities will be set up in the TOT and FFS sites. The PTD experiments

should be simple but give reliable results and can be managed and evaluated by the farmers themselves.

Step 5: Implement PTD activities
FFS participants and facilitators should agree on which PTD activities should set-up in the FFS sites. Usually the problems that need to be addressed immediately with enough demonstration technologies (i.e. indigenous or research developed) are established in FFS sites. As the participants carry out, measure, and access PTD experiments, they simultaneously build up farmer's experimental skills and strengthen their capacity to conduct and monitor their own experiments.

Step 6: Collect and interpret results of PTD activities
Depending upon need for information, the participants should be able to collect and interpret PTD results. Since farmer field school training is focused on agro-ecosystem analysis (AESA), this helps the participants to gain insight into the ecological interactions in the field and they are able to develop innovations or discover technology gaps or new problems for consideration in succeeding PTD activities for the community.

Step 7: Utilize result in succeeding PTD activities
In order to make PTD a sustainable way of addressing future field problems in the community, PTD results should be continuously utilized. Any innovations developed in conducting PTD activities should be utilized in addressing similar field problems in futures.

5.4.4 Livestock participatory technology development

The establishment of PTD is one of the biggest challenges for livestock FFS. Indeed, while it is relatively easy to design comparative study for crop integrated pest management, the high economical value of cattle does not allow any experiment involving any risk or even short-term losses of the productivity of the animal. Therefore, one of the objectives of the FAO/DFID/ILRI ongoing livestock FFS project is to establish what type of PTDs could be performed without any risk or detrimental effect and still give the possibility to farmers to experiment with new technologies. At the TOT workshop, brainstorming sessions were organised to simulate creativity on how to design PTDs for typical livestock issues. Three types of PTDs emerge from these sessions:

1. Classical PTDs similar to crop based PTDs
2. Identification of ongoing experiments
3. Ex-post analysis of PTDs

Classical PTDs

Although we are working with livestock FFS, a lot of activities of the livestock keeper are crop related. This is particularly the case for fodder production and grazing improvement. The following ideas for PTD were raised and discussed:

- Feed: Establishment of different fodders such as lucerne, napier grass, desmodium, cow candy, etc…. Each fodder will be planted using different planting methods, treatments and/or different fertiliser regime.
- Scarcity of feed during dry season: Fodder tree plantation and comparison.
- Concentrate feeding: Different home made rations will be compared to the commercial concentrates available.

Identification of ongoing experiments

Different farmers have different practices and they all have ongoing experiments that the FFS can observe and evaluate. This is particularly useful for experiments that you would not want to design due to the risk involved, ethical issues or high cost implications. Examples are:

- Tick control: Comparison of efficacy of different acaricides and/or different application regime.
- Vaccination efficacy: comparison of incidence in immunised and non-immunised animals using participatory methodology.
- Infrastructure: Comparison of milk quality and losses due to milk spoilage in relation to the quality of the milk parlour infrastructure.

Ex-post analysis of PTDs

In ex-post analysis you compare actual experimental results with practices that were used previously. Results could be quantitative if records are available from the past or from similar situations, or more qualitative where the perception of the farmers will be evaluated. It also includes the "stop and go" method, where the treatment is stopped and re-introduced several times to show its effect.

Example:
- Water availability: The amount of water available to the dairy animal is changed to the calculated needs. Milk production is compared with previous record.
- Genetic material: Artificial insemination is used to compare calf birth weight with other calves or with expected weight.
- Prophylactic program: A prophylactic program is applied to a group of cattle and they performance is compare with it previous productivity and with neighbour herds. This could include deworming, trypanocide and/ or vaccination against prevalent diseases.

Whatever the type of PTDs designed, the safety of the animal and the level of production should be preserved. The results of PTD exercises are heavily influence by the quality of the records. Lack of proper record keeping is common in livestock keeper in poor countries and these exercises should be a way to demonstrate their importance. The AESA technique is used to record and observe the results of the PTD experiments.

Part 6   PARTICIPATORY EPIDEMIOLOGY

(Adapted from handouts from the Regional Training Course in Participatory Epidemiology
organised by A. Catley, CAPE/PACE/AU-IBAR, 2002)

6.1   INTRODUCTION

Participatory epidemiology (PE) is based on the use of participatory
techniques for the harvesting of qualitative epidemiological data contained
within community observations, existing veterinary knowledge and
traditional oral history. It relies on the widely accepted techniques of
participatory rural appraisal, ethno-veterinary surveys and qualitative
epidemiology (FAO Animal Health Manual 10).

The facilitators to can use this information to: disseminate information on
diseases prevalence, to design relevant participatory technology
development and to introduce more successful surveillance and control
strategies.

Although PE was developed for animal health issues, it can be easily
adapted to identified and score animal production issues.

6.2   OVERVIEW OF PARTICIPATORY METHODS

The three main groups of participatory methods are:
- ◆ Informal interviewing methods
- ◆ Visualization methods
- ◆ Ranking or scoring

All these methods are supported by knowledge of *secondary literature* and *direct observation*.
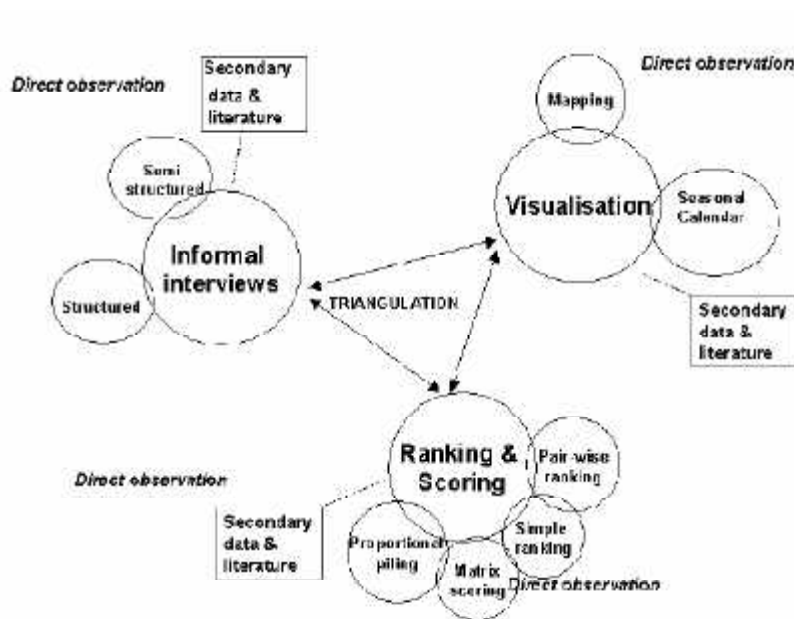
Ideally, the methods are used together. The results from one method are compared with the results of one or more other methods. This process of comparison and cross-checking is called *triangulation*.

6.3   WORKING AS A TEAM WHEN USING PARTICIPATORY METHODS

Many PE methods work best when a team of two or more facilitators work together. Within the team, roles should be clearly defined.
One person should be the facilitator. The facilitator introduces the session, asks questions, explains the method and checks the information as it arises from the farmers. Therefore, the facilitator interacts directly with

the farmers and does not need to write anything during the method. In other words, the communication flow is not interrupted because the facilitator keeps stopping the discussion in order to write down what has been said.

Another team member acts as the recorder. This person usually sits slightly back from the group and records the discussion or results of scoring methods as they arise. The recorder also watches the group dynamics and keeps a watch on who talks in the group and who doesn't. If necessary, the recorder can remind the facilitator to include people who are not contributing to the discussion.

The team members need to carefully prepare how they are going to run each session and who is going to say what. It can be very confusing for farmers if, for example, the team members interrupt or contradict each other when explaining how a particular method should be conducted.

6.4   INTERVIEWS FOR PARTICIPATORY EPIDEMIOLOGY

Interviewing is a specialised skill that improves with practise. Although just about any one can collect useful information through an interview, the amount and reliability of information obtained can be greatly improved with experience. There are many subtle lessons to be learnt about:
- Who to interview
- How large a group to interview
- Where to interview
- How to order questions
- How to phrase questions

Here are some hints on how to handle these issues.

Checklists
In participatory assessment, an interview questionnaire is not used. Instead, the study team prepares a checklist of important points and exercises to be covered. This allows the interview to be flexible and permits the respondents to express their thoughts in their own words within their own conceptual frameworks.

Example of Checklist for the Identification and prioritisation of Animal Health Issues
- ◆ Introduce the appraisal team
- ◆ Identify the respondents
- ◆ Livestock species kept
- ◆ Husbandry systems
- ◆ Grazing locations (mapping exercise)
- ◆ Identify and describe 3 diseases for each major species
- ◆ Proportional piling exercises on disease importance
- ◆ Direct observations (Transects and clinical examinations)

This example is only meant to provide a starting point. The reader is encouraged to adapt the checklist to local needs and personal preferences. The checklist serves to provide overall direction and assure that no major points are missed in the interview. The checklist also allows time for the respondents to digress into areas of special interest to them and for the appraisal team to investigate specific themes raised by the respondents. These digressions are often real gold mines of information that would have been missed in a rigorously structured interview.

Interviews should be planned to last no more than an hour. If the interview lasts longer, participants will begin to lose interest and the quality of information will decline. Learn to watch for signs of fatigue and boredom. Fidgeting and side conversation are a sign that either the interview needs to be enlivened by a shift to topics of greater interest to the respondents or that it is time to wrap up and ask any key questions that may remain.

Questions

It is essential to the reliability of the information collected that questions are open-ended and do not restrict or direct the respondent to a particular response or type of response. In an animal health appraisal, it is often best to begin with a question such as 'What animal health problems are you experiencing?' A good question does not make assumptions. For example, if the respondents have described a current disease problem that is consistent with tick-borne disease and you wish to know when previous outbreaks have occurred. You might wish to ask: *When was the last time this disease occurred?* However, it would be better to ask: *Have you seen this disease before?* The first question assumes that the disease has occurred before and communicates the assumption to the respondent. The respondent may state a year for the sake of being polite or out of fear of appearing uninformed. The second question allows the respondent greater freedom to state what he confidently knows.

Questions should be ordered so that the interview progresses from general themes to specifics.

Quantitative questions such as mortality rates, herd size, etc. do not receive very accurate responses. It is usually best to avoid such types of questions. In most societies, it is impolite to directly inquire about wealth in quantitative terms. If people do respond, a poor man may exaggerate and a rich man may depreciate his holdings.

In general, livestock owners enjoy talking about their livestock. Participatory epidemiology is about letting people share their knowledge and learning from them. Listen be patient and open-minded.

Probing
In participatory appraisal, the term probing means to ask detailed questions on a specific subject raised by the respondents. Probing is both a data gathering and data quality control technique. Probing can be used to verify the internal consistency of information or simply to gather more detailed information on a particular subject. In the case of participatory epidemiology, probing is often used to expand on the description of a particular disease entity volunteered by a respondent.

6.5 Using picture and other aids to assist PE methods

An important aspect of PE methods is their capacity to reach illiterate people and involve them in description and analysis of local problems. With methods requiring people to either write or understand text, illiterate people can easily become isolated and may not contribute because they're embarrassed, or because literate people dominate the discussion.
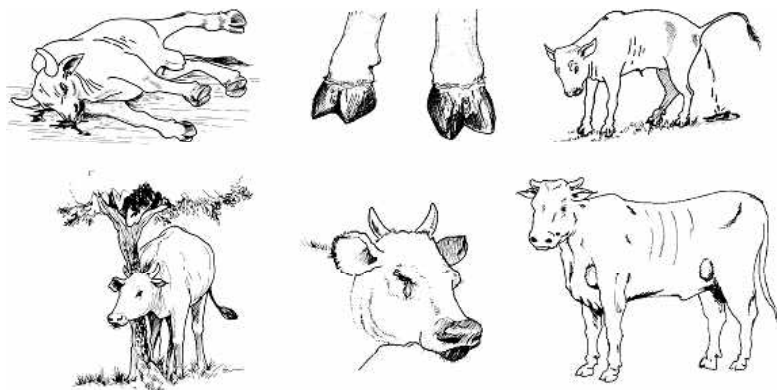
Examples of pictures of clinical signs

Many PE methods, such as interviews, matrix scoring, mapping, seasonal calendars and proportional piling can be conducted using no written words. With these methods, disease-signs or causes, parasites, livestock types and other items can be represented by either everyday objects or pictures. Pictures can be drawn or printed on to pieces of card and these cards form the 'labels' for the method.

When using pictures, it is always necessary to check that the farmers understand the meaning of the pictures. The facilitators need to show each picture to the group and explain it's meaning e.g. 'this is a picture of a bull that has died suddenly' or 'this picture shows a cow with wounds on it's feet'
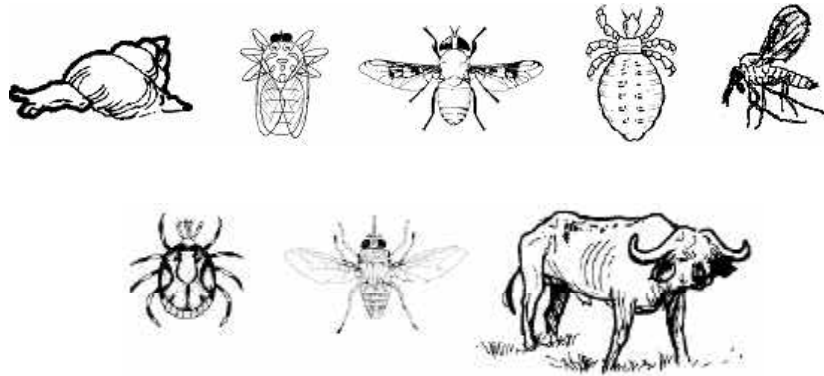
Examples of pictures showing 'causes' or sources of disease

When discussing causes or sources of diseases associated with parasites, actual specimens of parasites can help to ensure that the facilitator and farmers are talking about the same parasite. It is easy to carry a few preserved specimens to the field and show these to farmers. Alternatively, specimens can be collected during post mortem examination. Insects can often be captured in the vicinity of livestock.

In all cases, the local names for parasites and disease vectors can be determined using:
   ♦ Informal interviews
   ♦ Examination of clinical cases, post mortem examination, viewing parasites and naming with livestock keepers
   ♦ Matrix scoring of livestock diseases

When all these methods are used, we need to triangulate (cross-check) the local names for disease and parasites.

6.6   PARTICIPATORY MAPPING

Mapping is a type of visualisation method is a popular participatory among animal health workers and livestock keepers.

Examples of maps include:
- ◆ livestock mobility and grazing maps
- ◆ natural resource maps
- ◆ opportunities and service maps
- ◆ social maps

Mapping is a useful method for the following reasons:
- ◆ both literate and non-literate people can contribute to the construction of a map (as it is not necessary to have written text on the map)
- ◆ when large maps are constructed on the ground, many people can be involved in the process and contribute ideas. People also correct each other, and make sure that the map is accurate
- ◆ maps can represent complex information that would be difficult to describe using text alone
- ◆ maps can act as a focus for discussion

In pastoral communities, livestock mobility maps are useful for prompting discussion on topics such as animal health problems that were location-specific, and access to veterinary services when herds are in different places at different times of year.

Also, if you are trying to learn about contact between herds from different communities, maps can show when herds are in close contact with each other or with wildlife. This information is particularly useful when developing strategies for control of epizootic diseases.

Mapping is very useful during the groundworking stage of the FFS. The method tends to prompt much discussion and activity among farmers, and enables them to define the area under consideration. Although when copied to paper maps become useful outputs of mapping methods, it is important to note that maps can act as the focus for much discussion and follow-up questioning.

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Method

1. Mapping is best used with a group of farmers, say between 5-15 people. Find a clean piece of open ground. Explain that you would like the group to produce a picture showing features such as:

   ♦ geographical boundaries of the community. In pastoral areas, these boundaries should include the furthest places where people go to graze their animals
   ♦ main human settlements
   ♦ roads and main footpaths
   ♦ rivers, wells and other water sources
   ♦ grazing areas, farmed areas, forests and other natural resources
   ♦ services e.g. veterinary clinics, duka or Agrovet shops
   ♦ ethnic groups
   ♦ seasonal movements of livestock by livestock type
   ♦ seasonal and spatial contacts with herds from other communities or wildlife
   ♦ areas of 'high risk' for parasites e.g. tsetse flies or ticks

   Explain that the map should be constructed on the ground using any materials that are to hand. For example, lines of sticks can be used to show boundaries.

2. When you are confident that the group understands the task they are being asked to perform, it is often useful to explain that you will leave them alone to construct the map, and return in 30 minutes. At point, leave the group alone and do not interfere with the construction of the map.

3. After 30 minutes check on progress. Give the group more time if they wish.

4. When the group is happy that the map is finished, ask them to explain the key features of the map. The process of 'interviewing the map' enables facilitators to learn more about the map and pursue interesting spatial features. Hence, when used imaginatively, mapping methods yield both diagrams and discussion of diagrams. It is important than one member of the team takes notes during this discussion.

5. It is often useful to add some kind of scale to the map. This can be done by taking a main human settlement and asking how many hours it takes to walk to one of the boundaries of the map. A north-south orientation can also be added to the map.

6. Makes two large copies of the map on to flip chart paper. Give one copy to the group.

When maps are used to show seasonal variations in livestock movements and locations of tick or tsetse-infested areas, information can be crosschecked using seasonal calendars.
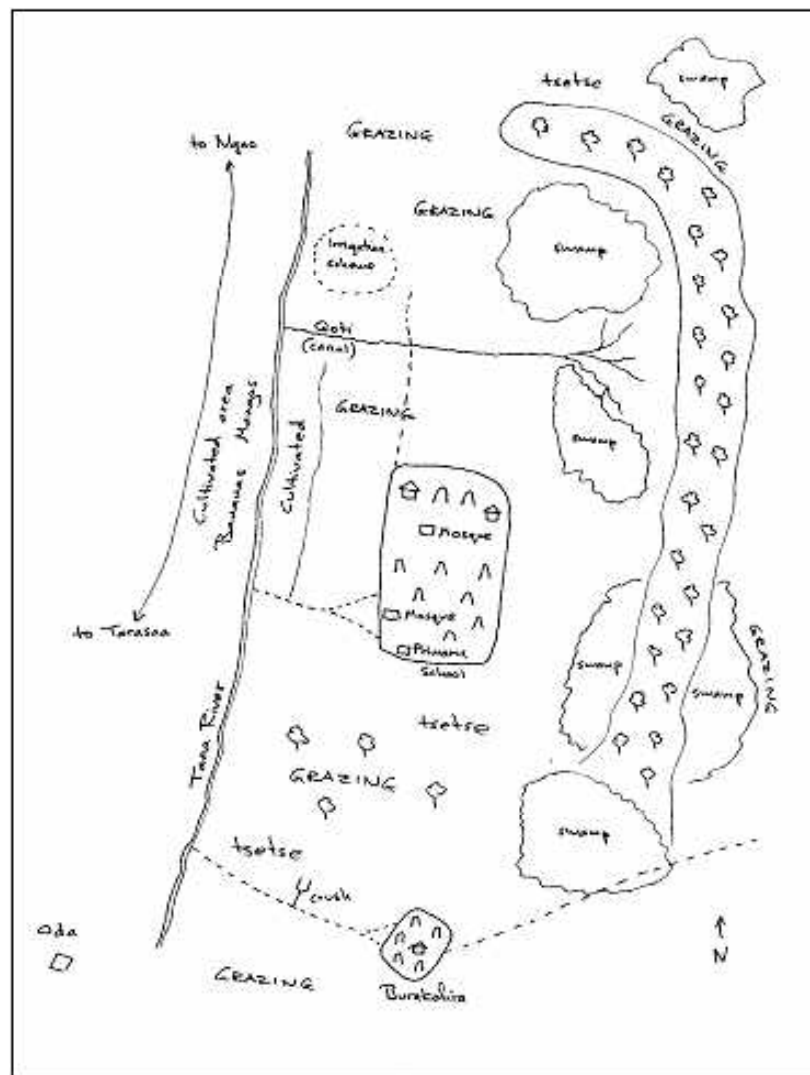
Example: Map of Kipao village, Garsen Division, Tana River District.
This map was constructed by Orma herders during a study on bovine
trypanosomiasis. It shows the dry season grazing areas for cattle around
Kipao and proximity to tsetse-infested areas. During the wet season, the
area became marshy and cattle were moved to remote grazing areas.
(source: KETRI/IIED study, 2001)

6.7   SEASONAL CALENDARS

Temporal variations in disease occurrence are a common aspect of
epidemiological investigation. Seasonal calendars are a useful method for
understanding local perceptions of seasonal variations in disease incidence
or populations of ticks, biting flies or other factors.
Seasonal calendars can also generate new hypotheses about associations
between diseases, environmental factors, and interactions with wildlife and
vectors.

The Method
In order to use seasonal calendars the facilitators should understand and
use local names for seasons or months.
This requires some preliminary interviews with key farmers to learn local
names and relate these names to the Gregorian calendar
Using months creates a more detailed seasonal calendar but is more time
consuming. Often, translation of months into a working language is
complicated and it is easier to use seasons.
This method can be used with a single informant or a group of farmers. If a
group has more than 10 people, it is difficult to get everyone to contribute
to the method.

Stage 1 – Construct a one-year time line
Explain to the farmers that you are interested in learning about how
diseases change throughout the year.

Draw a horizontal line on the ground to represent 1 year. The line should be
at least 1 metre in length. Divide the line according to local definitions of
month or season.

Label each month or season using either a piece of card with the local name
or an every-day object to represent each month or season. Carefully explain
the meaning of the cards or objects to the farmers and ask them
questions to check that they understand these meanings.

Stage 2 – Showing rainfall patterns

It is useful (though not essential) to choose rainfall as the first event to be illustrated on the calendar. Why? This is because in the tropics where temperature variations are relatively mild, rainfall is often the main farmer of livestock movements, animal interactions and populations of disease vectors such as biting flies, snails and so on.

Give the farmers a pile of stones, say 30 stones, and ask them to divide the stones against the seasons (or months) to show the pattern of rainfall throughout a typical year. The greater the rainfall in a particular season, the greater the number of stones assigned to that season. Similarly, a season with no rain should have no stones assigned to it. All the stones should be used.

When the farmers have placed all the stones against the seasons, check the scoring by asking questions such as 'You have placed most of the stones against season x, so season x receives most rainfall?' Give the farmers the chance to change their scores if they wish.

Record the final scores and leave the stones in place.

Stage 3 – showing seasonal patterns of diseases and vectors

Ask the farmers to illustrate on the diagram the occurrence of the events under investigation. Events might be the livestock diseases previously identified during a livestock-disease scoring or ranking.

Each disease or vector should be represented by written labels, pictures or actual specimens. Remember, written labels are only understood by literate farmers. Illiterate farmers, although very knowledgeable on animal health matters, can become isolated from the method if written labels are used.

Take each disease or vector in turn, and ask the farmers to show the seasonal variation using piles of stones. Keep the numbers of stones constant for each item scored.

When discussing disease vectors such as flies, ticks and so on, it is very useful to carry preserved specimens in clear glass bottles, or, ask people to collect specimens during the study. This often creates much interest and enthusiasm amongst livestock keepers.

Stage 4 – Interviewing the diagram

Ask the farmers to explain interesting aspects of the diagram i.e. the positioning and relative scores of the various diseases and parasites. Use probing questions (e.g. *Why? How?*) to follow-up interesting leads.

Examples of questions

- *'Why do you mainly see the disease X in the wet season?'*
- *'You've shown me that the disease called Y is seen mainly in the wet season – when is the best time to prevent this disease?'*
- *'Why do you see the disease called Z in the dry season?'*

This stage of the method is crucial. It helps to crosscheck the information presented in the diagram and enables the facilitators to explore the reasoning behind the scores. It also ensures local analysis of the information.

The facilitators should take detailed notes of the questions and discussion – these notes are part of the 'results' of the seasonal calendar and should be presented in any reports arising from the use of the method.

It is important to make a copy on A4 paper or flip chart paper of the diagram and leave this copy with the farmers.

Example

The seasonal calendar was constructed by a group of 5 Orma pastoralists in Tana River District, Kenya. The five Orma seasons are written along the top of the diagram and the various diseases and vectors are placed down the left side of the diagram.

The black dots represent the stones that were used by the farmers to show the seasonal patterns. This example is interesting because it includes seasonal interactions between cattle and buffalo.

Notes on the discussion are included to help explain key aspects of the diagram.

Notes on discussion

- More cattle are present in the delta and permanent villages during *hageiya* and *bona hageiya.* As the delta is wet (during *hageiya*) and hot (during both *hageiya* and *bona hageiya*) during these seasons, exposure to biting flies and ticks is high.

- As the main rains (g*ana*) begin, cattle move out of the delta to avoid flooded areas, and into the hinterland. As the hinterland is drier than the delta and has different vegetation, exposure to biting flies and ticks reduces.
- This pattern of seasonal movement into and out of tsetse and tick-infested areas in the delta determines the level of contact between cattle and these vectors. Although the *hawicha* milking herds can be permanently in the delta, these herds are relatively small in size.

Contact between cattle and buffalo peaks during the dry periods *bona hageiya* and *bona adolesa* because animals congregate around dry season water points.

		Orma seasons				
		Hageiya	Bona hageiya	Gana	Shuricha	Bona adolesa
Diseases	Rainfall *Roba*	••••		•••••••	•••	••
	Trypanosomosis *Gandi*	•••••	•••••	••	••	•
	FMD *Hoyale*	•••	•••••••	•••	•••	•••
	Haemorrhagic form *T.vivax* *Buku*	•••••••	•••••••			
	CBPP *Somba*					•••••••••••••••
	Rinderpest *Madobesa*					
flies, ticks and wildlife	Tsetse *Gandi* 'kawaida'	••••	••••	••••	••••	••••
	?Tsetse *Gandi bulu*		•••••••••••••••			
	Tabanids *Kobabe*	•••••••••••••••				
	Ticks *Shilmi*	•••	•••••••	••	••	•••
	Buffalo *Gadarsi*	•••••	•••••••••••			

Repeating the seasonal calendar method to improve reliability and validity

In most animal health studies, seasonal calendars are used with only a small number of farmers or informant groups. However, like the matrix scoring method, seasonal calendars generate numerical scores very early in the method.

Repetition of a standard method allows results to be summarised using medians and measures of spread such as 95% confidence intervals. Agreement between individual farmers or informant groups can be determined using nonparametric tests such as the Kendall Coefficient of Concordance (W).

A standardised method can be developed in the field.

1. First, try out a seasonal calendar on a trial basis and include the disease and vectors that you as a facilitator are interested in, and/or which livestock keepers have identified as important.

2. Limit the number of diseases or vector to no more than 15. Otherwise, the method becomes too time-consuming and cumbersome.

3. Always include some diseases or vectors that may not be of much interest to you or the farmers. These diseases and vectors act as a type of control in the method.

4. Always keep the seasons, diseases and vectors, and number of stones constant.

5. Repeat the method with at least 10 informant groups.

6. Follow-up questions can vary for each group and do not need to be standardised. This allows for some flexibility in the method and provides space for facilitators to follow interesting leads and ideas as they emerge.

Assessing the validity of data from seasonal calendars
Data derived from seasonal calendars can be assessed in various ways:
Rainfall patterns can be compared with official measures of rainfall as
gathered by meteorological stations. This official data should be compiled on
a seasonal basis to allow direct comparison with the seasonal calendar
data.

Disease and vector patterns can be compared with standard, textbook
descriptions of seasonal patterns. Secondary data from annual report
form Veterinary Department should be consulted.

6.8   MATRIX SCORING

This method is used for understanding local characterisation of livestock
diseases and meanings of local disease-names.
The method can help to answer the question: *Are the facilitators and
livestock keepers talking about the same diseases?*
There are two main contexts in which this method is used:

- as part of a general disease survey, in which a number of priority
  diseases are studied. The method explores local descriptions of
  these diseases.

- as part of a study on a specific disease in which various control
  diseases are used to help avoid bias. In this situation, *the farmers
  are not told that the facilitators are interested in a specific disease*
  when the method is started.

The Method
Stage 1 - Identification of items to be scored
If conducting a general disease survey
Ask the farmers to name the items under investigation. For example, if
investigating cattle diseases, ask a question such as, *"What are the five
most important diseases affecting your cattle throughout the year?"* This
ranking can also be determined using pair wise comparison method.

If conducting a disease-specific survey
Use informal interviews to get an idea of the local disease name or names,
which are used to describe the disease or syndrome that you're interested
in. Also, use the same interviews to learn some local names for other
diseases. These diseases should be considered by the farmers to be priority
diseases and will be used as 'controls' in the matrix. It is important these

'other' or 'control' diseases are local priorities, because then people are more likely to be willing to sit and discuss these diseases during the matrix scoring.

Whichever type of survey you are conducting, record the diseases named by the farmers on to separate pieces of card using the local language. Check that at least one informant is literate.

Stage 2 - Pair-wise comparison of the named items

1   First, choose two of the named diseases (represented as name cards or objects). Show this pair of diseases to the farmers and check that they understand the meaning of the name cards or objects.

2   Ask the question *"Which of these two diseases is most important?"* The farmers will discuss among themselves and choose one of the diseases.

3   Ask the question *"Why is that disease more important than the other?"* The farmers will provide a list of reasons why they consider the disease to be important. Record these reasons.

4   Ask the question *"How do you tell the difference between these two diseases?"* The farmers will provide a list of reasons why they consider the disease to be important. Record these reasons.

Note – in participatory methods, the 'reasons' provided by farmers are usually called 'indicators'. When you have asked questions 3 and 4, you should have a list of indicators like clinical signs (diarrhoea, coughing etc.), extent of the disease with regards morbidity and mortality, production or economic losses, types of species or age groups affected and so on.

5   Record all the responses and repeat the question until each disease has been compared with every other disease. At the end of the pair-wise comparisons, you should have recorded a long list of indicators.

Note – if you are planning to use matrix scoring several times during your research, pair-wise comparison is only conducted once, at the beginning of the research. The same diseases and indicators are used for each matrix scoring i.e. a 'standardised' matrix is used.

Stage 3 - Scoring of diseases verses indicators

1. Place the disease name cards or objects in a row on the ground.Once again, check that the farmers understand the meaning of name cards or objects. Collect a pile of stones. You will need 5 stones per disease e.g. if 6 items are being scored, 30 stones are required. Remind the farmers of the first indicator mentioned during the pair-wise comparison. Write this indicator on to a piece of card or use a picture to represent the indicator. Ask the farmers to distribute the stones according to relationship between this indicator and each of the diseases represented by the name cards or objects. Explain that all stones must be used.

2. After the stones have been allocated to each item, check the scoring with the farmers and allow them to alter the scoring if they wish. Record the final number of stones allocated to each disease. At this stage of the method, you should have the beginnings of a matrix on the ground. The matrix might look like this:

	Endorobo Trypanosomiasis	Oltikana ECF	Olukulu FMD	Emwilaies CBPP	Engluwet Blackquarter
Coughing	•• •	••• ••		••• ••• •••	
Diarrhoea	••••• ••••• ••••• •••••				
Salivation		•• ••	••• ••• •••	•	
Abortion	••• ••		••• •••		
Enlarged lymph nodes	••• ••	••• ••• •••			
Lameness			•••••• ••••••		•• •
Disease causes death		•• •• •••		•	•• ••
Reduced milk yield		•• ••	••• ••• •••		

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3. Do not remove the stones. Take a second indicator and place this below the first. Repeat the scoring procedure.

4. Repeat this procedure, gradually building a line of indicators down the side of the matrix. The matrix should gradually evolve untill a complete matrix containing all indicators down the y-axis of the matrix is produced and all the indicators have been scored

Note – it is useful to pre-prepare all the pictures for the indicators before hand. Draw the pictures on to strong pieces of card that will not become damaged in the field.

Stage 4 – Interviewing the matrix

The facilitator can use the matrix on the ground to ask questions and develop discussions. By physically pointing to particular scores, the facilitator can summarise all the indicators associated with a particular disease. Open and probing questions can be used to explore the knowledge of the farmers.

Note – this is the most difficult stage of the method. Facilitators often forget to ask additional questions about the matrix.

Repeating the matrix scoring to improve reliability and assessing validity

See section 6.7 on seasonal calendars

6.9   PROPORTIONAL PILING

Proportional piling methods have various epidemiological uses, but are particularly useful for determining herd age structures, and disease incidence and mortality.
Two important advantages of proportional piling are:

- The method does not require herd sizes to be estimated. Therefore, sensitive questions like 'how many cattle do you own' are not necessary

- when assessing disease incidence and mortality, the method involves comparison of different diseases and therefore, avoids exaggerations of a particular disease situation

The method
Stage 1 Identify the important diseases
Identify by using matrix scoring the most important diseases (use local names)

Example: Orma pastoral communities, *in Tana River District, Kenya*

Gandi	chronic trypanosomiasis
Hoyale	FMD
Buku	acute tryps
Somba	CBPP
Madobesa	rinderpest

Stage 2 Find out the different age group of cattle
Ask the farmers to define the major age group or class of animal in their own language.

Example:

Jabie	Calves up to around weaning age; the 0-2 years age group.
Waela	Weaner group, 2-3 years old.
Goromsa	Young adult stock, including heifers and young bulls; age group 3 to 4 years.
Hawicha	Adult stock, particularly the milking cows kept around the permanent villages; > 4 years of age.

Stage 3 Run the method for each age group

The proportional piling method was repeated with each of the 4 age-groups of cattle and involved the following stages:

1. Taking the calves (*jabie)* age group first, a pile of 100 stones was used to depict this age group. An informant was asked to divide this pile of stones into two piles to show the pattern of 'sick calves and 'healthy *calves* during the last year' in his herd.
2. The pile of stones representing sick calves was then sub-divided by the informant to show the pattern of *calves* suffering from the 5 different diseases (*gandi, hoyale, buku, somba, madobesa)* and 'other diseases' during the last year.
3. The method can be taken a step further by also including mortality. The 'incidence' piles for each disease are further sub-divided into animals dying and animals surviving. The piles of stones for the dead animals represent the mortality for each disease.
4. Repeat the same procedure for each age group using always 100 stones.
5. Repeat the whole method with a large number of farmers in the area (i.e. information was obtained from 50 herds).

A diagrammatic representation of the method is as follows:
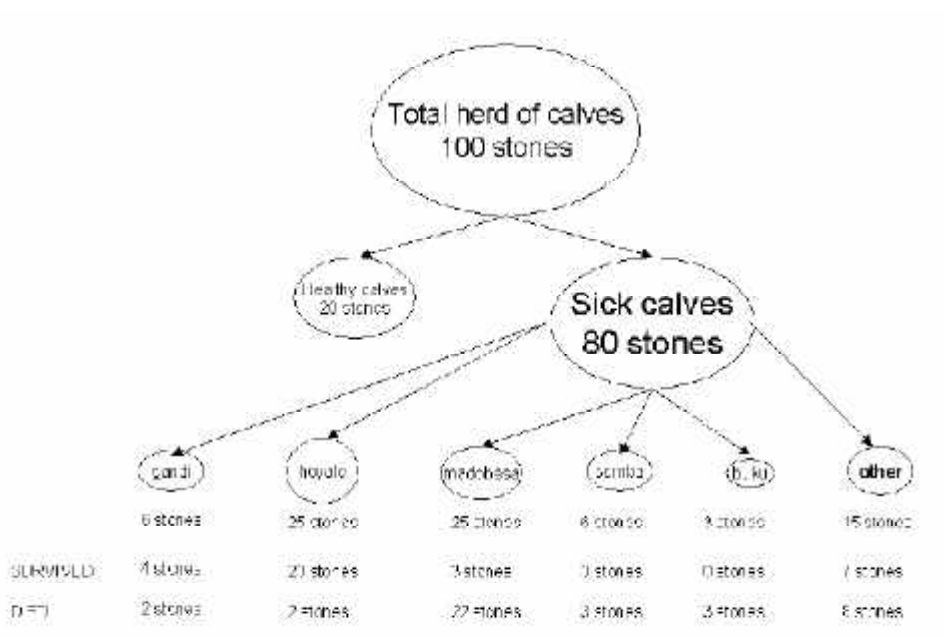
Results

Mean incidence and 95% confidence limits can be calculated for each disease by age group.

Results from this kind of proportional piling can also be presented in pie charts.

Mean incidence of important cattle diseases relative to healthy cattle (all age groups) 1999-2000.
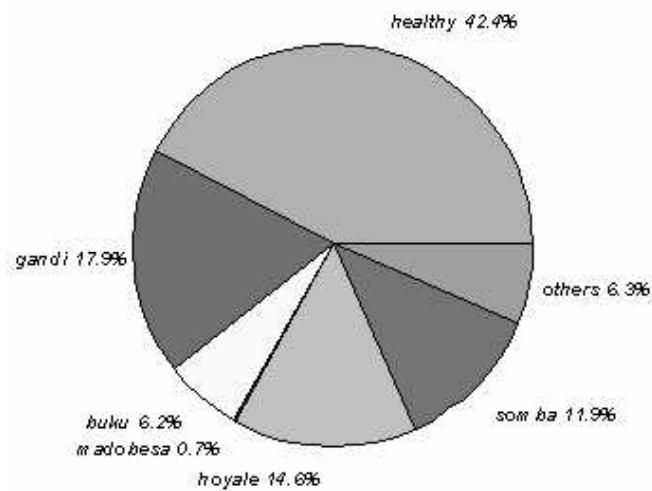
Again, results for each disease and age group were summarised as mean incidence and mortality and 95% confidence intervals.
Example *Oltikana*/East Coast Fever in Masaai herd in Tanzania

Assessing validity

Proportional piling methods to assess disease incidence or mortality should only be used after informal interviews, matrix scoring and other methods have been used to understand local disease characterisations and names.
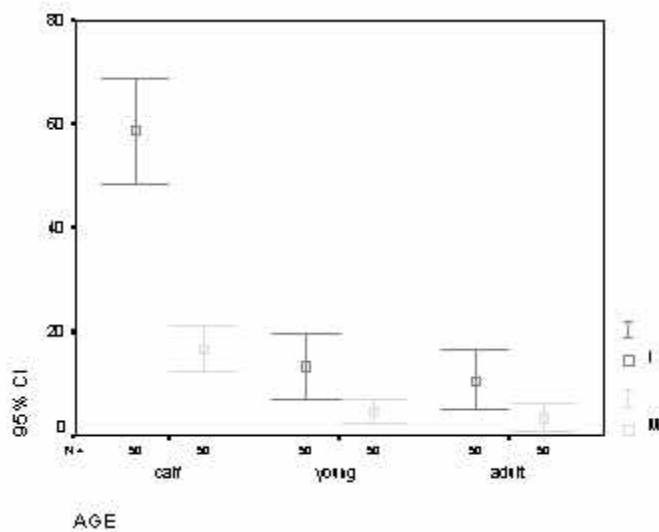
The validity of data derived from these types of proportional piling methods can be crosschecked in various ways:

- Seroprevalence and parasitological diagnosis by age group can be used to cross check the data. However, in the case of serological surveys, remember that we're usually assessing antibody prevalence not disease incidence. Also be aware that tests with low sensitivity will underestimate antibody or parasite prevalence.

- When disease incidence and mortality patterns by age are well described in textbooks, veterinarians can make a judgement by comparing the age trends with conventional thinking.

ANNEX 1   GROUP DYNAMIC EXERCISES.

(Source IIED: 1995)

1.   THE NUMBER GAME

Objectives
- ♦ To illustrate the power of non-verbal communication
- ♦ To form new groups

Materials: None

Time: 10~15minutes

Procedure

1. Count the number of participants in advance. Calculate various combinations for sorting the participants into different size groups (for example, for a group of 50, 10 groups of five people).
2. Clear the centre of the room or find an open space outside
3. Ask all participants to stand together and not to speak.
4. Ask them to form X groups of Y people as fast as possible. You may add a sense of urgency to the mixing and forming by shouting encouragement and telling them to move quickly. Then ask them to form another combination of people. Continue to call combinations according to your prepared list.
5. Conclude with the pie-planned number of groups you require for e next workshop session.

Comments

Select different number combinations that mix participants into groups of various sizes. This forces individuals to leave certain groups and join others very quickly. This mixing and sorting can go on for some time, until the correct size groups have been formed. For example, if you have a group of 26 people and you want to form five groups for the next session, you will need to conclude the "Numbers Game" with the participants in four groups of five and in one group of six, or some similar combination. Hence, you can ask them to form themselves into the following combinations until you reach the required arrangement
- ♦ 2 groups of 13
- ♦ 6 groups of 4 and 1 group of 2
- ♦ 6 groups of 3 and 2 groups of 4
- ♦ 3 groups of 7 and 1 group of 5
- ♦ 2 groups of 9 and 1 group of 8
- ♦ 4 groups of 5 and 1 group of 6: END

2.   COUNTDOWN

Objectives
- ♦   To energise participants
- ♦   To help reflect on the impact of simple, externally determined rules

Materials: None

Time: 5 minutes, perhaps several times over a period of two days

Procedure

1. Ask the participants to stand up and form a circle. This can be done anywhere, even in the classroom without moving any furniture, as no one will be asked to move.
2. Tell the participants: We are going to do something very easy… count to fifty. There are only a few rules. Do not say 'seven' or any number, which is a multiple of seven. Instead clap your hands. After someone claps their hands the order of the numbering calling is reversed. If someone says seven or a multiple of seven, then we have to start again. "
3. When, inevitably, someone accidentally says seven or a multiple of seven, or they forget to reverse the order of counting after someone claps, then start up the counting at another part of the circle.
4. After a few minutes and a few laughs, stop the exercise and tell everyone that we'll try it again later.
5. At another moment when people need some refreshing, get people to do the exercise again.
6. Repeat this 3 or 4 times before the debriefing.

Comments

In the debriefing, ask the group:
- ♦   Why was the exercise so difficult?
- ♦   What is the relevance of this for your work?

When you first give the instructions, the group says "No problem. Let's do it". They soon realise, however, that something, which everyone assumes, they can do comfortably becomes amazingly complex when a few externally determined rules are changed. The key learning point is that when we interact with local people, we often impose rules, which are unfamiliar to them, making it difficult for effective communication.

3.   SABOTEUR

Objectives
- ◆   To show how communication and group work can be easily disrupted
- ◆   To create a group strategy for recognising and dealing with sabotage
- ◆   Also successful as an equaliser and as an energiser

Materials: Groups of three chairs
Time: 15 minutes or longer, depending on the length of feedback

Procedure
1.   The participants are divided into threes. Within each sub-group, they have to fill three roles - the speaker, the listener and the saboteur. The speaker and listener face each other to talk, while the saboteur can move. The speaker is asked to describe some aspect of their work or life to the listener. The saboteur is asked to try to sabotage (i.e. disrupt) this discussion in any non-violent manner.
2.   Roaming saboteurs can move between groups. These may be you, the trainer, plus any others who did not join groups when the full group was divided.
3.   After two minutes ask participants to change roles. Then again after two more minutes, as it is essential for all participants to have the opportunity to play all three roles. Everybody should know what it feels like to be a saboteur and to be sabotaged.

Comments
Discussion after this exercise is essential. To establish a group strategy, it is necessary to get participants to reflect on how they felt:
- ◆   What was it like to be a saboteur or to be sabotaged?"
- ◆   Did you find it easy or difficult to disrupt the conversation?"

Then asks everyone to call out the different types of saboteur they experienced or have experienced in the past, and write these on a flipchart. Examples include: dominance, rigidity, interruptions (answers/questions), joking and not being serious, rudeness, silence, taking over with enthusiasm and physical distraction by fidgeting.
Then ask the participants to reflect on ways to deal with such sabotage, i.e. sabotaging saboteurs:
- ◆   How have you or could you deal with saboteurs?
- ◆   What are the ways groups can deal with saboteur individuals?

Write these strategies on another sheet. Examples include: ignore politely;

polite/clear interruption; stop the discussion; talk it out (publicly or personally); acknowledge and postpone; divert attention - form sub-groups or set task; use saboteur for debate; ask others for help; allow it; walk away. These can be stuck to the wall for all to see and can be referred to during the rest of the workshop.

This exercise and discussion may be especially useful if there are particularly disruptive members of the group. Such an exercise may be an opportunity for them to reflect on their behaviour and for the group to develop ways of dealing with the disruption. It can also prepare the group well for potentially difficult interviewing situations in the field.

More important, however, it introduces the notion of sabotage to the whole group, as well as focusing on strategies to deal with it. During the rest of the workshop, it is likely that participants will self-regulate without any trainer input needed. Any group interruption will be greeted by calls of "sabotage".

4.   KNOTTY PROBLEM

Objectives

- To demonstrate to participants that groups empowered to solve their
- own problems are much more successful than if instructed by outsiders
- To energise the group

Materials: None

Time: 10-15 minutes

Procedure

1. Select one, two or three participants to act as managers. They are asked to leave the room while you instruct the rest of the group.
2. Ask the remaining participants to hold hands in a circle and tie themselves into as entangled a knot as possible. They must not let go of each other's hands at any cost.
3. Tell the participants to follow the managers' instructions literally and not make it easier for them by doing what they have not been told to do.
4. Once the knot is complete, the managers are asked to return and to unravel the knot within three minutes, using verbal instructions only.
5. Instruct the managers to hold their hands behind their back. They are not allowed to touch the group, only instruct them verbally.
6. The first attempt is generally not successful and sometimes even produces a more complex knot. Now repeat the exercise with the managers participating in the knot. When the knot is ready, simply ask the participants to *"get out of* the knot *yourselves'*

Comments

The second untying process is usually much quicker. Ask participants to comment on what relevance this has to the real world. You can raise various issues.

- *What do the game tell us about the role of outsiders/managers and insiders (in the knot)?*
- *What does the exercise tell us about the effectiveness of outsiders and managers in organising people?'*
- *What does the game imply for facilitating participation in community development?*

5.   TRUST WALK

Objectives

- ♦ To illustrate the importance of trust in the way people build relationships
- ♦ To give an opportunity for individuals to look at their leadership and rapport-building skills

*Materi*als: none

Time: 40 minutes

Procedure

1. Divide participants into pairs by asking individuals to select someone they have not yet worked with.
2. In each pair one person leads and the other follows, keeping their eyes closed. The leader takes the follower by placing one hand on their shoulder or under their elbow and guiding with a supportive hand.
3. The exercise is carried out in silence.
4. The leader takes the follower around the area at the follower's pace, and guides them towards touching, feeling, holding, sensing any object or surface that is safely available (this may include objects and other people).
5. As the trainer, you can introduce other noises, smells, objects for heightened sensitivity
6. After 10 minutes, partners swap roles
7. Feedback can be in plenary, or in new pairs-

Comments

After both trust walks, participants are asked how they felt in the two roles. During the debriefing, discuss issues such as trust, awareness, inner dialogue, sounds, smells, touch. feel, mental pictures, rapport building.

The chosen area must be safe and free of interruption from outsiders.

6. GROUP PROBLEM SOLVING AND TEAM CONTRACT EXERCISE

Objectives
- ♦ To give participatory field teams the opportunity to develop their own norms of behaviour
- ♦ To develop team contracts

Materials: Prepared sheets with "What would you do if ?" questions
Time: 45-90 minutes

Procedure
1. Divide the group into small groups of up to five people. Ideally these should be the groups that are going to work in the field together,
2. Hand out the prepared sheets of questions to the field teams. If you have more than one group, allocate specific questions to each group (see examples for four groups below). Ask them to consider what they would do if they encountered these problems in the field.
3. When each group has considered their strategy for dealing with each problem, ask them to report back to plenary. When all the problems have been discussed, including comments from other sub-groups, ask each group to agree a team contract amongst themselves. This team contract is based on the discussions and will serve as a code of conduct for the field.
4. After the team contracts have been made, encourage everyone to write theirs in the back of their field notebook. You can also ask them to share it with the other groups.

Comments
The questions should contain a mix of problems relating to both group dynamics and difficulties related to using various participatory methods in the field. All of the 27 questions given as examples are problems that have arisen in real fieldwork.

The success of this exercise lies in anticipating problems related to fieldwork and dealing with them before they occur. In this way teams will know better what to do when such situations arise. Discussion is usually most animated amongst participants who have field experience, as they will illustrate problems and strategies with stories from their past.

Having the contract in their notebooks means that problematic team members can be encouraged simply to look at and stick to their contract, rather than be confronted directly with their behaviour. These 'rules' help to

guide the teams through small crises as members ask each other to "Remember rule 9!" or simply say: "Team contract'.

Sample Questions for rural areas

GROUP 1: What would you do IF..

1. In a small group interview the informants are very silent, unresponsive and reluctant to answer your questions
2. Part way through a small group interview, some farmers say they must leave to attend to other matters?
3. A member of your team is late again in the morning and the other ~ members are irritated?
4. A team member is over-enthusiastic and keeps interrupting the farmers when they are speaking?
5. On the final day of the fieldwork, important new information arises which contradicts an earlier key finding?
6. In the review meeting with farmers, the local leader tries to control the choice of research priorities?
7. You arrive in the community planning to begin with mapping and modelling, but the team is nervous and unsure how to start?

GROUP 2. What would you do IF...

1. A farmer calls you over as you are walking back to the vehicle looking forward to having something to eat and drink?
2. In front of a group of farmers, one member of your team contradicts what one of the farmers has just said?
3. The majority of people in the village in which you have been working identify income generation, soil and water conservation, and rural roads as more important than the work your institution is focusing upon?
4. One team member is frequently giving negative criticism in team discussions?
5. You realise by the end of the second day that very few women have been interviewed although they appear to be actively engaged in farming activities in the catchments?
6. One of your team members wishes to leave the day before you complete the fieldwork?
7. A very senior member of staff of your organisation wishes to attend the fieldwork to observe the participatory methods. As he/she knows little of the attitudes required for good participation, you fear she/he will simply lecture the farmers.

GROUP 3: What would you do IF…
1. After the initial briefing of your team, during which they appeared to have a good grasp of the concepts and objectives, they do not seem to know how to begin using the methods on arrival in the village?
2. The information received from the women farmers largely contradicts that collected from the men?
3. One of your team members accuses another of making an offensive remark and refuses to work with that person?
4. Towards the end of the day you meet a farmer who knows a great deal about experimenting on livestock, but some of your team members are too tired to interview that person, and would rather return home?
5. One team member is not participating at all in the team discussions at the end of the day, during which the day's information is being analysed and the next day's checklist developed?
6. An official, who has accompanied your team to the community, misrepresents the purpose of the participatory work to the community?

GROUP 4: What would you do IF…
1. You have asked a group of farmers to create a model of their village but they do not seem to know how to begin?
2. One team member is taking a condescending and patronising attitude towards the farmers and tends to lecture rather than listen?
3. You return from your transect walk to find that the village map has been produced entirely by the other members of your team without active farmer involvement?
4. During the matrix ranking and scoring, the more articulate and better dressed male farmers dominate the discussions about local farming priorities?
5. The information you collect during the participatory analyses seems to contradict your secondary data sources?
6. Upon completion of your social mapping, you discover that none of the poorer farmers in the catchments have any of the technologies developed by your research station on their land?
7. One of the team wishes to work alone with farmers, and so is often late back to the group?

7.   CHAIRS

Objectives:

- ♦ To show participants how to manage conflict by turning it into cooperation
- ♦ To help them focus on the possible differences in the interpretation of instructions
- ♦ To make participants aware of cultural differences in handling conflict

Materials: Three instructions (see below), copies of each for one third of the participants. A room without tables, but with a chair for each participant.
Time: 30-45 minutes

Procedure:

1. Explain to the participants the relevance of this exercise by referring to its objectives. Then give each participant one set of instructions (either A, B or C), distributing equal numbers of the three different instructions. Tell them not to show their slip of paper to other participants, as this will defeat the purpose of the exercise.
A. Put all the chairs in a circle. You have 15 minutes to do this.
B. Put all the chairs near the door. You have 15 minutes to do this.
C. Put all the chairs near the window. You have 15 minutes to do this.

2. The trainer tells everyone to start the exercise, following the instructions they were given.

Comments:

The analysis focuses on aspects of non-aggressive conflict resolution. The instructions cannot be carried out unless people with identical instructions cooperate. The sub- groups cannot carry out their instructions unless they cooperate. Several solutions are possible:

1. Putting all the chairs in a circle, between the door and window;
2. Consecutively putting all chairs in a circle, then near the door, then near the window
3. Disobeying part of the instructions, by putting one third of the chairs in a circle, one third near the door, one third near the window;
4. Renaming the situation, by hanging two newsprint sheets in the middle of the room, on one of which is written "Window", and on the other "Door";
5. Disobeying the instructions entirely.

This exercise has great scope for creative conflict resolution. Groups often burst into frantic action, use force and sometimes carry chairs with others desperately sitting on them to their corner. When some participants are trying to find a cooperative solution, others can be seen continuing to collect and defend their chairs. This in turn frustrates the co-operators, who forget their positive intentions and join the argument.

Relevant questions for the analysis include:
♦ What did you experience when playing this game?
♦ Did you feel that the chair you were sitting on was yours, to do with as you pleased?
♦ How did you relate to people who wanted something else? Did you cooperate, persuade, argue, fight or give in?
♦ If you confronted others, then how did you do this?
♦ Did you follow instructions? Why did you interpret them as you did?
♦ Did you see them as an instruction to be carried out whatever the cost and to the exclusion of others? Why?
♦ In what way does your cultural background influence your feelings about instructions? Has culture influenced the way you behaved in situation?
♦ How would you handle this assignment if you did it a second time?
♦ Can you relate what happened here to real life situations?

8.   COOPERATIVE SQUARES

Objectives:
♦   To experience and analyse some of the elements of cooperation, for individuals to look at their own behaviour when working in a group

Materials: A table for each group of five people, and five envelopes containing pieces of card as indicated in the figure below

Time: About 1 hour (5 minutes introduction, 20 minutes task, 20-30 minutes evaluation)

Procedure:

1. Prepare the cards. For each group of five people you will need five envelopes labelled A, B, C, D and E, and five pieces of thin card 15 cm square. It helps if each group has a different colour and if the envelopes are labelled with the colour ("pink A, pink B, pink C', etc.). For each group, cut their five squares exactly as shown in the figure. All the cuts are either to a corner or to the middle of a side. It is essential that you measure and cut accurately. Label the pieces as indicated, and put the pieces into the corresponding envelopes.
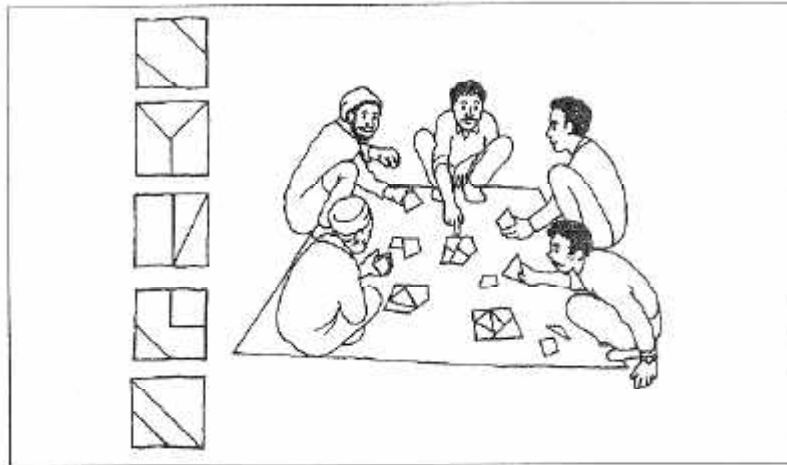
2. Start the exercise by explaining that this exercise allows us to look at what is essential for successful group cooperation. Ask the participants to form groups of five and to sit around a table. (It is possible to have one extra person to observe each group).

3. Then read the instructions to the whole group:
Each of you will have an envelope, which has pieces of cardboard for forming squares. When I give the signal to begin, the task of each group is to form five squares of equal size. There are two important rules.

    i.   No one may speak or signal the task must be done in silence
    ii.   No one may take or ask for a piece from any other person, but they may give pieces to others.

4. The task is completed when each individual has before her or him a perfect square of the same size as those in front of the other group members.

Comments

Looking at the diagram of the five squares, it seems very easy. But trainees usually end up with three or four squares and odd bits, which just won't fit together. Participants come to realise that their individual desire to produce one square is secondary to the group task of completing five squares. Personal success does not always equal group success, and may actually be impeding the group goal. A good solution for one person may in fact obstruct a good one for the group as a whole.

Within the rules of the game, each group can make its own rules. For example, all the members might decide (without talking -or gesturing!) to give all their pieces to the fifth. That person then does not have to wait for the others to give one piece at a time - but it is limiting, as it is not possible to use the others' help.

It is important to spend some time on feedback from this exercise. The trainer may elicit responses from the groups by asking:
- What happened? Was the task achieved quickly? Why not?
- Did the group cooperate? Would increased cooperation have speeded things up?
- What roles did different people in the group play?
- Did anyone feel frustrated? How did they deal with this?
- Did anyone break the rules? How?
- What did the observers notice?

This may be a good point to discuss the roles played by different group members.

9. ROPE SQUARE

Objectives:

- To explore how a group works as a group m a difficult task
- To illustrate how people adopt different roles in a group

Materials: A piece of rope that is tied so that it forms a circle, sufficiently long so that half the total group can hold onto it with both hands

Time: 20—30 minutes

Procedure

1. Divide the group into two - the silent observers and the square-formers.
2. Lay the rope in a circle on the floor in the middle of the room.
3. Ask the square-forming group to stand in a circle around the rope. The observers should stand back and watch in silence.

4. Ask the square-forming group to pick up the rope circle with both hands.
5. Ask the square-forming group to close their eyes and walk around in a circle a couple of times so that they become somewhat disorientated.
6. Then ask the group to form a perfect square with the rope (without looking!).
7. The other group should observe the dynamics, without commenting.
8. Change the roles of the groups, and then debrief.

Comments

This is potentially a very powerful exercise, revealing a lot about the different types of actors within a group, including leaders, saboteurs, etc. There are almost always too many leaders. Use the discussion to draw these points out:

- Who felt frustrated?
- Were the instructions, given by other group members clear?
- How did you respond to contradictory orders or requests?
- Who took the lead? Why? When?
- Who played a bridging role?
- 'Who kept quiet?
- Who cross-checked and evaluated orders from others?

The intention is not to make the evaluation personal, but to point out the range of qualities of members of a group and how they interact successfully and unsuccessfully in completing a difficult task. A variation is to ensure that participants do not speak. This makes it more difficult.

10.   EXCLUDING NUMBERS

Objectives:

To identify various roles played by individuals in the group

To explore issues of indecision and exclusion amongst a large group

Materials: none

Time: 20 minutes

Procedure

This is a variation on the "Numbers Game" dynamics (see page???)

1. The trainer nominates a caller, and no other person is allowed to speak
2. The caller then shouts out number combinations, such as twos, threes, fives. This may produce the correct number of groups of the desired size, or lead to the exclusion of individuals.
3. The stranded individual can either leave the exercise and sit down, or join a group so making the total incorrect.
4. The caller continues to call out the desired group sizes until the same person leaves or someone else decides to move or leave.
5. The exercise continues until only two people are left.

Participants are asked to explore how they felt when they were excluded
   - Did you sit down immediately?
   - How difficult was it to join a formed group, and so disrupt it?

Participants are asked how they felt in stable groups:
   - How did you feel when some one tried to join you?

This exercise is helpful to trainers in the identifying of roles played by individuals in the group - who are the victims? Who never gives up? One variation is for the trainer to join in, and stand still the whole time, never leaving to sit down.

11. WATCH IT

Objective:
- To enable participants to observe non-verbal behaviour more effectively

Materials: None

Time: 20 minutes

Procedure

1. Participants are asked to form pairs (A & B) who work together.
2. A assumes any position they wish. B observes it and tries to memorise it - body posture, position of arms and legs, position of hands and feet, tilt of head. Then B turns around.
3. A changes one detail in his/her position. B turns around again, and tries to detect what has been changed.
4. A and B swap roles.
5. Repeat several times.
6. The trainer should emphasise that initially A and B should make changes which are easy to detect, but that subsequently the changes made should be more subtle and difficult to detect.

Comments

The plenary discussion can focus on questions such as:
- *What is easy and what is difficult to spot, and why?*
- *What is required to be a good observer?*

Most people pay most attention to legs, and facial expressions. They are far less observant of total body posture, and tend not to notice whether a person sits straight or is slouched. Yet posture is particularly important in judging someone else's attitudes and feelings.

12. DRAWING BRICKS

Objectives:
- ♦ To show how difficult it is to transmit information using only words
- ♦ To compare the ease of one- and two-way communication

Materials: Two sheets of paper with the figure with the bricks

Time: 10-15 minutes

Procedure:
1. Ask for one volunteer. Sit that person with her/his back to the rest of the group.
2. Give the volunteer the sheet with the figure on it and make sure no one else in the group can see it.
3. The volunteer is then asked to explain verbally to the group what he/she sees, giving only verbal instructions on how to draw the figure. The rest of the group are asked to draw what they are told by the volunteer. The volunteer is not allowed to gesture, turn around, etc.
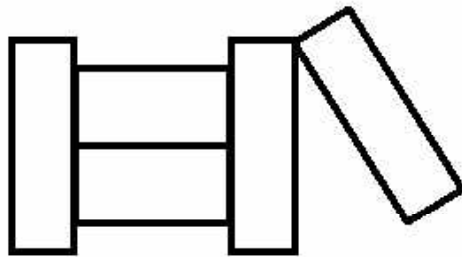
Example of figure

4. In the first phase of the game, the rest of the group are not allowed to ask questions; they must draw the diagram in silence. When the volunteer has finished the instructions, hand the second sheet to him/her. It is the same picture but the others will not know this.
5. The group is asked to start a new sheet of paper and the exercise is repeated, but this time the group can ask questions and the volunteer is allowed to answer verbally (she/he is still not allowed to use her/his hands etc.). At the end, the various diagrams are compared with the original.

Comments

If time is short, this exercise can stop after the first phase as a demonstration of the difficulties of one-way communication, Debriefing should concentrate on discussion of the relative ease of one and two-way communication and the difficulties of only verbal compared to a combination of verbal and non-verbal communication. The following questions can be discussed:

- ♦ At what point did the rest of the group get confused?
- ♦ What assumptions was the volunteer making?
- ♦ What would have made it easier for the group to understand (analogies such as bricks, geographic directions)?

This diagram is good because, if described clearly it can be drawn accurately. If other diagrams are used they should not be too difficult. They should be quite structured and it should be possible for the volunteer to make analogies with the object.

13. FOLDING PAPER GAME

Objective:
- To demonstrate that it is easy for even simple instructions to be misinterpreted by the recipient, especially if ambiguous words are used, or the recipient does not (or cannot) ask for clarification

Materials: Several sheets of paper (square sheets are most interesting, as ingenious participants could choose to fold it from corner to corner, thus creating a triangle)

Time: 5-10 minutes

Procedure
1. Select four participants (or ask for volunteers) and ask them to stand in the front of the room, facing the remaining group.
2. Give each of the four a sheet of paper and these two rules:
   - Each person must close their eyes during the exercise
   - They may not ask any questions.
3. Instruct them to fold their paper in half and then to tear off the bottom right corner of the paper. Tell them to fold the paper in half again and then to tear off the upper right hand corner. Tell them to fold the paper in half again and then to tear off the lower left hand corner.
4. Instruct them to open their eyes and display the unfolded paper to each other and the audience.

Comments
There is a great probability that they will not all be the same. Use the following questions to start the debriefing:
- What words in the instructions could be interpreted in different ways?
- How could the directions have been clearer to reduce the ambiguity?
- How can we encourage people ask for clarification when they do not understand something?
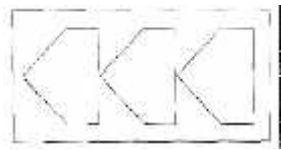
14. SEEING THE K'S OR THE H'S

Objectives:
- To demonstrate how recent events influence the way we see the world

Materials: Flipchart/chalk board
Time: 5 minutes

Procedure
1. Exhibit this diagram on a flipchart or chalkboard.

2. Ask your group: 'What do you see The chances are you will get responses like "arrows "; "three houses on their side "; increasing importance to the left"; "go to the left'; etc.

3. When you get the response: "two Ks", immediately highlight the two Ks and go on with the exercise by exhibiting the second diagram.

4. Then ask them: Now what do you see? Very likely, you will get the response "two H's" immediately. Now ask the group: "Would you have seen the H's if someone had not first pointed out the K's?"

Comments
It is best to prepare the diagrams beforehand, as the process of drawing them can reveal the K's and H's too soon. Ask the following questions:
- Why did you see the H's more easily than the K's (You were conditioned by what had just happened. the eye sees, but the mind evaluates).
- In your work with people, in what ways is your eye seeing one thing and your mind another?
- In your work, have there been occasions when what has recently happened has influenced the way you observed or reacted? (recent diagnostic of disease)

15. WHICH WATCH? WHOSE SHOE?

Objective:

To demonstrate that people are often not observant about things they see regularly

Materials: A non-digital watch or participant's shoes

Time: 5 minutes

Procedure:

A: The Watch

1. Ask someone in the group if you may borrow their watch for a moment. (Caution: make certain it is a non-digital type.)
2. Tell that person (after receiving the watch) that you would like to test his or her powers of observation, and ask the entire group to play along with the individual whose watch you are using, by covering their own watches.
3. Tell the individual to assume that the watch was lost and you found it. But, before you return it, you want to make certain the watch can be identified as being theirs. Some questions include: *"What is the brand name?"; "What colour is the face?"; "Is there anything else printed on the face?"; "Does it have Roman or Arabic numerals?"; "How many numerals are shown ?"; "Does the watch have the date and/or day on it?"; "Is there a second hand?"*
4. If the group is silently responding as the volunteer attempts to answer the questions, then the key learning point is more easily made: that most people cannot totally and accurately describe their own timepiece even if they look at it dozens of times a day.

B: The Shoe

1. Ask participants to tuck their feet under the table or chair and not to look at them.
2. Ask them to sketch quickly the main features of their shoes, indicating colour, way it is fastened, size and shape of heel, stitching, etc. Allow them up to five minutes before asking them to look at their shoes.
3. The point is easily made that observing items used daily is not a well-developed skill in most people.

Comments:

You may want to ask the group:

♦   Why aren't we more observant?' (Time pressure? Lack of concern? Taking things for granted? Something else?)

♦   Have you seen incidents where people have overlooked common place things and problems may have resulted?'

♦   What is the value of observing the apparently "ordinary" in a participatory context?

16.   ROLE PLAY FOR CREATIVE EVALUATION

Objective:
To evaluate a session or workshop in a relaxed and creative way
Materials: None
Time: Preparation: 30 minutes; conduct of play: 10-30 minutes

Procedure

1. Tell participants early in the workshop that you would like to ask them to engage in an innovative way of evaluating the workshop when it comes to the end.
2. Ask them to think about preparing a short play, role play or cartoon that would say something about what has been happening in the workshop.
3. Give participants time to prepare near the end of the workshop.
4. Open up a session for the role plays/short plays.

COMMENTS:

These are often funny pieces of cutting satire that tell trainers more about the workshop than any mood meter or formal evaluation form. The format allows participants to say things they could not say in a more formal way.

ANNEX 2   PROGRAMME

DAY	TIME	TOPIC	FACILITATOR
0		Travel from home to Bungoma	
DAY 1	8.00 – 10.00	Opening programme • Welcome address • Participatory introduction of participants • Official opening • Overview of the Smallholder Dairy FFS Programme	B. Minjauw/Principal G. G. Khisa DALEO B. Minjauw
	10.00 – 10.20	BREAK	
	10.20 – 12.30	• Groupings • Leveling of expectations • Setting of learning norms • Functions of host team/Commissions	G. Khisa B. Mweri
	12.30 – 2.00	LUNCH	
	2.00 – 4.00	• Introduction of FFS methodology (Historical background) • Approach and concept (Features) • Group dynamic activity (Nine dot game) • Ballot Box/Communication Dynamic	B. Mweri G. Khisa B. Mweri
	4.00 – 4.20	BREAK	
	4.20- 5.00	• Steps in conducting FFS (Classical approach)	G. Khisa
DAY 2	8.00-10.00	• Recap • Concept of Ecosystem/Livestock Tropical Levels • Field activity – Appreciating types of Ecosystems • Processing of field activity	Host team B. Mweri
	10.00- 10.20	BREAK	
	10.20- 1.00	• Concept of what is this/what is that • Field activity • Processing of field activity	G. Khisa
	1.00- 2.00	LUNCH	
	2.00- 5.00	• AESA • Field activity • Processing of field activity	B. Mweri

DAY 3	8.00 – 1.00	• Recapitulation • FFS activities	Host team
	1.00-2.00	LUNCH	
	2.00- 4.00	• Feedback of FFS activities Organisation and management of FFS • Project conditions • Groundworking • Site selection • Selection of participants • Participants groups and class	Host team B. Mweri G. Khisa
	4.00- 4.20	BREAK	
	4.20- 5.00	• Organisation and Management of FFS Continue	B. Minjauw
DAY 4	8.00 – 1.00	• Recapitulation • FFS activities	Host team G. KHISA
	1.00- 2.00	LUNCH	
	2.00- 4.00	• Feedback of FFS activities Organisation and management of FFS Continue. • FFS curriculum • Field School schedule • Group dynamics	Host team G. Khisa
	4.00- 4.20	BREAK	
DAY 5	4.20- 5.00 8.00 – 1.00	Organization and management continued • Lessons learnt in FFS • Conditions for a successful FFS • Recapitulation FFS activities	B. Mweri Host team G. Khisa
	1.00- 2.00	LUNCH	
	2.00- 4.00	• Feedback of FFS activities • Preparation of FFS Guide	Host team G. Khisa
	4.00- 4.20	BREAK	
	4.20- 5.00	• Non formal education methods	D. Maye

Day 6	8.00 – 1.00	• Recapitulation • FFS activities	Host team G. Khisa
	1.00- 2.00	LUNCH	
	2.00- 4.00	• Feedback of FFS activities • Participatory discussion on participatory technology development (PTD)	Host team G. Khisa B. Minjauw
	4.00- 4.20	BREAK	
	4.20- 5.00	• Steps in establishing PTD in FFS sites	G. Khisa B. Minjauw
DAY 7	8.00 – 1.00	• Recapitulation • FFS activities	Host team G. Khisa
		LUNCH	
		• Feedback of FFS activities • Participatory discussion on folk media	Host team G. Khisa
		BREAK	
DAY 8	8.00 – 1.00	• Participatory discussion on Leadership • Qualities of a good facilitator • Recapitulation • FFS activities	D. Maye B. Minjauw Host team G. Khisa
	1.00- 2.00	LUNCH	
	2.00- 4.00	• Feedback of FFS activities • Village immersion – do it yourself in the village • Participatory discussion on FFS field day • Participatory discussion on graduation	Host team D. Maye G. Khisa
	4.00- 4.20	BREAK	
		• Participatory discussion on communication skills	D. Maye
DAY 9	8.00 – 10.00	• FFS experience sharing: Assessment of strengths and weaknesses of FFS and things to do to overcome them • Problems, lessons learnt and opportunities	G. Khisa G. Khisa
	10.00- 10.20	BREAK	
	10.20- 1.00	• Participatory discussion on report writing and documentation of FFS • Evaluation of the TOT course	D. Maye? G. Khisa

Annex 3 List of Participants

Godfrey Otieno Angugo
George Gunyanji Kemoli
Peter Muriuki Gitung'a
Francis K. Kagumu
Dr. Gachogu, A.M.N.
Kinyua Samuel Wanjohi
Paul M. Kimani
Charles Mutahi Gathu
John G. Gichuki
John N. Mwangi
Humphrey W. Khakula

Mary W. Karanja
James N. Karumba
David M. Mwago
Peterson M. Mwangi
John A. Makori
Paul K. Koech
Nancy W. Karioki
Walter Agwata Siro
John C. Njoroge
Lucy Nyota

Facilitators

Godrick Khisa, FAO, Kenya
Dorothy Maye, FAO, Kenya
Bruno Minjauw, ILRI, Kenya
Benjamin Mweri, FAO and CDA, Kenya