



**PHILIPPINE  
CARABAO  
CENTER**

Volume I: Session Guides

Facilitators' Guide to  
**FARMER LIVESTOCK SCHOOL**  
on DAIRY BUFFALO PRODUCTION (FLS-DBP) Implementation



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# Facilitators' Guide to **FARMER LIVESTOCK SCHOOL** on **DAIRY BUFFALO PRODUCTION (FLS-DBP) Implementation**

Volume I: Session Guides



Department of Agriculture

**PHILIPPINE CARABAO CENTER**

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## ABOUT US

The Philippine Carabao Center, an attached agency of the Department of Agriculture created by virtue of Republic Act 7307, is mandated to conserve, propagate and promote the carabao as a source of milk, meat, draft power and hide to help achieve better nutrition, higher levels of income and improved general well-being of the rural farming families.

The PCC mandate is pursued through the implementation of the following major services:

- Artificial Insemination
- Bull Loan Program
- Frozen Buffalo Semen Distribution
- Provision of Superior Breeding Animals
- Training of Technicians and Farmers
- Technical and Extension
  - a) Animal Reproduction
  - b) Animal Nutrition
  - c) Animal Health
  - d) Forage Production and Improved Feeding System
  - e) Cooperative Development
  - f) Dairy Production and Processing
- Analysis of milk samples
- Nutrition Laboratory Services
- Biosafety and Environment Laboratory Services
- Information and Library
- Visitors' Assistance
- Marketing Assistance

## PREFACE

Farmer Livestock School on Dairy Buffalo Production (FLS-DBP), which started in 2015 as initiated by the Department of Agriculture-Philippine Carabao Center (DA-PCC) in partnership with the Livestock Research Division of Department of Science and Technology-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (DOST-PCAARRD), aims to improve the management of dairy buffaloes in the country by way of technology options for the dairy buffalo farmers.

The FLS-DBP is a modality that lasts for about 34 weeks with bite-sized topics and lessons for farmers. Likewise, it offers a separate intensive capability enhancement platform for facilitators, which lasts for two to three weeks, involving participants from the Local Government Units (LGUs) and Provincial Veterinary Offices (PVOs), farmer-cooperatives, and DA-PCC. It also includes a short exposure trip or immersion in a progressive dairy buffalo farmers' abode and farm.

The first FLS-DBP facilitator's learning workshops happened in Nueva Ecija and Ilocos Norte in 2015 followed by pilot classes of FLS-DBP in Guimba, Talugtog and San Jose in Nueva Ecija and Marcos and Batac in Ilocos Norte from 2016 to 2017. Since then, FLS-DBPs and facilitator's learning workshops were facilitated by PCC in partnership with LGUs and other government agencies.

A team of module developers from DA-PCC worked together to prepare this session guides, which we dedicate to the furtherance of human capital among our farmer-clientele and partner program-implementers.



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With deepest gratitude, the DA-PCC also extends its appreciation to Ms. Ana Marie P. Alo of the Livestock Research Division of DOST-PCAARRD, one of the pioneers of FLS modality in the country, for sharing her expertise in helping develop the FLS-DBP curriculum.

To all those who committed their efforts and resources in preparing this session guide, we dedicate utmost respect and thanksgiving.

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Farmer Livestock School (FLS) Activity:  
**Preparing Facilitators for FLS Implementation**

## Activity 1. Games: Effective FLS Mood Setters and Session Starters

(Adapted from the Facilitators' Guide to Farmer Livestock School on Goat Enterprise Management Implementation)

### Learning Objectives

At the end of this session, the participants must be able to facilitate team-building games and articulate why games and module starters are needed in the FLS.

### Session Flow

**(1) Introduction.** Tell the participants that the first day of any learning event is usually difficult for everyone, as each is faced with a new situation and new personalities. The day usually starts with a formal opening ceremony, where important people welcome everybody and talk about many big things. This could make some of them feel small, withdrawn, and insignificant. Picking the perfect game, therefore, will help ease tension and encourage participation among participants. In the FLS, games have become the lifeblood that stimulates discussion, camaraderie, and openness while keeping everyone entertained.

**(2) Introductory game.** To ease the participants and allow them to gel with the group, start with the following games:

- **Umuunga ang Kalabaw.** This game is appropriate for a big group where males and females can mingle freely. This is recommended as the first game before the start of the FLS to allow participants to gel with the group and interact in a fun and non-threatening way. This game takes about 30 minutes to play.

**(3) Procedure.** One person, perhaps a volunteer, should serve as a leader. He/She calls out: "Umuunga ang kalabaw sa lahat ng naka ..." (Select any description that will fit most of the participants, such as naka-salamin, maputi ang buhok, naka-pustiso, etc).

As a description is called out, all the participants described should change seats. The person who cannot find a seat stands in the middle as the next "It". Note that the seats should be one less than the total number of participants. Anyone who becomes "It" for three times is made to do an entertainment number.

**(4) Processing.** At the end of the game, ask the ff.: Did you enjoy the game? How old did you feel when you could not be accommodated in a group? Do you think participants would like to come back to a training session if they do not feel accepted? How can we make farmers feel accepted? Accept all answers to encourage participants to share in future discussions and make them feel respected. Emphasize that adults feel discouraged when rejected (i.e., when eliminated in the game), hence, instead of punishment, strive to give rewards.

- **Hello Stealer.** This is appropriate as a startup introductory activity for a group of 15 participants or less. This may take from 30-45 minutes to play.

**(5) Materials.** Dice, 6 prizes (bag of candies, dishwashing soap, bar/bath soaps, beauty items, etc.)

**(6) Procedure.** Seat everyone on the floor in a circle. Put the gift items at the center of the circle. Start by asking each one to introduce himself/herself by mentioning his/her full name, nickname, and anything related to their activity on dairy buffalo production. When all the introductions are done, ask the first participant to roll the dice. If he/she rolls a 6, he/she can take one of the gifts from the middle. All the participants get to roll the dice and whenever a 6 emerges, a gift can be taken from the center.

To make the game more fun, a twist is inserted into the game after the first person has gotten a gift from the center pile. The next participant to get a 6 is given an option to STEAL what the first participant got instead of

getting from the center pile, provided he/she can state the gift name (brand name of the gift) he/she wants to "steal" and the full name or the nickname (whatever the group agrees upon) of the participant holding the gift of choice. This process goes on until all the gifts have been taken from the center. Make sure that the gifts are less than the number of participants to encourage "stealing" and eventually internalizing the names of co-participants. Also remember that a participant who opts to steal a gift misses his/her turn to get from the pile at the center; he/she also cannot "steal" the gift if he/she cannot say the name of the co-participant holding the gift to be stolen. The participants can get more than one gift each and can hide them at their backs to prevent the others from identifying the gifts. This is a fun way of making new friends and getting your favorite gift(s)!

**(7) Team-building games.** When they have all learned each other's names, play 2-3 more group games to build up team spirit and introduce the FLS. You can choose from the following games or ask any participant to introduce a new game.

- **Barangay under water**
- **Working together puzzle**
- **Draw on my back**
- **Communication craze**
- **Kiss it relay**

Everyday, integrate energizer games and exercises that focus on different positive values to further foster rapport and cohesion in the group. Have the most number of games on the first day to break barriers, set aside emotional baggage, and proceed with the sessions with minimal distractions.

As adults are receptive to rewards, give prizes to winners at the end of every game.

Processing. Allow the participants to recall the games that they played. Ask them how much they enjoyed each game and how old they felt when they were playing the games. For trainers' training (facilitators learning workshop), remind participants that they will introduce these same games to their participants when they implement their own community FLS; hence they must be conscious of how they feel when they play each game. Then ask them the following questions:

- **Hello Stealer game:** How did you feel when you were given the chance to introduce yourself? Responses may range from "I feel important" to "I feel shy and uncomfortable". For those whose responses were positive, confirm by saying that by allowing farmers to talk about themselves, we boost their pride and their desire to come back to another session. For those who felt uncomfortable, assure them that opening up especially to strangers is not easy to do; but as they interact more with fellow participants, over time, they can overcome their timidity.

Ask how they felt when their gifts were stolen from them. Responses may range from "I felt bad because I already had it and in minutes it was gone" to "It was fun because by just mentioning my name, he/she got my prize". Relate their responses to the rewards of being trained in FLS. Liken the "stealing" activity to being an FLS Facilitator: in a way, what you gained by attending this FLS will be transferred (represented by the steal) to farmers and in the end, they will be the ones to receive the reward; however, they will not be able to reap the reward of practicing the technologies if they had not known you (mentioning your name before being able to steal). So as facilitators, our reward will be realized only when our trainees are able to train others or when farmers are able to implement correctly the technologies in their farms.

- **Working Together Puzzle game:** Ask the winning group what elements made them win and the losing group, what factors made them lose. Responses may range from proper teamwork, presence of a leader, effective planning and quick responses as effective elements in completing the puzzles promptly and lack of any or all of these as factors that prevented them from forming the desired images.

Also, liken seeing the image of the completed puzzle at the start to having a goal in the FLS. If early in their participation, they have a vision of what they want out of FLS, it would be easy to go through their daily activity. The same holds true for facilitating the FLS or in venturing into buffalo raising. One has to have knowledge of the FLS requirements and rudiments of buffalo management to be able to go through the trade with ease and confidence.

- **Barangay under Water game:** Ask the winning and losing groups the same questions as those asked for the game, Working Together Puzzle. Ask them to relate the exercise to attending the FLS. Emphasize the need for communication among members, strategic planning, and the ability to negotiate for options.
- **Draw on My Back game:** Ask the winning group the factors that made them win and the losing group the problems that they encountered. Ask them how they felt when they were not allowed to speak and how that hindered their transfer of the message. Ask them to relate the game to participation in the FLS. Emphasize later that this game illustrates the breakdown of communication if not aided by all the senses and if not planned properly.

Also emphasize that if the perception of the receiver is not the same as that of the source of the message, it becomes very difficult to decode the message being transferred. It becomes very critical, therefore, for lessons in the FLS to have pictures and videos and where applicable, hands-on exercises and farm visits.

- **Communication Craze game:** Ask the two groups the obstacles that they encountered while relaying to their partners the arrangement of the objects in their trays. Responses may range from “It was difficult to search for words to describe the stacking pattern and relay to my partner especially under pressure and with an audience looking at us like fish in an aquarium” to “It was fun knowing that someone can follow the directions I was giving”. Emphasize that like in the Draw on My Back game, it is difficult to decode the message when only the sense of hearing is used. Then, ask the participants to compare the situation when the audience is quiet and when there was cheering and jeering. Audience responses to each situation are feedback that help the players know if they are correct or wrong and should therefore be viewed as reinforcement to communication. It is always better to use as many senses as possible to improve perception and increase understanding. Also try to see if familiarity with each other has an influence on perception.

- **Kiss it relay.** Ask the groups how they felt when they were playing the game. Responses may range from “It was difficult having gloves on while unwrapping the chocolates” to “It was fun being able to unwrap the Kisses even with gloves on!” Emphasize that in every activity there will always be obstacles; it will always be our attitude towards solving problems that will matter. So even when there are gloves, we can unwrap the chocolates and feed to our group mates in a happy and triumphant atmosphere.



**(8) Summary.** Ask someone to summarize how games and energizers can help in the FLS. Emphasize in the end how teamwork, planning, and the right attitude can lead to success, not just in solving puzzles but in life in general.



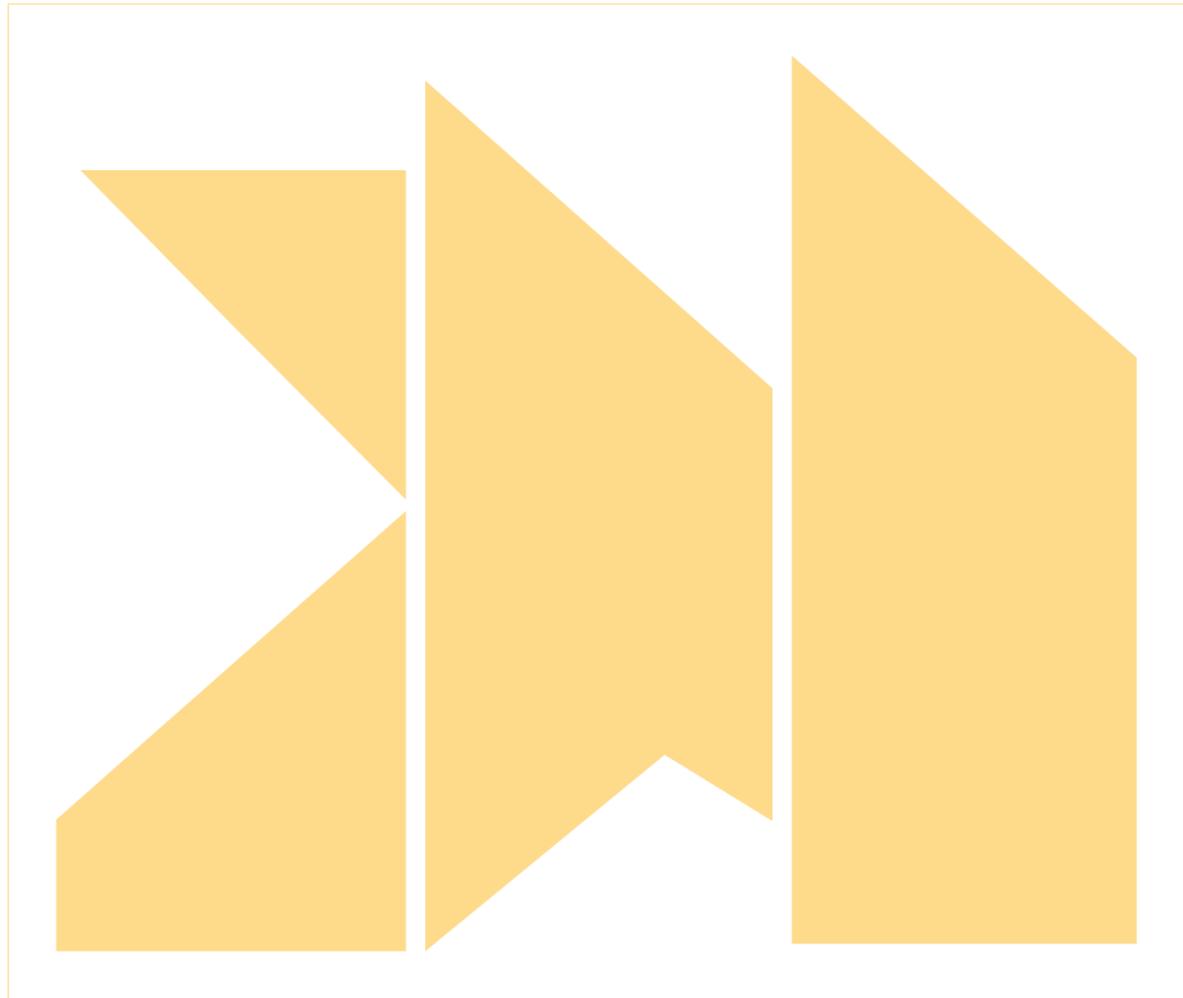
#### Team-Building Games

Game 1: Working Together Puzzle	
Purpose	To foster cohesion and cooperation among group members
Materials	Commercially available plastic puzzle or enlarged puzzle pieces reproduced according to the number of groups desired; Images of the rocket, teepee, and anchor puzzle designs
Procedure	Use either the commercially available puzzle pieces, although they are small, or enlarge the attached puzzle (so that a group can easily play with them) and reproduce according to the number of groups desired. Paste on a cardboard before cutting into puzzle pieces.  For the 1st round, show to the group the image of a rocket for five seconds and then allow them to work out a way to completely assemble their puzzle pieces to resemble the image. If the group finds difficulty completing the picture in 10 minutes, give one clue at a time or show again the picture of the completed puzzle. When a group has completed the puzzle, show everyone how it was done. Do the same for the 2nd (teepee) and 3rd images. The group that finishes the most number of images wins.

Source: PCARRD. 1998. Raising small ruminants under coconuts: A training module. Los Baños, Laguna: PCARRD. 142 p (PCARRD Training Module Series No. 2/1998).

### Working Together Puzzle

Reproduce and cut the puzzle pieces below and distribute to each team.

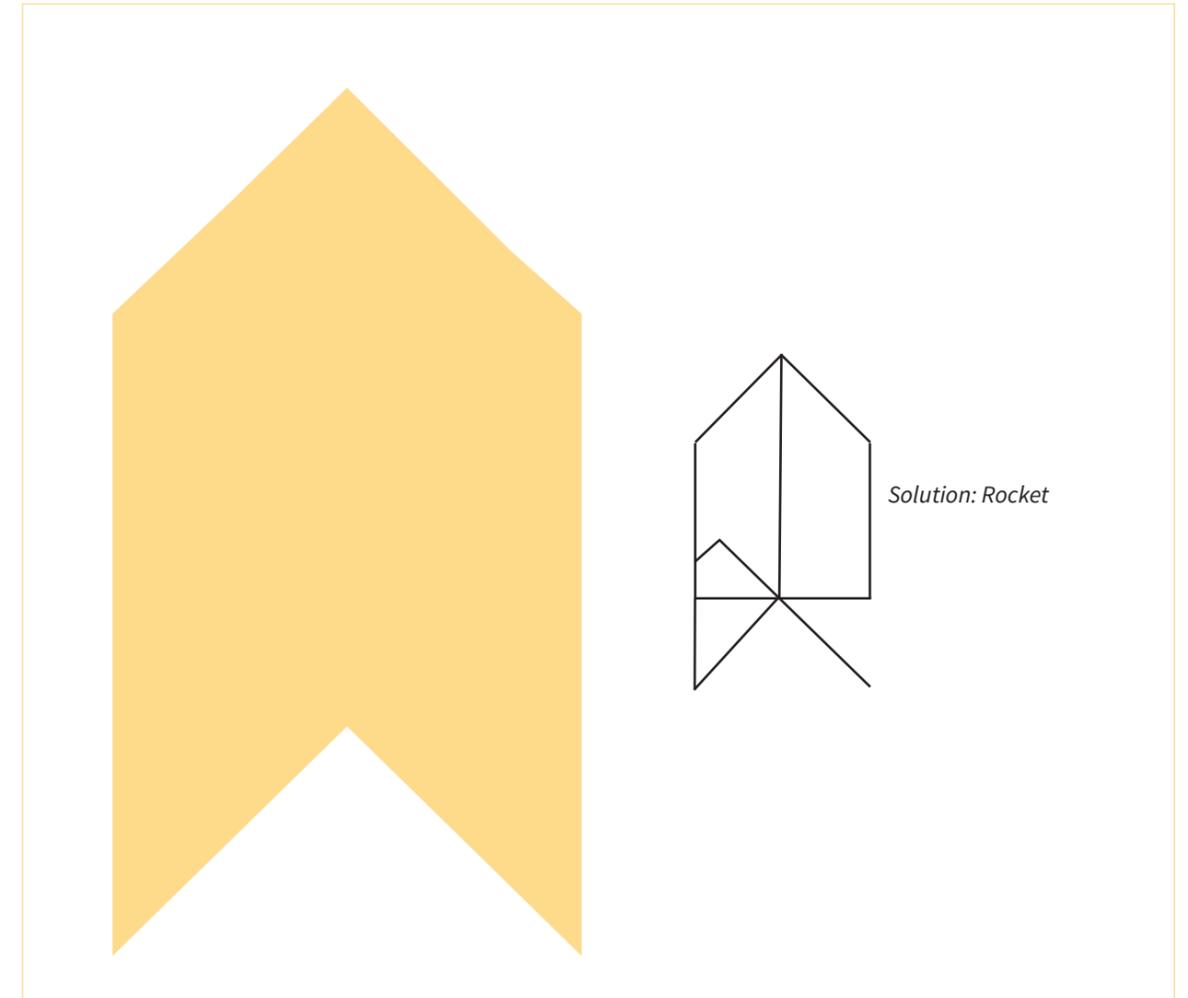


Source of image: commercially available puzzle in hard plastic yellow design

### Puzzle design to work on

Easy round:

1. Rocket



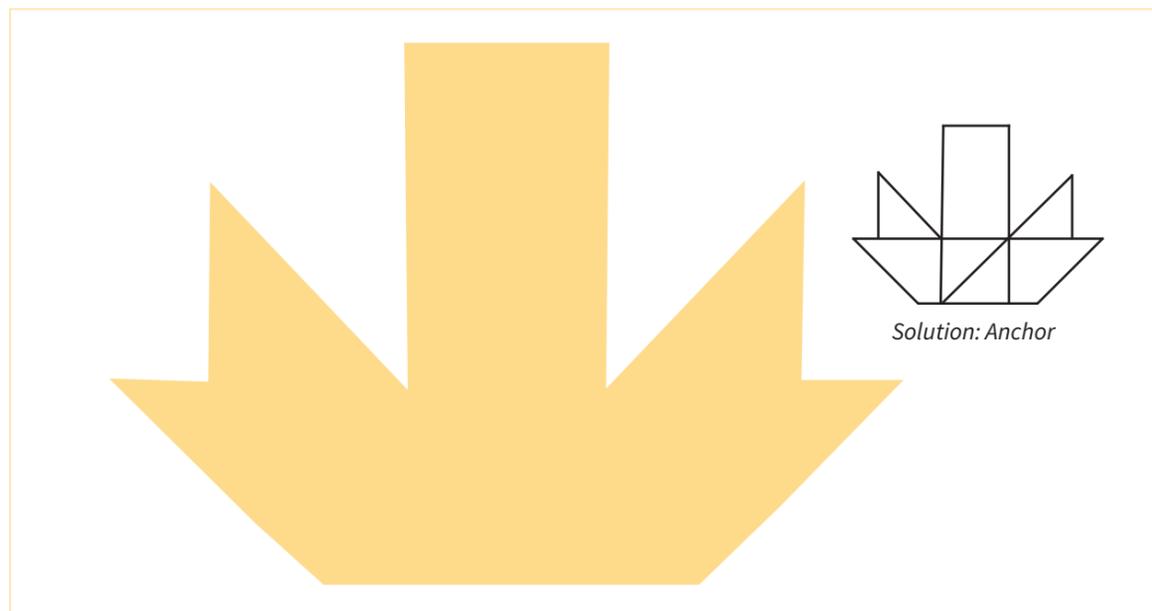
Difficult round:

2. Teepee



Difficult round:

3. Anchor

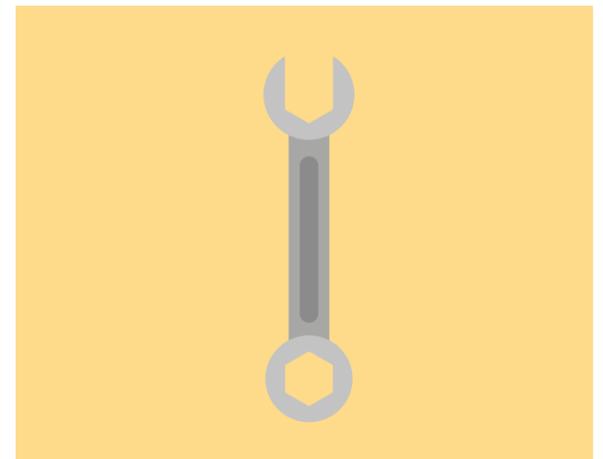
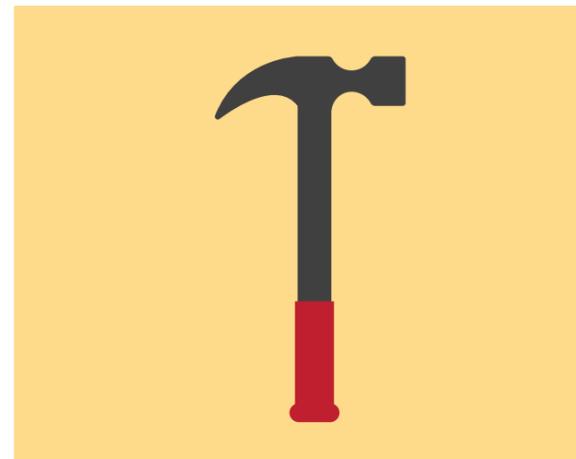
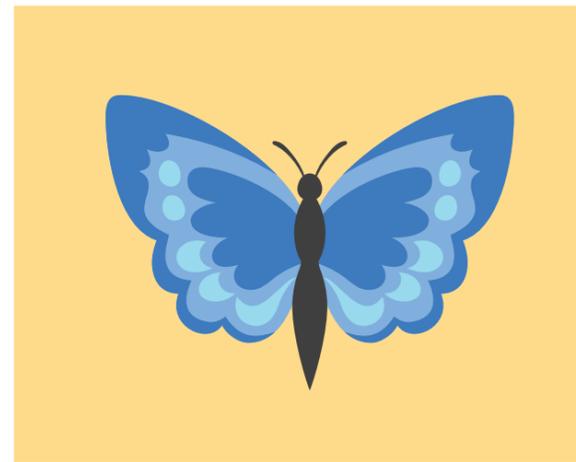


Game 2: Barangay Under Water	
Purpose	Develop cohesion and cooperation among group members while managing conflict
Materials	Two planks of wood 1' wide x 8' long or depending on number of participants per group (i.e., 1'x1' per person) or just mark the floor with masking tape such that each person is allotted one square foot space.
Procedure	<p>Group the participants into four "communities." Groups A&amp;B are males and Groups C&amp;D females. Let them form into two lines such that they are all inside the marked area (see illustration below), which will signify a long bridge, one end of which belongs to one community and the other to the adjacent community.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Community A</p> </div> <div style="text-align: center;">  <p>Community B</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  <p>Community C</p> </div> <div style="text-align: center;">  <p>Community D</p> </div> </div> <p>Give the problem situation: Your village is suddenly under water, contaminated by toxic wastes. Your mission is to cross to the other village to exchange goods for survival. However, as the only bridge that connects your village to the next is also submerged in water, with only a foot wide of walking space, you are faced with a problem. The challenge for your community is to devise a plan such that the people in the two communities (e.g., A&amp;B; C&amp;D) can pass through the thin bridge and not fall off.</p> <p>Give each group five minutes to plan together a strategy. Then start the game. Have four people monitor the steps taken by the members of each community. Whenever a foot goes out of the marked area, a point is deducted. The first community to cross the bridge with the least number of "falls" wins.</p>
Importance of the game	Through this game, participants will learn to communicate not only with its own "community", but also with the other at the end of the bridge. They will learn to discuss varied points of views and learn to negotiate and bring discussions to a consensus.
Appropriateness of activity	This game is appropriate for a group of 20-25 participants. Use as a module starter or as an ice breaker for sessions on planning, problem solving, leadership, community organizing or any group work.

Game 3: Draw On My Back	
Purpose	To illustrate the breakdown of communication if not aided by all the senses; and demonstrate the importance of effective communication in undertaking community projects.
Materials	Visual cards
Procedure	<p>Divide the group into two with equal number of participants and form two lines. Allow the member who can draw best to stay at the end of the line.</p> <p>Show four sets of visual cards one at a time to the last person in the group. Ask that person to draw what he saw from the card onto the back of the person in front of him; then ask the next person to draw on the back of the person also in front of him and so on until the first person in the group has received the message. Ask the first person in the line to draw on the board what he perceived to have been drawn on his back.</p> <p>Show the next card to the last person in the line again and repeat the process. Although the visual cards for the two groups are the same, vary the order of cards per group to avoid copying. Score each correct drawing 1 point. The group that gets the most number of points wins.</p>
Appropriateness of activity	The activity is most appropriate as an icebreaker in the morning or afternoon before the start of the session. Use it with a group of 20-25 participants.

**Visual cards**

Reproduce these cards according to the number of groups formed.



Game 4: Communication Craze	
Purpose	To illustrate how communication succeeds when two individuals have the same perception of things.
Materials	Two identical sets of materials such as boxes, plastic fruits, cups, plastic straws, pens; two identical trays big enough to contain the above materials
Procedure	<p>Identify two pairs from the audience. One pair should be related by affinity such as those coming from the same office while the other should be strangers to each other. The rest of the audience will just watch how the communication proceeds. One pair will compete at a time.</p> <p>Seat the first pair with their backs to each other, each person holding a tray on his lap with the same objects.</p> <p>Designate one to be the source of the message and the other the receiver. Ask the Source to arrange his/her objects one by one in a manner he/she prefers and instruct him/her to describe his/her arrangement piece by piece to his/her partner. The Receiver then duplicates the arrangement of the objects in his/her tray without glancing on his/her partner's tray. No one is allowed to cheer, jeer, or give any loud reactions to the players while the game is being played.</p> <p>When they have finished, count the number of objects arranged in exactly the same order and give each 1 point.</p> <p>Do the same for the other pair except that the audience can cheer, jeer or react loudly to the proceedings. The pair with the highest points wins.</p>
Appropriateness of activity	The activity is most appropriate as an icebreaker in the morning or afternoon before the start of the session. Use it with any group size.
Source	<i>Modified from <a href="http://www.partygameideas.com/christmas-games/gift_stacking_1.php">http://www.partygameideas.com/christmas-games/gift_stacking_1.php</a></i>

Game 5: Kiss It Relay	
Purpose	To illustrate how a positive attitude can bring success even to obstacle-laden situations.
Materials	Two sets Hersheys Kisses placed on two bowls, gloves or mittens
Procedure	<p>Place two large bowls of Hershey's kisses on a table. Separate the participants into equal number of males and females. Ask them to form two lines 5 feet away from the table.</p> <p>Give the first people in the row mittens that are slightly larger than they would ever need. On the mark of "Go", let the first player of each team run to the table (with their mittens on), take a Hershey's kisses out of the bowl and unwrap it with the large mittens. After unwrapping, let them run back to their teams to pop the chocolate into the next person's mouth. Ask the next players to take the mittens from the first players and run to the bowl to do the same. The first group to finish all their Kisses wins.</p>
Appropriateness of activity	The activity is most appropriate as an icebreaker in the morning or afternoon before the start of the session.
Source	<i>Hunziker, Terri. <a href="http://wrytestuff.com/swa276135.htm">Adult Christmas Party Games - Get the Party Started!</a> <a href="http://wrytestuff.com/swa276135.htm">http://wrytestuff.com/swa276135.htm</a>. 2007</i>

## Activity 2. Understanding Adult Audiences: First Step in Facilitating Adult Learning Process in the FLS

### Learning Objectives

At the end of this lesson, the participants must be able to identify characteristics of adults and use these as springboard to effectively facilitate group processes in the FLS.

### Materials Needed

Permanent markers and cards

### Session Flow

**(1) Introduction.** Start by telling participants the aim of a farmer livestock school (FLS) is to facilitate participatory learning. Hence, after they graduated from this FLS facilitators' learning workshop, they will be the ones to facilitate learning processes for their adult participants. Then ask: "But what does it mean to facilitate? And how should we facilitate over adult participants?" Tell participants that these two words--FACILITATE and ADULTS--will be the foci of attention in Course 1.

**(2) Exercise.** Level off by asking the participants to define an adult. Write the responses on the board or on cards and paste where everyone can see. Responses may range from "being senior citizens with senior moments" to "people full of experiences and wisdom". Accept all responses. Then group the participants into four and play the game, for sale Brand X. One group will serve as consumer group, another will serve as observers and two will serve as marketing firms. Ask the consumer group to leave the room for 15 minutes and the marketing groups to stay. Ask the observers to record the processes that the two marketing groups will go through.

Task each of the marketing groups to develop a product and a marketing strategy for the adult consumer--any product (this will give you an idea of how your audience view their adult clients). The objective of each group is to encourage as many consumers to buy their product. To do this, the group members will agree not only on what product to develop and how much to sell it but also on how to sell it. They will, likewise, assign a sales representative to deliver the product information monologue. Give each group 15 minutes to discuss their strategy.

After 15 minutes, allow the consumer group to come in and tell them to play the role of adult consumers. Tell them that if they feel that the product to be sold suits them, they should express desire to try the product.

Let the two groups deliver their product information monologue in 5 crisp minutes each, and ask them to convince the consumer groups to buy their product. The group with the most number of participants swayed to try their products will be declared the winner.

Consumers may ask questions and may challenge the product developers.

**(3) Processing.** Ask the marketing groups what qualities of the adults they considered in their product development. This will give you an idea of how your participants view their adult clients. Now ask the observers to narrate to the whole group how the two groups planned out their strategies. You should look for the following in their strategies:

- Since adults have a well-pronounced self-image of autonomy, the group must at least have asked at least among the members of their group items that would interest adults like themselves.
- How did they react to questions from consumers?
- Since adults feel rejected when their experiences and achievements are not being recognized, the group should allow the consumers to talk about problems related to their product, before delivering a litany of solutions so they can emphasize the need for their product.

Let these serve as springboard for the lecturette, Understanding the adult audience:

Stepping stone in facilitating adult learning processes in FLS (see Vol. 2, page 10-11).

## Activity 3. Facilitating Adult Learning in the FLS: The Necessary Skills

(Adapted from the Facilitators' Guide to Farmer Livestock School on Goat Enterprise Management Implementation)

### Learning Objectives

At the end of this lesson, the participants must be able to listen and exercise probing with at least 75% accuracy.

### Materials Needed

Guide for the three groups of interviewers

### Session Flow

**(1) Introduction.** Start by telling participants that in FLS, it is critical that the facilitator is able to listen attentively to the needs of his/her adult learners as this will bridge effective communication. Introduce the exercise, Tell Me. The purpose of this exercise is to engage the participants in a dialogue that will give them the opportunity to practice their listening and questioning skills.

**(2) Exercise.** Request five participants coming from the same region or province to serve as key informants. Ask three groups, consisting of 2-3 participants each, to serve as interviewers or "FLS facilitators." Designate the groups as Groups A, B, and C. Let the rest of the participants serve as observers.

Request the observers to stay in the room and all the others to move out. Brief the observers on the details of what they will observe from the upcoming dialogues. This will consist of how the dialogue was conducted and the reactions of both the key informants and interviewers or "FLS facilitators" during the dialogue.

Let the key informants come inside the room and brief them of their roles. This will consist of answering the questions that will be asked to them based on their knowledge of the actual dairy buffalo raising situation in their area. Encourage them to ask questions to the interviewers on aspects like what solutions can be adopted to solve such problems on buffalo production.

Then brief the interviewers by group. Task each group to ask the key informants about the problems in dairy buffalo production in the province where the key informants come from. However, the way of asking questions will vary among groups, as follows:

#### Group A:

- More than 70% of their questions must only be answerable by "Yes" or "No."
- They must not ask a question that starts with "why."
- If there are questions from the key informants, they should answer it like an expert technical person.

#### Group B:

- They can ask any question except those that starts with "why"
- If there are questions from the key informants, they should answer it like an expert technical person.

#### Group C:

- Not more than 30% of their questions should be answerable with "Yes" or "No." If ever they ask this type of question, they should have a follow-up question that aims to get the key informants to expound the "Yes" or "No" answer.
- They must not be talking more than the key informants.
- If the key informants ask a question, they must not answer it immediately; rather, they should ask the key informants to expound the question. If they can, they should strive to ask questions to informants that would lead the key informants to diagnose their situation or provide the answer. If they sense that the key informants do not really know the answer, they only provide basic information (like why such problems occur).

Give each group five minutes to ask the questions to the key informants. After this exercise, convene all the participants to process the activity.

**(3) Processing.** Process the activity by asking the following questions:

- To the key informants: How did you feel while you were telling your story? From which group did you get more new and important information?
- To the “FLS facilitators”: How did you feel while you were listening to the key informants? What were you thinking while listening?
- To the observer: What are your observations on how the dialogue was conducted? What specific listening skills did the listener demonstrate? What specific communication skills did the speaker demonstrate?

You may give follow-up questions based on the responses of the participants. While this processing activity is being done, a co-facilitator should be writing on Manila paper the points brought up by the class on principles of neutrality and listening and questioning skills.

**(4) Lecturette.** Discuss the lecturette on Facilitating Adult Learning in the FLS: The necessary skills (see Vol. 2 page 12-17) by building on the points established by the class and by telling a personal story.

Also, discuss the example dialogues on the use of questions to facilitate learning by discovery.

### Instructions for OBSERVERS



**Activity 2. Facilitating adult learning in the FLS: the necessary skills**

**Exercise:** Tell Me the Problems of Buffalo Production in Your Region or Province

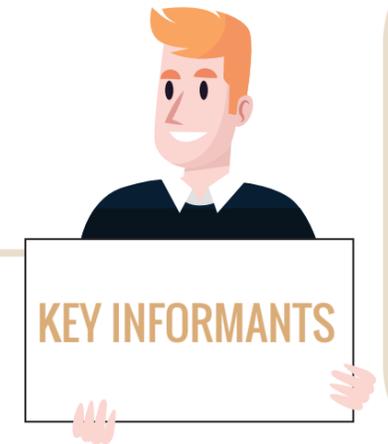
Instructions for OBSERVERS:

**1. Observe and take notes on:**

- How the dialogue was conducted and
- Reactions of both the key informants and interviewers or “FLS facilitators” during the dialogue.

**2. Prepare to discuss your observations after the exercise**

### Instructions for KEY INFORMANTS



**Activity 2. Facilitating adult learning in the FLS: the necessary skills**

**Exercise:** Tell Me the Problems of Buffalo Production in Your Region or Province

Instructions for KEY INFORMANTS:

1. Answer the questions that will be asked by the interviewers based on your knowledge of the actual buffalo production situation in your region, and
2. Ask questions to the interviewers on aspects like what solutions can be adopted to solve such problems in buffalo production.

### Instructions for FLS FACILITATORS (Interviewers): GROUP A



**Activity 2. Facilitating adult learning in the FLS: the necessary skills**

**Exercise:** Tell Me the Problems of Buffalo Production in Your Region or Province

Instructions for FLS FACILITATORS (INTERVIEWERS): GROUP A

- Ask the key informants about the problems in buffalo production in the region/province where the key informants come from (5 minutes).

**Way of Asking Questions:**

- More than 70% of your questions must only be answerable by “Yes” or “No.”
- You must not ask a question that starts with “why.”
- If there are questions from the key informants, you should answer it like an expert technical person.



### Instructions for FLS FACILITATORS (Interviewers): GROUP B



#### Activity 2. Facilitating adult learning in the FLS: the necessary skills

**Exercise:** Tell Me the Problems of Buffalo Production in Your Region or Province

Instructions for FLS FACILITATORS (INTERVIEWERS): GROUP B

- Ask the key informants about the problems in buffalo production in the region/province where the key informants come from (5 minutes).

#### Way of Asking Questions:

- Ask any question except those that starts with “why.” You must not ask a question that starts with “why.”
- If there are questions from the key informants, you should answer it like an expert technical person.



### Instructions for FLS FACILITATORS (Interviewers): GROUP C



#### Activity 2. Facilitating adult learning in the FLS: the necessary skills

**Exercise:** Tell Me the Problems of Buffalo Production in Your Region or Province

Instructions for FLS FACILITATORS (INTERVIEWERS): GROUP C

- Ask the key informants about the problems in buffalo production in the region/province where the key informants come from (5 minutes).

#### Way of Asking Questions:

- Not more than 30% of your questions should be answerable with “Yes” or “No.” If ever you ask this type of question, you should have a follow-up question that aims to get the key informants to expound the “Yes” or “No” answer.
- You must not be talking more than the key informants.
- If the key informants ask a question, you must not answer it immediately; rather you should ask the key informants to expound the question. You should strive to ask questions to informants that would lead them to diagnose their situation or provide the answer. If you sense that the key informants do not really know the answer, you can only provide basic information (like why such problems occur).

## Activity 4. Taking Cue from Adults’ Non-Verbal Gestures

(Adapted from the Facilitators’ Guide to Farmer Livestock School on Goat Enterprise Management Implementation)

### Learning Objectives

At the end of this session, the participants must be able to decode the meaning of an adult’s body gestures and offer solutions to problematic cues.

### Materials Needed

Actionary cards

### Session Flow

**(1) Introduction.** Introduce the game “Actionary” to serve as springboard for the succeeding discussion.

**(2) Exercise.** Group the participants into two, preferably by gender (if there are equal number of males and females). Ask each group to designate an “action person”, someone who will act out the words relating to non-verbal communication. Let each group choose from three categories: facial expressions, hand and arm gestures, and walking gestures. Each of these categories contains five cards with non-verbal codes to be acted out. These cards contain the following codes:

#### Set 1: Facial expressions:

- 1-happy
- 2-agitated
- 3-“I am available”
- 4-surprised or shocked
- 5-pensive or considering a subject deeply

#### Set 2: Hand and arm gestures:

- 1-sincere and open
- 2-defensive and agitated
- 3-evaluating
- 4-impatient
- 5-tensed

#### Set 3: Walking gestures:

- 1-preoccupied with a problem
- 2-frustrated
- 3-happy
- 4-nervous
- 5-secretive

Give the cards to the “action person” to act out. Groupmates have to guess what feelings or messages are being expressed and what words are being acted out. The group that has the most number of correct answers wins. Reward the winner.

**(3) Processing.** Assess how good the participants already are in reading body language. Point out that non-verbal cues must be understood in the context of clusters and not solely as a piece of unspoken action.

**(4) Lecturette.** Depending on the current level of understanding of the participants, make a short presentation on Taking cue from adults’ non-verbal gestures (see Vol. 2, page 18-20) and ask the participants to read the non-verbal cues illustrated by the pictures.

**(5) Evaluation.** The day before this session, take shots of the participants in various moods. Show these stolen pictures to the group and have them evaluate how they acted the previous day.

## Activity 5. Village Characterization Using Story Maps and Graphical Calendars

### Learning Objectives

At the end of this session, the participants must be able to assess village resources using the different participatory characterization tools.

### Session Flow

**(1) Introduction.** Inform the participants that today, they will be observers, as they will do a “lakad-aral” (transect walk) around the village.

**(2) Exercise.** Divide the participants into five. Give the groups 30 minutes to do a transect walk around their designated area. They are to observe and take note of all landmarks, feed resources available to animals, fishery resources, crops planted, residential areas, terrain, soil type, etc. During this walk, they can take pictures. They can also interview residents or workers in the area to know the extent of problems in each area. Emphasize to them that they need to be in the room exactly after 30 minutes as they will still process what they saw.

**(3) Technical Input.** Presentation on Village characterization thru story maps and graphical calendars (see Vol. 2, page 21-25)

**(4) Processing.** Upon their return to the classroom, discuss with the participants the process of making the different maps and calendars. Then assign each group to make one of the following within 30 min:

- A community map showing the boundaries of the area assigned to them as well as the landmarks, road system, market, water system, etc.
- A transect map showing the cross-section of the area assigned to them, wherein different parameters such as soil types, crops planted, livestock raised, and problems are plotted against the various geographical division or land use.
- A resource flow or farming system map showing the input-output flows of the different resources and subsystems within the farm.
- A farm sketch showing the location of farm components such as the various crops planted, livestock raised, fishery resources in relation to the homestead and other farm facilities.
- Rainfall calendar showing rainfall pattern vis-à-vis feed availability and disease incidence.

**(5) Discussion.** Allow the groups to briefly present their outputs while describing the resources that they realized were present within their vicinity. Post all outputs on the wall as a reminder of the available resources.

## Activity 6. Sorting Out Farm Problems Using Problem Trees

### Learning Objectives

At the end of this session, the participants must be able to use problem trees to assess farm or community problems.

### Session Flow

**(1) Introduction.** Inform the participants that after their “lakad-aral” around the village, they will now serve as key informants.

**(2) Exercise.** Give participants five cards and a pen each. Ask them to list down five problems on raising buffalo that they know. Let them write one problem per card.

Without sorting them, paste all cards on the board or wall. Let whoever wrote the problem explain the card. Do this until all cards have been explained. Clip together cards with the same meaning. Let the participants internalize all these problems before asking, which of these problems do you think is the most important of all? There may be two to three responses but let them discuss among themselves to narrow down the choices. Once there are just one or two, get set on doing the cause-effect analysis.

Clear the board by putting all cards at the sides. Put the identified major problem at the center and label it CORE PROBLEM.

Work your way down to the causes, by asking “Why is this a problem?” “What caused it?” Let the participants get answers from the cards posted at the sides. For every “cause” of the main problem, ask again, “What caused it?” Do this for all the cards that will be identified until you are able to make a causal matrix of the CAUSES of your main problem. When all the cards that show “causes” have been consumed, work your way up to the effects of the core problem. This time, ask the participants, “What was the effect of this problem?” Ask this question for all the “effect” cards.

The point is to arrange all these “problem” cards in such a way that the core problem is at the center, the causes at the bottom and the effects, at the top. Link them with arrows.

**(3) Processing.** To turn this problem tree into a solution tree, ask the participants to translate the problems into desired improvements and write them on the cards as well. Arrange these solution cards like the problem tree. The result is an objective tree, which not only shows how solutions to the problems are linked to one another, but also vividly points to what participants can aim and plan for.

**(4) Technical input.** For reference, see Sorting out farm problems using problem trees (see Vol. 2, page 26-27)



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## Mobilizing Communities for FLS

## Lesson 1. Understanding the FLS-DBP

### Learning Objectives

At the end of this session, the participants must be able to articulate how FLS differs from the traditional training, how it began, what basic concepts govern it and how farmers can benefit from participating in it.

### Materials Needed

Thick letter size (8.5" x 11") cartolina, any color, or paper plates (The number depends on the number of participants) permanent markers, 1 per participant

### Session Flow

**(1) Introduction.** Introduce this session this way:

“What is FLS? How many of you have had the chance to implement an FLS?” [If there are, you will see hands being raised, count them]. “How many have heard about FLS?” [Again count the number of hands being raised, if there are and add the number of those who have implemented and the number who have heard about FLS]. “So that means in this group only \_\_\_ [state the total number here] are aware of FLS and the rest have not had the opportunity to be familiar with FLS first hand”. If all have heard about FLS, tell them this: “It’s good to know that all of you have heard about FLS. At this point however, we will not define FLS; rather will have you articulate what you know after we play a simple game.”

**(2) Exercise.** Introduce to everyone the game, Breakfast on My Head (adopted from <http://happyhomefairry.com/2011/12/07/a-super-fun-christmas-game/>). Give each participant a pen and a cartolina board (or metacard) and tell them to put it on their head. Tell them that they need to draw on the cartolina board without looking.

- Give them the following instructions:
- Draw a square to signify the top of a table.
- Inside the square, draw a circular plate.
- Inside the plate draw a hot dog. To the right of the hotdog, draw a hardboiled egg.
- To the left of the hotdog, draw a cup of rice.
- To the left of the plate, draw a fork; to the right of the plate draw a spoon.
- At the top of the plate, draw a cup of coffee.

After going through these steps, let them look at their individual drawings and share how ridiculous it looks. Award the participant who has the closest resemblance to the original picture by scoring as follows:

- Give 2 points if the plate is inside the square table;
- 3 points if the hotdog, egg and rice are inside the plate; half point if only part is inside the plate;
- 2 points if the fork and spoon are at the sides of the plate and still on the table;
- 1 point if the coffee is on the table and outside the plate.

**(3) Processing.** Ask the participants the following questions:

- What is the relevance of this game to our discussion on FLS?
- What aspects of the game can be used to describe what is or isn’t FLS? [The point is that this game is like the traditional training wherein we just deliver the message, not necessarily engaging the audience nor making sure that there is congruence in the perception of the speaker and the participant. Hence, the picture depicted in the mind of the audience (as depicted by the drawing) is not necessarily the same as that conveyed by the speaker. It may even appear ridiculous and far from the intended message]. You may process the answers this way (answers provided are just examples):

Aspect of the game	Implications to FLS
1. Drawing without seeing	There is communication breakdown if one party is not made to fully utilize all his/her available senses.
2. Drawing on top of the head away from the eyes	Working away from the functional area may spell disaster (ridiculous drawing may be equated to problems in buffalo production)

**(4) Lecturette.** Depending on the degree of their understanding of the concepts and practice of FLS, augment with a lecturette on The FLS-DBP: concepts and practice (see Vol.2. page 28-35).

**(5) Activity.** Lay on the floor the curriculum of the FLS by Special Topic (ST) so that the participants can comprehend the length and breadth of the program.

**(6) Evaluation.** Prepare 24 cards with the letters, F A R M E R L I V E S T O C K S C H O O L D B P and place them in a container. Draw the first card and serve as sample to the group. Using the drawn letter, describe the FLS and paste the letter on the board. Ask the participants to draw 1 card each and use the letter drawn to describe FLS-DBP. As much as possible, refrain from giving the equivalent of the acronym like F for farmer. F can be equated to Farm, as experiments in the FLS are done right in individual farms. One word that starts with the letter drawn is enough to describe FLS (example: L-learning. In FLS we learn a lot about buffalo production). Paste on the board each letter to form the title Farmer Livestock School – DBP.



## Lesson 2. Understanding the Potentials of Dairy Buffalo Production

(Adapted from the Facilitators' Guide to Farmer Livestock School on Goat Enterprise Management Implementation)

### Learning Objectives

At the end of this session, the participants must be able to give the advantages and potentials of buffalo dairying.

### Materials Needed

“Things to Remember in Livestock Raising” Matrix Pens

### Session Flow

**(1) Introduction.** Introduce the game, “Winning in the Lotto”.

**(2) Exercise.** Form small groups of 5-7 participants/group. Then read the mood setting text to them.

#### Mood Setting Text:

*Ikaw ay isang magsasakang kumikita sa pagtanim ng palay at sibuyas para sa iyong kabuhayan. Bawa't taon, kumikita ka ng Php25,000 sa palay at Php50,000 naman sa sibuyas. Mayroon kang isang ektaryang lupa para dito.*

*Lima ang inyong anak at ang panganay lamang ang nakakapag-aral. Ang apat mo pang anak, bagama't nasa wastong gulang na ay hindi nakakapag-aral dahil sa taas ng matrikula. Ang inyong maybahay ay wala ring trabaho at naiwan sa bahay para mag-alaga ng mga bata.*

*Matagal mo nang pinapangarap na magkaroon ng suplementong kabuhayan, isang negosyo na makapagbibigay sa inyo ng dagdag na kita. Pinag-iisipan mong mag-alaga ng hayop sa inyong bakuran sapagka't ang iyong mga kapitbahay ay may kalabaw, baka, at ilang kambing. Sa di inaasahang pagkakataon, ikaw ay nanalo sa lotto ng Php1,000,000. Saan mo gagamitin ang premyong ito at bakit?*

Give the groups 10 minutes to reflect, discuss, and finalize their plans. Make them choose a leader to discuss their decision before the whole class.

**(3) Processing.** From this exercise, gauge the participants' regard for dairy buffalo raising. To help them understand the considerations in raising livestock, present a matrix called the THINGS TO REMEMBER IN LIVESTOCK RAISING (Either project this as a table or draw a similar table on the board).

Table 1. Cost/disadvantages of the following livestock species.

Animal	Investment (Cost of stocks)	Cost of Housing	Cost of feeds	Overall expenses	Diseases	Total
Beef cattle						
Dairy cattle						
Dairy buffalo						
Fattener (pig)						
Goat						
Sheep						

\*Rate the following livestock species according to its disadvantages on a scale of 1 to 5 (1 – lowest; 5 – highest)

Table 2. Benefits/advantages of the following livestock species.

Animal	Contribution to nutrition	Marketability	Fit in the farming system	Organic fertilizer production	Income	Total
Beef cattle						
Dairy cattle						
Dairy buffalo						
Fattener (pig)						
Goat						
Sheep						

\*Rate the following livestock species according to its advantages on a scale of 1 to 5 (1 – lowest; 5 – highest)

Jointly discuss each consideration in choosing the animals to raise and let this serve as springboard for the discussion of the “Understanding the Potentials of Dairy Buffalo Production”.

**(4) Technical Input.** By using the exercise as springboard, discuss the technical handout titled “Understanding the Potentials of Dairy Buffalo Production” (see Vol. 2, page 36-39).

**(5) Take home Assignment.** Ask the participant to bring different forage samples that are eaten by their water buffaloes to the next meeting.



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## Raising Healthy and Productive Dairy Buffalo

## Lesson 3. Forage and Feed Resources for Dairy Buffaloes

### Learning Objectives

At the end of the session, participants must be able to:

- Identify and characterize available feed resources for buffaloes, and
- Compare the different feed resources in terms of their advantages and limitations.

### Materials Needed

- Specimens of forages, concentrates, and crop residues
- Cartolina
- Marking pen
- Scissor
- Box

### Session Flow

**(1) Introduction.** Inform the participants that nutrition is one of the most important factors in the success of a buffalo enterprise. Feed contributes 66% to 70% of the total production input costs. If the animals do not receive adequate amount and good quality feeds, they will not be able to express their production potential. Nutrient deficiencies lead to poor growth, low milk production, and failure to reproduce regularly.

### (2) Exercise.

- Ask the participants to put the collected specimens on the table or on the floor where everybody can see. The same plant specimens will be put together, while specimens that are not similar will be placed close to each other (e.g., grasses, broadleaf plants, crop residues, concentrates, mixed feeds including agro-industrial by-products).
- When all the specimens are arranged, ask the participants to identify each specimen and validate whether everybody agree that the collected specimens are actually eaten by their water buffaloes.
- Bring out the feed specimens that you have brought and ask the participants to identify each (if they cannot identify, tell them the identity of the specimen). Then ask them whether their water buffaloes have eaten such specimen.
- After identification, let the participants classify and summarize all the feed resources into three, namely: (1) Energy source, (2) Protein, and (3) Vitamins and minerals.
- Ask the participants to compare, validate, and clarify the three types of feed resources in terms of its advantages and limitations.

### (3) Processing.

- Ask the participants to further compare the physical differences between the grasses and the broadleaves. Let them define differences in terms of:
  - 1) leaves (length and direction of veins – parallel or webbed)
  - 2) stems (woody, fibrous)
  - 3) roots (depth and amount/density)
  - 4) reaction to dry periods/season (growth, green, or dry)
- Through questions, lead the participants to discuss why water buffaloes that are eating only grass still grow. Once you gauged that the participants have exhausted their reasons, explain that water buffaloes fed only with grass still grow because grasses also contain protein and other nutrients (water, vitamins, and minerals); however, most of the time, these other nutrients are insufficient

such that the animal cannot reach its optimum growth. The same is true with broadleaves, crop residues and most concentrate feed ingredients (concentrate feed mixtures are an exception since these have already been formulated to contain nutrients in amounts that are needed by water buffaloes). Thus, energy feed source still contains other nutrients but its main function in the diet is as source of energy.

- Show the participants the concentrates and crop residues and explain whether these are sources of protein, energy, or vitamins and minerals.
- Explain that the rule of thumb (estimate) is to provide water buffaloes with a mixture of grasses and broadleaves (specifically legumes) at a ratio of 3 parts grasses:1 part legume.

**(4) Technical input.** Supplement whatever was not covered during the exercise using Technical Handout (see Vol. 2, page 40-44).

#### A. Roughages

1. Grasses
2. Legumes (broad leaves)
3. Farm by-products

#### B. Concentrates

1. Energy Sources
2. Protein Sources

#### C. Minerals and Vitamin Supplements

1. Mineral Source
2. Mineral Lick
3. Vitamin Supplement

**(5) End of session Activity.** Play the game, “Is it me”?

- Put different feed resource specimens (unnamed) in a box.
- Write on a card (two sets in two different colors) the classifications list of feed resources according to nutritive value such as (a) energy source; (b) protein source; (c) mineral source; and (d) vitamin source. Paste them to serve as column headings on the wall.
- Group the participants into two with equal number of members.
- Ask each group to huddle together around their assigned box.
- Instruct the teams that, at the count of 3, each member of the group will pick up one specimen from the box and place below the card that corresponds to its classification.
- The group with the most correct classifications will be declared as the winner.

**(6) Summary.** At the end of the session, select some participants to share their important learning from the activity by passing a ball. Ask also one participant to summarize the activities done during this session.



## Lesson 4. Forage Production and Establishment

### Learning Objectives

At the end of the session, the participants must be able to:

- Select improved forages that can be established in his/her farm based on soil, climate, and intended use
- Understand proper ways of establishing, managing, and utilizing the planted forages

### Materials Needed

- Fresh forage specimens
- Forage planting materials (brought by participants and facilitator)
- Manila Paper
- Marking pen
- Scissors
- Box
- Prizes / tokens

### Session Flow

**(1) Introduction.** Recap the previous lesson about feed resources. Tell the participants that forages can only support efficient animal production if these are properly managed and utilized. Such practices involve species selection, establishment, cultural management, and utilization. Failure in properly implementing any of these practices will lead to inefficiencies that result in lower returns, if not losses.

### (2) Exercise.

Assessing forage supply and feeding system

- Group the participants into three.
- In an exercise called “mix and match”, distribute colored metacards and a Manila paper to each group. Green metacards represent fresh forages; yellow metacards represent crop residues; brown metacards represent concentrates; and blue metacards represent any feed combinations.
- Give the participants 10 minutes to write all feed resources given to their buffaloes corresponding to the color of the metacard and attach or match on the month when it is fed using the table below and to complete a year-round feeding practice or pattern employed in their farm.

Feed	J	F	M	A	M	J	J	A	S	O	N	D
Grass												
Legume												
Concentrate												
Crop residue												

### (3) Processing.

- By passing a ball, ask several participants what they have learned from doing the exercise.
- What problems have they encountered during the exercise and how these relate to actual scenario in forage/feed production and feeding of their animals?
- Are they willing to overcome the identified feeding and feed supply problems?
- Assess and interpret the output of each group and explain to them the importance of having sustainable supply of feeds or forages in designing feeding system to improve animal productivity and increase farm profitability. Likewise, explain the negative effects to the animals and to the farmers in times of deficiencies.
- Explain to the participants that there are practical and science-based interventions that can be adopted in establishing an improved forage garden to meet the requirement of the animals.

Planning and actual establishment of improved forages

- Give a copy of the list of improved grasses and legumes including its adaptability to weather and soil conditions.
- Using the listings of improved grasses and legumes, ask the three groups to craft their respective plans for the establishment of improved grasses and legume plantation based on the annual feed requirements of each group.
- With the use of Manila paper and pen, give each group 30 minutes to come up with a development plan using the given information.
- Ask the participants what they have learned from the exercise by passing a ball. Then summarize that the main message from the exercise is that there are specific conditions, which determine whether a forage species can grow well and thrive in a specific area. Use these conditions as basis for deciding or selecting what forage species to plant. Selecting an inappropriate species would mean that additional costs of inputs (e.g., fertilizer, water, labor) must be provided to assure its survival and performance. Such factor should be considered before establishing a selected species.
- Explain further that forages which are planted and managed for feeding animals (sometimes called improved forages) have been selected for the reason that they are capable of producing more and better quality feed than commonly used native vegetation. However, such species also require better management, and should be treated similar to food or cash crops. Moreover, most native vegetation species would not be able to improve their feed production even with improved management (unlike improved forage species).
- Ask also the participants how selected forage species are integrated into their farms (in relation to other crops). Further probe to identify what attributes these species have that enabled them to be integrated to other crops or components in the farm. An example would be tree forages (e.g., Gliricidia or madre de cacao) which is integrated as a fence line because they grow tall and can be planted close together. There may also be forage species that have to be planted separate from other crops because they compete with adjacent crops. There are also others that grow well in areas with soils that are too poor for other crops to grow.
- Present to the participants the different ways of integrating improved forages in a farm using posters, with oral and written explanations.
- Using questions and probing, lead the participants to discuss how the forages that they brought with them are being managed, covering the following aspects:

- ✓ planting material collection
- ✓ planting
- ✓ management of young plants
- ✓ cutting or grazing management
- ✓ nutrient management

**(4) Technical input.** Discuss the following either to add what they already know or to correct wrong impressions (see Vol. 2, page 45-59).

Selection of forage species for establishments

1. Selection based on production and feeding system of the farm
2. List down species that has high potential for the specific utilization
3. Short list selected species based on productivity, quality, and lifespan
4. Short list potential species based on climatic and soil adaptations
5. Select species based on availability of planting materials

**(5) End of session activity.** Using the same groupings, ask each group to draw a simple map of their farm, indicating how the area is used (e.g., drawing the locations where different crops are located). Then let them draw where they will establish their forage area. Using what they have learned from the session, instruct them to label the forage species they will draw. Allow them 10 minutes to finish the exercise.

Have the outputs posted on the wall. Ask a representative from each group to explain their output briefly. Give each group 5 minutes.

**(6) Summary.** At the end of the session, select some participants by passing a ball to share their important learning from the activity and ask one participant to summarize the activities done during the session.

**(7) Take home assignment.** Require each participant to plant forages suited in the land area they prepared based on the result of the soil analysis. This will be visited by other participants and facilitators during the field coaching and monitoring activities.



## Lesson 5. Forage/Feed Conservation

### Learning Objectives

At the end of the session, the participants must be able to:

- Identify forages or feed materials that can be used for forage conservation and
- Adopt and practice proper forage conservation (ensiling) and utilization

### Materials Needed

- specimens of forages (grasses, legumes, and crop residues)
- rice straw
- plastic bag
- bolo
- scissors
- packing tape

### Session Flow

**(1) Introduction.** Recap the previous lesson on forage production and establishment. Inform the participants that fresh forages are not available all year round and this condition affects both the productivity (milk production and reproduction) of the animals leading to low profitability of the dairy farmers. Feed technologies such as forage conservation by ensiling and enrichment of farm by-products are some of the alternative methods that could be introduced to the dairy farmers to address shortage in feed supplies. Further inform the participants that silage is a conserved feed resource produced by fermentation. Ensiling is the name of the process and the name of the container used is called a silo.

**(2) Exercise.** Ask the participants to form two groups (“with experience and without experience” in forage conservation). Let them make silage and UTRS based on their knowledge.

### (3) Processing.

- Ask the participants (with and without experience) what they have learned or experienced during the actual processing of feed conservation. Do this by passing a ball.
- Discuss the merits of following the proper procedures done by the group “with experience” and the assurance of producing good quality and better feeding value of good quality silage or UTRS for the animals. Give emphasis that when dirty tactics or short-cuts are employed during the process of ensiling, these will lead to the production of bad and moldy silage. This kind of silage cannot be fed and it will lead to poor performance of the animals and no income for the farmers.
- Clearly emphasize to them the different requirements to be prepared before doing the actual ensiling such as the kind and quantity of the ensiling materials, availability of chopper, kind and size of silo to be used, harvesting and hauling equipment, and the schedule of actual ensiling; follow same process with UTRS.
- Ask the participants what are the abundant materials in their place that can be used in making silage. Have they tried or experienced making silage? If not, are they willing to prepare silage and adopt feeding silage in times of feed scarcity? Explain to them the benefits of silage making and feeding for the animals’ performance as well as its economic benefits for the overall dairy farming operation.

**(4) Technical input.** For short presentation covering the following practices and the basic principles that apply to silage making or production (see Vol. 2, page 60-64).

- Silage production
  - ✓ Examples of crops for ensiling
  - ✓ Types of containers or silos
  - ✓ Best silo to be used
- Pointers in making silage
- Stages that take place during ensiling
- Steps in making silage
- Reputable suppliers of heavy duty forage chopper and sources of ensiling materials for the end users

**(5) Summary.** At the end of the session, select one or two participants to share their important learning from the activity and ask one participant to summarize the activities done during the session.

**(6) Take home assignment.** Ask each participant to prepare silage and bring the finish product after one month to evaluate the quality. Provide additional information, if necessary.



## Lesson 6. Feeding of Dairy Buffaloes at Different Physiological Stages

### Learning Objectives

At the end of the session, the participants must be:

- Confident to demonstrate and transfer appropriate feeding systems of buffaloes at different physiological stages of growth and production
- Able to adopt practical but science-based feeding schemes for dairy buffaloes

### Materials Needed

- |                  |                   |                |             |
|------------------|-------------------|----------------|-------------|
| • Pail           | • Cartolina       | • Milk         | • Ballpen   |
| • Feeding bottle | • Ping-pong balls | • Concentrates | • Metacards |
| • Grasses        | • Carton boxes    |                |             |

### Session Flow

**(1) Introduction.** Recap the previous lesson on forage and feed conservation. Inform the participants that proper nutrition is important and it is the best medicine that contributes to normal body maintenance, optimum growth, reproduction and production efficiencies throughout the life span of an animal. If not properly address, then the overall animal productivity is affected which consequently results in low income of the livestock farmers. The blending of feed ingredients such as forages, concentrates, minerals, and vitamin sources and the manner by which these feed materials are offered is important and it should be regularly practiced in order to achieve the desired production performance and efficiencies of the animals.

**(2) Exercises.** Ask at least three volunteer participants to share the knowledge they gained during the field tour. Also, ask them to compare their learning with that of their current feeding practices employed in their own farm.

Feeding management of animals from calthood to maturity. This will be demonstrated using a game titled “COOK ME QUICK”.

- Group the participants into four with each group representing the herd group, as follows: (1) birth to weaning; (2) post-weaned calf to puberty; (3) pregnant and lactating cow; and (4) dry cows and bull.
- Provide a formulated ration (menu to be cooked) to meet the target average daily gain (ADG) of each herd group. The ingredients for the desired menu will be composed of grasses, silage, legumes, rice straw, and mineral supplements.
- The above feed resources shall be represented by ping-pong balls with different colors, i.e., green balls for silage and silage; blue balls for legumes; brown balls for rice straw; and yellow balls for minerals. All balls shall have equivalent quantity of feed materials, which will be used to complete the ration or menu of each herd group.
- Place all the balls in a common box, which will be placed in front at certain distance from the participants (“chefs”). Prior to the actual cooking, give each group a copy of the menu to be cooked, an empty box, which will serve as the casserole, and a ladle (“sandok”) for cooking.
- Ask each group with their members to fall in line. Count from one to three, then say “go”. Each member will find the corresponding individual ingredient and bring each ingredient to the casserole using a ladle.
- The facilitator and assistant will serve as judges who will check the correctness and completeness of the menu being cooked.
- The group who will complete the correct menu in the fastest time will win each round.
- The game will have three rounds for each group to experience cooking the three different menus. Give 5 points to the first group to finish with correct answers; 3 points to the second group; and 1 point to the last group. The group with the highest score at the end of the game will be announced as the winner and will be given a prize.

**(3) Processing.** Let the participants share at least one important thing they have remembered or learned during the conduct of each activity or task. Do this by tossing a ball. Lead a discussion to validate their ideas and supplement with other important information.

**(4) Technical inputs.** Discuss the following either to supplement what they already know or to correct wrong impressions (see Vol. 2, page 65-89).

**A. Feeding of calf from birth to weaning**

1. Artificial feeding of calf
2. Natural suckling

**B. Feeding management of weanling buffaloes (3-6 mos.)**

**C. Feeding of Heifers**

1. Phase 1 Growing heifers at 6-12 mos. old
2. Phase 2 Heifers at 13- 18 mos.
3. Phase 3 Heifers at 19 -24 mos. old

**D. Feeding of Pregnant Buffaloes**

**E. Feeding of Lactating Buffaloes**

1. Feeding according to lactation stage
  - a. Feeding a cow during early lactation
  - b. Feeding a cow during mid-lactation
  - c. Feeding a cow during late lactation
2. Feeding lactating cows to manage BCS

**F. Feeding of Pregnant Buffaloes**

**G. Feeding of Dry Cows**

**H. Feeding of Bulls**

**(5) Summary**

- Ask one or two participants to share their learnings during the conduct of the activities and also their experiences in the actual feeding and management of their buffaloes in their farm.
- Ask them further if they will adopt the learnings gained during the conduct of the activity and let them present their testimonies as regards the improvement on the performance of their animals as well as the benefit they have achieved after the technology adoption.

**(7) Take home activity**

- Ask the participants to fill out a housing form (for calf/heifer/cow) to be submitted in the next meeting.

## Lesson 7. Proper Housing for Calves and Adults

**Learning Objectives**

At the end of the session, the participants must be able to:

1. Identify the importance of housing or shelter to animals
2. Enumerate the design considerations in house location, elevation, floor space, partitions, and other facilities
3. Compare the advantages and disadvantages of the different housing materials

**Materials Needed**

- Pen
- Pencil
- Bond paper
- Newspaper

**Session Flow**

**(1) Introduction.** Discuss the previous lessons about silage making and provide additional information on feed conservation, if necessary. Then continue the discussion about the significance of appropriate housing to minimize heat stress and to optimize productivity of animal. Tell them that the practice of confinement help to minimize the occurrence of disease outbreak or transmission.

**(2) Exercise.** Collect the forms (Assignment 1), as shown below, from the participants, which they filled out during their farm visit.

<b>Name:</b>			
<b>Date:</b>			
<b>CALF</b>			
<b>Pen Location/Orientation</b>	<input type="checkbox"/> East-West	<input type="checkbox"/> North-South	
<b>Size of the pen (Dimension)</b>			
<b>Number of animal per pen</b>			
	<b>Materials used</b>	<b>Dimension/Size</b>	<b>Other observations</b>
<b>Roof</b>			
<b>Floor</b>			
<b>Pen Wall</b>			
<b>Feeder</b>			
<b>Drinking trough</b>			
<b>Other Observations:</b>			

Name:			
Date:			
HEIFER/DRY/GROWER			
Pen Location/Orientation	<input type="checkbox"/> East-West	<input type="checkbox"/> North-South	
Size of the pen (Dimension)			
Number of animal per pen			
	Materials used	Dimension/Size	Other observations
Roof			
Floor			
Pen Wall			
Feeder			
Drinking trough			
Other Observations:			

**(3) Processing and Technical Input.** Divide the participants into two groups. Assign each group to summarize all their observations. Finish the activity in 15 minutes. Then let them present their summary reports.

**Ice breaker activity:**

- Give each group a newspaper, which is placed on an even ground.
- Assign each member a number e.g., 1 to 10 or depending on the number of members per group.
- Read aloud the story-game (titled “Sandigan”) below. Upon hearing the number assigned to the group members, they must step and stay on their assigned newspaper until all members of the same group are stepping on it.

*Isang araw, naglalakad sa kagubatan ang magkaibigang Pedro at Juan. Sila ay masayang nagkukwentuhan. Sa kanilang paglalakad ay nakakita sila ng pitong pusa. Nagustuhan ito ni Pedro at gusto nya itong iuwi. Ngunit tinutulan ito ni Juan sapagkat ang mga pusang iyon ay pagmamay-ari ni Aleng Petra na nakatira malapit sa may ilog na may apat na malalaking bato. Matapos paliwanagan ni Juan si Pedro ay nagpatuloy sila sa paglalakad. Tinawid nila ang anim na ilog at naglambitin sa dalawang mahahabang baging. Nakaramdam ng gutom at pagod ang magkaibigan. Nagpasya silang humanap ng pagkain sa gubat. Hindi nagtagal, nakakita sila ng walong saging. Kanila itong pinagsaluhan. Matapos mabusog nagpasya ang dalawa na umuwi. Sa kanilang paglalakad pauwi ay nakapulot sila ng pera. Tuwang tuwa ang dalawa. At sa kanilang pagdating sa kanilang lugar ay dali-daling pumunta sa tindahan upang ibili ng candy ang tatlong pisong kanilang napulot. Patuloy silang naglakad hanggang makarating sa ika-limang kanto at panandaliang namahinga sa upuan. Hindi nila namalayan ang oras at ng makita nila ang oras ay ganap ng ika-syam na ng gabi. Nagmamadali silang umuwi at nakarating ng kanilang bahay sa ganap ika-sampu ng gabi.*

- They must stay on the newspaper until the end of the story. (Correlate this on the Technical Input (see Vol. 2, page 90-94). Space Requirement) give prizes for the team that stay longer on the newspaper.

Discuss the following.

- Benefits of a good housing facility
- Space requirements according to age, class, size of animal (correlate with the game “Sandigan”)
- Structural design or requirements and materials used including indigenous materials
- Functional requirements and other facilities
- Ideal location and slope of area

**(4) End of Lesson Test**

- Give the participants pencils and bond papers.
- Ask each participant to design or draw a house for his/her animal based on the discussions made.
- Choose some participants to present their design and discuss why they chose such a design.

**(5) Take home activity.** Give the participants 1-2 months to construct the appropriate house and other facilities necessary for their animals.



## Lesson 8. Health Management For Various Stages of Growth

### Learning Objectives

At the end of this lesson, the participants must be familiarized with the routine health program at the different stages of growth of animal. Farmers should be aware of what specific animal health activities should be done for each stage. Activities related to each stage shall be tackled along with their importance.

### Materials Needed

- Metacards (blue, white, yellow, green, and orange)
- Marking pens
- Flaglets (blue, white, yellow, green, and orange)
- Self-retractable measuring tape
- Pen, pencil, bond paper

### Session Flow

**(1) Introduction.** Recap the previous lesson and discuss assignment on feeding of dairy buffaloes at different physiological stages. Emphasize that to prevent mortality and have optimal performance thru disease prevention, having a sound herd health program is imperative. Strictly following the health program may lead to increased milk production, better growth and breeding performance, and lesser production cost, hence, increase in income.

**(2) Exercise.** First, ask the participants what are the common health problems they encountered in their previous animal management. Write these problems down on the boards or metacards (under the “Health Problem” columns) according to the age group affected. Give at most 5 minutes for this activity.

Calf		Yearling, Breedable, Dry		Pregnant Animal		Parturient		Lactating	
Health Problem	Health Program	Health Problem	Health Program	Health Problem	Health Program	Health Problem	Health Program	Health Problem	Health Program

Then divide the participants into five groups. Each group shall represent the different stages of growth. The group shall be randomly assigned to a certain growth stage by drawing lots.

### Group Categories:

- Group 1: CALF
- Group 2: YEARLING, BREEDABLE (male and female) & DRY ANIMAL
- Group 3: PREGNANT ANIMAL
- Group 4: PRE PARTURIENT, DURING, POST PARTURIENT
- Group 5: LACTATING

Give each group 3 minutes to discuss among themselves two most common health activities they are practicing on their animals based on the stage of growth assigned to them and the diseases identified in the first activity. Write these activities down on the colored metacards provided to each group, as follow:

- Blue: CALF
- White: YEARLING, BREEDABLE (both sexes), and DRY COW
- Yellow: PREGNANT
- Green: PRE-PARTURIENT, DURING, POST-PARTURIENT
- Orange: LACTATING

**Role playing.** Each group shall act out the two activities they have written on their metacards. Designate one member of the group to act as the animal. Perform the activity in one minute. Let the other group guess the animal health practice the group is acting out. The first group to raise their flag (color coded) shall be given 5 seconds to guess the animal health practice. Should the first group gave the wrong answer or failed to answer in the given time, the other remaining groups shall be given the chance to steal and guess the answer and earn the point. Only one steal is allowed. The assigned task to a group is not known by the other groups.

Collect the metacards and post them on the wall or board under the heading “stage of growth”.

**(3) Processing and Technical Input.** Post the metacards on the wall according to the stage of growth. Ask each group if their chosen animal health activity can help them solve the problem they encountered in each stage of growth. If not, ask them what animal health activities shall be done to help them or provide necessary information to solve the problem(s) identified (see Vol. 2, page 95-96). Ask the participants if they encountered the same problem and are doing the same activities or practice to their animal. Also ask the participants if there are other problems they encountered or activities they practice, which are not included in the list. Do this in each stage of growth.

**(4) Technical Input.** Discuss the routine herd health program for each stage to confirm what they already know and discuss what they still do not know or is not practicing to prevent and control the identified common diseases during the exercise.

**(5) End of Lesson/Module Activity.** Farm visit to demonstrate to the participants the actual animal health activities such as fecal sample collection, vaccination, deworming, ear tagging, cutting of umbilical cord, and vitamin supplementation. Also, ask them to do and accomplish the assignment for the next topic during the farm visit.

**(6) Take Home Activity.** Ask the participants to practice the health activities that were discussed in relation to the stage of growth of their animals. Ask them to list down or record the activities that they have done.

**(7) Assignment.** While on the farm or field, ask the participants to observe and take note of any disease manifestations and predisposing factors that can contribute to the disease. This will be submitted and collected before the start of Lesson 9.

## Lesson 9. Disease Prevention and Control

### Learning Objectives

At the end of the session, the participants must be able to:

1. Differentiate sick from healthy animals
2. Identify common diseases of buffalo, apply first aid and basic supportive therapy, and when to call veterinarians for help.

### Materials Needed

- Metacards
- Actual pictures related to common diseases
- Materials needed for supportive therapy

### Session Flow

**(1) Introduction.** Introduce that this activity will familiarize the participants to differentiate sick from healthy animals and the common diseases of buffalo, their clinical manifestations, and proper management. In cases when a veterinarian is not available, they should be able to apply emergency treatment and supportive therapy when needed.

#### (2) Exercise

- Group the participants into three.
- Provide each group with baskets containing pictures of items related to the 10 common diseases found in buffaloes.
- Show the pictures related to the diseases.
- Give chance to identify the disease to the group that says aloud its battle cry. If their answer is wrong, then give the chance to the other groups to steal and give their answer (only one steal is allowed).
- Award the prize to the group that obtained the highest score

**(3) Processing.** The game will demonstrate the extent of knowledge of the participants about the common diseases of buffaloes. Ask the participants if they have already encountered any of the disease identified. If yes, ask them what symptoms they observed and the emergency measures done.

**(4) Technical Input.** First, discuss the difference in terms of appearance and action of a healthy versus sick animal. Then, enumerate and discuss the common diseases of buffaloes and the technical approaches in the management of disease condition.

Give emphasis to those diseases commonly encountered by the participants in the field. (see Vol. 2, page 97-122).

#### (5) End of Lesson.

- Group the participants into four.
- Randomly assign four identified common diseases to each group.
- Give each group basket of options containing materials for emergency treatment and supportive therapy for the disease that was assigned to the group.
- The group shall discuss and choose 2 materials contained in the basket that will serve as supportive treatment for the disease that was assigned to them.
- The activity should be finished in 2 minutes.
- At the end of the activity, the participants shall be able to explain why they chose the material as emergency treatment.

**(6) Assignment.** Ask each of the participants to observe their animals for a week and record all related health issues to be submitted on the next meeting. Ask them to apply emergency treatment, if necessary, to their animal while waiting for technicians to conduct in-depth medication.

## Lesson 10. Assessing the Suitability of a Cow's Body Condition and Conformation for Breeding

### Learning Objectives

At the end of the session, the participants must be able to:

- Know how to determine body condition score (BCS)
- Judge or recognize the physical attributes of a good dairy buffalo cow for breeding.
- Appreciate the importance of selecting the right animal for breeding

### Materials Needed

- Poster A showing cows of various body condition (thin, ideal, and obese)
- BCS and type trait score sheet
- Cows of various body condition for judging (at least 3 cows in early lactation). This session is best done at one of the participant's farm with many lactating cows
- Pieces of paper and pencil

### Session Flow

**(1) Introduction.** Recap the previous lesson's activities by asking the participants about the relationship of a healthy, well-nourished animal, and proper nutrition.

#### (2) Exercise. "Pick me"

- Show Poster A and ask participants to pick one they think will most contribute to them and relatively easy to replicate.

**(3) Process.** Ask each participant to group together into three according to their choices in Poster A. Ask one or two from each group to speak for the rest of the group. Relate their choices to the interplay of genetics and nutrition to bring about a productive animal. Relate their choice to the idea of having the right body condition among female buffaloes to increase the possibility of getting pregnant fast and without risks. Also, let them discuss if their choices relate to the purpose of raising a dairy animal (eg. a bigger size may not necessarily give the most volume of milk).

#### (4) Technical input.

Body Condition Score (BCS). Discuss the method on how to do body condition scoring (see Vol. 2, page 124-125). Next, demonstrate this on an animal using the BCS score sheet (see Vol. 2, page 126-130). Type trait evaluation. Do the same for type traits (see Vol. 2, page 131-136) and demonstrate.

**(5) End of lesson activity.** Give each participant BCS and type trait score sheet and allow them to score a sample cow that was not yet scored. Compare their results with your result for them to see how close they are to your score. If the general scores are far from your score, the same result will be done again using another cow, then compare results.

**(6) Take home assignment.** Ask each participant to score (BCS and type trait) their cows or their neighbour's cows then look at their breeding and milk production records. Ask them to relate the production and reproduction records with their BCS and type trait scores especially with regards to body depth.

## Lesson 11. Heat Detection, Breeding Services, Recording and Record Keeping

### Learning Objectives

At the end of the session, the participants must be able to:

- Recognize the signs of heat
- Know the options on when and how to breed their heifers and/or cows,
- Know the importance and practice of record keeping

### Materials Needed

- Pencil and paper
- AI kit
- Record forms
- Cow in estrus (synchronized)
- Breeding calendar

### Session Flow

**(1) Introduction.** Recap the previous lesson's activities on body condition and assessing a good breeder and ask the participants how they rated the BCS of their own animals. Ask the participants how they can increase their herd size (without buying from outside). Ask the participants if they know when their animals have last been bred.

**(2) Exercise.** "Ibulong mo relay"

- Divide the participants into two groups.
- Show a date and a telephone number to the first person in line of each group.
- The first person in the group will whisper the date and number to the next person in line and so on up to the last member in the line, who then writes the information relayed on the board.
- The group which will be able to give the most number of correct information from three sets of data will be declared the winner.

**(3) Processing.** Ask or let the participants explain their experience or problems in relaying the information. Probe on why wrong data were relayed, if any. This will serve as the springboard for the technical input on recording and record keeping.

**(4) Technical input.** Discuss the following technical information either to confirm what they already know or introduce what they still do not know (see Vol. 2, page 137-147).

#### Heat detection and breeding services

- Heat detection
- Breeding services
  - ✓ Natural service
  - ✓ AI service

#### Records and record keeping

- Use of breeding calendar
- Record forms

**(5) End of lesson test.** Ask questions on the use of breeding calendar such as the expected calving date or voluntary waiting period, signs of heat or use of records.

- Select three participants to stand in front to represent three possible answers to the evaluation questions
- After reading the questions, give the participants 10 seconds to decide on the answer and stand at the back of the human post representing their answer.
- Repeat until all questions have been asked. The last standing person wins.

**(6) Take home assignment.** Allow the participants to observe the signs of estrus on their cows and call a village-based technician to conduct AI once the cow has been detected to verify that the farmer's observation is correct. The date and observations made should be properly recorded in a form or record book.

## Lesson 12. Maximizing the Use of Proper Genetics to Increase Milk Production

### Learning Objectives

At the end of the session, the participant must have the knowledge or appreciation of the following:

- The advantages of using artificial insemination over natural service in breeding especially in avoiding in-breeding.
- The principles behind the different mating systems especially backcrossing scheme
- The interplay of genetics and nutrition in milk production
- The principles of milk test day recording and interpretation of results

### Materials Needed

- 36 pieces of string about two feet long each to tie the legs together
- Result of milk analysis report

### Session Flow

**(1) Introduction.** Recap the previous lesson activities by asking the participants about the result of their observation regarding heat detection, breeding services, recording, and record keeping. Then relate the need to have menu options throughout lactation to maintain proper body condition.

**(2) Exercise.** Tandem race

- Divide the participants into two groups and make six pairs each.
- Tie the right leg of one team member to the left leg of the other team member. Do this to all pairs and line them up per group at the starting line.
- A pair from each team will race around a post 5 meters away and return to the starting line.
- The next pair will start as soon as the first pair crosses the starting line. Repeat for the succeeding tandem until all have gone around the post and finished. The first team to finish wins.

**(3) Processing.** Let the participants from both the winning and losing team explain what made them win or lose, accordingly. Relate acting in unison to the interplay of genetics and nutrition to bring about a healthy and productive animal. Body condition is a reflection of the influence of nutrition whereas body conformation is a reflection of the influence of genetics and cannot be changed by nutrition. However, nutrition is important in bringing about the full genetic potential of a cow. At the same time, even the best nutrition will not increase production of a cow beyond its full genetic potential. Nutrition and genetics should act in tandem to maximize the production of a cow.

**(4) Technical input.**

- a) Mating systems
- b) Advantages of artificial insemination
- c) Principles of milk test day recording
- d) Culling and selection

**(5) End of lesson test.** Line up several questions regarding the lesson on mating systems, average milk production, fat percentage, and protein percentage in a given lactation as well as the acceptable number of somatic cell count per ml of raw milk. Do this as a team effort. The team with the most number of correct answers wins.

**(6) Take home assignment.** Ask each participant with a lactating cow to record their cows' milk yield, fat and protein percentage as well as the stage of lactation (or days in milk) when the record was taken and compare this to the average corresponding to the stage of lactation as per reference. The comparison can be done in the next session.



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## Building Enterprises from Buffalo

## Lesson 13. Milking the Buffalo Cow

### Learning Objectives

At the end of the session, the participant is expected to know the various options in milking the dairy buffalo cows:

- The different frequencies of milking the cow
- The different options in traditional hand milking method as well as machine milking
- The proper and hygienic way to milk the cow either by traditional hand milking or machine milking method
- Discuss the importance of milk hygiene and demonstrate the proper collection of hygienic milk

### Materials Needed

- Milk record forms
- Manila paper
- Marking pens
- Scotch tape
- CMT kit

### Session Flow

**(1) Introduction.** Recap the previous lesson's activities by asking the participants about the things they performed. Ask the participants the things usually performed in relation to milking practices and reasons for using it.

In the production of hygienic milk, start the session by introducing the owner and host of the dairy farm where the sessions on the demonstration of collecting hygienic with the use of hand and milking machine will be done.

Tell the participants that milk is one of the major sources of income in dairy buffalo enterprise. Inform the participants that in order to maximize the income potential from the milking buffalo, milk collection should be done twice-a-day. Milking sessions can be done early in the morning and in the afternoon. The dairy farmer will choose the best time in the morning and the most appropriate time in the afternoon session in milking the buffalo with the use of either hand or milking machine. To gain substantial income from dairy buffalo milk production, the milk must be of premium quality.

This session will introduce the participants on how the best practices in milk collection through the use of hand milking and machine milking is done.

**(2) Exercise.** For the production of hygienic milk with the use of hand milking, divide the participants into four groups. Instruct them to assign a leader in each group. Each group will pick randomly from the basket of topics to be discussed, which are as follows: (1) farmer as the milker, (2) dairy animal, (3) milk container, (4) milking area.

Based on the topic picked up, the group will discuss and write down on a Manila paper what preparation to be done on the topic assigned prior to the milking activity. Each group will report the results of their deliberation.

**(3) Processing.** Ask or let them explain their observations and experiences as well as the issues or problems encountered regarding the two types of milk collection practices. The facilitator will lead the discussion on what has transpired in the two activities conducted. These activities are the preliminary steps in the assessment of the levels of knowledge and skill of the participants in increasing the production of hygienic milk using hand milking and milking machine. This serves as a springboard for the technical input.

**(4) Technical Input.** Based on the turn out of the activities, it will provide the facilitator idea on how to start with the discussions on the technical pointers to supplement or add to the existing knowledge of the participants on the topic as well as the skills already acquired. The facilitator will have the chance to discuss the following technical information to confirm what they already know or introduce what they still do not know. (Citing references like the Dairy Buffalo Production Handbook).

Milking frequencies with traditional hand milking.

a. Once-a-day milking

- Two teats only
- Three teats only

b. Twice-a-day milking - Suckling combined with early weaning

c. Machine milking twice-a-day

Emphasize the comparison of milk collection by hands or machine in the production of good quality milk and the positive effect on the household income. The session will also include the proper utilization and maintenance of the milking machine. Included in the technical input is the economics on the use of milking machine and the recommended number of dairy herd to be able to acquire and invest on milking machine.

**(5) End of Lesson.** Allow time for the participants to do milking themselves to experience the use of portable milking machine through demonstration and guided or supervised milking.

**(6) Summary and Evaluation.** Group the participants into two to three teams, making sure that they have equal number of players. Play the "Actionary game".

- Write all the names of the milking practices in metacards and put them inside the basket.
- Have the first person in line draw a card and act out the routine milking practices.
- The next player must guess the act in three guesses. If he fails after three attempts, give other groups a chance to guess.
- The group who gives the correct answer will proceed to draw the next card. The person who draws a card acts out the practice then moves to the back of the line. Do this until all have had the chance to draw a card and act out the practice.

The participants will be again divided into four teams. Each team will answer the questions to be asked by the facilitator in succession from the first in line up to the last.

The questions will be formulated later. Those that cannot answer correctly will be subjected to review until he/she gets the correct answer.

**(7) Take home Assignment.** Ask the participants to perform and practice milking relative to the frequency of milking and the use of milking machine (if they have). Ask them to practice and record the results by filling out the given forms and present to them the technician during visitation. Ask the participants to bring milk samples from their cows for evaluation in the next meeting.

Implement the best practices in milk collection in respective farms. Tell the participants to report immediately to the PCC Team if there is/are animal/s that calved and ready for milking. The PCC will visit the participant's farm and observe how milk collection is being conducted. A series of follow-up and on-site field coaching and consultation will be done to ensure that the best practice of milk collection is being adopted.



## Lesson 14. Milk Handling and Storage

### Learning Objectives

At the end of the session, the participants must be able to understand the importance proper handling and storage of milk through hygiene, disinfection and cooling.

### Materials Needed

- Metacards
- Milk pail
- Water
- Milk
- Ice
- Styro box
- Milk can
- Plastic container

### Session Flow

**(1) Introduction.** Recap the previous discussion about proper hygienic milking. Then continue the lesson by introducing the participants the milk supply chain from the point of collection to the consumers. This will give them the idea why proper milk handling and storage are very important in maintaining the quality of milk.

**(2) Exercise.** Introduce the game: “Palamigin Mo ang Gatas Ko”. Divide the participants into five groups with five members per group. Let each group choose the best procedure or technique on how they will cool their milk using the metacards provided for the activity.

**(3) Processing.** Ask each group to discuss what technique or procedure did they use and why? Based on the outcome of the activity, determine the best technique in cooling milk.

**(4) Technical Input** (see Vol. 2, page 163-170)

- Quality of milk
- Causes of milk spoilage
- The Milk Chain
- Importance of cleanliness, disinfection, and cooling
- Importance of type of milk containers in milk handling
- Milk storage and transport

**(5) End of the Lesson**

**(6) Summary and Evaluation.** At the end of the session, ask each group to state the important lesson learned from the activity.



## Lesson 15. Milk Quality Test

### Learning Objectives

At the end of this session, the participants must be able to perform milk quality testing using organoleptic, alcohol precipitation test (APT), and clot-on-boiling test (COB).

### Materials Needed

- Milk samples: good and poor (mastitic milk/ spoiled milk)
- Test tubes with cover, 12 pcs (for APT)
- Plastic cups for salad, 10 pcs (for organoleptic test)
- Table spoon, 12 pcs (for COB)
- Candle, 6 pcs
- Permanent markers, 5pcs
- Manila paper
- Masking tape

### Session Flow

**(1) Introduction.** Introduce to the participants that the two important considerations in milk production are quality and quantity. Emphasize that good quality dairy products can never be made from poor quality raw milk.

**(2) Exercise.** Divide the participants into five groups; allow the participants 15 minutes to evaluate milk samples (good and poor) using organoleptic test: (COAT).

- Color
- Odor
- Appearance
- Taste

	Particular	Good Milk	Poor Milk
Color			
Odor			
Appearance			
Taste			

Demonstrate how APT and COB are done and let the participants try how to do APT and COB using the good and poor milk.

**(3) Processing.** Require each group to write their milk evaluation using organoleptic Test, APT, and COB and discuss their observations.

**(4) Technical Input** (see Vol. 2, page 171-174)

#### Organoleptic Test

- Procedure
- Characteristics of quality milk

#### Alcohol Precipitation Test

- Procedure
- Interpretation of results

#### Clot-on-Boiling Test

- Procedure
- Interpretation of results

(5) End of the Lesson

(6) **Summary and Evaluation.** At the end of the session, ask some participants to state the importance of milk quality testing.

(7) **Take home activity.** Each participant will perform the organoleptic test, COB test, and APT using their milk produce. Record, report, and discuss the observations in the next meeting.



## Lesson 16. Entrepreneurship and Basic Financial Management

### Learning Objectives

At the end of the session, the participants must be able to improve their business efficiency in buffalo dairying through better understanding of the basic enterprise, tools in financial analysis, marketing, and credit facilities.

### Materials Needed

- Scissors
- Cutters
- Plastic straws
- Bond paper
- Cartolina
- Scotch/masking tapes
- Barbeque sticks
- Push-pull tape rule
- Play money
- Electric fan

### Session Flow

(1) **Introduction.** Start the lesson by emphasizing that dairying is not just a daily routine activity, rather, it is a business and they are entrepreneurs (“dairypreneurs”). Explain that for a business to thrive, they need to know what is meant by entrepreneurship, financial analysis, and marketing as well as credit facilities.

#### (2) Exercise 1. “BMB” (Build Me a Building)

A private company is scheduled to bid for a construction of a multi-level dairy processing and marketing facility. As an initial activity, the company invites and requires building contractors to participate in a scale model-making activity to see their strategies in planning, designing, division of labor, cost efficiency, and construction skills.

Procedures:

1. Divide the participants into four groups of contractors.
2. Provide each group an equal amount of play money while showing the available materials and their costs. Discuss that the facilitator, as the judge, will score their models based on the following criteria:
  - a. Uniqueness and creativity of the design
  - b. Building cost
  - c. Sturdiness and durability
  - d. Height of the building
  - e. Financial management
3. For 5 minutes, let them plan and discuss how they will allot the budget provided to them. Let one of the facilitators act as a credit facility where the group may avail financial assistance from and let one of the members purchase the items they need to build the dairy facility. After 5 minutes, immediately close the store.

### Dilution of 70% Ethyl Alcohol to 60%

Volume (ml)	70% Ethyl Alcohol	Distilled Water
100	85.71 ml	14.29 ml
200	171.42 ml	28.58 ml
300	257.13 ml	42.87 ml
400	342.84 ml	42.87 ml
500	428.55 l	71.45 l

### Sample Computation:

$60\%/70\% = 85.71$  ml of 70% ethyl alcohol added with 14.29 ml of distilled water to produce 100 ml volume of 60% ethyl alcohol.

Materials	Unit	Price per unit (PHP)
Scissors	piece	50
Cutter	piece	25
Plastic straw	packs	10
Bond paper	sheet	5
Cartolina	piece	10
Scotch tape	roll	20
Barbeque stick	piece	20

4. For 25 minutes, the contractors will work on their freestanding scale models using only the provided or bought materials. After 25 minutes, the contractors will stop working on their models.

5. Judge will then ask for a group representative to briefly discuss how they manage their available resources and about their model. After which, evaluate and assess their outputs using the following tests:

- Financial savings and expenses - Points based on the groups' savings
- For durability and sturdiness - Wind test using an electric fan. The most durable will get the highest point.
- Height - using push-pull rule tape to measure the height of the model.

6. To continue, open the shop and give them 10 minutes to improve their building using their remaining money. For this part, creativity will be the basis of scoring.

7. Point system:

- Rank 1 - will earn PHP100
- Rank 2 - will earn PHP75
- Rank 3 - will earn PHP50
- Rank 4 - will earn PHP25

8. The total earned money will be subtracted from the amount of materials unused in building construction depending on the price of materials.

Tally the results for each category in a summary sheet. Provide Manila paper and marking pen for writing the results. The highest total earned will be the winner and will get a reward.

**(3) Processing.** The objective of the exercise is for the group to strive to achieve the highest net return per criterion. Ask for volunteers to relate the exercise to their dairy farming business. Ask them if they record or account all their expenses, savings, and income. Then, proceed to elaborate the concept of entrepreneurship and basic financial management.

**(4) Technical Inputs.** There will be four technical inputs under this module, i.e., entrepreneurship, basic financial management, marketing, and credit facilities. These should be discussed depending on the participant's current skills using the Technical Handout (see Vol. 2, page 175-186).

**(5) Summary and evaluation.**

- Assess how well the participants have internalized their learning from this module by analyzing Exercise 2.

Divide the participants into four groups. Show visual aids containing specific data on income and expenses. The participants will conclude if feeding with dairy concentrates for lactating cow will give them more benefits compared to traditional practices.

Particular	With Dairy Concentrates	Traditional Practice
No. of lactating cow	2	2
Days of lactation	300	300
Days of feeding	300	300
Amt. of forage consumed, kg/day/head	40	40
Amt. of dairy concentrates consumed, kg/day/head	2	
Price of dairy concentrates per kg, PHP	20	
Labor per day (milking), PHP	25	25
Milk produced per day per cow, liters	4	2
Price of milk per kilo, PHP	50	50

- Provide each group with the data needed for them to compute the net benefit of using the technology. The first group to arrive with the correct computation will be declared as the winner and will be given incentives by the facilitator.

**(6) Assignment.** At the end of the lesson, allow the participants to do a one-week simple cost and return analysis of their respective farms. Tell the participants to report and submit their assignment next meeting.



## Lesson 17. Forage-Based Enterprises

### Learning Objectives

After the session, the farmer-trainees must understand the options on how to venture in forage-based enterprises and how much are the expected benefits.

### Materials Needed

- Plastic for ice
- Shredded paper
- Rubber band

### Session Flow

**(1) Introduction.** Recap the previous lesson by discussing the assignment about simple cost and return analysis. Then, present to the participants that there is a growing business opportunity in production and conservation of forages and farm by-products as supply of fodders for feeding buffaloes and other ruminants.

**(2) Exercise.** Start the session with a game “Let’s do business”. Divide the participants into three groups by counting. All participants with same number should group together. Give each group the materials needed. Present the following scenario and game mechanics:

*A Japanese investor will arrive and he/she is looking for a supplier of fresh soilage, silage, and urea-treated rice straw (UTRS) for export to Japan. Each group will draw a lot with each lot representing either a soilage business, a silage business, or a UTRS business. Tell each group to recall what they have learned in forage establishment and preparation of silage or UTRS (Lesson 5). The participants shall discuss and calculate among themselves by group the potential production of quality soilage, silage, and UTRS in a hectare of land for a one-year production cycle. This will be done by filling out a given production form. Tell them that the Japanese importer has only two options, i.e., whether to “reject” or “accept” the products and the proposed business process. Give the group 7-10 minutes to finish the activity. Inform them that the group that has completed the exercise early and with complete information of the production soundness of the business shall be the winner.*

*Ask again the participants to go to their respective groups and do the second activity. Inform them that the activity this time aims to determine the highest net return. Give them the blank tables below (Tables 1, 2, and 3) for them to use in their computation. Tell them also that they will use the data in the previous exercise. The group with the highest net return will win the game. Allow 10 minutes for the groups to finish the activity and let them present their output by writing on a Manila paper.*

### (3) Processing.

- Ask a representative from each group to present the output of the group and also share his/her learning/experience in doing the exercise.
- The other group could ask questions or any queries on how they arrived at that business output.
- The presenter with his/her group shall present in the form of a strategy on how they will promote their business so that they can convince the Japanese importer

### (4) Technical input.

- Tell the participants that forage enterprise has a good potential because very few investors are going into this. With the expanding livestock production particularly dairy farming, the demand for commercial supply of fresh or conserved forages and farm by-products is on the rise.
- Oftentimes, farmers do not have enough supply of forage for their animals during summer and they rely mostly on farm by-products, which have low nutritive values.
- Invite an entrepreneur of silage to share his/her experience on this kind of business. Let him/her tell the participants that he/she experienced a very good return on investment when he/she engaged in this business. Let him/her also inform the participants that if they are interested to engage in commercial silage production, the investments for equipment in silage production are quite expensive but the payback period is short and the PCC is willing to provide technical support.
- If UTRS will be commercialized, then let them know that the raw materials are cheap and locally available but required logistics entail investment. There are some private investors planning to venture in this business. It can also be profitable since potential customers are just around, namely institutional farms, dairy farmers, and mushroom producers.
- Another business opportunity that they can invest on is the commercial production of legume seeds. There is no private firm investing on this and if farmers want to plant legumes for their animals, supply is not readily available.
- For the sample computation on the cost of producing a kilo of silage (napier and corn) and UTRS, please refer to the technical handout (see Vol. 2, page 187-188).

### (5) End of session

- Ask the participants who are interested in forage-based enterprises which of the three options will they invest on. Ask them further why they like that option, in terms of practicality, demand, input requirement, and profitability.
- Ask them if they have other forage-based enterprises in mind and how they will go into this?

**(6) Summary.** Select one or two participants to give their views and reflections about the workshop. Let one of them summarize the activities done in the session.

**Table1. Production cost of napier soilage @ 6 times harvest/year @ 30 T/ha/harvest**

ITEM	Quantity	Unit Cost (PHP)	Total
A. Expenses			
Land preparation			
Preparation of planting materials & planting			
Fertilizer/application			
Irrigation fuel/labor			
Harvesting/hauling			
Total expenses			
B. Yield/ha			
C. Cost/kg of soilage			

## Lesson 18. Milk-Based Enterprises

Table 2. Production of corn silage 2 x/yr

ITEM	Quantity	Unit Cost (PHP)	Total
A. Expenses			
Land preparation			
Purchase of seeds & Fertilizer/pesticides			
Irrigation Fuel			
B. Labor (planting, irrigation, fertilization, harvesting)			
Total expenses			
B. Yield/ha, kg			
C. Cost/kg of forage corn			
D. Purchase of equipment or materials			
Chopper			
Weighing scale			
Vacuum cleaner			
Plastic bags			
Packing tape			
E. Labor for chopping/			
Ensiling/harvesting silage			
F. Silage yield/ha			
G. Costs of producing a			
kg/silage			
H. Revenue			

Table 3. Production of UTRS at 2 x /year

ITEM	Quantity	Unit Cost (PHP)	Total
Rice straw			
Urea			
Molasses			
Water			
Labor (rice straw collection/ preparation of UTRS)			
<b>Utilities</b>			
Cost of fuel			
<b>Total Expenses</b>			
Total UTRS produced, kg/ha			
Cost/kg of UTRS			
<b>Total Cost</b>			
<b>Net Revenue</b>			

### Learning Objectives

At the end of the lesson, the participants must be able to demonstrate the steps in the processing of pastillas (milk candy), white cheese, and various flavored milk products (chocolate and fruit).

### Materials Needed

Pictures of milk, vinegar, rennet, sugar, chocolate, salt, banana leaves, plastic wrapper, paper wrapper, pineapple, stabilizer, water

### Session Flow

**(1) Introduction.** Start the lesson by providing an overview to the participants about the unique properties of buffalo's milk and some of the common dairy products that can be easily processed from it such as pastillas, white cheese, and flavored milk using simple ingredients, materials, and utensils.

### (2) Exercise

- Divide the participants into five groups.
- Give each group identical sets of pictures of ingredients of common dairy products. Instruct each group to lay the pictures on the floor facing down.
- Announce that this is a "bring-me-the-ingredients game". The object of the game is for the group members to find from the faced-down pictures the correct ingredients to a particular dairy product that the game facilitator will call out.
- Assign a group member who will collect the ingredients and bring the same to the game facilitator who will verify the correctness and completeness of the ingredient-photos submitted.
- The group who brought the correct and complete ingredient-photos first scores a point.
- Each photo that were turned face up must be turned faced down before the start of another round.
- The first group who scores three points wins the game.

**(3) Processing.** Ask the participants if they already have knowledge or skills on the processing of pastillas, white cheese, and flavored milk and from what source they learned about them. Ask, too, if they are practicing such knowledge or skills. If so, gather feedbacks as to particular issues that they have encountered in the processing of the said products.

**(4) Technical Input.** Depending on their current knowledge level, discuss the different dairy products mentioned above followed by actual demonstration and hands-on or practical activities for the participants on how these products are processed using the technical handout as a guide (see Vol. 2, page 189-197).

**(5) Summary and Evaluation.** To gauge how well the participants internalized the dairy processing techniques, play Game 2.

### Game 2: Quiz Race

- Divide the participants into two groups.
- Each group must elect a member-contestant who will play the game.
- Each contestant stands side by side at a starting line.
- Ask a series of question related to dairy processing.
- A contestant takes a single ("baby") step towards a prize placed at a finish line for each question that was answered correctly.
- The first contestant who reaches the finish line wins the round.
- Elect new members who will play the next round(s).
- Ask a new set of questions for each round.
- The first group who wins the race twice wins the game.

**(6) Take home assignment.** At the end of the lesson, let the participants decide on which dairy product(s) they intend to produce as a source of income.

Ask them to process their chosen dairy products and bring the finished products in the next FLS session for critiquing by a panel of evaluators.

## Lesson 19. Meat-Based Enterprises

### Learning Objectives

At the end of the session, the participants must be able to identify meat quality, practice hygiene in processing, and demonstrate processing of carabeef tapa, burger, and batutay (carabeef sausage)

### Materials Needed

- Metacards
- Marking pens
- Masking tape
- Set of pictures

### Session Flow

**(1) Introduction.** Start the session by discussing the characteristics or qualities of carabeef for processing, importance of hygienic processing, ingredients, and procedures in small-scale meat processing.

#### **(2) Exercise: Relay Game**

- Divide the participants into three groups
- Each group will be provided metacards indicating different steps in meat processing.
- Members will fall in line to pick up one card then paste or tape on the board the procedure arranged sequentially based on the product the facilitator will call out.
- Repeat until all the procedures for the three products are completed.
- The first group to complete the procedures correctly wins the game.

**(3) Processing.** Ask the group what they learned from the exercise. Do they have ideas how meat processing is done? Are there other alternative ingredients available for the above products? Do they have some suggestions on how some products may be improved?

**(4) Technical inputs.** Depending on their current knowledge level on meat processing, discuss technical information on processing hygiene, ingredients, and procedures on the production of carabeef tapa, batutay, and burger (see Vol. 2, page 198-209).

After the lecture, demonstrate actual processing of the different meat products.

**(5) Summary and Evaluation.** To gauge how well the participants appreciated and learned from the exercise, they will again be grouped into three to play Memory game

- Place the pictures of the different ingredients, procedures/steps, hygienic practices, etc. at random on the floor face down.
- A group leader will rotate the members who will answer the facilitator. Correct answers from the faced down pictures will be taped to the board.
- The group that gets the most numbers of correct answers wins.

## Lesson 20. Manure-Based Enterprises

### Learning Objectives

At the end of the session, the participants must be able to:

Explain the differences of compost, vermicompost, vermicast, vermitea, and dried manure (as fuel)

Demonstrate any of these in the farm

### Materials Needed

- Powerpoint presentation about compost
- Vermicompost
- Vermicast
- Vermitea
- Dried manure used as fuel
- Modeling clay in different colors
- Technical hand-out

### Session Flow

**(1) Introduction.** Start the session by introducing to the participants that buffalo manure is a waste and is considered as an immense pollutant of the environment if not converted into good use. One can find gold in this waste material if it is transformed into compost, vermicompost, vermicast, vermitea, and fuel and turned into cash.

**(2) Exercise.** Introduce Game 1: Buffalo Manure-Based Products Modeling Clay. Prepare different colors of modeling clay (green, brown, yellow, orange, black) and in a ¼ piece of paper, write down the manure-based products activity that the participant/group will form from the modeling clay.

Divide the participants into four groups. Ask one representative per group to select from the choices of papers presented to them. Instruct each group to accomplish what was written on the paper that their representatives chose. Allow the group to complete the task in 10 minutes. The first to finish wins. The reward will be the African Night Crawler (ANC) to start their vermicomposting.

**(3) Processing.** Ask the group what they have learned from the exercise. Can they explain what their task was all about? Can they identify the product that they made and the use of each product?

**(4) Technical Inputs.** Depending on their current level of knowledge on waste management and products that can be derived from animal wastes or manure that have economic value, discuss the technical information and procedures in converting the buffalo manure into organic fertilizer and fuel. The technical handout distributed will be the participants' guide and reference.

Supplement the lecture-discussion with actual demonstration on composting, vermicomposting, and drying of manure as source of fuel, with buffalo manure as an important ingredient. Discuss also the economics of production.

**(5) Summary and Evaluation.** To gauge how well the lesson has been comprehended and internalized by the participants, play Game 2. Name the Materials to Use. Divide again the participants into four groups and instruct them that they need to answer the questions to be asked by the facilitator, in succession from the first in line to the last. The answer can be in written form.

The questions formulated (at least 10 questions for the main round and 4-5 questions to break the tie) are as follow:

1. Waste in buffalo dairy production that is a source of nitrogen  
Answer: manure/dung
2. Agricultural farm waste that is a good source of carbon for vermiculture.  
Answer: rice straw, corn stover
3. Left overs in buffalo raising that is a very good source of nitrogen  
Answer: leguminous forages
4. An instrument/material that may determine the alkalinity/ acidity of the substrate  
Answer: pH meter/pH paper
5. A farm tool that may provide moisture to the vermibed  
Answer: sprinkler/water sprayer
6. A material to separate the earthworm from the vermibed  
Answer: sieve
7. A combination of vermibed and the earthworm feces  
Answer: vermicompost
8. The feces of the earthworm  
Answer: vermicast
9. A process of converting manure into organic fertilizer  
Answer: composting
10. The product in the layering of farm wastes  
Answer: compost
11. The product produced from soaking vermicompost in non-chlorinated water  
Answer: vermitea
12. The product from the process of drying carabao dung  
Answer: carabao dung fuel
13. A component of vermicomposting that produces the castings  
Answer: earthworm – African Night Crawler (*Eudrilus eugeniae*)
14. The gas that is produced during the process of biogas production  
Answer: methane
15. The process whereby fresh manure is passed through a digester and produces energy for cooking, lighting, etc.  
Answer: biogas production

16. Two benefits gained from using dung fuel  
Answers:
  - Cheaper than most modern fuels
  - Efficient
  - Alleviates local pressure on wood resources
  - Readily available - short walking time required to collect fuel
  - No cash outlays necessary for purchase (can be exchanged for other products)
  - Less environmental pollution
  - Safer disposal of animal dung
  - Sustainable and renewable energy source
17. Contents of vermitea that allow its use as a foliar spray.  
Answer: N, P, K
18. The structure where vermicomposting is performed.  
Answer: vermibed

**(6) Take home Assignment.** At the end of the session, allow the participants to select the product from the buffalo manure that they would like to produce to mitigate environmental hazard caused by the greenhouse gases (GHG) coming from the manure and to increase income of the household from the compost, vermicast, vermitea, and dried manure (as a fuel to replace charcoal that comes from cut trees).

Ask them to prepare compost heap/vermicompost vermibed measuring 1 m (W) x 4 m (L) bed enclosed in one meter high bamboo fence.

Tell the participants that after two months, they need to report the reactions to and participation of their family members in the processing of the buffalo manure-based products. The facilitator will visit their farm during the preparation of the compost heap/vermicompost vermibed and two months thereafter to assess their progress.





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## Participatory Technology Development

## Lesson 21. Helping Farmers to Choose the Technology Options to Adopt

### Learning Objectives

At the end of this module, the participants must be able to choose from the best combination of technologies from the basket of options.

### Materials Needed

- Six native baskets or boxes
- Manila paper
- Metacards

### Session Flow

**1) Introduction.** Tell the participants that since they have identified their problems, formulated objectives to address the problems, tried and evaluated individual technology components right in their farms, and quantified the economic and social benefits of the options, it is now time to choose technology options to further test in their farms for two months

**2) Exercise.** Bring to class six native baskets and label them: Forage and Feed Production Management, Feeding Management, Health Management, Breeding Management, Milk Quality Management, Enterprise Management. Prepare Manila paper placed opposite each basket.

Tell the participants that for dairy buffalo production to be successful, a holistic perspective must be adopted. This means that all aspects of production and postproduction including the environment where the dairy buffalo enterprise operates must be considered. The baskets represent the kind of holistic management necessary.

Now stand next to Basket 1 (Forage and Feed Production Management). Ask the participants “What type of forage do you traditionally grow in your place?” Write all answers on a Manila paper. Ask them further what problems those traditional practices bring. Do the same for all the remaining baskets.

Instruct the participants to identify the specific technology options that can be placed inside each basket based on what they have heard from the sessions. Allow volunteers to simultaneously write specific technology options on metacards and drop them in the respective baskets.

Collect the metacards from each basket and paste them opposite the Manila papers. Prepare a matrix such as this.

Category	Traditional Practice	Alternative Technologies
Forage and Feed Production		
Feeding Management		
Health Management		
Breeding Management		
Milk Quality Management		
Enterprise Management		

**3) Discussion.** For every alternative option written, allow participants to discuss their experiences and outcomes of the take home activity related to each.

Then, present to them their individual farm performance based on their animal records and let farmers analyze the resultant trend in these parameters. Also, assist the farmers in making partial budget analysis of their enterprise to determine how much they earned for the period covered.

**4) Farmer Experimentation.** Once the analyses are made and the farmers have become aware of the consequence of trying the technologies, make them select from the basket of tested options (BOTO) the technology components that they want to test/adopt for the next eight weeks. The objective is to develop their experimentation skills and provide them with opportunities to compare their traditional with alternative practices. Tell them that they may mix and match any of the alternative technologies that are suited to their conditions.

## Lesson 22. Allowing Farmers to Test the Options for Eight Weeks

### Learning Objectives

At the end of this module, the participants must be able to prove to themselves the value of the technological options that they chose.

### Activity

Allow the farmers to test the technologies for eight weeks. During this time, they may opt to change technologies in the middle of the testing period and replace them with another more suited to their resource endowments.

Allow the farmers to test the technologies for eight weeks. During this time, they may opt to change technologies in the middle of the testing period and replace them with another more suited to their resource endowments.

Analyze all experiments at the end of the 25th week and let them prove to everyone that the BOTO that they tested and/or revised has the best value for them as producers/entrepreneurs in their community. Elicit from them the reasons why they considered such BOTO as the best.

## Lesson 23. Participatory Monitoring and Field Coaching

### Learning Objectives

At the end of this module, the participants must be able to:

1. Differentiate between monitoring and evaluation
2. Understand how each of the routine FLS monitoring schemes is done

### Materials Needed

- Dairy buffalo performance recording sheets
- Pens

### Session Flow

**1) Introduction.** Introduce the lesson by posing the question: “Is monitoring the same as “evaluation?”. Elicit from the participants the meanings of the two words. Use this as a springboard for the discussion of the main difference and similarities of the two activities.

**2) Discussion.** Tell the class that the basic difference between monitoring (M) and evaluation (E) are the following:

M	E
Continuous	Periodic
Mainly internal	Mainly external
Observation: tracks changes	Judging: attributes changes to intervention
Measures the activities/inputs/outputs	Measures the outcomes/effectiveness

However, there are also similarities between them. Both are needed to answer the following:

- Where are we now? (Current situation)
- Where do we want to go? (Desired situation)
- How do we want to get there? (Program strategy)
- How do we know that we got there? (Changes in situation)
- How do we know that we got there because of what we did? (Attribution of change to program)

Then, introduce the ways progress in the FLS is monitored.



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## Participatory Tools to Measure Effects and Impacts in the FLS-DBP

## Lesson 24. Understanding the Results of the M&E and the 8 Weeks Testing

(Adapted from the Farmer Livestock School on Goat Enterprise Management, 2013)

### A. Routine FLS Monitoring Schemes

#### 1. Critical role of the facilitator's field notes in M&E

Every facilitator MUST have a PORTABLE notebook that contains observations of every farm visited and FLS session conducted. Specifically, it should note the activity, the date the observation or activity was made, the modifications done, if there are any, and the rationale for such, and the inputs required to make the modifications possible. These notations will be very critical in documenting the process of conducting the FLS and why it eventually worked or why problems were encountered, among others. Below is a sample page in that notebook.

Activity	Date	Modifications made <sup>1</sup>	Reasons <sup>2</sup>	Inputs <sup>3</sup>	Other remarks
Ex.: Visit to Farmer X	xxx	-			Enthusiastic about FLS—requested for planting mats
ST 3.3.2-Housing for buffaloes	xxx	Discussed during field visit to buffalo farm of Mr. X		Travel funds; coordination with Mr. X	
ST 3.3.3-Disease prevention	xxx	Requested PVet to discuss technical aspects	No confidence to discuss topic	Honorarium for PVet	PVet also certified FLS facilitator

<sup>1</sup> Revisions made relative to suggestion in FLS manual

<sup>2</sup> Reasons for the deviation

<sup>3</sup> Inputs that were used such as inviting other resource speakers, requesting DA/OPVet/other LGUs for technical, financial and other kinds of support

#### 2. Weekly group experience sharing

A very good feature of the FLS is the weekly group assessment of what happened to the take home assignment given the previous week. By having an informal discussion before a new topic is started, cross validation among farmers can be made.

During this informal discussion, allow each farmer to discuss what he did and what effects such intervention had on his buffaloes. Probe on the following: Did the buffaloes like the introduced technology? What effects—good and bad—did it have on them? Did the intervention have any effect on the attitude of the farmer and his family? Was the intervention or the effects of the intervention noticed by the neighbors, such that they asked about the intervention?

Note all these down as your 'Facilitator's Field Notes'. This will serve as your reference in evaluating the effects of the technologies on the farmers and their animals at the end of the season.

#### 3. Individual record keeping

At the start of the FLS, provide each farmer with a notebook or the performance recording forms, where they will keep all their farm records. Require them to keep track of the biological data (e.g., monthly weight of animals; changes in physical characteristics); environmental data (e.g., improvements in pasture; decline in soil quality); economic data (e.g., increase in milk production; number of animals; milk and male animals sold; mortalities); and social data (e.g., spillover farmers; other diffusion activities).

Enjoin all participants to religiously fill out the farm record book. To encourage everyone to do so, make a schedule every end of the month for everyone to present his or her records. Below are sample tables to be copied by farmers onto their notebooks.

Examples:

#### a) Pasture establishment

	FLS Month1	FLS Month2	FLS Month3	FLS Month4	FLS Month5	FLS Month6
Forage species (name of plant)						
Date planted						
No. of hills established						
Size of area						
Remarks*						

In remarks, include problems with the species or benefits seen with the species of forage planted.

#### b) Waste utilization

	FLS Month1	FLS Month2	FLS Month3	FLS Month4	FLS Month5	FLS Month6
Amount of waste collected *						
How utilized						

Depending on frequency of manure collection, this may be answered daily, weekly or monthly

#### c) Economic data

Milk production at start of FLS\*: \_\_\_\_\_

	FLS Month1	FLS Month2	FLS Month3	FLS Month4	FLS Month5	FLS Month6
# calves born						
# died (mortalities)						
kg milk sold						

#### d) Social data

Record of spillover farmers

	FLS Month1	FLS Month2	FLS Month3	FLS Month4	FLS Month5	FLS Month6
Names of farmer influenced/ address						
Details (what technology was adopted)						

#### 4. Group evaluation of activities

As a group, the participants need to visit each other to evaluate the quality and functionality of take home activities such as corral constructed and pasture established. By doing this, they can provide each other advice based on what they learned from the facilitators.

## Activity 7. Dairy Buffalo Farm Homestay

FARMER LIVESTOCK SCHOOL ON DAIRY BUFFALO PRODUCTION  
Dairy Buffalo Farm Homestay or Semi Immersion Activity

### Learning Objective

At the end of this session, the participants are expected to be immersed in or have experienced firsthand the farm practices of the host dairy buffalo farmer.

### Session Flow

**(1) Introduction.** In order to become effective FLS-DBP facilitators, they must efficiently share actual farm experiences with their future learners or participants when they facilitate FLS in their respective localities. This activity will provide participants with brief experience on how is it like to be a dairy buffalo farmer. Likewise, this will also familiarize them with the daily activities of the host farmer.

**(2) Procedure.** The activity requires the participants to stay at the farmer's house for approximately three days. Depending on the number of participants, there are about 6-7 dairy buffalo farmers to host the semi-immersion/homestay activity. These farmer- hosts are FLS-DBP graduates from Eastern Primary Multi-Purpose Cooperative (EPMPC) in San Jose City, Nueva Ecija. Each dairy buffalo farmer will host at least 3 participants. They will also serve as facilitators for this activity. They are responsible in sharing their knowledge and practices on farm-related activities that the participants need to perform. During the participants' stay with the host farmer, they are expected to (1) document or gather information and complete the assigned tasks as instructed in Lesson 25; (2) assist their host in his/her farm works; (3) document the host's practices on forage production, animal health, housing, breeding, and milking. For each topic, they should document activities conducted by the farmer. Any deviation from, alteration of, and addition to lessons discussed on each topic (during the FLS-DBP sessions) versus their actual farm practices should be documented. Cooperative-related activity may also be included and must be documented e.g., processes involved in milk delivery, selling, consolidation, and payment and attendance to relevant meetings (if time permits).

**(3) Processing.** In the next session, representative from each group will share their experiences to the rest of the group, along with their report on Lesson 25 activity. Practices and experience of the host farmer will be enumerated according to topic as well as their stories on how they started and strive on the business.

**(4) End of session activity.** Participants will be given structured evaluation form (please see next page). They will rate activities conducted and share their personal experiences and knowledge gained from the activity.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Name of farmer: \_\_\_\_\_

Overall rating for the activity	1	2	3	4	5
<i>Meeting the Expectations</i>					
<i>Attainment of objective (to document and experience dairy farming activities)</i>					
<i>Activities Included (please identify)</i>					
<i>Forage production-related activity, please specify</i>					
1.					
2.					
3.					
4.					
5.					
<i>Health Management, please specify</i>					
1.					
2.					
3.					
4.					
5.					
<i>Housing, please describe</i>					
1.					
2.					
3.					
4.					
5.					
<i>Breeding Management, please specify</i>					
1.					
2.					
3.					
4.					
5.					
<i>Milking, please describe</i>					
1.					
2.					
3.					
4.					
5.					

Overall rating for the activity	1	2	3	4	5
<b>Allied Enterprise</b>					
<i>Forage-based enterprise, please specify</i>					
<i>Milk-based enterprise, please specify</i>					
<i>Manure-based enterprise, please specify</i>					
<b>Methodology</b>					
<b>Accommodation</b>					
<b>Relevance to FLS</b>					
<b>Overall experience</b>					

Did you notice any difference of farmer's practices to what were discussed during the FLS-DBP sessions?

\_\_\_\_\_yes                      \_\_\_\_\_no

If yes, please specify:

Technology	Actual Farm Practice

Did you gain additional knowledge? \_\_\_\_yes    \_\_\_\_no

If yes, please specify

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Identify important lessons learned from living with the farmers

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Comments and suggestions

\_\_\_\_\_

\_\_\_\_\_

## Lesson 25. Measuring the Effects and Impacts of FLS

In analyzing the outputs, outcomes, or impacts of FLS, it is advisable to look at various levels that radiate from the individual farmers (who were trained) to their households, their farms, their village, their institutional partners as well as the project sponsors.

Below is a list of participatory tools specifically designed to measure effects and impacts of FLS and how they are conducted with the farmers.

### (1) With-without SitAps or situational appraisals (Alo, 2003) <sup>1</sup>

#### Objective

To compare the 'with' and 'without' project situations

#### Process

- Using 4 x 8" cards, solicit responses to the table below. Alternatively, group the participants and allow them to discuss among themselves the perceived effects of the FLS on the categories given.

Category	Situation B4 (without FLS)	Situation with FLS
e.g. Number of buffalo raisers in area		
Income from milk production		
No. of farmers going into allied enterprises		

- After which, ask, what would have happened to this village had the FLS not been introduced? What would have been the picture now?
- Many other categories may be included such as those related to income, community strength, etc.

<sup>1</sup> Alo, Anna Marie P. 2003. "Animating report writing". Paper presented during the FSP Workshop on Documenting Cross-visits and Farmers' Field Days, June 23-27, 2003, VIP Hotel, Cagayan de Oro City.

**(2) Technology-testing Timeline (Alo, 2002) <sup>2</sup>**

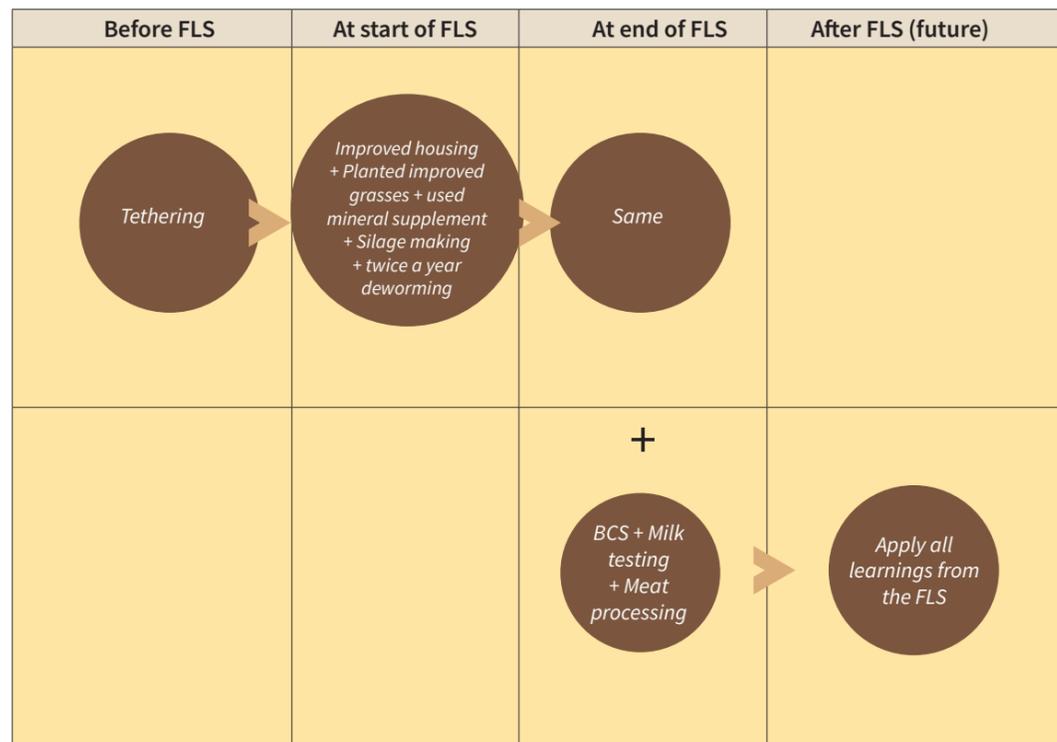
**Objective**

To assess the changes in technologies being tested on farm and solicit reasons for such shifts or continuous adoption; may be used as in-course or terminal evaluation tool.

**Process**

Give the farmers Manila paper and pens and instruct them to do the following:

1. Make 4 imaginary columns in the paper.
2. In column 1, write Before FLS; in column 2, At Start of FLS; column 3, At End of FLS; and in column 4, After FLS.
3. Write down the management practices followed as well as the shifts in technologies tried.



<sup>2</sup> Alo, Anna Marie P. 2002. In-course evaluation of the TAG <sup>443</sup> Basket of Options on cooperators (Unpublished evaluation report of PCAARRD-ILRI-IFAD)

**(3) Impact-Benefit Matrix (Alo, 2003) <sup>3</sup>**

**Objective**

To determine the difference that the FLS had on the lives of each stakeholder and on the community or organization where they belong

**Process**

- Pose the question: What impacts can be attributed to the FLS in your site?
- Group the participants by site and allow them to discuss the outcomes/impacts of their project activities on the following levels:

Level	Impacts	Evidences
Personal (household)		
Biological (Farm)		
Social (Community/ institutions)		

- Instruct each group to present their output once completed and ask them to narrate the changes that took place because of the FLS.
- Pose these additional challenges to each group:

1. What were the unexpected changes resulting from the FLS?
2. In what ways did the FLS help to strengthen community groups?
3. What evidence is there to attribute any of the above changes to the FLS? What other factors outside the project might have contributed to the changes?
4. What new partnerships developed?



Impact-benefits of the farmers, first batch of FLS-DBP graduates, 2017

<sup>3</sup> Alo, Anna Marie P. 2003. "Impact matrix". ILRI-IFAD TAG <sup>443</sup> Multi-stakeholder Terminal Project Evaluation. September 9-11, 2003, Livestock Division Conference Hall, DA-RFU, Cebu City.

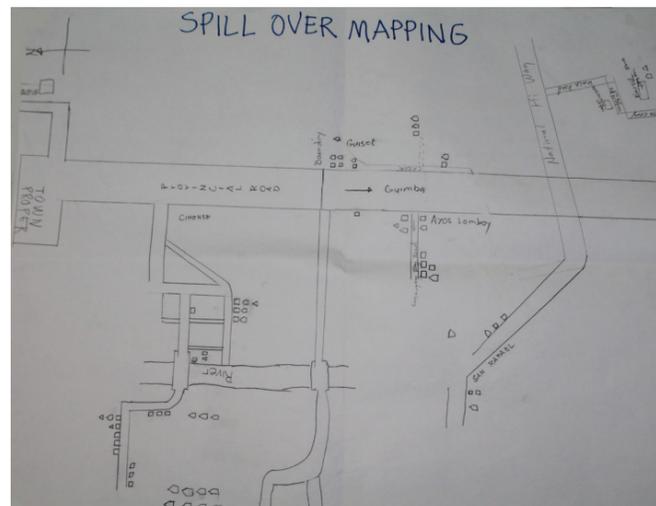
#### (4) Spillover Mapping (Alo, 2003) <sup>4</sup>

##### Objective

To assess the sphere of influence of the participating farmers on their communities

##### Process

- Instruct the group to make a community map or if one has been made at the start of the FLS, ask the participants to bring it out.
- Ask the participants to mark the farm of each of the original participating farmer using a colored paper. Then, asked them to mark with another shade of paper the farms of the spillover farmers or the other farmers who were influenced to adopt the technologies. With a pen, tell the participants to trace each spillover farmer to the cooperators who had influenced him.
- Use the following as codes:
  - House of original cooperators
  - ◆ Location of their buffalo pens and pasture
  - ▲ Other buffalo raisers in area at start of FLS
  - ☺ Neighbors who sought advice on buffalo production from an FLS graduate
  - ☀ Neighbors who also went into buffalo production because of influence of an FLS graduate
- Sample spillover map drawn by FLS farmers, 2017



Spillover map of dairy buffalo farmers in Guimba-Talugtog, Nueva Ecija drawn by the first batch of FLS-DBP graduates, 2017.

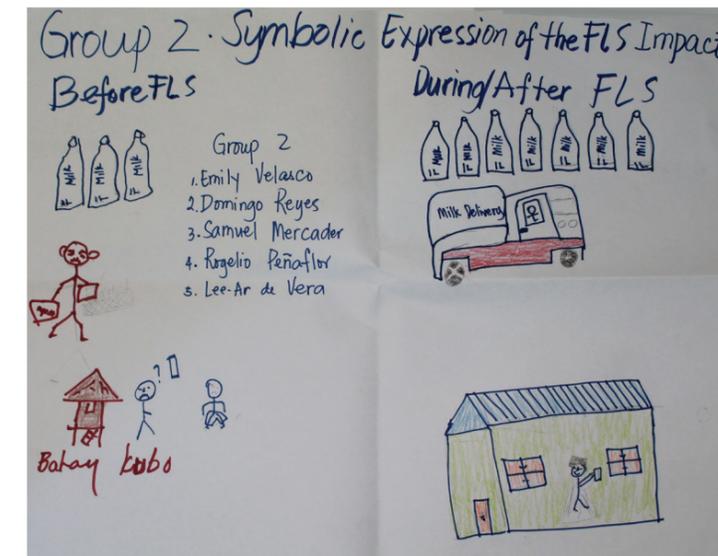
#### (5) Symbolic Expression of the FLS Impact

##### Objective

To gather participants' regard for or impressions on the FLS

##### Process

- Ask the participants to individually draw something that represents their lives before they joined and after finishing the FLS.
- Ask them to divide a brown paper into two—the left side representing the Before FLS situation and the right, the After FLS scenario.
- Let them present their drawing before the whole class while expounding on why they made such drawings.



Farmers expression of the impact of the FLS-DBP to them, 2017

#### (6) Assessment of Knowledge Gain

- The objective of this is to gauge how much the knowledge of the participants improved over time.
- This test is done from 6 months to 1 year from end of the FLS to measure the real gain in knowledge and not just, what was recently heard.
- The test used is the same material used during the pretest
- Correlate the results of this test to actual practice of the farmers.

#### (7) Assessment of Knowledge Gain

- For this particular part, review the records of the participants, the Technology-testing Timeline, as well as your field notes.
- Score the farmer's "practice" in terms of the objectives initially set at the start of the FLS.
- Examples:

- Ability of the farmers to increase milk production of their buffaloes
- Ability to engage in financial management, market linkage, and market analysis
- Ability to design workable pens and modify them to suit their conditions
- Management and utilization of manure
- Ability to manage and utilize forages from the self-established forage garden
- Entrepreneurial skills or ability to generate profit not only from the main enterprise but also from allied enterprises
- Ability to successfully breed buffaloes and keep the calves alive

<sup>4</sup> Alo, Anna Marie P. 2003. "Mapping of spillover farmers". Evaluation of FLS as a Modality for Technology Development and Diffusion. May 19-21, 2004, Barangay Hall, San Joaquin, Balungao, Pangasinan.

## Lesson 26. Evaluating the Conduct of FLS

The following tools and exercises can be used to assess with farmers the success of the season-long FLS. These can also be used to assess how the facilitator's workshop went. These tools were adopted from the Farmer Livestock School on Goat Enterprise Management (PCAARD, 2013).

### (1) Process Diagramming (Alo, 2004) <sup>5</sup>

#### Learning Objective

To graphically understand how each of the FLS activities was done, who were involved, and what results were derived

#### Materials Needed

- Brown paper
- Marking pens
- Colored paper
- Scissors, paste or tape

#### Session Flow

**(1) Introduction.** Ask the participants to recall how FLS started in their sites and when it was completed. Ask them to show the major objectives of FLS, which were envisioned at the beginning.

**(2) Exercise.** Group the participants by FLS site and ask Evaluation Question 1: What activities can you recall were done specifically in your site to address the Project goals?

Provide brown papers, pens, and colored cards and ask each group to graphically illustrate the flow of activities per site.

Ask them to make a graphical flow diagram of how they went through with the FLS.

They should have a recorder (responsible for recording or jotting down the discussions of the group), lead and alternate “sketchers” (responsible for drawing the flow diagram), and a reporter. However, all the members will interact to have the output completed.

**(3) Processing.** Let the participants describe the activities (during storytelling) and analyze the outputs or results of these activities. Specifically, they must be able to answer the following questions:

1. What were the major achievements of the project in your site?
2. Among those identified in the diagram, which strategies worked or were beneficial? Which did not work? Why?
3. To what extent have the objectives been met?
4. What unexpected observations did you and the other stakeholders make?
5. What consequences do those observations have?
6. What problems did you encounter and why?
7. What can be done to avoid these problems in the future?
8. What conclusions and key learning did you and the group make about the activity?
9. How did the stakeholders react to the introduced process or method of the project?
10. How compatible were the processes to the needs and preferences of the stakeholders?
11. Is the Project continuing beyond initial project support?

Ask them to also explain how funding was co-shared—by whom and how much per stakeholder.

#### Sample Process Diagram



Process diagram made by the farmer-participants of SIPBU-Eastern Cooperative, San Jose City, Nueva Ecija, 2017

<sup>5</sup> Alo, Anna Marie P. Alo - 2004. "Process Diagramming". Evaluation of FLS as a modality for technology development and diffusion. May 19-21, 2004. Barangay Hall, San Joaquin, Balungao, Pangasinan.

## 2. FLS Compatibility Map (Alo, 2004) <sup>6</sup>

### Learning Objective

To assess the suitability, relevance, and compatibility of the FLS to the needs and problems of the farmers.

### Materials Needed

- Brown paper
- Marking pens
- Colored paper
- Scissors, paste or tape

### Session Flow

**1) Introduction.** Show the problem tree analysis made by the participants at the start of the FLS. Trace the cause-effect relationships of the farmers' problems and ask the participants if these problems are still problems or have they been solved by their participation in the FLS.

**2) Exercise.** Using the previously made problem tree, tackle each problem one at a time and ask them what happened to that problem---was it solved? Is it no longer a problem? If it still is, what factors are hindering them from solving that problem? For each 'problem' card, a 'solution' card is made and pasted over. If it remains a problem, the 'problem' card is left as is.

To probe on the smaller aspects of the FLS that make it compatible to the farmers' needs and conditions, introduce another matrix. Ask the participants another evaluation question: What was good about the FLS? (Ano ang nakita ninyong maganda sa FLS?) What were not so good that can be improved? (Ano naman ang pwede pang baguhin?) Why?

Make a big table with two columns on brown paper. The column on the left is for all the strategies and outputs that were good and the column on the right is for those processes and outputs that need improvement. Give all participants cards and make them write things that fit each column. Follow this with a discussion of the responses.

**3) Processing.** Probe on whether the following were suited to farmers' time, capabilities, and needs:

- Length of the FLS (28 weeks)
- Duration of each class (1/2 day per week)
- Time of class
- Venue
- Sequence of topics vis-à-vis season
- Sufficiency of time allotted to the discussion of each topic
- Suitability of home assignments
- Length of time allotted by the facilitator in guiding you during technology options testing
- What do you think of group evaluation?
- What do you think of the discussions after every session and take home exercise?
- How do you feel about having a hand in the selection of technologies to try and ultimately adopt?
- What traits do you think should your facilitator possess to be able to carry out the FLS well?
- What do you think would be a good equity to be demanded from farmers participating in the FLS?

<sup>6</sup>Anna Marie P. Alo- 2004. "Workshop on FLS Compatibility Mapping". Evaluation of FLS as a modality for technology development and diffusion- May 19-21, 2004. Baranggay Hall- San Joaquin- Balungao- Pangasinan

## 3. Technology/Training Utility Map (Alo, 2004) <sup>7</sup>

### Learning Objective

To graphically illustrate the utility of the FLS technological options or the conduct of the FLS Facilitators' Workshop to the participants (This may be used for farmers after the completion of the local FLS or for facilitators after the completion of the facilitators' workshop).

### Materials Needed

- Brown paper
- Colored paper
- Scissors, paste or tape

### Session Flow

**1) Exercise.** Group the participants by site and provide them with brown papers, pens, and colored papers. Then, ask them to fold the brown paper into two, such that on the left side, they can list down important things that they learned from the FLS---not only technologies but processes, strategies, and outputs. Make them discuss which of these they have used/applied/adopted in their farms.

In the right section of the paper, ask them to show the relative usefulness of each of those topics or processes mentioned on the left side. Do this by cutting colored papers to represent each important topic or process and varying the sizes to represent their relative usefulness. For example, if they have learned to make new products from buffalo's milk that really increased their income, then they can use half of the paper to show that because of that particular aspect of the FLS, their farm productivity improved hence, their quality of life is now better. Other aspects such as housing or forage garden establishment can be given small pieces of paper to denote that they had less utility for them, as there may have been doing these before.

In essence, ask the participants to make visual maps of aspects that proved to be most useful or most important to them.

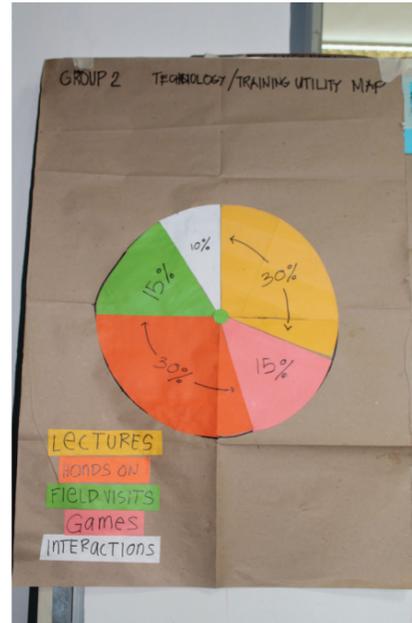
**2) Processing.** Allow the groups to present their outputs, while storytelling on why they gave each aspect that degree of usefulness. Ask the following probing questions:

1. Why did you find such technology/techniques useful (or not useful)?
2. Do you now have sufficient confidence to share your knowledge and skills to other farmers?
3. Do you think you will make the same visual map if you had undergone a regular training course instead of the FLS?
4. How would you differentiate the FLS from the traditional training course you have attended in the past?
5. Which would you prefer to use as a diffusion modality for dairy buffalo production?

<sup>7</sup>Anna Marie P. Alo- 2004. "Workshop on Technology Utility Mapping". Evaluation of FLS as a modality for technology development and diffusion- May 19-21, 2004. Baranggay Hall- San Joaquin- Balungao- Pangasinan



Technology utility map prepared by the farmers of San Jose City Cluster



Technology utility map prepared by the farmers of Guimba-Talugtog Cluster

ALFONSO DAIRY FARM		GROUP 3 IMPACT BENEFIT MATRIX	
LEVEL	IMPACT	EVIDENCE	
PERSONAL	TECHNICAL KNOW HOW INCREASED	<ul style="list-style-type: none"> <li>- INCREASED INCOME</li> <li>- REDUCED CALF MORTALITY</li> <li>- MANAGED CALVING INTERVAL</li> <li>- PROPER FEEDING MGT.</li> <li>- PRACTICE PROPER SELECTION CULLING</li> <li>- BOOST SELF CONFIDENCE</li> </ul>	
DAIRY FARM	DAIRY COW INCREASE	<ul style="list-style-type: none"> <li>- INCREASED VOL. OF MILK PROD'N.</li> </ul>	
COMMUNITY	FORAGE BASE ENTERPRISE	<ul style="list-style-type: none"> <li>- CONTINUOUS SUPPLY OF CORN FORAGE</li> </ul>	
COOPERATIVE	ACTIVE MEMBER/ GOV'T. SUPPORT	<ul style="list-style-type: none"> <li>- CONSISTENT AWARDEE</li> </ul>	

Ladder of success prepared by the pilot class of FLS-DBP from Nueva Ecija, 2017

#### 4. Ladder of Success (Alo, 2003) <sup>8</sup>

##### Learning Objective

To measure how successful the FLS was viewed by the stakeholders and understand what indicators they used to measure such success.

##### Session Flow

- 1) Introduction.** Using the previous workshop outputs as springboard, ask the participants to answer these Evaluation Questions: In summary, how would you rate the success of the Project (or in the case of a facilitators' workshop, the latter's conduct)? On a scale of 1-5, how would you rate the Project in your area?
- 2) Exercise.** Using a five-rung ladder, ask the group to discuss what grade they would each give the FLS. A marker is placed by each group on either of the rungs, as they give what they think are the success factors.

<sup>8</sup> Alo, Anna Marie P. 2003. "Workshop on Success Rating". ILRI-IFAD TAG 443 Multi-stakeholder Terminal Project Evaluation. September 9-11, 2003, Livestock Division Conference Hall. DA-RFU 7. Cebu City.

#### 5. Group evaluation of the conduct of the FLS

##### Learning Objective

To measure the success of the FLS as a training modality

##### Session Flow

**1) Introduction.** Critical to any training course or learning event is the assessment if it has met its objective and improved the knowledge and skills of its participants. Hence, it is imperative that an evaluation tool be prepared. A standard tool to assess the conduct of any training course is being used by PCAARRD and this can be used as a pattern to assess the conduct of the facilitators' workshop. This was converted by Alo (2017) into a game to make it a livelier assessment tool.

**2) Exercise.** Introduce the Run to Your Corner assessment, where the words "Very Poor", "Poor", "Good", "Very Good", and "Outstanding" are pasted on separate areas in the training room.

Using the same variables found in the PCAARRD Training Evaluation Protocol, ask the participants the same questions as "How would you rate the attainment of the training objectives?" Tell participants to run to the corner that corresponds to their response. Probe on why they run to such corner and record all responses. To report on the number of responses, instruct a documenter to count the number of people per spot and record it along with the reasons. This is a fun and fast way of assessing the conduct of the course.

PCAARRD'S Training Evaluation Protocol  
(END OF COURSE EVALUATION)



Department of Agriculture  
**PHILIPPINE CARABAO CENTER**  
Science City of Munoz

**TRAINING/ACTIVITY FEEDBACK FORM**

(Post-training evaluation immediately after the training/activity)

Training/Activity Title: \_\_\_\_\_

Date/Venue: \_\_\_\_\_

**Rating Guide: 4-Excellent 3-Very Satisfactory 2-Satisfactory 1-Poor**

Instruction: Please check (/) the ratings corresponding to each s parameters.

<b>1. Overall rating for this training/activity</b> <i>(Pagpapahalaga sa kabuuan ng pagsasanay)</i>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
a. Meeting the expectations <i>(nakamit ang mga inaasahan)</i>				
b. Attainment of objectives <i>(pagkamit ng mga layunin)</i>				
c. Course contents/topics <i>(mga tinalakay na usapin sa pagsasanay)</i>				
d. Training activities/exercises <i>(mga gawaing at aktibidad sa pagsasanay)</i>				
e. Methodologies <i>(mga pamamaraan)</i>				
f. Instructional/Presentation materials <i>(mga gabay sa pagsasanay)</i>				
g. Training facilities <i>(pasilidad sa pagsasanay)</i>				
h. Accommodation <i>(tulugan, pasilidad pahingahan)</i>				
i. Food <i>(pagkain at meryenda)</i>				
j. Choice of resource person <i>(pagpili ng tagapagsanay)</i>				
<b>2. Resource Person Evaluation</b> <i>(Pagtatasa sa tagapagsanay)</i>				
a. Quality and effectiveness of instructional materials used <i>(kalidad at bisa ng mga ginamit sa pagtuturo)</i>				
b. Training flow/sequencing of topics <i>(pagsasa-ayos at pagkakasunod-sunod ng mga paksang tinalakay)</i>				
c. Competence <i>(kakayahan na magturo)</i>				
d. Clarity of topics/ideas presented/discussed <i>(kalinawan ng mga paksang tinalakay)</i>				
e. Professional appearance <i>(propesyunal na hitsura)</i>				
f. Ability to teach /communicate ideas <i>(kakayahang magpahayag ng mga kaalaman at ideya)</i>				
g. Ability to answer questions <i>(kakayahang sumagot ng mga katanungan at paglilinaw)</i>				
h. Ability to keep sustain the lecture interesting <i>(kakayahang mapanatiling kawili-wili ang pagtuturo)</i>				
i. Ability to keep the exercises exciting <i>((kakayahang mapanatiling kawili-wili ang mga gawain at aktibidad)</i>				
<b>Enumerate: Three (3) most useful topic/activity of the training</b> (Mabigay ng tatlong pinaka kapaki-pakinabang na mga paksa sa pagsasanay)				
1.				
2.				
3.				
<b>Comments/Suggestions for future improvement of the training</b> (Mga komento/suhestiyon para mas lalong mapaganda ang mga susunod na pagsasanay)				

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# DA-PCC

Network of Centers

PCC has 12 regional centers strategically located nationwide: five centers in Luzon, four in the Visayas and three in Mindanao.

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## How can farmers and other interested entities avail of DA-PCC services?

### Interested parties can visit or contact any of the following:

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## QUALITY POLICY

The Department of Agriculture-Philippine Carabao Center aims to be a premiere research and development institution for the sustainable growth of the livestock industry.

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Department of Agriculture - Philippine Carabao Center



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Learning Events Coordination Section  
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