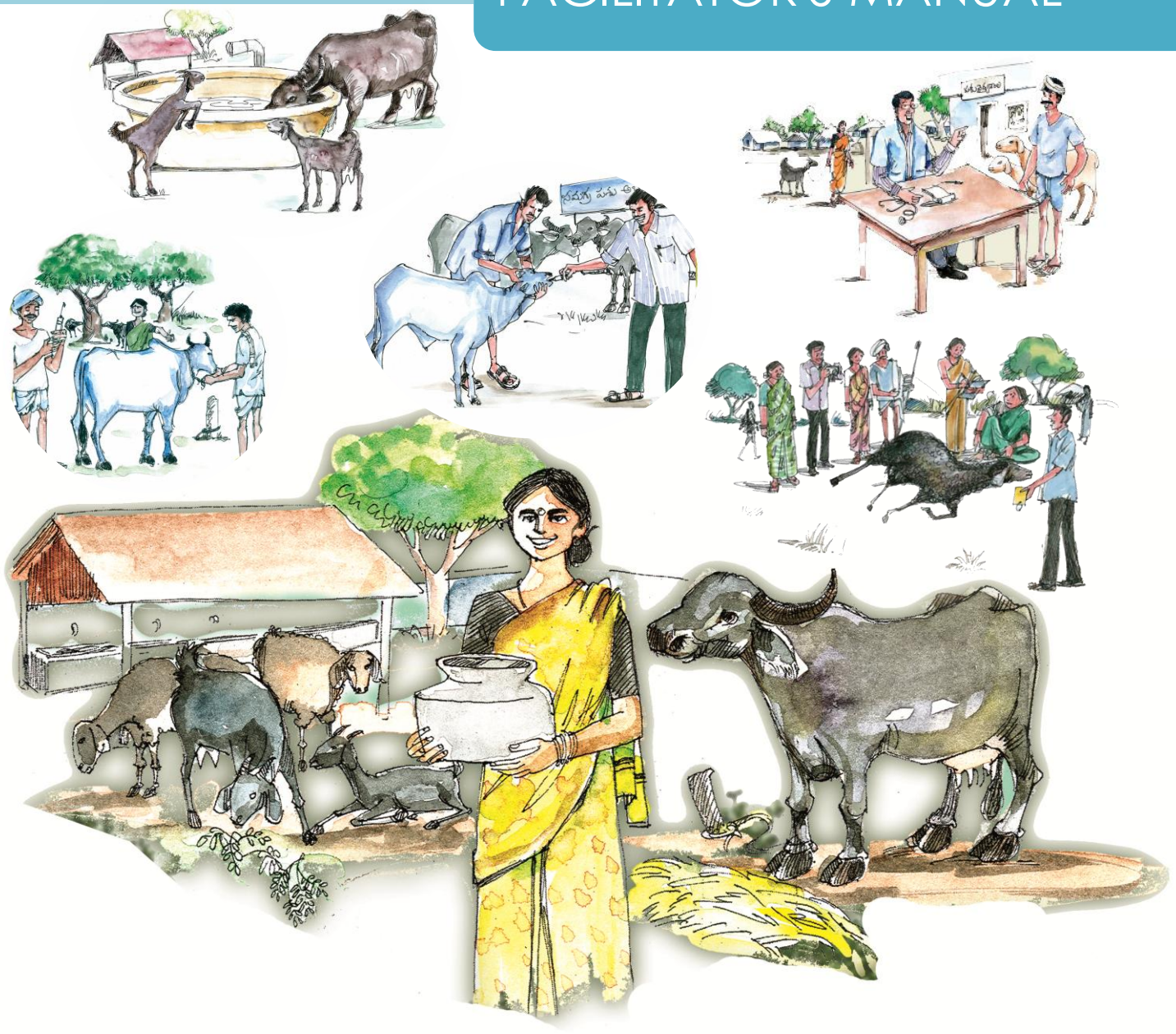
FACILITATOR'S MANUAL



MANAGEMENT OF LARGE AND SMALL RUMINANTS

Certificate Programme in Rural Livelihoods

WASSAN

WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK (WASSAN)

BRLF

BHARAT RURAL LIVELIHOODS FOUNDATION (BRLF)

CONTENTS

MODULE LAYOUT

Sl. No.	Course	No. of hours	Facilitator's Name	Expected out come		Assessment tool
			Knowledge Skill			
1	Introductory session		Sunny / Roopa			
1.1	Introduction of participants	2	Sunny / Roopa			Assessment pre training test paper
1.2	Module lay out	1	Sunny / Roopa			
1.3	Module assessment	1	Sunny / Roopa			
2	Different livestock productions in tribal areas					
2.1	Large Ruminants(LR)	2	Roopa / Uday /Patro	Different systems in areas of work and issues faced	Presenting the issues and solutions	Exercise
2.2	Small Ruminants (SR)	2	Roopa / Patro / Uday			
2.3	Assessing livestock economy in tribal villages/ families	2	Roopa / Uday / Patro	Income from different sources and importance of livestock		Exercise
2.4	Importance of sheep and goat rearing among tribal communities		Roopa			
3	Important breeds of large and small ruminants and their uses			Knowledge about different breeds of livestock	Identify the different breeds	
3.1	Important breeds of cattle and buffaloes	2	Roopa			
3.2	Important breeds of sheep and goat	2	Roopa			
4	Healthcare Management in LR & SR systems					
4.1	Establishment of community managed health care systems		AVM			
4.2	Understanding important diseases of LR & SR	2	AVM / Roopa		Local diseases, economics involved	
4.3	Common diseases in LR and preventive curative measures	4	Roopa	Knowledge about the diseases and activities to be done	Identify the common diseases with symptoms	
4.4	diseases of small ruminants		AVM			
5	Shelter management for large and small Ruminants	4		Practically see the different	Estimation and planning for	Group presentations after field visits

Sl. No.	Course	No. of hours	Facilitator's Name	Expected out come		Assessment tool
				shelters of LR and SR	Livestock sheds	
5.1	Low cost shelter construction for large ruminants		Patro / Uday			
6	Fodder, pasture management and supplementary feeding	6		Different pasture and fodder grasses and importance of supplementary feeding	Identify the different grasses and feed ingredients. Ration preparation	
6.1	Cultivation of fodder for dairy animals		Sunny			
6.2	Grazing land mapping & plan development in extensive system		Sunny			
7	Economic Development through LR and SR –Planning					
7.1	Dairy Development		Sabya		Prepare Livestock project for a village / Taluq	
7.2	Clean milk production		Roopa	Dairy animal management		
7.3	Small ruminant Production		AVM	Small ruminant management		
7.4	Package of practices in small ruminant rearing		AVM			
7.5	Draught animal utilization			Importance of draught animal in tribal agriculture		
7.6	Developing small ruminant programme for tribal livelihoods		Sabya / Sunny / AVM			
7.7	Developing dairy programme for tribal livelihoods		AVM / Sabya / Sunny			
8	Assessment					
8.1	Question paper	2	Sunny			
8.2	Overall assessment	3	Sunny			
8.3	Feedback from trainees	1	Sunny			

MODE OF ASSESSMENT

Sl. No.	Label-S(Skill) Label-K(Knowledge)	Component to be assessed	Assessment method	Any specific assessment tool guide being used (Exercise sheet, Interview scoring sheet) Yes/No (Please attach if any)	Weightage (Out of 100)

1. Introductory Session

BRLF QUESTIONNAIRE TO ASSESS KNOWLEDGE OF TRAINEES

1. Name :
2. Father's name :
3. NGO :
4. State : *District:* *Taluq:* *Village:*
5. Mobile No. :
6. Land owned(ha) : *Dry:* *Irrigated:*
7. Crops grown :
8. Livestock owned :
9. White Cattle : *Black Cattle:* *Sheep:* *Goats:* *Poultry:* *Others:*

10. Can you name four breeds of livestock
    a. Cattle
    b. Sheep
    c. Goat
    d. Poultry

11. Name two diseases each in cattle, goats and poultry
12. In how many days an egg will hatch?
13. Can a hen give egg without cock?
14. What is the pregnancy period in cow and goat?
15. Have you ever visited a veterinary hospital, if so give doctor's name?
16. Speciality of cattle in your area.
17. Is cattle meant for dairy/draft purpose in your area?
18. Do you have a milk collection center in your area/ and have you visited it?
19. What are you expected to do after this training?

2. Different Livestock Production Systems in Tribal Areas

DURATION : 4 Hours

SESSION OBJECTIVE :

- ❑ To help the candidates understand contribution of large and small ruminants in rural livelihoods
- ❑ To facilitate candidates to figure out issues associated with large and small ruminants production at village level

SESSION OVERVIEW :

Explain population of large and small ruminants in rural areas. Ask students to share their understanding on livestock rearing in their village. Facilitator should ask- What is the contribution of large and small ruminants in their states? Do large and small ruminants generate income for women-how?

Share case study of small ruminant (goat) as income for women. Allow students to read and understand the case study ☞

After sharing the case study, facilitator should ask following questions:

- Are there similar cases in your area?
- Income for women

Case Study - 1: Goats are referred as poor man's cow. Alhadi Murmu, a widow in Bamni village of Hirabandh, Bankur, West Bengal, bought two does(she-goats) in 2012 with Rs 2500/-

She built a shelter, provides supplementary feed from pulses and maize crop residue from her one acre rainfed plot, and employs the services of the Pranibandhu, trained by Department of Animal Resource Development, West Bengal for vaccination, deworming and primary healthcare for her goats. She now has 18 goats and earns Rs. 25000/- in a year more than what a farmer earns from one acre of rainfed land.

- **Different Livestock Rearing Systems:** Facilitator should assess understanding of students about different types of large and small ruminant rearing systems they have seen. Then share a PPT that shows the difference between these production systems.
  - What are the different rearing systems of large ruminants in your village?
  - What are the different rearing systems of small ruminants in your village?

  - **Extensive system:** Where animals graze in forests, wastelands, pastures without any additional fodder. These herds are maintained in large numbers by tribal communities to produce dung and calves. The rearers do not own lands and are mostly nomadic. This system is practised near forest areas, forest fringes and where pasture lands and waste lands are available in abundance.

  - **Semi Intensive System:** In this system, mostly domesticated animals are used for different purposes related to agriculture. The purpose may be dairy, draught, calf production, meat and wool production. The animals are allowed to graze outside in open grazing areas, but supplemented with fodder, agri by-products depending on the production and necessity.

  - **Intensive method:** Under this method, animals are kept inside the sheds and not sent outside. They are provided with all the nutritional requirements within the shed. High yielding exotic dairy animals and animals for breeding are raised under this system.

- **Different Livestock Production Systems:** Facilitator shall assess understanding of students about different types of large and small ruminant production systems they have seen such as for dairy, meat, wool, etc. Then share a PPT that shows the difference between these production systems.
  - What are the different production systems of large ruminants in your village?
  - What are the different production systems of small ruminants in your village?

  - **Large ruminants (2.1)**

    a. Milk producing animals
    b. Rearing pregnant animals
    c. Community grazing
    d. Draught animals (useful in agriculture)

  - **Small ruminants (2.2)**

    a. Migration (period, distance)
    b. Community grazing
    c. Ram Lamb rearing
    d. Share cropping/ Crop sharing

e. Flocking in fields (Penning)
f. Goat rearing in small numbers
g. Whether goat flock migrates?

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 20) : 3

NO. OF HOURS : 2

SESSION GUIDE :

- **Learning Objective:**
  1. Understand the contribution of large and small ruminants in rural livelihoods
  2. Find out the issues in large and small ruminants production and management

- **Knowledge Outcomes:**
  1. Importance of large and small ruminants in rural livelihood option
  2. Pros and cons of different production and rearing systems of large and small ruminants
  3. Important bottlenecks in large and small ruminant production and how to overcome them

- **Skill Outcomes**
  1. Assess pros and cons of different large and small ruminant production and rearing systems
  2. Asking right questions in focus group discussions and interaction with community to understand the problem

- **Teaching Aids used**
  1. Power Point Presentation
  2. Chart papers
  3. White board and markers

- **Facilitation Steps**

  1. After introduction of students facilitate students to understand large and small ruminants and its contribution towards livelihoods
  2. Sharing of PPT on different production systems
  3. Group exercise to understand issues in large and small ruminant production

Recommended reference material (AVs, Reading material, web references)	**READING MATERIAL (IN LEARNER'S KIT)** 1. Note on different livestock production systems in India 2. Case study **AV RESOURCES** 1. PPT
Reflective/ Evaluation questions for students pertaining to higher order and lower order of thinking	**KNOWLEDGE/ SKILL PERTAINING QUESTIONS** 1. What are the different large ruminant production systems in India? 2. Can you write what are the production systems in India? **REFLECTIVE / CONCEPTUAL QUESTIONS** 3. Why do you think large and small ruminants are good livelihoods options for rural households? 4. Role of large and small ruminants in rural livelihoods- Please explain.
Additional Recourses	

3. Assessing Livestock Economy in Tribal Villages / Families

DURATION : 3 Hours

SESSION OBJECTIVE :

- ❑ To help the candidates understand the contribution of livestock to tribal livelihoods
- ❑ To help candidates understand issues related to losses from livestock
- ❑ To help the trainees plan for an increase in family income from livestock

SESSION OVERVIEW :

Explain the economy related to large and small ruminants in a tribal village. Ask students to share their understanding of it in their villages. Facilitator should ask- What is the current level of production of meat and milk from small ruminants and production of milk, draught power, calf-rearing from large ruminants in their villages by providing a format.

■ **Different kinds of livestock economy in tribal villages**

Facilitator's will guide the students in assessing the income from each type of livestock and ask them to prepare a chart for group presentation. What is the percentage of income from livestock in a family? Facilitators will explain the reasons for losses and profits.

❑ **Large ruminants**

Village	No. of animals present	Born (in number)	Sold (in numbers)	Died (in numbers)	Approximate value of died animals (in Rs)	Reason for mortality	Income from dairy	Income from draught

❑ **Small ruminants**

Village	No. of animals present		Born (in No.)		Sold (in No.)		No. of animals used for home consumption		Died (in No.)		Approximate value of died animals (in Rs)		Reason for mortality		Income from sale		Income from draught	
	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 3 HOURS

SESSION GUIDE :

■ **Learning Objective:**

1. Understanding contribution of livestock to tribal livelihoods and economy
2. Issues related to losses from livestock

❑ **Knowledge Outcomes:**

1. Economic estimation of large ruminants
2. Economic estimation of small ruminants
3. Identification of economic losses

❑ **Skill Outcomes:**

1. Assess losses and profits related to large ruminants
2. Assess losses and profits related to small ruminants
3. Steps to be taken for loss reduction in large ruminants
4. Steps to be taken for loss reduction in small ruminants

❑ **Teaching Aids used:**

1. Power point presentation
2. Chart papers
3. White Board and markers
4. Cut cards

❑ **Facilitation Steps:**

1. After the introduction, facilitate students to understand assessment of large and small ruminants economy

2. Presentations will be made after group exercises
3. Group exercises to understand issues in large ruminants production
4. Group exercises to understand issues in small ruminants production

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on livestock economy of large ruminants o Note on livestock economy of small ruminants **AV Resources (In Learner's Kit)** 1. PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What are the different livestock production systems in India? o Can you calculate loss of income due to limited services?
	Reflective/ Conceptual Questions: o What measures can you take to prevent losses? o What measures can you take to increase income?
Additional Recourses	

4. Important of Sheep and Goat Rearing among Tribal Communities

DURATION : 2 Hours

SESSION OBJECTIVE :

- ❑ Understanding contribution of sheep and goat rearing in tribal livelihoods

SESSION OVERVIEW :

Small ruminants provide significant income to 28 million small & marginal farmers and landless labourers. It acts as a lifeline during crop failure. It contributes to 23% of total meat production, 8.23% wool production, 3.54% goat-milk production, 6.72% manure production. Because of shorter gestation period, small ruminants produce offspring thrice in two years and are sold at early stage. They can be reared with zero or very low inputs. Facilitators will ask questions regarding production system, economic importance, and percentage of household income from goats in total household income. The trainees will give status of sheep and goat production system, economic importance of their respective states.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- ❑ **Learning Objective (Learner's Guide)**
  Understanding contribution of sheep and goat rearing in tribal livelihoods
- ❑ **Knowledge Outcomes**
  Understanding of sheep and goat economy in tribal households
- ❑ **Skill Outcomes**
  Assessment of sheep and goat economy in tribal villages

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Presentations will be made after group exercises
  2. Group exercises to understand overall situation of small ruminant economy in a tribal village

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on economy of sheep and goat rearing in tribal areas **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What is the inter kidding period of goats and sheep? o What is the bestselling period for lambs?
	Reflective/ Conceptual Questions: o What is the economic state of a tribal family with two goats in one year?
Additional Recourses	

5. Important Breeds of Cattle and Buffaloes

DURATION : 3 Hours

SESSION OBJECTIVE :

- ❑ To assist in understanding different breeds and their production capacities and importance of local breeds
- ❑ To impart knowledge on support services required at each stage

SESSION OVERVIEW :

The cattle in India can be classified into three categories depending on their usage, productivity and size.

Based on Usage:

a) Dairy animals which give more than 2000 liters during lactation period (300 days).
b) Dual purpose animals which gives 1200 liters during lactation period, where female population used for milk and males used as draught animals
c) Animals which give less than 800 liters are known as draught purpose animals

Based on Size:

a) Heavy breeds, medium sized breeds and small breeds.

The animals from forests and hill regions are small in size, planes and fertile lands are evolved large animals. Breeds have evolved based on the geographic and ecological conditions of the area.

National bureau of Animal Genetics Resources has identified/Registered till now ( ) cattle, ( ) buffaloes, ( ) sheep and ( ) goats.

■ **Different local breeds of cattle:**

- ❑ Large ruminants are reared in different systems and for different purposes. Desi cattle and buffalo are well adapted to local agro-ecological conditions.
- ❑ Example: Gir (originated in Gir forests of South Kathiawar in Gujarat also found in Maharashtra and adjacent Rajasthan)
- ❑ Red Sindhi (Originated in Karachi and Hyderabad (Pakistan) regions of undivided India and also reared in certain organized farms in our country)

- Sahiwal (Originated in Punjab region of undivided India) for dairy purposes
- Tharparkar (a breed from Rajasthan that gives milk and males are used for draft purpose)
- Hallikar (Originated from the former princely state of Vijayanagarm, presently part of Karnataka)
- Amritmahal (Originated in Hassan, Chikmagalur and Chitradurga district of Karnataka.)
- Khillari (Originated from Sholapur and Sitapur districts of Maharashtra)
- Kangayam (Originated in Kangayam, Dharapuram, Perundurai, Erode, Bhavani and part of Gobichettipalayam taluk of Erode and Coimbatore district.),
- Bargur (Found around Bargur hills in Bhavani taluk of Erode district), (Umblachery Originated in Thanjavur, Thiruvarur and Nagappattinam districts of Tamil Nadu) ,
- Pulikulam (This breed is commonly seen in Cumbum valley of Madurai district in Tamilnadu), and Alambadi are used for draught purposes.

Indigenous dual purpose breeds of cattle are

- Tharparkar (Originated in Tharparkar district (Pakistan) of undivided India and also found in Rajasthan),
- Hariana (It was originated from Rohtak, Hisar, Jind and Gurgaon districts of Haryana and also popular in Punjab, UP and parts of MP),
- Kankrej, originated from Southeast Rann of Kutch of Gujarat and adjoining Rajasthan (Barmer and Jodhpur district)),
- Ongole (Home tract is Ongole taluk in Guntur district of Andhra Pradesh), Krishna Valley (Originated from black cotton soil of the water shed of the river Krishna in Karnataka and also found in border districts of Maharastra) and
- Deoni (Originated in Western Andhra Pradesh and also found in Marathwada region of Maharashtra state and adjoining part of Karnataka).

■ Different Buffalo Breeds

13 recognised buffalo breeds are there in India.

- In Gujarat the buffalo breeds found are - Jaffrabadi, Mehsana, Surti, Banni.
- In Odisha, the buffalo breeds found are - Chilka and Kalahandi.
- In Maharashtra, the buffalo breeds found are Pandaripuri, Nagouri, Marathwari.
- In Haryana, the buffalo breed found is Murra.
- In Punjab, the buffalo breed found is Nalliravi.
- In Tamil Nadu, the buffalo breed found is Toda.
- In UP and MP the buffalo breed found is Bhandvari.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 2

NO. OF HOURS : 3 HOURS

SESSION GUIDE :

- **Learning Objective:**

1. To understand different breeds and their production capacities and importance of local breeds
2. Support services required at each stage

- **Knowledge Outcomes:**

1. Different uses of draught animals
2. Breeds of cattle and buffalo
3. Role of different breeds in tribal production system
4. Requirements of support services for large ruminant rearing in tribal areas

- **Skill Outcomes**

1. Identify and selection of breeds for local area
2. Planning to establish fund for healthcare services

- **Teaching Aids used**

1. Power point presentation
2. Chart papers
3. White board and markers
4. Cut cards

- **Facilitation Steps**

1. Discuss with students the different types of large ruminants they have seen.
2. Introduce the concept of breeds and different cattle and buffalo breeds in India.
3. Facilitate students to come up with a solution to the issues of large ruminant discussed in the previous session.
4. Facilitate students to understand how to evolve payment based services.
    - Why tribal communities keep large ruminants?
    - What are the livelihood benefits from large ruminants to the tribals?

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** 1. Note on draught animal power **AV Resources (In Learner's Kit)** 1. PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge / Skill Pertaining Questions** 1. What are the different breeds of cattle and buffalo in your area? 2. Which breed is used for different purposes (milch and draught) in your area?
	Reflective/ Conceptual Questions: 1. What measures can you take to improve the draught ability and milk yield for different breeds of animals in your area?
Additional Recourses	

6. Important Breeds of Sheep and Goat

DURATION : 2 Hours

SESSION OBJECTIVE :

- ❑ To know about different sheep and goat breeds in different agro-ecological zones and their uses

SESSION OVERVIEW :

- **Different indigenous breeds of sheep and goat in India:** Sheep and goat are reared for different purposes in different agro-climatic zones like meat, wool and milk. Goat is known as poor man's cow. As per NBAGR, 22 goat breeds and 40 sheep breeds have been identified as indigenous goat and sheep breeds of India, which are acclimatized to their respective agro-climatic zones.

- Exotic animals for wool improvement are introduced in the flocks of woolly breeds of sheep like Marino, Corridale, Rambouillet in limited areas unsuccessfully.

- In goats, Sannen breed was introduced in local breeds for improving milk yield. Now in many states, Jamnapari bucks are being distributed.

State	Goat	Sheep
Jharkhand		Chotnagpuri
Odisha	Ganjam	Bolangir, Ganjam, Kendrapode
West Bengal	Black Bengal	Garole
Gujarat	Gohilwadi, Kutchi, Mehsana, Surti, Zalwadi	Marwari
Rajasthan	Sirohi, Jakhrana, Marwari	Chokla, Jaiselmeri, Magra, Malpura, Marwari, Nali, Sonadi
Bihar		Shabadi
Telangana		Deccani
Maharashtra	Konkankanyal, Berari, Osmanabadi, Sangamneri	Deccani
Uttar Pradesh and Madhya Pradesh	Pankaja, Barari	Jalani

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  To know about different sheep and goat breeds in different agro-ecological zones and their uses

- **Knowledge Outcomes**
  Understanding different breeds of sheep and goat and their uses.

- **Skill Outcomes**
  Identification of different breeds of sheep and goat and their uses.

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Facilitate students to understand different breeds of sheep and goat
  2. Presentations will be made after group exercises
  3. Group exercises to understand different kinds of breeds of sheep and goat in different tribal areas

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** ○ Note on different indigenous breeds of sheep and goat **AV Resources (In Learner's Kit)** ○ PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** ○ Name the breeds of small ruminants in your state (sheep and goat)
	Reflective/ Conceptual Questions: ○ Based on what factors do breeds evolve?
Additional Recourses	www.nbagr.res.in

7. Establishment of Community Managed Healthcare Systems

DURATION : 3 Hours

SESSION OBJECTIVE :

- ❑ To understand the importance of community healthcare system in tribal villages
- ❑ To facilitate the establishment of health committees and their functioning to protect animal health

SESSION OVERVIEW :

- ■ Explain the causes for mortality of large and small ruminants and economic losses to the individual and village.
- ■ Importance of organising focus group discussion groups with all stake holders, in villages
- ■ Discuss with members of Gram Panchayat, SHG and different rearer groups and the aged of the village and initiate a plan to minimise the losses.
- ■ Involve staff of Department of Animal Husbandry in the meeting
- ■ Explain need of timely preventive measures and importance of first aid.
- ■ Explain service charges and forming a non-informal group to coordinate
- ■ After the stalk holders meeting, form a Common Interest Group for Livestock health with livestock owners, local gram panchayat representative, staff of animal husbandry department, representative of village women's organisation (SHG Member) as members.
- ■ Select one or two persons interested to serve as service provider and who stay in the village as para vets/animal health worker (whatever name it may be given) for training in first-aid, vaccinations etc.
- ■ Fix the service charges for vaccinations and other commonly occurring services in animals
- ■ Select/elect two persons to maintain accounts and conduct meetings etc.

- The service provider will act as bridge between the Govt. AH department and farmers.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 20) : 2

NO. OF HOURS : 3 HOURS

SESSION GUIDE :

- **Learning Objective**
  - Understand the economic losses in tribal villages
  - Importance of establishing livestock rearers groups
  - Functioning and formation of groups and sustainability
- **Knowledge Outcome**
  - Economic losses due to animal mortality
  - Importance of community health services
  - Issues in establishing the CIGs/rearer groups
- **Skill Outcomes**
  - Assessing economic losses due to mortality in a village
  - Asking important questions in group discussions
  - Establishing the CIG of community health service system for livestock rearers
- **Training aids required:**
  - Chart papers
  - White paper
  - PPT(Steps to be followed)
- **Facilitation steps:**
  - After facilitation, the trainees will present the economic losses in their areas due to mortality in small and large ruminants
  - The trainees share issues and solutions also in establishing CIGs in their respective areas.
  - Explain the functioning of CIG in detail

Recommended reference material	**<u>Reading material (in Learners Kit)</u>** • WASSAN community health services (WASSAN web) • PPT
Reflective/Evaluation questions for students pertaining to higher order and lower order of thinking	**<u>Knowledge/Skill pertaining questions</u>** • How are the service charges to be fixed? • Can you explain the steps to be followed in forming a CIG group for community animal healthcare? **<u>REFLECTIVE/CONCEPTUAL QUESTIONS</u>** 1 Do you think the formation of a livestock healthcare CIG is necessary when a veterinary hospital is present in your village? If yes why? • What will be the roles of different stake holders in a community animal health CIG?

8. Understanding Important Diseases of Large and Small Ruminants

DURATION : 6 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- ❑ To help the candidates understand healthcare issues in large ruminants in tribal areas

SESSION OVERVIEW :

Steps - Facilitator will ask about the facilities available in the area, like nearest veterinary institutions and their activities. What are the services available with local veterinary staff, ethno practitioners, private service-providers, dairy staff etc. Then they will prepare a chart of diseases, local names, symptoms etc. and their treatment. State-wise group presentations will be made.

Species	Symptoms	Local names	Season	Treatments adopted	Diseases	Remarks

- ■ Explain contagious and non-contagious diseases.
- ■ Classification of diseases

Contagious diseases	Non-contagious diseases	Remarks
Bacterial	Bloat	
Haemorrhagic septicimia	Digestive disorders	
Blackquarter	Abortions	
Brucellosis	Internal parasites	
Anthrax	External parasites	
Viral diseases	Mastitis	
Foot and mouth disease	Respiratory diseases	
Rabies	Physical injuries	
Pox	Sprain	
Protozoan diseases	Wounds	
Surra		
Babesiosis		

- Formation of farmers' groups for the health care of cattle including prevention through vaccination and first-aid services. Train para-workers to provide these services to farmers on cost basis. These para workers are trained to work as bridge between animal husbandry department and farmers. The farmers' groups will have as its members, farmers, representatives from gram panchayat and SHGs.

- Practical training to para-workers given at local veterinary hospital.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  To know about healthcare issues of large ruminants in tribal areas

- **Knowledge Outcomes**
  1. Process of establishing healthcare systems
  2. Knowledge about diseases and their classification

- **Skill Outcomes**
  1. Designing of healthcare systems for large ruminants in tribal areas
  2. Identifying the diseases and their reporting system

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Facilitate students to understand different symptoms of diseases and develop first-aid, preventive and cure measures.
  2. Presentations will be made after group exercises
  3. Group exercises to understand different kinds of diseases of large ruminants and develop first-aid, preventive and cure measures.

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** ○ Note on different diseases of large ruminants AV Resources (In Learner's Kit) ○ 1. PPT
Reflective/Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** ○ How contagious diseases spread? ○ Name some non-contagious diseases which occur in draught animals during drought?
	Reflective/ Conceptual Questions: ○ Which contagious diseases are occurring in rainy season in your area? ○ What are the steps to be taken to control contagious diseases?
Additional Recourses	

9. Common Diseases of Small Ruminants (Preventive and Curative Measures)

DURATION : 6 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- ❑ To understand the important diseases of sheep and goat

SESSION OVERVIEW :

■ **Exercise**

1. Facilitator should ask the students to calculate losses in small ruminants because of diseases in their village, in one year (group presentations).
2. Exercise to identify the diseases and prepare a calendar. The groups have to present the common diseases in their village.

Exercise

1. Facilitator should ask the students to calculate losses in small ruminants because of diseases in a village during one year (group presentations).
2. Exercise to identify the diseases and prepare a calendar. The groups have to present the common diseases in the village.

Symptoms	Species affected	Season	Local name of disease	Treatment	Disease name	Remarks
Village	Name	SR in number at present	Births last year	Deaths last year	Sale last one year	Value of loss animals

1. Identify the diseases animas in a flock have and make a note.
2. It is easy to detect a sick animal among small ruminants.

Causes

1. Sudden change in environment, feed and water.
2. Seasonal changes
3. Contagious diseases in sheep and goat (bacterial)

4. Haemorhagic septicema, Black quarter, FMD, Anthrax, Diarrhoea, ., Pneumonia.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding diseases of sheep and goat

- **Knowledge Outcomes**
  Causes and prevention of diseases

- **Skill Outcomes**
  Deworming and vaccination of small ruminants

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Presentations will be made after group exercises
  2. Group exercises to understand different kinds of diseases in different tribal villages

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on diseases of sheep and goat **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o How contagious diseases spread? o What are the common contagious diseases in goats?
	Reflective/ Conceptual Questions: o Write symptoms of foot and mouth disease in buffaloes.
Additional Recourses	

10. Common Diseases of Small Ruminants

DURATION : 6 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- ❑ To understand the important diseases of sheep and goat

SESSION OVERVIEW :

■ **Exercise**

1. Ask students to calculate losses in a village, during a year among small ruminants because of diseases (group presentations).
2. Exercise to identify the diseases and prepare a calendar. The groups have to present the common diseases in the village.

Symptoms	Species affected	Season	Local name of disease	Treatment	Disease name	Remarks

Village	Name	SR in number at present	Births last year	Deaths last year	Sale last one year	Value of loss animals

3. Identify the diseased animals in a flock and note on board.
4. Small ruminants always graze and it is very difficult to identify sick sheep. In goats, identification of sick goat is easier than sick sheep.

■ **Causes**

1. Sudden change in environment, feed and water.
2. Seasonal changes
3. Contagious diseases in sheep and goat (bacterial)
4. Sheep pox, blue tongue, PPR, FMD, Orf, Footrot, Anthrax, Diarrhoea, E.T., Pneumonia.
5. Internal and external parasites.
6. Goat diseases

7. DPR, Goat pox, Anthrax, H.S., Foot rot, Ecthyma, C.E.A., Pneumonia, Diarrhoea, Bloat, Injuries

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding diseases of sheep and goat

- **Knowledge Outcomes**
  Causes and prevention of diseases

- **Skill Outcomes**
  Deworming and vaccination of small ruminants

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Presentations will be made after group exercises.
  2. Group exercises to understand different kinds of diseases in different tribal villages

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** ○ Note on diseases of sheep and goat **AV Resources (In Learner's Kit)** ○ PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** ○ How contagious diseases spread? ○ What are the common contagious diseases in goats?
	Reflective/ Conceptual Questions: ○ Write symptoms of foot rot in sheep and goats.
Additional Recourses	

11. Low-cost Shelter Construction for Large Ruminants

DURATION : 4 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- To help students understand construction of shelter for large ruminants in tribal areas

SESSION OVERVIEW :

- To keep the animals healthy and active, shelter is important to
  1. Protect from vagaries of climate
  2. For clean milk production
  3. Protect from predators and thefts
  4. To improve productivity

- The shelter should be different for dairy animals to improve productivity.

- The shelter is important for raising productivity in animals, besides good feeding and watering facilities.

- While constructing the shelters, the purpose, climate of the area, air circulation, drainage, elevation etc. should be considered.

- The shelter should be surrounded by trees to protect from winds.

- The facilities to collect urine (if necessary) are also to be considered.

- The standing space (length and width) for animals arranged in rows depends on the size of the animals.

- A typical layout of shed is:-
  - Roof height : 12 feet to 15 feet
  - Manger : 4 feet length
    1 feet width
    1.g feet depth

- Management:
  1. Dry flooring is always preferable
  2. Cleaning is always required
  3. For draught animals, the shed requirements are not costly

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF HOURS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**

  To know about construction of hygienic shelter for large ruminants.

- **Knowledge Outcomes**

  Materials required for shelter

- **Skill Outcomes**

  Designing and estimates of low cost shelter

- **Teaching Aids used**

  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**

  1. Facilitate students to understand the importance of shelter for large ruminants
  2. Presentations will be made after group exercises
  3. Group exercises to understand different types of shelter for different tribal areas
  4. Visit to different animal shelters in the area that are used for different purposes

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on construction of shelter for large ruminants **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o How to select site the site for dairy animals? o What are the requirements for construction of shed for four draught animals?
	Reflective/ Conceptual Questions: o What material are useful and cheap for construction of shed? o Estimate the cost in detail for four dairy cows?
Additional Recourses	

12. Cultivation of Fodder for Dairy Animals

DURATION : 4 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- ❑ Understanding the Package of Practices in Fodder Cultivation

SESSION OVERVIEW :

- ❑ Fodder classification that can be grown in different seasons
- ❑ Cultivation of fodder
- ❑ Supplementary feed requirements

DEFINITIONS :

- ❑ **Grasses:** Naturally grows in forest areas and grazing lands allotted by government. It depends on the climate, nature and type of lands, unless it is disturbed. Known as pasture lands.
- ❑ **Forages:** Forage is that which remains as a consequence of harvest.
- ❑ **Fodder:** The crops that are grown for the specific purpose of feeding animals.
- ❑ **Crop Residues:** The post-harvest residue of crops grown for human consumption that are used as animal feed.
- ❑ **Classification of fodders:**
- ❑ **According to physical stage:** Green: Dry:
- ❑ Feeding is system which is the requirements of the body for all nutrients.
- ❑ Feeds can be divided into roughages and concentrates

- **Roughages:** Contain more than 16 percent of fibre i.e., plant material that can be digested by ruminants (Sheep, goat, cattle and buffaloes) only e.g. Straw, stalks, napier, para, etc.

- **Concentrates:** Agri by-products like grains, cakes, brans etc. which contain less than 16% fibre and more than 16% protein. Usually concentrates are mixed rations like grains and cakes and other agri by-products.

- **Fodder Classification:**

  - **Leguminous fodders:**
    Annual: Cow pea, Guar etc., Berseam, sesbania
    Perennial: Alfalfa, sylo scabra, hedge lucern

  - **Non-Leguminous fodders**
    Annual: SSG, Maize, Fodder Jowar, bajra
    Perennial: Napier, Para, co-3, co4

  - **Conservation Methods of fodders**:

    As dry, straws, stalks, hay
    As green: Silage

  - **Enrichment**: Rice straw with urea.

  - **Fodder trees**
    Subabul
    Avise
    Babul
    Gulmohar
    Allaneradu
    Neem
    Seesham
    Dirisena

Cultivation procedures and yields are given in the following table:

Particulars	Maize	Jowar	Oats	Cowpea	Guinea Grass	Napier Grass	Rhodes Grass	Buffel Grass	Signal Grass
Botanical Name	Zea mays	Sorghum Sp.	Avenasativa	Vignaunguiculata	Panicum maximum	Pennisetumpurpureum	Chlorisgayana	Cenchrusciliaris	Brachiariadecumbens
Type of fodder	Non legume	Non legume	Non legume	Legume	Non legume	Non legume	Non legume	Non legume	Non legume

Particulars	Maize	Jowar	Oats	Cowpea	Guinea Grass	Napier Grass	Rhodes Grass	Buffel Grass	Signal Grass
Crop varieties	African tall J1006 Vijay composite	MP Chari, PC-23, CoFS-29	Kent JHO-99-1	EC-4216, BL-1,2	Hamil, Makueni Riversdale, Gatton panic, Green panic BG1, BG2	NB-21, C03, CO4, IGFRI-7, 10	Callide, Kotembora	Cloncurry, Biloela, Molopo, CO-1 Bundelanjan	Signal, Congosignal Kennedy
No. of cuts	Single cut	Single/multicuts	Single/multicuts	Single	Perennial	Perennial	Perennial	Perennial	Perennial
Soil type	Well drained fertile soil	Well drained fertile soil	Medium to Heavy Soil	Light to medium well drained	Light to medium	Well drained medium fertile	Well drained light to medium fertile soil	Light to medium	Well drained fertile and versatile
Sowing season	Entire year under irrigation	Entire year under irrigation	Mid-Oct to Mid-Nov	Entire year under irrigation	Entire year under irrigation	Entire year under irrigation	Entire year under irrigation	Onset of rains	Entire year under irrigation
Seed rate kg/acre	20	15-Single cut 20-Multi cuts	40	5 kg in intercrop 10-15 kg sole crop	Direct sown 5-6 kg Or Rooted Slips-16000	Through Stem Cuttins or Rooted Slips-16000	Direct Sown-6kg Or Rooted Slips-22,222	Direct Sown-6 kgs Or Rooted Slips-22,000	Direct Sown 6 kgs Or Rooted Slips-22,222
Spacing cms	30*25	30*15	20-25	30*10	60*60	60*60	60*30	45*45	60*30
Nutrient Requirement N:P:K kg/acre	48:24:20	36:18:18	36:18:18	8:24:20	60:30:20	60:30:20	60:30:20	60:30:20	60:30:20
Protein %	11	10	10-12	18	6-7	7	9	9	7-9
GFY (t/acre/year)	20-25	15-20	10	4-5	35-40 (6-7 cuts)	5-60 (6-7 cuts)	40-50 (6-7 cuts)	15-20 (6-7 cuts)	30 (6-7 cuts)
Remarks	Best crop for silage making	Do not feed before flowering due to HCN Drought tolerant	Can be fed in any form – green silage or hay	Best under intercropping in 4:2 ratio	Excellent shade tolerate crop, free of oxalates	Contains oxalates hence feed alongwith legumes	Can be used as green, hay or dried form	Suitable under less rainfall area, excellent pasture,	Very good soil binding crop suitable on bunds, marginal and waste lands

Particulars	Maize	Jowar	Oats	Cowpea	Guinea Grass	Napier Grass	Rhodes Grass	Buffel Grass	Signal Grass
								drought resistant	

Particulars	Setaria	Dinanath grass	Para grass	Lucerne	Hedge Lucerne	Stylo	Siratro	Subabul	Sesbanis
Botanical Name	Setariaanceps	Pennisetumpedicellatum	Brachiariamutica	Medicagesativa	Desmenthusviratus	Stylosanthes spp.	Macroptiliumatropurpureum	Leucaenaleucocephala	Sesbania spp
Type of fodder	Non legume	Non legume	Non legume	Legume	Legume shrub	Legume	Legume	Legume tree	Legume shrub
Crop varieties	Narok, Nandi, Kazhungula	BD-1,2	Local cultivars	Anand-2, T-9, Co-1		S.hamata cv. Verano S.Scabra	IGFRI-1	Hawaiin salavador Peruvian types K-8	
No. of cuts	Perennial	Annual	Perennial	Multicuts	Perrenial	Perennial	Perennial	Perennial	Perennial
Soil type	Well drained fertile soil	Medium to heavy, Eroded, marginal and wastelands	Medium to Heavy	Well drained fertile	Light to medium	Well drained versatile	Well drained light to medium	Light to medium fertile and heavy	Well drained fertile and heavy
Sowing season	Entire year under irrigation	Onset of rains	Entire year under irrigation	Oct-Nov	Oct-Nov	Onset of rains	Entire year under irrigation	June-July	Entire year under irrigation
Seed rate kg/acre	Direct sown 5 kg or Rooted slips-16000	3	3	6	3	6	3	3	Pure crop-3kg Intercrop-1 kg
Spacing cms	60*60	50*50	60*60	30*15	60*15	30-45	60	1m*0.5 m	3*2
Nutrient Requirement N:P:K kg/acre	60:30:20	60:30:20	60:30:20	8:24:20	8:24:20	8:24:20	8:24:20	8:24:20	8:24:20
Protein %	7	7	7	20	20	18	18	20-30	20
GFY (t/acre/year)	30 (6-7 cuts)	20 (6-7 cuts)	15-20 (6-7 cuts)	35 (7-8 cuts)	15 (6-7 cuts)	25 (6-7 cuts)	25 (6-7 cuts)	40 (5-6 cuts)	30 5 kg/plant/

Particulars	Setaria	Dinanath grass	Para grass	Lucerne	Hedge Lucerne	Stylo	Siratro	Subabul	Sesbanis
									cut (5-6 cuts)
Remarks	Contains oxalate, More cold tolerant	Poor men fodder	Best for marshy and waterlogged soils	Bloat in animals		Drought tolerant		Contains Mimosine	

❑ **Common Agricultural Practices:**

1. Plough the land and pulverise the soil.
2. Apply well decomposed farmyard manure not less than 10 tons/acre and mix with the soil during last ploughing.
3. All the seeds and fertilisers must be applied adopting line sowing.
4. All the grass and legume seeds (being tiny) should be sown at 3 cms deep and should not be sown deeply.
5. All the legume seeds must be treated with Rhizobium culture.
6. Buffel grass and Rhodes grass seeds may be mixed with mud, cow dung slurry (with less water) dried in shade and made into crumbles by hand. Individual crumbles will carry the seeds for easy sowing.
7. Napier grasses contains more of oxalates that results in depletion of calcium leading to kidney disorder. They must be fed with Lucerne / subabul / cowpea etc.
8. Feed dry fodder always along with green fodder and legumes for more fat and to avoid digestive complications.
9. Fodder crops should preferably be harvested at 50% flowering (60-70 DAS)

❑ **How to grow Azolla?**

1. A pit size of 2 meter length, 1 mt width and 20 cm depth should be dug.
2. The pit is then covered with plastic gunnies to prevent growth of roots of nearby trees, protect soil temperature and seepage.
3. Silpuline plastic sheet/plastic sheet is spread over the plastic gunnies without any fold.
4. About 10-15 kg sieved soil is uniformly spread over the plastic sheet.
5. Five kg of cowdung and 40 gms of azophos and 20 gms of azofert or SSP made into slurry in 10 litres of water is poured in the pit, then more water is poured to make the water level at about 8 cm.
6. About 1-2 kg of fresh, pest and disease free azolla seed culture is inoculated in the pit.
7. Azolla will fill the pit within 7-10 days. About 1-1.5 kg of Azolla can be harvested daily thereafter.

8. About 2 kg of dung, 25 gms of Azophos and 20 gm of azophert is made into a slurry in 2 liters of water should be given once in 7 days to keep the azolla in rapid multiplication phase and to maintain the daily yield of 1-2 kg pit.

❑ **Harvesting:**

1. Azolla should be harvested with a plastic tray having holes of 1 sq.cm mesh size.

❑ **Precaution:**

1. The plant should not be allowed to enter maturation/sporulation stage.
2. Overcrowding should be avoided.

❑ **Facilitation steps:**

1. The field visit.
2. The procedures for cultivation
3. Identification of fodder and seeds
4. Identification of fodder trees
5. Method of cultivation
6. Group exercises and presentations will be done

Recommended reference material (AV)	**Reading Material** o NDDB fodder cultivations **AV Resources** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o Explain the differences between forage crops and fodder crops. o How napier is cultivated?
	Reflective/ Conceptual Questions: o Name four fodder trees grown areas o Estimate the cost of cultivation of maize in dry areas.
Additional Recourses	

❑ **Benefits of Ration Balancing Programme**

- Proper use of locally available feed resources at least possible cost
- Increases milk production with more fat and SNF
- Increase in net daily income
- Improves reproduction efficiency

- Reduces inter-calving period and increases productive life of animals
- Improves the general health of animals
- Improves the growth rate in growing calves, leading to early maturity

❑ **Feeding schedule for calves up to 6 months**

Age of calf	Approx. body weight (kg)	Quantity of milk (kg)		Green grass (kg)
4 days to 4 weeks	25	2.5		Small qty.
4-6 weeks	30	3.0		Small qty.
6-8 weeks	35	2.5		Small qty.
8-10 weeks	40	2.0		Small qty.
10-12 weeks	45	1.5		1-0
12-16 weeks	55	-		1-2
16-20 weeks	65	-	750-1000	2-3
20-24 weeks	75	-	1000-1500	3-5

13. Grazing Land Mapping and Plan Development in Extensive System

DURATION : 6 Hours (Theory – 2 Hours and Practical – 4 Hours)

SESSION OBJECTIVE :

- Understanding process of grazing land development

SESSION OVERVIEW :

- Grazing lands are broadly termed as commons in villages and are rapidly on the decline due to several reasons, policies and programs.
- **Micro plan to be developed: S**tart the process of mapping grazing lands and develop forage lands whichever exist in villages.
- Mapping exercise can be done with elders and ensure goat and sheep and cattle rearers participate in this exercise.
- In the resource map identify existing common resources for grazing and watering and also identify scenario a generation ago (approx. 25 years)
- Identify possible resources which are used for grazing, tanks, bunds, beds, temple lands, revenue hillocks, forests, panchayat lands, farm bunds and crop residues etc.
- Identify potential land resources to enhance fodder resources.
- In the above listed lands do transact walk along with rearers.
- Do the matrix ranking exercise to assess the palatability of fodder species which are identified in above land resources. Do the seasonality mapping exercise to know the seasonal availability of above fodder species.
    - Sharing all the documented fodder species with community (with all livestock owners)
    - Cross checking with revenue data (tanks, common lands etc)
    - Seasonal calendar of fodder species-PRA
    - Palatability ranking of fodder species through PRA exercise.
    - Prepare micro action plan to enhance fodder availability
    - Adoption of rotational grazing system
    - Prioritized fodder species should be encouraged to grow in homestead lands
- Farmers involvement towards monitoring and sustainable utilization of lands.
- Build proposal based on the above micro plan and submit to the AHD and ITDA and NREGs, District Collectors and Forest Officials.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF FACILITATORS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding process of grazing land development

- **Knowledge Outcomes**
  Preparation of participatory grazing land plan development

- **Skill Outcomes**
  Building micro plan for grazing land mapping and design plan preparation

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Presentations will be made after group exercises
  2. Group exercises to understand micro plan preparation of grazing land mapping

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on grazing land mapping **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What are the grasses available in the grazing areas surrounding your village? o What might be the reason for forest department not allowing goats into forest?
	Reflective/ Conceptual Questions: o Who should be contacted to improve fodder resources in grazing areas?
Additional Recourses	

14. Dairy Development Calf Rearing

DURATION : 2 HOURS

SESSION OBJECTIVE :

- ❑ Understanding the importance and healthcare of calf

SESSION OVERVIEW :

- Today's calves are tomorrows dairy animals
- Farm economy depends upon calf production and adding dairy animals to the farm.
- Precautions from pregnancy to calving
- Reducing calf mortality.

❑ **Common causes for calf mortality**:

- Non-availability of colostrums immediately after birth
- Non-availability of milk from mother
- Licking of soil, licking of other animals and unhygienic shed
- Mineral deficiencies
- Climatic vagaries, such as drenching in rains, severe cold
- Infections through umbellicus

❑ **Importance of COLOSTRUM:**

- The calves must drink the colostrums milk with in eight hours. Colostum contains disease resistance antibodies (Gama globulins)
- Colostrum provides disease resistance and easy defecation to calf.
- It should be provided upto one tenth of the calves weight.

❑ **Management**

Age of calf	Approx. body weight (kg)	Quantity of milk (kg)	Green grass (kg)
4 days to 4 weeks	25	2.5	Small qty.
4-6 weeks	30	3.0	Small qty.
6-8 weeks	35	2.5	Small qty.

Age of calf	Approx. body weight (kg)	Quantity of milk (kg)		Green grass (kg)
8-10 weeks	40	2.0		Small qty.
10-12 weeks	45	1.5		1-0
12-16 weeks	55	-		1-2
16-20 weeks	65	-	750-1000	2-3
20-24 weeks	75	-	1000-1500	3-5

A. Most of the calves lick walls, soils which cause digestive tract troubles, worm infections. The soil licking habit can be restricted by tying the mouth with a basket (Mouth ……..)
   - Cleaning the sheds daily and spraying fresh lime in the shed.
   - Calf feed should contain sufficient minerals and vitamins, which prevents anaemia.
   - Soil licking can be avoided by hanging mineral licks.

B. Calves are very sensitive to climatic vagaries such as cold. Cold winds and drenching, causes pneumonia and other diseases. Hence it a must to protect them by hanging curtains with gunny bags or turpeline etc.

C. Diarrhoea is caused by bacterial infections is mostly seen in 2 to 4 months of age. Indigestion may be due to excess milk or bacterial infection. WHITE DIARHOEA is due to excess milk causing indigestion. In such situation reduce the suckling time and feed the calf glucose and salt mixed water with one spoonful of antibiotic.

   Sometimes calves suffer with coccidiosis (Bloody diarrhea). It can be prevented by sprinkling lime in sheds once in fortnight. It occurs mostly in winter. The problem can be solved by mixture of egg white, pinch of hingi (Asafoetida) and jaggery in milk.

D. Worm infestation causes severe debility and anaemia leading to calf mortality. Potbelly, [ale mucous membranes of eye, bottle jaw, erected hair on the body are symptoms of worm burden in the calf.) For controlling the worms first deworming should be done at 7-10 days. Later monthly once for four months regularly. Then once in three months.

E. At the time of birth umbellicus is to be cut with sterile blade at two inches and ligate. Apply tincture of iodine, otherwise there is chance of infection.

F. Foot and mouth vaccination at 6-8 weeks first time and then at 6 months age second time.

   At 4 to six months age, Anthrax, BQ and HS vaccination, Brucella vaccine for female calves only.

G. If care is taken with regard to feed and health from the calf stage you can get good cows from our own farm/house which will be more economical.

NO. OF FACILITATORS : REQUIRED (FOR BATCH OF 30) 3

NO. OF FACILITATORS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding the importance of calf rearing
- **Knowledge Outcomes**
  Precautions needed to reduce the mortality
- **Skill Outcomes**
  Identify the symptoms in diseased calves
- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards
- **Facilitation Steps**
  1. Presentations will be made after group exercises
  2. Group exercises to understand the importance of calf rearing and management

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on calf importance **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What are the common practices followed in villages after the birth of calves? o What are the reasons for calf mortality?
	Reflective/ Conceptual Questions: o Importance of colostrums? o What happens if excess milk left for calfs?
Additional Recourses	

15. Clean Milk Production

DURATION : 2 HOURS

SESSION OBJECTIVE :

- ❑ Understanding the importance of clean milk production
- ❑ Role of clean milk production in public health

SESSION OVERVIEW :

Milk is the mammary secretion of a healthy animal. Hence animal health is an important aspect in the production of clean milk. Good hygiene and sanitation practices keep it free from bacterial contamination. Thus both these aspects will be discussed.

❑ **Clean milk production process:**

WHAT STEPS	HOW / STANDARDS	
Essential steps for Clean Milk Production	1.	Give sufficient quantity of feed and drinking water to cattle prior to milking
	2.	Remove accumulated cow dung.
	3.	Cattle shall be bathed and if bath is not possible dry cleaning by broom / duster should be done.
	4.	Maintain the cattle clean and healthy.
	5.	In case animal is under treatment, discard the milk during the period of the treatment. Do not bring the milk to DCS/MPI, if the cattle is suffering from any disease.
	6.	Clean the cattle shed floor either by washing with water or dry cleaning 10 – 15 minutes before milking.
	7.	The floor should not be slippery. It should be firm and dry so as to provide a proper foothold to the animal while rising or standing.
	8.	Clean the udder and teats of the cattle by clean (potable) water and wipe using a dry & clean cloth.
	9.	Use separate vessel for washing of udder and teats & for milking
	10.	Teats should be cleaned after sucking, if calf is suckling.
	11.	Clean thoroughly the milk collection vessel preferably with detergent and hot water etc and keep it inverted to dry before milking.
	12.	Milker should wash his/her hands with soap to make them clean and germ free.

WHAT STEPS		HOW / STANDARDS
	13.	Milker should wear clean clothes.
	14.	Milker should avoid contact between milk and his body parts, clothes and other belongings.
	15.	Chewing and spitting with tobacco, smoking and gutka should be avoided during milking.
	16.	Sneezing/ coughing towards udder/vessel during milking should be avoided.
	17.	Milker should not be suffering from any respiratory ailment or contagious disease.
	18.	Milker should not have any open sores or cuts.
	19.	Discard the initial milk from all the four teats to minimize the bacterial load.
	20.	Flies, hay, husk, dry cow dung cake or other extraneous matter should not get into the milking vessel.
	21.	After milking rinse the teats in a dis-infective solution (with water, iodophor etc.) shall be done to avoid post- milking infection.
	22.	It is good to keep the animals standing for at least half an hour after milking. Feed may be provided to encourage this.
	23.	Avoid use of measures, tumbler etc. in the milking vessel for removing or to transfer milk from milking pail.
Milking Utensils and Storage Vessels	1.	The utensils and the storage vessels should be of SS 304 construction and free from sharp edges.
	2.	A suitable size lid should always be used to cover the utensils and the vessel.
	3.	They should be cleaned and sanitized before and after their use and kept dry.
	4.	They should be exclusively used for milking.
	5.	The milk should be filtered before pouring into the vessel.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF FACILITATORS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding the process of clean milk production

- **Knowledge Outcomes**
  Hygienic practices to be adopted while milking the animal

- **Skill Outcomes**
  Hands on experience of clean milk production

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers

3. White Board and markers
4. Cut cards
5. Videos

❑ **Facilitation Steps**

1. PPT & video presentations

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on clean milk production **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What should be bacterial load at milking and at users point ? o What are the animal feeding and watering should be done?
	Reflective/ Conceptual Questions: o Importance of clean milk production? o Cleaning of utensils?
Additional Recourses	

16. Package of Practices in Small Ruminants Rearing

DURATION : 6 HOURS (Theory – 4 Hours & Practical – 2 Hours)

SESSION OBJECTIVE :

- ❑ Understanding package of practices in Sheep and Goat rearing

SESSION OVERVIEW :

- ■ Small ruminants include two species of animals: sheep and goat

- ■ Ask the trainees about the differences found between sheep and goat for following parameters (Q & A)
  1. Behaviour
  2. Grazing and eating habits
  3. Reproduction

- ■ **Production systems**
  1. **Extensive:** Under extensive systems the animals are allowed to graze with zero inputs.
  2. **Semi-intensive:** Animals are allowed to graze maximum time and provided supplementary feeding when outside nutrition is not available and depending on special requirements like pregnancy, lactation, finishing rations before sale etc.
  3. **Intensive:** This is usually practiced in commercial breeding farms in urban areas. All nutritional requirements and other facilities are provided in the shed.

- ■ **Breeding**
  1. Male / Female ratio for good offspring production
  2. Additional nutrition in advanced pregnancy from 4th to 5th month
  3. Extra nutrition for lactating mothers
  4. For quick growth of lambs/kids/finishing rations before market

- ■ **Housing**
  1. It is required depending upon the climate of the area.
  2. Elevated sheds in high rainfall areas with cheaply available material in the area.
  3. Kids and lambs are to be protected from cold and rains.

4. As sheep are migratory in nature, they need movable fencing structures and movable sheds for lambs/kids.

- **Watering**
  1. Clean, potable water is required from borewells, tanks, running water etc.
  2. In tank beds, the grass contains larvae of trematodes causing liver fluke infections. Hence care has to be taken.

- **Nutrition**
  1. Rotational grazing is to be followed to prevent worm infections in animals. It allows regeneration of pastures and grasses/ biomass in grazing areas.
  2. Migration will occur when the animals do not get sufficient grasses and water in grazing areas around the villages.
  3. Migration to harvested fields under project areas will occur usually during summer months and to the forest areas in rainy seasons where lands are under crops.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF FACILITATORS : 2 HOURS

SESSION GUIDE :

- **Learning Objective (Learner's Guide)**
  Understanding package of practices of small ruminants

- **Knowledge Outcomes**
  Understanding package of practices of sheep and goat rearing

- **Skill Outcomes**
  Management of lambs/kids, shelter, nutrition, identification of fodder for sheep and goat

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Presentations will be made after group exercises

2. Group exercises to understand overall situation of small ruminant package of practices
3. Loss estimation among small ruminants in villages
4. Issues in health

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** ○ Note on package of practices of sheep and goat **AV Resources (In Learner's Kit)** ○ PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** ○ What are the three production systems practiced in India for sheep rearing? ○ What steps are to be taken after lambing?
	Reflective/ Conceptual Questions: ○ State the importance of stalking rate and how it should be done. ○ What are the main differences between sheep and goat?
Additional Recourses	www.cirg.res.in www.cswri.res.in

17. Draught Animal Utilization

DURATION : 3 HOURS

SESSION OBJECTIVE :

- ❑ To understand importance of draught animals in farming
- ❑ To understand other uses of draught animals in tribal areas

SESSION OVERVIEW :

Explain the students about kinds of draught animals. Ask the students about different uses of draught animals in their areas. How economical is it to use bullocks in their areas for agricultural purposes? Ask the students for what types of crops and for which kind of work draught animals are used in their areas.

Facilitators will guide the students about draught ability of different animals and breeds. Facilitators should guide the students about innovative uses of bullocks in agriculture.

In rainfed conditions, timely sowing is very important before land dries up. It affects production of the crop. Draught animals help in timely owing of seeds. In hilly areas and uneven lands small size animals are needed. Draught animals are used for transport of manure to fields, ploughing, land preparation, levelling, sowing, coverage of seed, inter cultivation, thrashing and transport of fertilizers and manure to fields and to grain & fodder home. Draught animals are used for 3-4 crucial months during the agricultural season. Besides draught power, the animals also provide manure and are used to extract oil and preparation of lime mortar in villages for construction purposes.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 3

NO. OF FACILITATORS : 3 HOURS

SESSION GUIDE :

- ❑ **Facilitating Objective:**
  1. Understanding importance of draught animals for agriculture and other purposes
  2. Issues related to losses from livestock

- **Knowledge Outcomes:**
  1. Different uses of Draught Animals

- **Skill Outcomes:**
  1. Assess draught ability of different animals
  2. Assess draught ability of different breeds
  3. Assess the economic value of the animals

- **Teaching Aids used:**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps:**
  1. Facilitate students to understand draught ability of different animals and breeds
  2. Presentations will be made after group exercises
  3. Group exercises to understand issues and uses in utilisation of draught animals in economic terms

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** 1. Note on draught animal power **AV Resources (In Learner's Kit)** 1. PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** 1. What are the different kinds of draught animals? 2. How can draught animals be used for draught purposes?
	Reflective/ Conceptual Questions: 1. What measures can you take to increase use of draught animal power? 2. What measures can you take to reduce expenditure by use of draught animals?
Additional Recourses	

18. Developing Small Ruminant Programme for Tribal Livelihood

DURATION : 3 HOURS

SESSION OBJECTIVE :

- ❑ Understanding tools for project development for Small Ruminants

SESSION OVERVIEW :

- ■ Sheep and goats rearers contribute nearly 40% to meat, wool and manure production and goat milk production in India. In tribal areas due to availability of leafy forage goat rearing is significantly taken up by tribal farmers and there is no supporting system for strengthening goat production. There were few attempts made by a few state and central programs such as providing 70 to 90% loans without back end support. Distribution of non-local cross bred, lack of institutional support and no focus on health, feeds and fodder has resulted in these programs failing completely.

- ■ Goat and sheep rearers are not organized into common interest groups however there are caste based organization emerged particularly by sheep rearing communities known as Kuruma, Golla or Yadava etc. 99% of sheep rearing is done by these communities. Goat rearing is taken up by many marginal/small, dalit and tribal communities as majority of them are landless and depend on daily wage labour.

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 2

NO. OF FACILITATORS : 3 HOURS

- ❑ **Learning Objective (Learner's Guide)**
  Understanding tools for project development for small ruminants

- ❑ **Knowledge Outcomes**
  Various components of project development

- **Skill Outcomes**
  1. Project Framework
  2. Budget preparation

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Discuss with students how small ruminants can be useful for tribal livelihoods
  2. Facilitate students to understand how to develop small ruminant programme for tribal livelihoods
  3. Why tribal communities keep small ruminants?
  4. What are livelihood benefits from small ruminants to the tribals?

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on draught animal power **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What are different kinds of small ruminant programmes for tribal livelihood in your village?
	Reflective/ Conceptual Questions: o How will you develop small ruminant programme in your village? o How is it going to be beneficial for tribal livelihood?
Additional Recourses	

19. Developing Dairy Programme for Tribal Livelihood

DURATION : 3 HOURS (Practical + 2 Hours Theory)

SESSION OBJECTIVE :

- ❑ Understanding tools for dairy project implementation

SESSION OVERVIEW :

65% of the milk produced in the country is from desi/indigenous cows, which are with marginal farmers. In tribal villages, milk consumption from cows is low. Hence they did not prefer them for milk production. But now due to the increased demand for milk, tribal families can improve their family income with milk production (Dairying). State and Central Government is now keen to implement the dairy schemes in tribal areas for improving the family income of tribal families.

Before thinking of the dairy in tribal areas or any village following things have to be considered.

1. Type of breed
2. Biomass availability
3. Village cattle population
4. Nearest market assessment
5. Transport facility
6. Grazing lands
7. Milk collection centre
8. Government assistance to the dairy projects
9. Feed ingredients
10. Veterinary aid
11. Water facility/Irrigation for fodder production
12. Credit facility

A meeting of cattle rearers is to be organised and discuss regarding the usual milk and its by-products and their disposal.

The breed which they are rearing and its usage and optimal dairy potential is to be assessed.

- Cow population is to be taken.
- Diseases and disposals of male calves is to be assessed

NO. OF FACILITATORS REQUIRED (FOR BATCH OF 30) : 2

NO. OF FACILITATORS : 3 HOURS

- **Learning Objective (Learner's Guide)**
  Understanding tools for project development for large ruminants

- **Knowledge Outcomes**
  Various components of project development

- **Skill Outcomes**
  1. Project Framework
  2. Budget preparation

- **Teaching Aids used**
  1. Power point presentation
  2. Chart papers
  3. White Board and markers
  4. Cut cards

- **Facilitation Steps**
  1. Discuss with students how large ruminants can be useful for tribal livelihoods
  2. Facilitate students to understand how to develop large ruminant programme for tribal livelihoods
  3. Why tribal community keep large ruminants?
  4. What are livelihood benefits from large ruminants to the tribals?

Recommended reference material (AV)	**Reading Material (In Learner's Kit)** o Note on draught animal power **AV Resources (In Learner's Kit)** o PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking	**Knowledge/Skill Pertaining Questions** o What are different kinds of large ruminant programmes for tribal livelihood in your village?
	Reflective/ Conceptual Questions: o How will you develop large ruminant programme in your village? o How is it going to be beneficial for tribal livelihoods?
Additional Recourses	