

FACILITATOR'S MANUAL

IIMR UNIVERSITY

BRLF

Certificate Program in Rural Livelihoods

MODULE NAME: Strengthening Rural Livelihood through Back Yard Poultry

**A Joint Initiative of Bharat Rural Livelihoods Foundation (BRLF) and
Indian Institute of Management Research (IIMR), Jaipur**



WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK (WASSAN)

MODULE LAYOUT

Sr. No	Course	Session	No of Hours	Facilitator Name	Expected outcome		Assessment tools
					Knowledge	Skills	
1	Introduction to Rural Backyard Poultry (BYP)	Importance of BYP in Rural Livelihoods	1		Importance of BYP as an option in rural livelihood	-	Q &A
		Different Production Systems in Poultry in India	2		Pros and cons of different models of poultry production. Why BYP with Desi Birds is sustainable?	Assess pros and cons of different models of poultry production	Q &A
		Understanding Issues Related to BYP production in Rural Areas	2		Important problems of BYP production at village level	Asking right questions in focus group discussions and interactions with community to understand problems, so that we come out with the right solutions	Exercise
2		Breeds of Poultry in India	1		Native breeds of poultry in India & pros and cons of different types of birds in rural BYP production system	Identification of different kind of poultry birds	Exercise
		Support Services Required to Realize Potential of BYP	2		Requirement of fee-based healthcare services	How to work out long-term economically feasible services?	Exercise
		Management Practices in BYP	2		Knowledge on night shelter, Azoola feed mix, techniques of improving hatchability and production	Design and estimates of night shelter at household level, steps in of production of Azoola feed mix preparation	Q & A

Sr. No	Course	Session	No of Hours	Facilitator Name	Expected outcome		Assessment tools
					Knowledge	Skills	
		Diseases and Healthcare Management in BYP	4		Important diseases of poultry, causal organisms and prevention	Identification of important diseases in poultry and vaccination techniques	Q & A and Practical
		Establishing Entrepreneurship through Breeding Farms	4		Purpose and output of breeding farms, how to identify an Entrepreneur?	Technical capacity to select breeding farm site, layout of breeding farm, design package of practices in breeding farm	Q&A
		Design Programme on Backyard Poultry for Rural Areas	3		Basic understanding of the design of BYP programme at cluster level	Basic skills to design cluster level BYP programme and its monitoring	Q&A

MODE OF ASSESSMENT

Sr. No.	Label – S (Skill) / K (Knowledge)	Component to be Assessed	Assessment Method	Any specific assessment tool / guide being used (eg. Exercise sheet, interview scoring sheet) – Yes/No – please attach if Yes.	Weightage (out of 100%)
1.	Knowledge	Comparison of different poultry production systems	Quiz	Questionnaire	5 %
2.	Knowledge	Sustainability of extensive system of poultry rearing in tribal areas	Oral / Interview	Questionnaire	5 %
3.	Skill	Flock dynamics in Desi poultry	Interview	Interview Sheet	10 %
4.	Skill	Identification of different breeds	Quiz	Charts	5 %
5.	Knowledge	Health services required for Desi poultry	Interview	Interview Sheet	10 %
6.	Knowledge	Disease identification with symptoms	Quiz	Charts and Image	10 %
7.	Skill	Computation of rations with available ingredients	Practical		5 %
8.	Skill	Developing Azoola, termite growth, etc.	Practical	Practical	5 %
9.	Skill	Construction of a night shelter with internal partitions	Practical	Practical Exercises	10 %
10.	Knowledge	Foraging area development	Quiz	Questionnaire	10 %
11.	Knowledge	Overall management of a breed farm with profits	Quiz	Questionnaire	10 %
12.	Skill	Development planning of Desi poultry	Writing	Questionnaire	15 %
				TOTAL	100%

SESSION PLAN - 1

- **Course** : **Poultry Introduction to Rural Backyards**
- **Session No. & Name** :
 1. Importance of BYP in Rural Livelihoods
 2. Different Production Systems of Poultry in India
 3. Issues Related to BYP Production in Rural Areas
- **Session Objective (Facilitator's Guide)** :
 1. Understand the contribution of BYP in rural livelihoods
 2. Understanding different production systems of poultry and find out sustainable model for backyard poultry
 3. Find out problems with BYP production at village level
- **Session Overview (Facilitator's Guide)** :

Explain population of Desi poultry in rural areas. Ask students to share their understanding of poultry rearing in their village. Facilitator should ask – what is current level of production in households? What is the current level of income from poultry and level of consumption at household?

Share case study of Mr Perumal. Allow students to read and understand the case study.

Case Study : I – Small Investments can make Significant Difference

Mr. Perumal resides in Jumbumadai village in Namakkal District of Tamil Nadu. His family of six has 4 acres of land, along with cattle and Desi Poultry (Perunzadi breed). He maintains a flock size of 8-10 Desi poultry throughout the year. They are reared mainly in the foraging system with little supplementary feed in form of Jowar, broken rice etc, which comes from their own agricultural land. Krishi Vigyan Kendra (KVK) – Namakkal provides vaccination and healthcare services. A night shelter was built to keep hens and chicks, whereas cocks preferred to stay on mango and acacia trees during night. Every 3-4 months, he sells around 35-40 birds, yearly around 120 birds in total. Mr Perumal earns around Rs 30000/- from selling of birds.

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

1. Why Perumal is earning Rs 30000/- from Desi Poultry?
2. What are the things he does which are different from others?
3. Is there any farmer (best farmers) in their village who is doing well in poultry rearing?
4. What would be the income from poultry if more households follow Mr Perumal?

1. Different Production Systems of Poultry in India

Facilitator will assess understanding of students about different types of poultry production systems they have seen. Then share a PPT that shows the difference between these production systems.

There are 3 types of poultry systems in rural areas, such as, intensive system (broiler), semi-intensive system (improved birds) and extensive system (Desi Birds). In Intensive system, birds are kept in the cage / poultry shed. Chicks are obtained from hatchery and then reared with external feed and when they achieve proper body weight (1.5 -2 kg) they are sold. This system requires more investment because of external feed.

In semi-intensive system, improved birds like Vanaraja, Giri Raja etc. (developed by research institutes) are reared in cage or poultry shed. Chicks are purchased from research institutes / KVK/private hatchery and reared with mostly external feed. When birds are more than 3 months old, they are allowed to go outside of shed for some time for foraging. Semi-intensive system is also capital intensive.

In extensive system, birds are kept in small numbers and reared through foraging. Birds are kept in night-shelter/basket during night. They search and get food from the backyard. Hens brood their chicks. This is low cost production system. There are threats of epidemics and diseases. However, regular vaccination and healthcare support with proper shelter during nights can reduce diseases, predation and related mortality.

In rural areas and tribal villages, extensive system is very prominent keeping in view the low labour engagement and availability of foraging resources. Desi poultry is not only a livelihood option but is also a part of their culture and tradition.

2. Issues related to BYP production in rural areas

There are issues in Desi poultry production system in rural areas. To understand these issues, a group exercise is to be given to the students. Following questions will be useful for students to understand issues:

- How many chicks reach adult stage?
 - What are the reasons for not rearing more numbers of birds by the households?
 - What is the mortality rate?
 - What are the diseases that are epidemic for poultry?
 - What is loss of birds due to predation?
 - What are the major predators of birds in the villages?
 - What are the housing systems for poultry in the villages?
 - Calculate loss of income due to limited / no vaccination services?
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- **No. of facilitators required (for a batch of 30) : 3**
 - **No. of Hours : 5 Hrs**

SESSION GUIDE

- **Learning Objective** :
(Learner's Guide)
 1. Understand the contribution of BYP in rural livelihoods
 2. Understanding different production systems of Poultry and find out sustainable model for backyard poultry
 3. Find out problems of BYP production at village level

- **Skill Outcomes** :
(Learner's Guide)
 1. Assess pros and cons of different poultry production systems.
 2. Ask the right questions in focus group discussions and interactions with community to understand problem.

- **Teaching Aids used** :
(if any)
 1. PowerPoint Presentation
 2. Chart papers
 3. White board & markers
 4. Cut cards

- **Facilitation Steps** :
 1. After introduction of students facilitate students to understand Desi poultry production and its contribution towards livelihood
 2. Sharing of PPT on different production systems
 3. Group exercise to understand issues in Desi poultry production

Recommended reference material (AVs, Reading material, web references)	READING MATERIAL (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. Note on different poultry production systems in India 2. Case study of Mr. Perumal AV RESOURCES (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. PPT
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking:	KNOWLEDGE/ SKILL PERTAINING QUESTIONS: <ol style="list-style-type: none"> 1. What are the different poultry production systems in India? 2. Can you calculate loss of income due to limited / no vaccination services? REFLECTIVE/ CONCEPTUAL QUESTIONS: <ol style="list-style-type: none"> 3. Why do you think BYP is a good livelihoods option for rural households? 4. Role of poultry in rural livelihoods – Please explain.
Additional Resource	Expected challenges while facilitating and recourse to be taken by the facilitator in such situations.

SESSION PLAN - 2

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** :
 1. Different Poultry Breeds
 2. Healthcare Services required to realize potential of Backyard Poultry
- **Session Objective (Facilitator's Guide)** :
 1. To understand different breeds and their production capacities and importance of local breeds
 2. Support services required at each stage
- **Session Overview (Facilitator's Guide)** :

1. Different Poultry Breeds

Poultry reared in different systems and for different purposes. Industrial poultry is reared in breeding farms (known as Industrial farming). As per National Bureau of Animal Genetic Resources (NBAGR) there are 17 chicken breeds registered as distinct breeds in India (<http://www.nbagr.res.in/regchi.html>). These are called *Desi* or indigenous chicken. Some of the very well know indigenous breeds are, Aseel, Kadaknath, Danki, Kalasthi, Ghagus etc. *Desi* breeds are well adapted to local agro-ecological conditions and have good brooding capacity except Kadaknath.

Low technology birds are indian breeds crossed with exotic breeds, which are also reared in small groups and in backyards. However, they are not agile.

2. Healthcare Services required to realize potential of Backyard Poultry

As epidemics and disease outbreaks are constant threat to *Desi* BYP, it is important to establish proper healthcare services. Since this is localized system, service delivery has to be regular and very prompt. Such services can be established at local level by training local youth / women. 3-5 days training of youth/ women (poultry vaccinator) along with necessary infrastructure to maintain cold chain will be necessary. During training, involvement of local veterinary officer is very much needed. This service delivery should be institutionalized by forming Common Interest Group (CIG) among the poultry rearers. CIG members must raise fund which can be treated as poultry fund in the village. Generally, 100 households come together to form poultry fund by contributing membership amount as well as advance deposit towards healthcare services. One poultry vaccinator can cover 50 or more members and get paid for his/her services by CIG. Poultry

vaccinator should work 1-2 hours in the evening to carry out vaccination. They can also earn small amount of supplementary income by providing these services.

- **No. of facilitators required (for a batch of 30)** : 2
- **No. of Hours** : 3 Hrs

SESSION GUIDE

- **Learning Objective (Learner's Guide)** :
 1. To understand the different breeds and their production capacities and importance of local breeds
 2. Support services required at each stage
- **Skill Outcomes (Learner's Guide)** :
 1. Identify and select breeds for local area.
 2. Plan to establish CIG and poultry fund for payment-based healthcare services
- **Teaching Aids used (if any)** :
 1. PowerPoint Presentation
 2. Chart papers
 3. White Board & markers
 4. Cut cards
- **Facilitation Steps** :
 1. Discuss with students about the different types of Desi poultry they have seen.
 2. After getting response from students then introduce the concept of breeds and different poultry breeds in India.
 3. In last session students were introduced to issues of BYP. Now, bring them towards solutions
 4. Introduce them to the concept of Common Interest Groups (CIG)
 5. Facilitate students to understand how to evolve payment-based services

Recommended reference material (AVs, Reading material, Web references)	READING MATERIAL (IN LEARNER'S KIT) AV RESOURCES (IN LEARNER'S KIT) 1. PPT on Breeds of Poultry in India
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking:	KNOWLEDGE/ SKILL PERTAINING QUESTIONS: 1. Name of the local breeds available in the villages 2. Name low technology birds

	<ol style="list-style-type: none"> 3. Criteria for selection of Vaccinator 4. Process of formation of CIG <p>REFLECTIVE/ CONCEPTUAL QUESTIONS:</p> <ol style="list-style-type: none"> 1. Why Desi poultry breeds are preferred in tribal areas? 2. Why poultry health services needs to be institutionalized? 3. Why we need to create a poultry fund? 4. How to arrive at the number of households that one vaccinator should cover?
Additional Resource	Expected challenges while facilitating and recourse to be taken by the facilitator in such situation.

SESSION PLAN - 3

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** :
 1. Package of practices in Desi BYP
 2. Diseases
 3. Healthcare management
- **Session Objective (Facilitator's Guide)** :
 1. Learn about the package of practices to improve Desi poultry production system.
 2. Common diseases of poultry including contagious, non-contagious and their control
 3. Hygienic management of shelter and need for potable water
- **Session Overview (Facilitator's Guide)** :

Introduce package of practices in Desi poultry production. Following package of practices to be discussed with students.

- a) **Hygienic Night Shelter** – A clean well-ventilated night shelter is required at household level. A family maintaining 5 hens requires night shelter of 20 sq ft (5 ft x 4 ft) size. By using local raw materials like bamboo, wood, stones, along with GI weld mesh and roofing sheet low cost night shelter can be easily constructed. A tentative budget and estimate of household level night shelter is given below:

HOUSE HOLD NIGHT SHELTER					
ESTIMATE					
Size 4'-0"x5'-0"					
S.No	Description	Size	Area	Rate	Amount
1	AC Cement Sheet (2 sheets of 6X3)	6'x6'	36 Sft	Rs. 350.00	Rs. 700.00
2	Mesh	20'x4'	80 Sft	Rs. 10.00	Rs. 800.00
3	Door with local wood	2'x4'	8 Sft	Rs. 50.00	Rs. 400.00
4	Wood for Verticals	8 nos	6'-0" ht	Rs. 100.00	Rs. 600.00
5	Wood for Horizontals	6 nos	6'-0" ht	Rs. 100.00	Rs. 600.00
				Total	Rs3,100

Shelter should be cleaned every day. Dry flooring prevents respiratory and digestive problems. Droppings of poultry can be then used in farm land for improving soil fertility as poultry dropping is very rich source of nutrition for plants.

- b) Supplementary Feeding:** Nutrition is an important component of *Desi* poultry. Though most of the nutrition of *Desi* poultry comes from foraging, usually in summer months they do not get required nutrients from foraging. Hence, they need to be supplemented with chunni, bran, cakes, termites, worms and azolla etc. Calcium is necessary for egg shell formation which can be supplemented with dry fish, egg shell, shell grit etc.



SI No	Feed types	Usefulness	Sources
1	Energy Rich	Maintains body temperature and bird movement	Rice, wheat, maize and their by-products (bran), Sorgham, Bajra, ragi, yam meal, banana meal, root & tubers etc.
2	Protein Rich	Growth, egg production and keeps birds healthy	Maggot, termites, insects, worms, meat scraps, fish scraps, fish meal, leaves of cassava (<i>Manihot esculenta</i>), subabool (<i>Leucaena leucocephala</i>), peas, beans, oil cake, palm and coconut kernel etc.
3	Mineral rich	Bone & eggshell formation and health of birds	Snail shells, bone meals, burnt eggshells
4	Vitamin rich	Growth, egg production, increased hatchability	Green fodder like drumstick leaves, vegetables, Azolla, sunlight, green grass

- c) Egg Laying and Hatching:** Nests should be provided to the birds to lay eggs. For laying eggs, rearer should provide a few nests/shelves where more hens can lay eggs at a time. Nests may be made with local materials like bamboo. Or wooden shelves, broken earthen pots etc. can also be used for nesting. For brooding/hatching, hens need nests placed in isolated quiet and dark places, to prevent people and other birds from disturbing them. Brooding/hatching, nests should be filled with sand mixed in ash up to 1/3rd of the depth. Top it with clean and soft nesting materials like hay/straw up to 2/3rd of the depth and then place the eggs in the nests. Mixing of anti-parasitic substances, like ash, tobacco leaves, neem leaves, dry lime etc, with nesting materials keeps out external parasites, thereby improving hatchability.
- d) Chick Management:** Chicks are more vulnerable. Not only are they more disease prone but also vulnerable to predators. Poultry rearer should take special care in chick management. Chicks should be kept with mother hen in a separate partition made in the shelter.
- e) Drinking Water:** Clean drinking water should be provided to poultry twice in a day in clean vessels. Ensure that they don't drink water from unhygienic sources like *Nalla*, which may result in water borne diseases.
- f) Payment based vaccination:** *Desi* poultry rearers must carry out vaccination of birds at regular intervals. Vaccinations are required for Ranikhet Diseases (RD) and Fowl Pox. Trained vaccinators should vaccinate the birds. Rearer should contribute (advance payment) towards Poultry Fund operated by the CIG.
- g) Record Keeping:** Every household should have a system of data recording. Data on flock dynamics, vaccination and healthcare, mortality and sale should be maintained. This helps the rearer keep a tab on the timeline for vaccination and have a clarity on the improvement in production and economic return against investment.
- 2. Common Diseases in Poultry**

Even though, indigenous birds have more resistance to diseases, proper healthcare management system should be established at breeding farm. Since, birds are exposed to the outdoor, it is important to have proper bio-security measures in the breeding farm to reduce risk of disease in the flock. Litter, feed, water, wild birds, rodents, insects, dogs, cats, vehicle, equipment and humans could all be potential sources of disease. Therefore, care should be taken to prevent diseases in the flock.

Important Diseases of *Desi* Poultry

DISEASE (COMMON NAME)
Raniket Disease / New Castle Disease
CAUSAL ORGANISM
Virus
SYMPTOMS
<ul style="list-style-type: none"> • Yellowish/green diarrhea • Twitching of neck • Paralysis • Respiratory Distress • Prostration



DISEASE (COMMON NAME)
Fowl Pox
CAUSAL ORGANISM
Virus
SYMPTOMS
<ul style="list-style-type: none"> • Wart like nodules on comb, face and wattles • Cankers in mouth, larynx and trachea • Brown lesions in larynx. When removed an eroded area is left



DISEASE (COMMON NAME)
Marek's Disease
CAUSAL ORGANISM
Virus
SYMPTOMS
<ul style="list-style-type: none"> • Labored Breathing • Lameness, Paralysis • In-coordination, Blindness • Paleness of comb and ear lobes • Green diarrhea



DISEASE (COMMON NAME)

Corhyza

CAUSAL ORGANISM

Bacteria / Virus

SYMPTOMS

- Watery swollen eyes and face
- Purulent nasal exudates
- Eye lids stick together by mucus and exudates
- Gasping
- Gargling sound during respiration

**DISEASE (COMMON NAME)**

Bacillary white diarrhea

CAUSAL ORGANISM

Salmonella

SYMPTOMS

- White paste adheres to vent.
- Weak, flock moves to one corner of the shed.

**DISEASE (COMMON NAME)**

Coccidiosis

CAUSAL ORGANISM

Protozoa

SYMPTOMS

- Bloody diarrhea,
- Vent pasted with blood

**DISEASE (COMMON NAME)**

Internal Parasites

CAUSAL ORGANISM

Worms

SYMPTOMS

- Weak, anemic
- Worms found in feces and intestines also



DISEASE (COMMON NAME)

External Parasites

CAUSAL ORGANISM

Ticks and Mites

SYMPTOMS

- Irritability leads to stunted growth and loss of appetite

**DISEASE (COMMON NAME)**

Fowl typhoid Salmonellosis

CAUSAL ORGANISM

Bacteria

SYMPTOMS

- Dejection, Ruffled feathers, In-appetence. Thirst
- Yellow diarrhea. Reluctance to move

**DISEASE (COMMON NAME)**

Heat Stroke

CAUSAL ORGANISM

High temperatures

SYMPTOMS

- More thirsty
- Dehydration

**DISEASE (COMMON NAME)**

Fowl Cholera

CAUSAL ORGANISM

Bacteria (Pasteurella)

SYMPTOMS

- Infection spreads through the feed, water and equipment
- Greenish diarrhea, Purple comb and wattles, swollen wattles, ruffled feathers, swollen joints, lameness and sudden deaths occur



Contagious diseases like RD, Fowl Pox, Marek's disease can be prevented with timely vaccination. Improving hygienic conditions and clean water will help prevent many poultry diseases.

Vaccination Schedule of major poultry diseases is given in following table:

S. No.	Age	Particulars
01	7th day	Lasota vaccination against Ranikhet Disease-I/O or I/N
02	14th day.	Lasota vaccination against Ranikhet Disease-I/O or I/N
03	8th week	Fowl pox vaccination against Fowl pox disease –S/C or I/M
04	9th week	RDVK vaccination against Ranikhet Disease–S/C or I/M
05	18th week	RDVK vaccination against Ranikhet Disease–S/C or I/M
06	Desi birds (Adult)	Lasota mixed with water and given to Desi birds once in every 3 months. One week before Lasota vaccination, deworming is to be carried out
Vaccination schedule recommended by KVK, Namakkal		

- **No. of facilitators required (for a batch of 30) :** 2
- **No. of Hours :** 3 Hrs

SESSION GUIDE

- **Learning Objective (Learner's Guide) :**
 1. Learn about the practices to improve Desi poultry production.
 2. Common contagious, non-contagious diseases in poultry and their control
 3. Hygienic management of shelter, need for potable water
- **Skill Outcomes (Learner's Guide) :**
 1. Azoola pit construction, termite growth, feed computation
 2. Disease identification, timely preventive measures to be taken and calendar of operations
 3. Night shelter planning, hygienic maintenance of shelter and need for provision of potable water
- **Teaching Aids used (if any) :**
 1. PowerPoint Presentation
 2. Chart papers
 3. White Board & markers
 4. Cut cards
- **Facilitation Steps :**
 1. First introduce practices in BYP.
 2. Provide practical training of feed mix

3. During field practical session, explain construction of Azoola pits, night shelter at household
4. Introduce diseases in poultry

Recommended reference material (AVs, Reading material, web references)	READING MATERIAL (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. Vaccination chart 2. Poultry disease table AV RESOURCES (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. PPT on poultry
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking:	KNOWLEDGE/ SKILL PERTAINING QUESTIONS: <ol style="list-style-type: none"> 1. Name contagious diseases 2. Name ingredients rich in energy and protein 3. How the azoola pit is constructed? 4. Importance of night shelter and its maintenance REFLECTIVE/ CONCEPTUAL QUESTIONS:
Additional Resource	Expected challenges while facilitating and recourses to be taken by the facilitator in such situation.

SESSION PLAN - 4

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** : I. Establishing Breed Farm for Entrepreneurship
- **Session Objective (Facilitator's Guide)** : I. Process of Establishing Breeding Farm Enterprise
- **Session Overview (Facilitator's Guide)** :

Even though, Desi / indigenous birds are very prominent in rural India, there are no support services to improve backyard poultry production. There is no organized system of supply of Desi poultry chicks at grass root level.

Main purpose of promoting breeding farm enterprise is to develop decentralized breeding unit of Desi / indigenous poultry and create a supply chain of chicks / growers. One breeding farm can serve 100-200 households from cluster of villages and increase its catchment as per demand.

Criteria for Selection of Breeding Farm Entrepreneur

- A dedicated person from the household needs to be available full time throughout the year to look after day to day operation in breeding farm
- Have prior experience in Desi poultry rearing (more than 10-15 Hens)
- Ability to invest in development of breeding farm
- Have 2000 sq mt of land near house for establishing breeding farm (preferably having plantation to provide natural shed in the enclosure)
- Ability to keep records / accounts etc.
- Agree to follow all best practices in breeding farm
- S/he should be member of SGHs/Common Interest Group/Poultry Rearers' Network/(part of any local institution)

Infrastructure

In order to maintain breeding stock of 50 hens and 10 cocks along with chicks and growers, the following basic infrastructure is required at the breeding farm.

- I. **Foraging Areas** – Since breeding farm enterprise promotes foraging/free-range birds, an area of 2000 sq mt (0.5 ac) land is required for developing infrastructure and forage-based feed resources. This land should essentially be in the backyard of the entrepreneur's house to provide greater attention to the birds. In case of inadequacy of land, entrepreneur must reduce the number of breeding stock. The number can be increased gradually if more land is available. Foraging area should have lots of plantation. This will provide natural shade and help in reducing

temperature, particularly during summer. Besides plantation, few temporary thatched rest sheds (4-5 in numbers) spread over foraging areas are required to provide additional resting place for birds during day time. Provision of water inside or near the foraging area is also crucial.

2. **Fencing** – Entire foraging areas, i.e., 2000 sq mt has to be enclosed by providing fencing. Fencing will protect birds prone to predation, particularly in forest fringe areas. In the long run, live fencing may be developed with plants like Gliricidea, pongamea, etc. Along with live fencing, low cost locally available material like fishnet/kabutar jaali/bamboo/palm leaves should be used to prevent predators from coming inside the foraging area. Care should be taken to ensure the fencing does not have any gaps that will allow predator like cats to come inside.

3. **Shelter** – Clean shelter is pre-requisite to the breeding farm to reduce risks of loss of birds due to bad weather, predators, and theft. Inside the shelter, partitions are made to keep different types of birds. Rice straw/rice husk should be spread on the floor and should be changed every month. Liming should be done before spreading the husk on the shelter floor.

One section (confined inside the shelter) should be kept for mother hen and chicks in order to give greater attention to chicks at their early stage and protect them from any kind of injury from other birds (explained in detail in the chick management section).

TIPS FOR CONSTRUCTION OF SHELTER

- Use cheap but durable local materials like, bamboo, wood, reeds, thatch grass, clay bricks combined with cement.
- Use plastic coated wire mesh as wall which provides ventilation & sunlight
- Floor may be concrete (cement, sand, mud mix) and cow dung layer which is covered with dry straw and rice husk
- Keep reed grass/thatched grass cover on the roof of tin sheets.
- Place perches in adequate numbers so that growers and adult birds roost in the night
- Place partitions to isolate chicks and mother, hatching nests and egg laying shelves.
- Remove bushes and grass near shelter to reduce predation
- Ensure there are no holes in the shelter

Another section covered with cloth/green nets to provide isolation to hatching hens. 15-20 baskets/nets are placed either on the ground or hanging as hatching nests in this section. Some grass, sand and bedding materials should be placed in the baskets/nests. Feed and clean water should be provided nearer to hatching birds. This section should be closed so that hatching birds are not disturbed by the other birds in the shelter. After hatching, these nests/baskets should be cleaned and dried before reuse by other birds.

A third section inside the shelter should be dedicated to hens laying eggs. 12-15 egg laying boxes/baskets/shelf made of bricks with tin sheet placed over shelves will be useful. This will allow hens to come and lay eggs in specific areas and entrepreneur can collect eggs easily. This also reduces spoilage and loss of eggs.



A fourth section where growers, cocks, and dry hens take rest during the night should be created.

The shelter, perches, egg shelf, hatching basket/nests should be thoroughly cleaned on a regular basis. Liming of walls, perches, doors should be done twice a year. Liming should always be done after outbreak of a serious disease.

Foraging Feed Resource Development

In the breeding farm, Desi/indigenous birds get their food by foraging/scavenging for insects and kitchen waste, green vegetable waste and grains scattered around the foraging area. In order to maximize profit, breeding farm enterprise should develop forage/scavenging feed resources within the foraging area. Poultry needs energy-rich, protein-rich, mineral-rich and vitamin-rich food.

Rearing Practices in Breeding farm

1. **Selection of Birds and Breeds** – In a breeding farm, entrepreneur should decide to either increase flock from her/his own stock or purchase good quality birds through proper selection (take care of bio-security of purchased birds). If new birds are bought, they should be kept in a separate basket or shelter for the first two weeks. A Hen:Cock ration of 10:1 should be maintained in the breeding population. Starting with healthy birds will reduce lots of disease related issues in the breeding farm.

Tips for Selection of Birds for Breeding Farm

- Clean and shiny feathers
- Clean and dry beak and nostrils
- Agile and lively behavior
- Check whether hens are in lay
- Straight legs and toes, with no signs of scaly legs

2. **Egg Laying** – Entrepreneur must ensure that 1/3rd hens in the breeding farm, are laying eggs (except in summer months). Nests should be provided inside the shelter for the birds to lay eggs. Entrepreneur should provide more number of nests/shelves where more hens can lay eggs at a time. Nests may be made of local materials, like bamboo baskets, wooden shelves, broken earthen pots etc. The breeding farm should have 15-20 such nests in the shelter.

3. **Hatching** – For hatching, hens need isolated separate nests placed in quiet and dark place to prevent people and other birds from disturbing brooding/hatching hens. To make nests for brooding/hatching, use bamboo baskets/clay pots/wooden boxes filled with sand and ash mix up to 1/3rd depth. Put clean and soft nesting materials like hay/straw on top of the mix up to 2/3rd depth and then place the eggs in the nests. Mixing of anti-parasitic substances like ash, tobacco leaves, neem leaves, dry lime etc. with nesting materials will keep out external parasites, thereby improving hatchability.

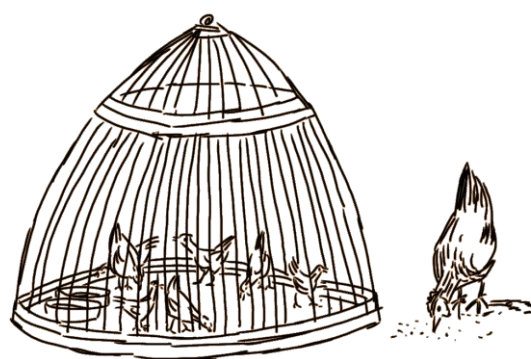


4. **Chick Management** – Chicks not only more disease prone but also vulnerable to predators. In the breeding farm, special care should be taken in chick management. Chicks should be kept with the mother hen in a partition made in the shelter. Specific care for chicks at different age groups has been mentioned below:

- a. **0-1 week:** The first week is most vulnerable for chicks. First 7 days, chick should be kept with hen all the time to protect them and to allow them to adjust to the temperature. A brooding hen knows how to adjust the temperature according to the sound made by the chicks. Breeding farm entrepreneur should provide a day basket with jute mat, a feeder, drinker inside the basket. Food and water should be supplied at regular intervals. Ensure cleaning of basket and mat every day.



- b. **1-3 weeks:** During this period, chicks should be kept inside the shelter or in day basket all the time but allow the hen to go for foraging close by, so she can hear the sound of her chicks. Allow hens to come back and spend time with her chicks and then again go back to forage. High-protein feed and water should be provided to chicks. Day basket should be cleaned regularly. Keep hen and chicks together during the night.



- c. **3-6 Weeks:** During this period, chicks should be allowed to go out for foraging with the hen for few hours in the morning, while someone keeps a vigil on the movement of the chicks. Later on, increase the foraging time of chicks with the hen gradually. Provide high-protein rich feed to chicks in the day basket. Don't allow older birds inside the basket (creep feeding). Keep hen and chicks together at night.

- d. **After 6 weeks:** After 6 weeks, basket system should be removed. Chicks should be allowed to forage freely with mother hen and other birds. Supplementary feed should be given in the evening as per requirement. After 6 months, 50 % of chicks should be sold to other households. Chicks can be given on sharing basis if that is prevalent as traditional system in the village.

5. **Flock Management** – Proper flock management is very important in the breeding farm. A breeding farm having adequate foraging ground (2000 sq mt) with all best practices developed should be able to keep 50 hens and 10 cocks as breeding stock. It should maintain its hens in such a way that 1/4th are laying eggs, 1/4th are in hatching, 1/4th are brooding with chicks and the rest 1/4th are dry. This sequence will ensure regular chick production and entrepreneur can give proper attention to chick management (mentioned in earlier section).

- a. It is important to sell 50% of chicks at the age of 30-45 days, as it will reduce the feed requirement of the breeding farm. Another 25% of chicks should be sold at the age of 90-100 days when they are growers and rest 25% should be allowed to grow to adult stage. Some of these adult birds will be useful to replace current breeding stock and rest should be sold in the market.
- b. In case, pocking is observed in the breeding farm, entrepreneur should sell out more birds (growers and cocks; but maintain breeding stock) or increase foraging site or keep cocks confined/isolated from growers and hens.

Supplementary Feeding

Breeding Farm is a free-range system where poultry find most of their feed through scavenging in the foraging area. Availability of scavenging/foraging feed resource base (SFRB) varies depending on the change in climate, geography, vegetation cover and package of practices in the breeding farm. Supplementary feeding is required in the breeding farm (70-75% of feed should come from scavenging), though quantity of supplementary feed depends on availability of SFRB.

Supplementary feeding is required most to chicks at an early age, as they are unable to search for their food on their own. Requirement of supplementary feed for birds of different age group is given below:

SI No	Age (weeks)	Amount of Supplementary feed required for scavenging birds / day (gram dry weight)
1	Week 1	10-15 gm
2	Week 2	15-20 gm
3	Week 3 – 4	20-25 gm
4	Week 5 – 8	30-35 gm
5	Week 8-27 (growers)	30-40 gm
6	From week 28 (Adult)	25-30 gm

As mentioned in chick management section, chicks up to age of 2 weeks should be given protein rich supplementary feed only. Chicks between 3-4 weeks should be given supplementary feed twice a day as per requirement mentioned in the above table. To keep the birds hungry for scavenging, allow them to forage in the early morning and then give half of the supplementary feed in day time (between 8-10 am) and rest in the evening when birds return to shelter after foraging. Give feed to chicks first inside the shelter, then hens and growers and cocks at the last.

Use feeder, feed cafeteria for providing feed to reduce any waste. Clean drinking water should be provided twice in a day. Feeders and drinkers should be cleaned daily.

Breeding farm entrepreneur should schedule and calculate weekly requirement of supplementary feed for the birds and store feed required for one month at least. It is better to use own farm grown material to produce homemade feed mix.

Calculation of Supplementary Requirement in Breeding Farm

Categories	Number of Birds	Per Birds Per Day Requirement (gm)	Amount of Supplementary Feed Needed Per Day (kg)
Chicks	100	10	1 kg ($100 \times 10 \div 1000$)
Growers	50	20	1 kg ($50 \times 20 \div 1000$)
Hens	50	30	1.5 kg ($50 \times 30 \div 1000$)
Cocks	10	30	0.3 kg ($10 \times 30 \div 1000$)
Total (in Kg) / day			3.8
Supplementary Feed Requirement for a week = 26.6 kg (same number of birds)			
Supplementary Feed Requirement for a Month = 114 kg (same number of birds)			

It is important to measure the container (which is used for providing feed) when it is full. A small electronic weighing machine should be kept in the breeding farm which will be used for both weighing of feed as well as to check growth of the birds (experimental basis).

Mixing and Formulating Feeds

In breeding farm, it is better to produce homemade feed mix for poultry. To keep the feed cost low, entrepreneur should grow raw materials within the foraging ground and also in the farm land. Composition of homemade poultry feed is given in the table.

Age	Cereals (millets bran, sorgham, maize, rice bran) (in gm)	Oil cakes (cotton seed, groundnut, sesame, sunflower) (in gm)	Fish meal, egg shell crash (in gm)	Cassava tubers (in gm)	Total (in gm)
0-8 weeks (for Chicks)	700	200	100	-	1000
9-27 weeks (for growers)	650	150	50	150	1000
> 27 weeks (for Adult)	600	100	100	200	1000

Disease Management

Even though indigenous birds have more resistance to diseases, proper healthcare management system should be established at breeding farm. Since, birds are exposed to the outdoors, it is important to have proper bio-security measures in the breeding farm to reduce risk of diseases in the flock. Litter, feed, water, wild birds, rodents, insects, dogs, cats, vehicle, and equipment could all be potential carriers of disease. Birds purchased from outside could also be potential source of disease. Therefore, care should be taken to prevent diseases from entering the flock.



It is extremely important for breeding farm entrepreneur to learn how to detect unhealthy or sick birds, so that s/he can immediately take right action. First action should be isolate sick birds from the flock and then initiate treatment. Tips for identifying sick birds from healthy flock are given table:

Healthy Birds	Sick / Unhealthy Birds
Alert and on guard	Tired and lifeless
Bright eyes and comb	Dull eyes and combs
Smooth and neat feathers	Ruffled and loose feathers
Walk, run, stand, and scratch continuously	Sit and lie down
Eat and drink normally	Eat and drink less
Lay eggs normally	Stop laying eggs/lay abnormal eggs
Soft compact droppings	Wet /loose dropping with worm/ blood/diarrhea
Breath quietly	Cough, sneeze, and breath noisily and may have nasal discharge

Careful management can reduce disease occurrence in breeding farm. Following measures should be taken for proper healthcare management at breeding farm:

- Always provide clean water to birds in a clean vessel/drinker
- Supplementary feed should be kept in dry and clean place
- Wash feeder every day in clean water, allow it to dry and then give feed
- Clean shelter every day and keep it dry
- Apply lime in shelter floor and wall frequently
- Culling of weak birds that are susceptible to disease and act as transmitter
- Don't keep other species of birds like ducks, guinea fowls, turkey in the breeding farm
- Deworming of birds before 12-15 days before vaccination
- Vaccinate birds as per schedule

S. No.	Age	Particulars
01	7th day	Lasota vaccination against Ranikhet Disease-I/O or I/N
02	14th day.	Lasota vaccination against Ranikhet Disease-I/O or I/N
03	8th week	Fowl pox vaccination against Fowl pox disease –S/C or I/M
04	9th week	RDVK vaccination against Ranikhet Disease–S/C or I/M
05	18th week	RDVK vaccination against Ranikhet Disease–S/C or I/M
06	Desi birds (Adult)	Lasota mixed with water and given to desi birds once in every 3 months. One week before Lasota vaccination, deworming is to be carried out
Vaccination schedule recommended by KVK, Namakkal		

- **No. of facilitators required (for a batch of 30)** : 3
- **No. of Hours** : 6 Hrs

SESSION GUIDE

- **Learning Objective** :
(Learner's Guide)
 1. Process of Establishment of Breeding Farm of Desi Poultry
- **Skill Outcomes** :
(Learner's Guide)
 1. Selection of good breeding stock of hens and cocks
 2. Hatching arrangements
 3. Feeding techniques
 4. Establishing breeding farm of Desi poultry
- **Teaching Aids used** :
(if any)
 1. On the field exposure and practical
- **Facilitation Steps** :
 1. Take students to a breeding farm, organize interaction with breeding farm entrepreneur, provide practical training on the site.

Recommended reference material (AVs, Reading material, web references)	READING MATERIAL (IN LEARNER'S KIT) 1. Detail process and package of practices of breeding farm AV RESOURCES (IN LEARNER'S KIT)
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking:	KNOWLEDGE/ SKILL PERTAINING QUESTIONS: 1. Why breeding farm is required? 2. How to plan Desi poultry breed farm with 50 hens? 3. How to select breeding farm entrepreneur? 4. How to develop foraging area inside breeding farm? 5. How to develop feed mix for chicks, grower and adult chicken? 6. What are the precautions taken for improving hatchability?
Additional Resources	Expected challenges while facilitating and recourses to be taken by the facilitator in such situation.

SESSION PLAN - 5

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** : I. Design program on Backyard Poultry
- **Session Objective (Facilitator's Guide)** : I. Plan for the desi backyard poultry development in cluster level, village level as program
- **Session Overview (Facilitator's Guide)** :

I. Formation of BYP Cluster

Based on situational analysis through focus group discussion in different villages, we must identify a cluster as a unit of operation. Number of clusters in a block can be decided as per scale of the work. In each cluster there could be around 100-120 Households from 2-3 surrounding villages. Number of households to be decided on the basis of efficiency of vaccination services.

2. CIG formations for poultry at cluster level

At cluster level, CIG should be formed preferably through Gram Sabha resolution. Resolution of members will be taken for creating poultry fund in which they will contribute. A saving account will be opened either in nearby bank or post office to maintain poultry fund. CIG will decide three members as authorized signatory to maintain and transact the poultry fund. CIG members will meet once a month to decide and implement the BYP project. In order to maintain transparency and accountability, status of poultry fund will be shared in the monthly meeting of CIG. Payment of vaccinators will be done by CIG from poultry fund after receiving vaccination records from vaccinator. Share budget format.



3. Capacity building for rearers

Capacity building programme should be taken up for *Desi* poultry rearers. Vaccinators/other resource persons should conduct trainings for rearers, particularly on practices to improve BYP production. Vaccinators can also provide support to keep the records at the household.

4. Training of Entrepreneur & Vaccinators

Special training programme should be organized for entrepreneurs and vaccinators. Training modules should be developed for such training. Local veterinary officers should be involved in training programme.

5. Monitoring & Evaluation

Proper monitoring of programme at cluster, household and breeding farm enterprise level is key to the success. For effective monitoring, data should be collected at various levels. Nowadays, several software is available for online and offline data collection through mobile. Data should be collected at different periodicity for following activities:



- | | |
|--|-------------------------------------|
| a) Household Data | - Monthly |
| b) Breeding Farm Enterprise Package of Practices | - One time |
| c) Breeding Farm Enterprise Production Data | - Monthly |
| d) Households Training Data | - As and when Training is conducted |

- **No. of facilitators required (for a batch of 30)** : 2
- **No. of Hours** : 6 Hrs

SESSION GUIDE

- **Learning Objective** :
(Learner's Guide)
 1. Planning for the Desi backyard poultry development in cluster level, village level as program
- **Skill Outcomes** :
(Learner's Guide)
 1. Data collection system
 2. Analysis of local situation of BYP
 3. Process of formation of CIG
 4. Plan for BYP in a cluster
 5. Budgeting
- **Teaching Aids used** :
(if any)
 1. PowerPoint presentation
 2. Chart paper and markers
 3. Computer
- **Facilitation Steps** :
 1. Form three groups among students. Ask them to how to form a cluster. Then introduce process of formation of CIG. Ask them to identify training and capacity building requirement for the cluster. Share a budget sheet to work out budget for one cluster.

2. Introduce KoboTool box for data collection.
3. After the session carry out evaluation of students. Then take feedback from students on the training.

Recommended reference material (AVs, Reading material, web references)	READING MATERIAL (IN LEARNER'S KIT) 1. Brochure on BYP AV RESOURCES (IN LEARNER'S KIT) 1. PPT on Kobo tool box for Data collection
Reflective/ Evaluative questions for students pertaining to higher order and lower order of thinking:	KNOWLEDGE/ SKILL PERTAINING QUESTIONS: 1. What are the precaution taken for improving hatchability? 2. What are the steps to proceed with starting a cluster level program for BYP? 3. What are the important systems needed for development of BYP in tribal areas? 4. How to prepare budget for a cluster?
Additional Resources	Expected challenges while facilitating and recourse to be taken by the facilitator in such situation.