

LEARNER'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)

SESSION PLAN - 1

SESSION GUIDE

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** :
 1. Importance of BYP in Rural Livelihoods
 2. Different Production Systems in Poultry in India
 3. Issues related to BYP productions in Rural areas
- **Session 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
- **Session Overview (Learner's Guide)** :

I. Importance of BYP in Rural Livelihoods

Back Yard Poultry (BYP) is very prominent production system in rural India. Most of the family's rear *Desi* poultry for household consumption of egg & Meat, and small surplus is sold for supplementary income. 84 % of birds that are found in the back yard in the country are *Desi* birds. *Desi* birds can find feed by foraging, they can broods and regenerates naturally, they are more resistant to diseases and very agile to escape from predators. In spite of its several favourable features of *Desi* birds, no significant attentions are given to strengthen this production system which is extended to length and breadths of the country. However, Support services such as timely vaccination, proper package of practices for production of *Desi* poultry in the back yard can give significant income to the rural households.

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 is having 4 acres of land, along with cattle and *Desi* Poultry (Perunzadi breed). He maintains flock size of 8-10 *Desi* poultry throughout the year are reared in mainly 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 is build to keep Hens and chicks, whereas cooks preferred to stay on Mango and Acacia trees during night. In every 3-4 months, he is able to sell around 35-40 birds, yearly around 120 birds in total. Mr Perumal earns around Rs 30000/- from selling of birds.

As we see from the case study, improved management practices along with vaccination services can generate significant income. In rural areas, particularly in tribal areas, any household if maintained 5 hens throughout the year by providing timely vaccination against Ranikhet Disease (RD) and Fowl Pox, low cost night shelter, and little supplementary feed, a family can sale around 50 birds in a year. Potential income could be around Rs12000-15000/- annually.

2. Different Production Systems in Poultry in India

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 feeds.

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 times for foraging. Semi intensive system is also capital intensive.

In Extensive System, birds are kept in small numbers and rear through foraging system. Birds are kept in night shelter / basket during night. They search and get food from outside. Hens brood their chicks. This is low cost production system. There are threats of epidemic 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 of low labour engagement and availability of foraging resources. *Desi* poultry is not only a livelihood option but also it is attached with their culture and tradition.

• Related Assessments (if any)

Total No of Learning Hours	Theory (3 hours)	Practical (2 hours)
Learning Outcomes	KNOWLEDGE OUTCOMES <ol style="list-style-type: none"> 1. Importance of BYP in rural livelihood option 2. Pros and cons of different production systems of Poultry. Why BYP with <i>Desi</i> birds are more sustainable in rural area 3. Important bottleneck of BYP and how to overcome those. 	SKILL OUTCOMES <ol style="list-style-type: none"> 1. Assess pros and cons of different poultry production system. 2. Asking right questions in Focus Group Discussion and interaction with community to understand problem.
Learning support material for reference from your learning kit	READING MATERIAL (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. Note on different poultry production systems in India (<i>AV resources (in learner's kit)</i>) 2. Check list of questions for FGD <i>Web References</i> 	
Reflective/ Evaluative questions pertaining to higher order and lower order of thinking	KNOWLEDGE / SKILL PERTAINING QUESTIONS: REFLECTIVE/ CONCEPTUAL QUESTIONS	

SESSION EXERCISE / CASE STUDY

- **Group Exercises on**

1. Flock dynamics during the year (Seasonal, festivals, diseases)
2. Mortalities due to diseases (Symptoms), predations (age and season), thefts, etc.
3. Economics at house hold levels, incomes, gender issues in rearing

KEY LEARNING REFLECTIONS

1. Comparison of different poultry production systems.
2. Sustainability of Extensive system of poultry rearing in tribal areas.
3. Auto generation of flocks

SESSION PLAN - 2

SESSION GUIDE

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

1. Different Poultry Breeds

Poultry reared in different systems and for different purposes. Industrial poultry is reared in different system like Breeding farms (known as Industrial farming), production birds. 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 cross breeds with Indian breeds crossed with exotic breeds, which are also reared in small groups and in back yards, however, since they are not agile

2. Healthcare Services required to realize potential of Back Yard 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 such 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 have raise fund which can be trated as Poultry fund in the village. Generally, 100 Households comes together to form Poultry Fund by

contribution membership amount as well as advance deposit towards healthcare services. 1 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 this services.

- **Related Assessments :** **Selection parameter of good health birds**
(if any)

Total No of Learning Hours	Theory (3 hours)	Practical (2 hours)
Learning Outcomes	KNOWLEDGE OUTCOMES <ol style="list-style-type: none"> 1. Breeds of poultry 2. Role of different breeds in rural BYP production 3. Requirements of support services for BYP in rural areas 	SKILL OUTCOMES <ol style="list-style-type: none"> 1. Identify and selection of breeds for local area. 2. Planning to establishing CIG and Poultry Fund for payment based healthcare services
Learning support material for reference from your learning kit	READING MATERIAL (IN LEARNER'S KIT) <ol style="list-style-type: none"> 1. Articles on Indian Poultry Breeds 2. Articles on requirements for backyard poultry rearing 3. AV Resources (in learner's kit) 4. Web references 	
Reflective/ Evaluative questions pertaining to higher order and lower order of thinking	KNOWLEDGE / SKILL PERTAINING QUESTIONS: REFLECTIVE/ CONCEPTUAL QUESTIONS	

SESSION EXERCISE / CASE STUDY

- **Group Exercises on**
 1. Poultry breeds availability in respective areas and their qualities
 2. Support in health coverage deficit in the area and improvements to be done
- **Key Learning Reflections**
 1. Socio economic importance and production ability of *Desi* different breeds of poultry
 2. Health services required for *Desi* poultry
 3. Common Interest Group (CIG) and Poultry Fund

SESSION PLAN - 3

SESSION GUIDE

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** :
 1. Package of practices in *Desi* BYP
 2. Diseases
 3. Health care management
- **Session Objective (Learner'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, need for potable water
- **Session Overview (Learner's Guide)** :

I. Package of Practices in *Desi* BYP

In order to improve *Desi* Poultry production at household level, we need to consider following package of practices:

- 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 weldmesh 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 important component *Desi* poultry. Though most of the nutrition of *Desi* poultry comes from foraging, however, usually in summer months they will not get required nutrients from foraging. Hence they are to be supplemented. Energy source should be supplemented with grains and proteins are to be supplemented by chunni, brans, cakes, termites, worms and azolla etc. Calcium is necessary for egg shell formation which can be supplanted through dry fish, egg shell, shell grit etc.

SI No	Feed types	Usefulness	Sources
1	Energy Rich	Maintain body temperature and birds 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 keep 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 cakes, palm and coconut kernel etc
3	Mineral rich	Bone & eggshell formation and health birds	Snail shells, bone meals, burned eggshells
4	Vitamin rich	Growth, egg production, hatchability increased	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 battery of nests / shelves where more hens can lay eggs at a time. Nests may be made of local materials, like bamboo basket, wooden shelves, broken earthen pots etc. For brooding / 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 basket / clay pots / wooden box filled with sand mixed with ashes up to 1/3rd of the depth. Put clean and soft nesting materials like hay / straw on the top 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 will keep out external parasites, thereby improve hatchability.
- d) **Chick Management:** Chicks are more vulnerable not only there are more disease prone but also vulnerable to predators. Poultry rearer should take special care should be taken for chick management. Chicks will be kept with mother hen in the partition made in the shelter.
- e) **Drinking Water:** Clean drinking water should be provided to poultry twice in a day in clean vessels so that they don't drink water from unhygienic sources like *Nalla*, which would cause water born diseases.
- f) **Payment based vaccination:** *Desi* poultry reares must carry out vaccination of birds in regular interval. Vaccinations are required for Ranikeht Diseases (RD) and Fowl Pox. Trained vaccinators should vaccinate the birds. Rearer should contribute (advance payment) towards Poultry Fund operated under CIG.
- g) **Record Keeping:** At household level, there should have a system of data recording. Data on flock dynamic, vaccination and healthcare, mortality and sale should be kept by the rearers.

This will help rearer to understand improvement in production, timeline for vaccination and economic return against their investment.

2. Common Diseases in Poultry

Even though, indigenous birds have more resistance to diseases, however, at Breeding Farm proper healthcare management system has to be established. Since, birds are exposed to outdoor facilities, it is important to have proper bio-security measures in the breeding farm to reduce risk of diseases in the flock. There are sources like, litter, feed, water, wild birds, rodents, insects, dogs, cats, vehicle, and equipments and humans. Birds purchased from outside could also be potential source of disease spread. Therefore, care should be taken to prevent diseases to enter in the flock.

Important Diseases of *Desi* Poultry

DISEASE (COMMON NAME)

Raniket Disease / New Castle Disease

CAUSAL ORGANISM

Virus

SYMPTOMS

- Yellowish/green diarrhea
- Twitching of neck
- Paralysis
- Respiratory Distress
- Prostration



DISEASE (COMMON NAME)

Fowl Pox

CAUSAL ORGANISM

Virus

SYMPTOMS

- 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

- 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
- Gaspig
- Gargling sound during respirations

**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 climatic 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



Prevention of contagious diseases like RD, Fowl Pox, Marek's disease can be prevented by timely vaccination while improving hygienic condition and clean water will help to 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		

- **Related Assessments**
(if any)

Total No of Learning Hours	Theory (3 hours)	Practical (2 hours)
Reflective/ Evaluative questions pertaining to higher order and lower order of thinking	KNOWLEDGE / SKILL PERTAINING QUESTIONS:	
	1. Name contagious diseases 2. Name ingredients rich in energy and protein 3. How the azolla pit construction 4. Importance of night shelter and its maintenance REFLECTIVE/ CONCEPTUAL QUESTIONS 1. 2. 3.	

SESSION EXERCISE / CASE STUDY

- **Group Exercises on**
 1. Exercises will be conducted of feed computation
 2. Disease controlling systems exercises
 3. Identifying the different diseases.
 4. Calendar of activities preparation

KEY LEARNING REFLECTIONS

1. Disease identification with symptoms
2. Computation of rations with available ingredients
3. Developing azolla, termite growth etc
4. Planning for potable water

SESSION PLAN - 4

SESSION GUIDE

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

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

Main purpose of promoting Breeding Farm enterprise is to develop decentralized breeding unit of desi / indigenous poultry and creating supply chain of chicks / growers on the regular basis. Initially one Breeding Farm can serve 100-200 households from cluster of villages for supplying of chicks/growers of desi poultry and increase its catchment as per demand

Criteria for Selection of Breeding Farm Entrepreneur

- I dedicated person from the household will 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 put own investment 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 / account etc
- Agreed to develop all package of practices in Breeding Farm
- S/he should be member of SGHs / Common Interest group / Poultry rearers network / association (part of any local institution)

Infrastructure

In order to maintain breeding stock of 50 hens and 10 cocks along with chicks and growers, following basic infrastructures are required at the Breeding Farm.

1. **Foraging Areas** – Since Breeding Farm Enterprise promote foraging / free range system of production system, an area of 2000 sq mt (0.5 ac) land 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 while such number can be increased gradually if more land is available at the backyard of the entrepreneur. Foraging areas should have lots of plantation. This will provide natural sheds and help in reducing outside temperature particularly during summer season. 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 very crucial.
2. **Fencing** – Entire foraging areas, i.e., 2000 sq mt has to be enclosed by providing fencing in the boundary. Birds are prone to predation, particularly in forest fringe areas, therefore, fencing will protect birds. In long run, live fencing will be required with plants like Gliricidea, pongamea, etc grown in the boundary. Along with live fencing, along with low cost materials like fishnet / kabutar jaali or bamboo sticks / palm leaves which ever available locally to prevent predators to come inside the foraging area. Care should be taken that there is no open space in the fence by which predator like cats come inside.

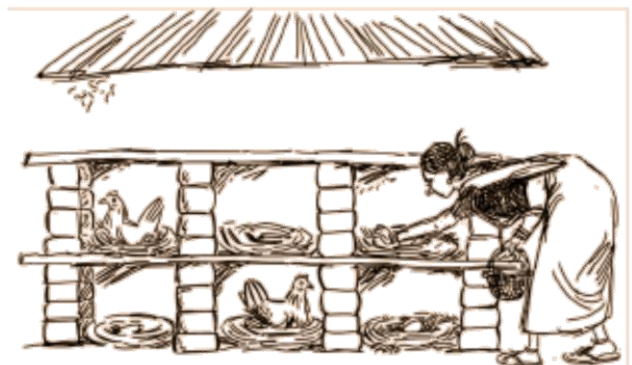
1. **Shelter** – Clean shelter is pre-requisite to the breeding farm to reduce risks of loss of birds due to bad weather, predators, and theft. Inside the shelter, partitions are made to keep different types of birds. Rice straw / rice husk should be provided in the floor as litter. This litter should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

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
- Put partitions to isolate chicks and mother, hatching nests and egg laying shelves.
- Remove bushes, Grasses near shelter to reduce predation
- There should not be any whole in the shelter.

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 (explain in detail in the section – chick management).

Similarly another section inside the shelter should be used as hatching place which should be covered by putting cloths / green nets to provide isolation to hens which are hatching their eggs. 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 will 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.



3rd Section inside the shelter would be dedicated for laying eggs by hens. 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.

4th section is the place where other birds. In this section of the shelter, perches should be made so that birds can take rest on this during night. Growers, cocks, and dry hens should be kept in this place.

The shelter, perches, egg shelf, hatching basket / nests should thoroughly clean on regular basis. Liming of walls, perches, doors should be done twice in a year and always after serious outbreaks of diseases.

Foraging Feed Resource Development

In the Breeding Farm, desi / indigenous birds gets their food by foraging / scavenging for insects and waste grains scattered around foraging area, food left over (kitchen waste), green vegetable etc. In order to maximize profit, Breeding Farm Enterprise should developed forage / scavenging Feed resources within the forage areas. Poultry needs four types of feed, namely, energy-rich, protein-rich, mineral-rich and vitamins.

Rearing Practices in Breeding farm

1. **Selection of Birds and Breeds** – In a breeding farm, entrepreneur either decide to increase flock from her / his own stock or purchase good quality birds through proper section (take care of bio-security of purchased birds). If new birds are bought, then keep separately either in basket or in separate shelter for first two weeks. It will be important to have Hen: Cock ration around 10:1 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
- Strait legs and toes, with no signs of scaly legs

2. **Egg Laying** – In the Breeding Farm, entrepreneur must ensure that 1/3rd of hens are laying eggs (except summer season). Nests should be provided to the birds to lay eggs. These nests should be inside the shelter. For laying 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 basket, wooden shelves, broken earthen pots etc. 15-20 such nests should be there in a shelter of the breeding farm.

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 basket / clay pots /

wooden box filled with sand mixed with ashes up to 1/3rd of the depth. Put clean and soft



nesting materials like hay / straw on the top 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 will keep out external parasites, thereby improve hatchability.

4. **Chick Management** – Chicks are more vulnerable not only there are more disease prone but also vulnerable to predators. In Breeding Farm, special care should be taken for chick management. Chicks will be kept with mother hen in the partition made in the shelter. Specific cares for chicks at different age group have been mentioned below:

- a. **0 -1 week** – 1st is most vulnerable for chicks. First 7 days, chick should be kept with hen all the time to protect them and to adjust with temperature. A brooding hen knows how to adjust the temperature according to the sound of chicks. Breeding Farm entrepreneur should provide a day basket with jute mat, a feeder, drinker inside the basket. Food and water should be supplied in 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 hen to go for scavenging in the foraging ground from where she can hear sound of her chicks. Allow Hens to come back and spent time with chicks and then again go for scavenging. High-protein Feed and water are provided to chicks. Day basket should be cleaned regularly. Keep Hen and chicks together during night.

- c. **3-6 Weeks** – During this period, as chicks gradually grow should be allowed to go out for scavenging with hen in day times, first for few hours in the morning while Breeding Farm entrepreneur should vigil movements of chicks. Later on, increase scavenging time of chicks with 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 allowed scavenging freely with mother hen and with 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. Having adequate foraging ground (2000 sq mt) with all package of practices are developed in the foraging area, A Breeding Farm should be able to keep 50 hens and 10 cooks as breeding stock. It should maintain 1/4th of hens are in laying eggs, 1/4th hen are in hatching, 1/4th hens are brooding / with chicks and rest 1/4th are in dry. This sequence will ensure regular chick production and Entrepreneur can give proper attention for chick management (mentioned in earlier section).

- a. It is important to sell 50 % of chicks at the age of 30-45 days which 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 for 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 feeds through scavenging in foraging area. Availability of scavenging / foraging feed resource base (SFRB) various due to change of 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 is depend on availability of SFRB.

Supplementary feeding is required most to the chicks of early age, as they are unable to search their food by 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 give 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 search food 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 on daily basis.

Breeding Farm Entrepreneur should schedule and calculate weekly requirement of supplementary feed for the birds and store feed required for 1 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 1 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 grown raw materials within the foraging ground and also in the farm land. Composition of homemade poultry feed is given in the below mentioned 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, however, at Breeding Farm proper healthcare management system has to be established. Since, birds are exposed to outdoor facilities, it is important to have proper bio-security measures in the breeding farm to reduce risk of diseases in the flock. There are sources like, litter, feed, water, wild birds, rodents, insects, dogs, cats, vehicle, and equipments. Birds purchased from



outside could also be potential source of disease spread. Therefore, care should be taken to prevent diseases to enter in 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 / precaution. First action would be isolate sick bird from the flock and then initiate treatment. Tips of identifying sick birds from healthy flock are given in the below mentioned 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 measure 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 everyday and keep it dry.
- Apply lime in shelter floor and wall frequently.
- Culling of weak birds from the flock, which are susceptible to diseases and can transmit
- 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		

- **Related Assessments :** **Selection parameter of good health birds**
(if any)

Total No of Learning Hours	Theory (3 hours)	Practical (2 hours)
Learning Outcomes	KNOWLEDGE OUTCOMES <ol style="list-style-type: none"> 1. Knows about the infrastructure facilities needed 2. Selection of good breeding stock of hens and cocks 3. Development of foraging area & management practices 4. How to establish a breeding Farm of Desi Poultry 	SKILL OUTCOMES <ol style="list-style-type: none"> 1. Selection of good breeding stock of hens and cocks 2. Hatching arrangements 3. Feeding techniques
Learning support material for reference from your learning kit	READING MATERIAL (IN LEARNER'S KIT)	
Reflective/ Evaluative questions pertaining to higher order and lower order of thinking		

SESSION EXERCISE / CASE STUDY

- **Group Exercises on**
 1. Night shelter construction and management
 2. Foraging area development
 3. Improvement for hatchability

KEY LEARNING REFLECTIONS

1. Construction of a night shelter with internal partitions
2. Foraging area development
3. Overall management of a breed farm with profits

SESSION PLAN - 5

SESSION GUIDE

- **Course** : **Poultry Introduction to Rural Backyard**
- **Session No. & Name** : 1. Design program on Back yard poultry
- **Session Objective (Learner's Guide)** : 1. Plan for the desi back yard poultry development in cluster level, village level as program
- **Session Overview (Learner's Guide)** :

1. Formation of BYP Cluster

Based on situational analysis through Focus group discussion in different villages, we must come up with indentifying 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 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 Gramsabha 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 of Post office to maintain Poultry Fund. CIG will decide three members as authorized signatory to maintain and transaction of Poultry Fund. CIG members will meet once in every 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.



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 package of practices to improve BYP production. Vaccinators can also provide handholding support for keeping records at Household level.

4. Training of Entrepreneur & Vaccinators

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

5. Monitoring & Evaluation

Proper monitoring of programmes is key to the success. It is required at various level, viz, Cluster level, Household level and Breeding Farm enterprise level. For effective monitoring data should be collected at various level. Nowadays, several software are available for online and offline data collection through mobile. Data should be collected in 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 |



- **Related Assessments :** **Selection parameter of good health birds**
(if any)

Total No of Learning Hours	Theory (3 hours)	Practical (2 hours)
Learning Outcomes	KNOWLEDGE OUTCOMES 1. Planning for backyard development 2. CIG for poultry formation 3. Establishment of vaccination systems on payment basis	SKILL OUTCOMES 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
Learning support material for reference from your learning kit	READING MATERIAL (IN LEARNER'S KIT)	
Reflective/ Evaluative questions pertaining to higher order and lower order of thinking		

SESSION EXERCISE / CASE STUDY

- **Group Exercises on**
 1. Designing Desi back yard poultry development program in a cluster of villages
 2. Establishing a CIG for Desi Poultry for sustainable incomes of tribal women
 3. Various components in Desi Back yard poultry development program

KEY LEARNING REFLECTIONS

1. Issues in designing and establishment of Desi Poultry development program
2. Establishment of night shelters and health services
3. Marketing facilities at village level only.

