

Training Manual on PRADAN-GALVmed

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Training manual for R.D Vaccination - to enhance the capability of community service providers to enable requisite services to farmers, to prevent and control the diseases in poultry birds

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FOREWORD

For the rural families in general and tribal families in particular backyard poultry farming relate to their livelihood. This provides a subsidiary occupation beyond their land based activities. However, mortality due to Ranikhet Disease is to be reduced to ensure sustained income. An attempt has been made to prepare this training manual to enhance the capability of community service providers so that the poor farmers will get requisite services to prevent and control the diseases in poultry birds. The manual focuses on skill based training for the community link workers in order to enable them for vaccinating the poultry birds at the village level.

This initiative to take up preventive vaccination measures in poultry birds in a systematic manner has the potential to be developed into upscale programmes as well as refined further through skilled experience to optimize them. It is expected to trigger the stimulus for routine vaccination in poultry birds and to enhance productivity of poultry birds in the backyard sectors.

Initiative on R.D. Vaccination

TIME TABLE

LESSON PLAN -1	
Subject: Rural backyard poultry and vaccination	Number of students: 20
Topic: Basic poultry husbandry	Duration: 90 Mins
Lesson: Theory /Practical	
Objectives: At the end of the lesson the students will be able to.... <ul style="list-style-type: none"> • Explain about the basic backyard poultry husbandry in the rural area. • Described about the traditional rearing system of the backyard poultry. 	
Materials, Tools, Equipment:	Teaching Aids: Audio visuals, charts, graphs. Black board, chalk, handout
Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)	

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
30 Min	MAIN PART * Basic poultry husbandry practices <ul style="list-style-type: none"> • Housing <ul style="list-style-type: none"> • Construction • Maintenance • Feed & Water • Brooding and Hatching • Candling of eggs • Storage of eggs 	Lecture	Visual handouts
10 Min	Role of women in Poultry	Lecture	BB, Chalk
10 Min	Poultry economics	-do-	handouts
5 Min	CONCLUDING SESSION – Summary, Review: By-students		

HANDOUT

Subject:	Rural backyard poultry and vaccination	Session –1	
Topic	Basic poultry husbandry		

Objective:

At the end of the session the participants will be able to

- **Explain about the basic backyard poultry husbandry in the rural area.**
- **Described about the traditional rearing system of the backyard poultry.**

Introduction:

Raising of local poultry breeds in backyard is an important source of Livelihood for the rural people of Orissa. Main interest of the poultry farmers having backyard poultry is not production of eggs as returns are very low from sale of eggs. They hatch all their eggs and sale them as birds. Poultry keeping in backyard gives very high return as the investment is very low. The main purpose of backyard poultry farming for rural farmers is to get eggs/chicks and meat in time. Almost all tribal farmers keep poultry birds. As they are far from sea and river, they meet their protein requirement from poultry. In same festive occasion, chicken feasts are must. Eating eggs and poultry meat are their food habits.

Backyard Poultry play a very important role in poor rural communities as they can convert feed available in and around the house while scavenging into highly nutritious, well-appreciated products. These birds are an important source of high quality protein for household mutation and provides a regular income. Usually they don't require investment for construction of poultry houses (nest). Local desi birds lay eggs, incubate and looks after chicks.

Housing of Poultry birds

Desi birds are provided with night shelter in the backyard. Sometimes the house is made up of locally available materials (bamboo sticks), sometimes a small stair (bhadi) is prepared of mud and wood. The birds are allowed to go out from house early in the morning and as the sun set occurs they come into their nest as usual.

Night shelter is mainly required to protect the birds from predators such as wild animals, dogs, rats etc. The adult birds are provided with elevated night shelters. Hens with young chicks are provided with houses constructed close to the ground. The floor of the house should be dry particularly in rainy season.

The birds can be kept in bamboo cages which can be moved in a new place every day to keep the floor dry.

Construction of a house:

- House should be constructed by using the locally available materials such as bamboo, tree branches etc.
- It should protect the birds from heat, rain and wind with enough ventilation.
- The door/opening should be wide enough to allow for easy cleaning.
- Overcrowding should be avoided and for each bird minimum 1 sq.ft floor space is required.

Provision of Nest:

Provision of clean nest can improve productivity. Locally available baskets, boxes can be used as nest. Pad the nest with dry leaves, straw etc to keep the eggs warm and minimize the risk of breakage. Moreover provision of nest helps to find eggs easily. One nest per hen should be provided in safer places. Nest should be cleaned regularly. Eggs for brooding should not be removed from the nest. A hen can hatch more chicks if the nest is clean, dry and safe.

Maintenance of the poultry house:

Regularly remove the droppings from the house at least once in a week to prevent and control diseases. The bushes around the poultry house should be cut to keep snakes away. Overcrowding should be avoided inside the house. Poultry manure to be used in vegetable garden after drying and composting. Ash or lime can be spread in the floor to repel external parasites. Don't provide feed or water in open areas where they can be attacked easily by vultures, wild cats, dogs and foxes etc. The poultry shelter should be constructed in the set up place nearer to out side wall of the house to minimize theft.

Feed and water:

Poultry birds are capable of collecting their daily feed requirement by scavenging in day time. They move here and there and eat the insects, white ants and green grass, During harvesting period they could find some left over grains, and bran in the village, which are protein rich feeds. During other time the feed available is deficient in protein content, for which supplementary feeding is required.

Farmers usually give supplementary feed like broken rice, bran, cabbage leaves, maize, millet etc. Supplementary feed should be given fresh every time in a troughs or feeders. Feed should be offered always at the same location at a safer place, where predators don't have an easy access. As per the carrying capacity i.e. availability of feed resources at the village level the number of birds should match. During the feed shortage period number of birds can be reduced. This ensures adequate feed resources to scavenging to maintain productivity level. Accordingly farmer should decide and plan about keeping number of birds and allow hatching of eggs. One of the family members should watch the birds when they are allowed to go outside for scavenging. There are many predatory animals around and chickens are usually easy prey. If it is possible provide fencing for protecting the birds. This can also helpful for good neighbourhood relations. If you allow your birds access to your neighbour's land, there is loss to the standing crop. Little extra labour is required for cleaning, feeding care and management etc. A small flock carefully managed brings more benefit rather than a big flock is neglected.

The young chicks are limited ability to scavenge feed and they should be provided with small amount of supplementary feed (Rice, green leaves, grains, soaked crushed maize and bran etc.) along with scavenging with the hen. A small enclosure (Bamboo basket) can be used for feeding and watering of young chicks.

Earthworms, insects such as termites are good source of protein for poultry birds. Torn clothes, gunny bags and rubbish collected into heaps on the ground will be colonized by termites. The heap can be turn over and birds may be allowed to scavenge for the termites underneath. The egg shells, bones can be crushed and given to birds.

The young chicks from hatch until 21 days should be provided with supplementary feeding. And adult hen requires 75 gram of poultry feed per day along with scavenging.

Fresh water should be offered to birds daily in a clean container. One bird drinks about 200 ml. of water everyday. During the summer season they need more water. The young chicks and laying hen should be provided with water for better growth. The waterier (flat bottomed clay bowls with vertical sides) is suitable in village condition. It should be kept in the same location at a safer place, where predators don't have an easy access.

Brooding and hatching:

Hen starts laying at 6-7 months of age. One hen lay about 10-12 eggs on consecutive days (clutch). The broody hen sits on these eggs to incubate.

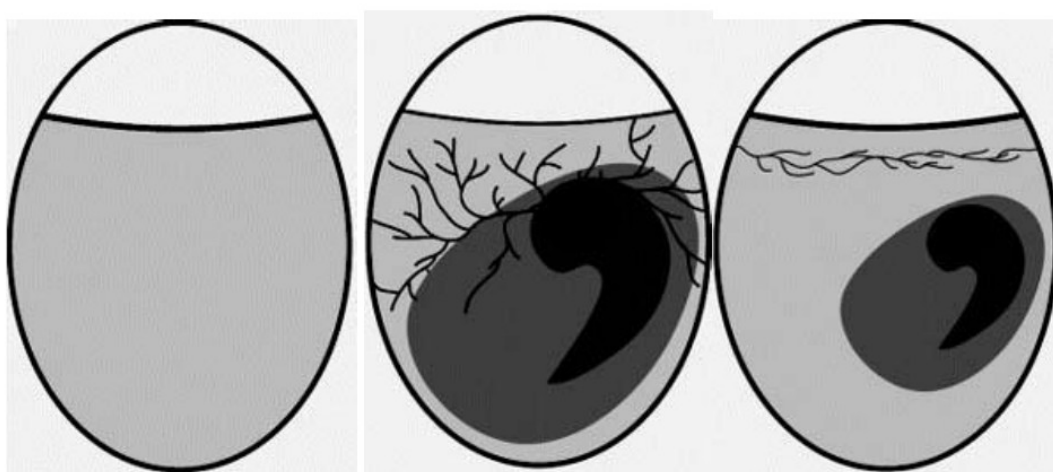
She leaves the nest for short period to get feed and water. Some feed and water should be available nearer to nest. Otherwise leaving the nest for a long period to collect feed and water make cool down the eggs resulting in poor hatchability. After 21 days eggs are hatched and chicks come out. The hen lays egg in 3-4 clutches per annum.

The initial period of one month is the most critical period for chicks and can affect future growth and production. During the 1st few weeks of age, heat is to be provided from the external source as chicks can't maintain a constant body temperature. There is more heat loss per unit surface as the feathers are not well developed in chicks. Brooding is the process of providing artificial heat to the chicks till 4 weeks of age. The brooding is done with the help of broody hen naturally. A broody hen can well brood about 10-15 chicks. Desi hens are good brooders. When a large number of chicks are to be raised, artificial means of heat is necessary. The heat may be provided through electric bulb, infra red lamp etc.

Collect eggs preferably when the hen is not on the nest. Always leave at least one egg in the nest to continue laying. When the hen is brooding and sitting on a number of eggs, farmer can remove eggs in the evening when it is dark. Once a hen becomes broody, fresh and fertile eggs can be selected and placed under the broody hen. Two cocks should be available in a flock of 10-15 hens. Sufficient nests should be available for all hens. The hens producing more than 15 eggs per clutch and hatching about 10-12 chicks are the best hens. The female chicks produced by these hens are good which should be kept in the flock. Farmers should procure good looking healthy cock from a weekly market and allow the cock to mate with their hen.

Candling of Eggs:

Candling helps to know whether an embryo is developing inside the fertilized egg or not. By holding the egg in front of a candle or a torch or a bulb inside a dark room on 6-8 day of brooding determines fertility where moving embryo and a fine net of blood vessels is seen. Eggs in which no embryo is developing are completely clear and this can be used for consumption. On 17-18 day candling is done to identify viable eggs and those containing dead embryos. Eggs containing dead embryos should be discarded.



Infertile egg

Early embryonic death

Fertile egg

Storing of egg:

The eggs can be taken out for consumption before the hen starts brooding. Infertile eggs can be consumed even if the hen broods for some days after identification by candling. The egg should be kept in a cool shady place in a basket with some padding. The egg should be used within 5-7 days of laying. Eggs with a broken shell should be consumed immediately after thorough cooking. The bad/rotten eggs will float in the water as the air cell gets bigger. The fresh egg stays at the bottom of the container filled with water. The egg should be preserved in refrigerator for several months. Wiping the egg with oil after cleaning the shell will preserve the eggs for several weeks. The egg should be cleaned before it is consumed. Don't wash the eggs with water because it will destroy a very thin protective covering on the shell which protects from the germs.

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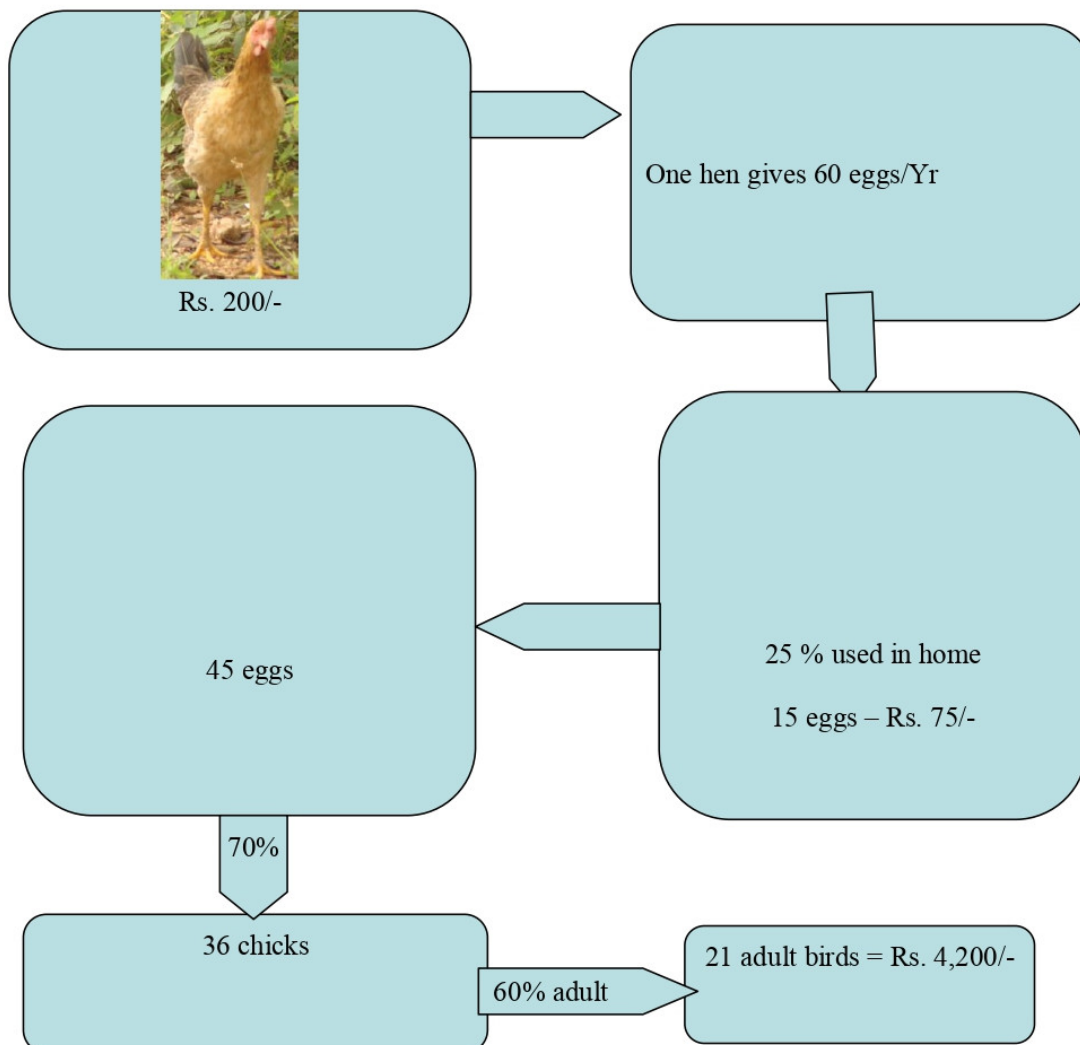
Role of Women in Backyard Poultry Rearing:

It is observed that the women are involved quite actively in the various activities involved in backyard poultry production. Almost all work such as brooding, health care, feeding, rearing of chicks and ducklings, egg collection, letting out and gathering ducks or chicken to keep in a safe shelter during night and the other routine works are being performed mostly by the women. The input procurement and marketing of the produce are shared by the men. It is important to notice that the income from the sale is spent by women. Small poultry farming provides women with a unique opportunity for economic empowerment.

Economics of backyard poultry farming:

Most of the time, the income from the sale of birds and eggs is used to meet the basic needs of the family. Therefore, many a times the entire unit is disposed to meet the family needs and it tends to failure. It is essential to see poultry farming as a continuous process and it is to be taken as small scale enterprise. The surplus is to be disposed to generate income to make poultry farming viable. Otherwise there will be disruption in the regularity of income.

POULTRY ECONOMY



Subject: Rural backyard poultry and vaccination		Number of students:	20
Topic: R.D. symptoms and vaccination procedure		Duration:	90 Min
Lesson: Theory /Practical			
Objectives:			
At the end of the lesson the students will be able to....			
<ul style="list-style-type: none"> • Explain about the symptoms of Ranikhet Disease. • Describe about the vaccination procedure to prevent the disease • Enlist the materials required for Vaccine reconstitution and sterilization. 			
Materials, Tools, Equipment:		Teaching Aids:	
		Audio visuals, charts, graphs.	
		Black board, chalk, handout	
Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)			

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: What is the symptoms in Ghuma Roga? – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
20 Min 35 min 20 Min	MAIN PART * Common poultry Diseases <ul style="list-style-type: none"> • Ranikhet Disease: <ul style="list-style-type: none"> • Symptoms Preventive Vaccination- F1,R2B <ul style="list-style-type: none"> • Procedure for Vaccination • Sterilization procedure • Materials required for vaccination. • Reconstitution of Vaccine. • Site of Vaccine. Importance of cold chain management	Lecture Discussion Lecture	Visual handouts handouts
5 Min	CONCLUDING SESSION – Summary, Review: By-students		

HANDOUT

Subject:	Rural backyard poultry and vaccination	Session-2	
Topic	Ranikhet Disease symptoms and vaccination procedure		

Objective:

At the end of the lesson the participants will be able to :

- Explain about the symptoms of R.D.
- Describe about the vaccination procedure.
- Enlist the materials required for Vaccine reconstitution and sterilization.

Introduction:

Diseases have consistently been a major limiting factor to profitable production. Disease occurs when there has been some disruption in the normal function. This usually results from several factors affecting the bird at the same time. Overcrowding, injury, poor nutrition, poisons, lack of fresh air, and a dirty environment all impair a bird's ability to fight disease. The ability to resist disease is called immunity. Immunity to disease can be passed from hen to chick or can be gained through vaccination or natural exposure. Developing adequate immunity is only possible if a bird has the building blocks it needs, obtained through adequate nutrition.

Common poultry diseases found in the area are :

- Ranikhet disease.
- Fowl pox disease
- Lice
- Round worms
- Tape worms.

Ranikhet Disease (RD)

It is the major killer, sometimes up to 90% of the birds in the village, followed by fowl pox which mostly kills the young chicks. RD is prevalent through out the year in epidemic form. RD is caused by a virus and is highly infectious.



It spreads from sick birds to healthy birds by direct contact or indirect contact with contaminated feed and water. Similarly, Fowl Pox is caused by a virus, which spreads through contact. It is the second major disease. The heavy losses due to diseases among poultry are the single most depressing factor and concern all tribal farmers. At present the livestock inspector is the grassroots level worker who provides all type of services like vaccination, deworming, first-aid and extension services to rural people for all type of livestock i.e. cattle, buffalo, sheep, pig and poultry. As poultry vaccination and deworming are generally done at doorstep in the evening hour after the birds coming to the house there is a need for community link worker mainly for poultry bird vaccination in the village. Vaccination is one of the more effective ways to prevent specific diseases. This is why we vaccinate poultry; so they are protected from explosive disease outbreaks.

Mode of transmission

Through air, feed and worker direct contact and attendant.

Symptoms:

Symptoms generally noticed are nasal discharge, excessive mucous in the trachea, and cloudiness in the cornea of the eye, difficult breathing, gasping, coughing and sneezing. In the beginning symptoms are indistinguishable from



other respiratory disease like bronchitis but after 2-3 days evidences of nervous disorder are observed.

After ten to fourteen days nervous symptoms like paralysis of one or both wings and legs or a twisting of the head and neck (torticollis) may be followed. Chicks stand on their head down backward or sunken between shoulders or twisted to like sides. Chicks walk backward or circles or fall down. Finally, spasm with muscle twitching is seen followed by coma and death. Mortality may go upto 90%.



Laying birds may stop egg laying suddenly and completely. Birds suffering from RD may lay soft shelled or mis-shaped eggs. There may be white coloured diarrhea.

Treatment: There is no treatment for this disease. However if possible, measure should be taken to control the spread of the disease to other area. Vaccination is the only reliable way to towards controlling the disease.

<u>Vaccination schedule</u>	<u>Age</u>
Lasota/F ₁ -strain	4-7 days
Lasota/F ₁ -strain	25-35 days
R ₂ B strain	8-10 weeks
R ₂ B strain	16-17 weeks.

Prevention:

- While bringing birds from other sources it must be ensured that virus free birds are procured.
- Clear and disinfect the poultry house periodically especially prior to bringing a new batch of chick or new stock.
- Don't allow visitors to go near the birds.

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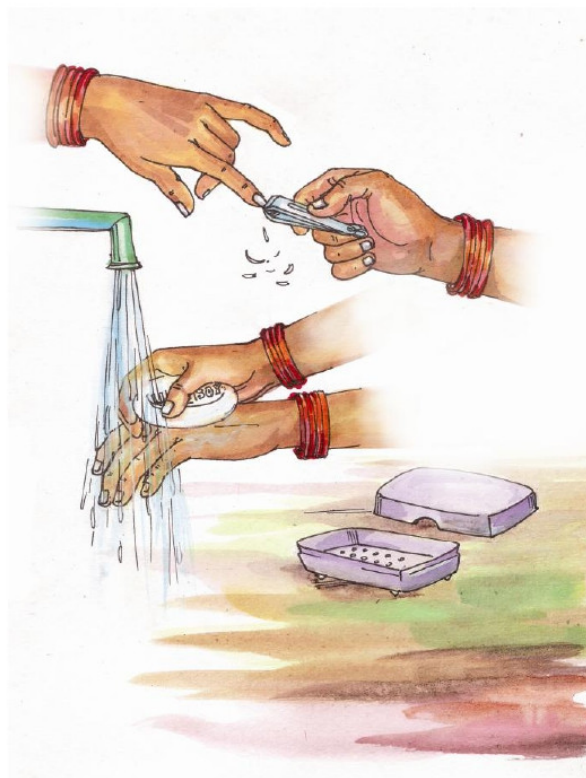
- Don't use any equipments (syringe, needle, waterer, feeder etc) without prior disinfection.
- Disinfect the water source
- Strict bio-security measure should be followed so that this disease doesn't affect the birds.
- Keep replacement birds or birds of different age separately.

Materials required for N D vaccination.

F1	La Sota	R2B
Lifebuoy soap with box.	Lifebuoy soap with box.	Lifebuoy soap with box.
Bottle brush(Small)	Bottle brush(Small)	Bottle brush(Small& Big)
Nail cutter	Nail cutter	Nail cutter
Mug	Mug	Mug
Clean water in bucket.	Clean water in bucket.	Clean water in bucket.
10 ml glass bottle with eye dropper-2.	10 ml glass bottle with eye dropper-2	100 ml glass bottle-2.
16 gauge needle-2	16 gauge needle-2	50 ml syringe-2.
2 ml disposable syringe-2	2 ml disposable syringe-2	16 gauge needle-4.
Artery forceps – 9” or 6”	Artery forceps – 9” or 6”	2 ml disposable syringe-10.
Sterilizer or aluminum container with cover.	Sterilizer or aluminum container with cover.	24 gauge needle-10
Stove -1 .	Stove -1 .	Artery forceps – 9” or 6”
Thermo flask wide mouth/ Vaccine carrier-1 .	Thermo flask wide mouth/ Vaccine carrier-1 .	Sterilizer or aluminum container with cover.
Ice (for storage & vaccination)	Ice (for storage & vaccination)	Stove .
F1 vaccine (100 doses Vial)	Lasota vaccine (100 doses Vial)	Thermo flask wide mouth/ Vaccine carrier-1 .
Reconstituent /Normal Saline-10 ml	Reconstituent	Ice (for storage & vaccination)
		R ₂ B vaccine (200 doses Vial)
		Normal Saline-100 ml

Procedure:

- Cut finger nail neatly.
- Wash both hands with clean water and soap.
- Through scrubbing of the skin of hands, palms and finger tips nails with brush and washing with clean water.
- Repeat the above process once again.
- Dry hands in the air.
- Do not wipe of hands, after washing with soap and water, with a towel.
- Cleaning of glassware, needles and syringes.
- All used glassware, needles and glass syringes may be re-used after through cleaning and sterilization.
- Prepare a mild soap solution (washing powder) in a clean plastic bucket.
- Clean/brush thoroughly all materials in the plastic bucket and soap solution and keep it there for 1-2 hours.
- Cleaning of materials with the skileet, fi required.
- Remove all materials from soap water solution and wash them repeatedly with clean water till they are free of soap.
- Cleaning glassware, needles and syringes in boiling water.

**Sterilization:**

- Boil all glass wares, needles and syringes in water for about the hour in a clean utensil or in a pressure cooker if available for half an hour (boiling under pressure as rice is being daily cooked at home)
- Remove the water carefully.
- Now all these items are cleaned and sterilized and ready for use.

- All trainees should have knowledge of numbers or numerical.

Measuring of 100 ml diluents through syringe (10 ml to 20 ml) and through measuring cylinder or by drip bottle.



LESSON PLAN - 3			
Subject:	Rural backyard poultry and vaccination	Number of students:	20
Topic:	Vaccination procedure	Duration:	180 Min
Lesson:	Practical		
Objectives: At the end of the lesson the students will be able to.... <ul style="list-style-type: none"> • Demonstrate the R.D. vaccination procedure in the banana leaf followed by live birds. 			
Materials, Tools, Equipment:		Teaching Aids:	
		Audio visuals, charts, graphs.	
		Black board, chalk, handout	
Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)			

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: What is the common disease where sudden death of many birds occurs? – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
30 Min 45 Min	MAIN PART * <ul style="list-style-type: none"> • Reconstitution of RD vaccine (R2B &F1) • Cold chain management • Skill training on vaccination in banana leaf • Skill training live birds <ul style="list-style-type: none"> • Loading the vaccine of 0.5 ml quantity in 2 ml syringe • Ensure to eliminate air bubble • Holding the Birds • Site identification for vaccination • Deposition of vaccine 	Lecture Practice	Visual handouts
5 Min	CONCLUDING SESSION – Villagers should be advised to identify vaccinated birds in order to avoid repetition on the same day.		

HANDOUT

Subject:	Rural backyard poultry and vaccination	Session	3
Topic	Vaccination procedure		

Objective:

At the end of the session the participants will be able to

- Reconstitute the vaccine as per the standard procedure
- Demonstrate the R.D. vaccination procedure in the banana leaf followed by live birds.

PRACTICAL ON VACCINATION IN BANANA LEAF:

Material required

- Banana Leaves and five no. of live birds
- Disposable syringe with needle.
- Reconstituted vaccine in Ice.

Procedure

- Keep ready the loaded syringe and needle with water.
- Place the banana leaf on the left hand with four fingers pointing downwards and the thumb upwards.
- Pierce the leaf with slanting state needle and press the piston to deposit 0.5 ml of water.

Reconstitution of Vaccines

- Keep read the ice in the tray.
- Prepare dummy vial, syringe, needle and water bottle for use.
- Break the vial seal.
- Hold the needle in the left hand and syringe in the right hand.
- Fit the needle to the nozzle of syringe.
- Push water into the broken vial.

- Suck water from the vial then inject again.
- Repeat the above process for 5 minutes.
- Repeat the whole process for practice.
- Practice 10 times.

Procedure:

After successful completion of 0.5 injections of pseudo-vaccine on to banana leaves the trainees go onto injecting 0.5 ml of pseudo-vaccine on to live birds to gain more confidence. This will be carried out in two steps:

- Holding techniques for birds for vaccination.
- Identification of site of injection – performing subcutaneous injection.

Holding of birds

- One person holds the bird by its wings with his left hand and by its legs with his right hand.
- The birds can be placed on its left side on a flat surface.
- The vaccinator holds the right wing of the bird firmly with his left hand.



Site of injection

- The best site for injection is the inner side of the wing as there are no feathers.

Techniques of injection

- Load the syringe with reconstituted pseudo-vaccine.
- Hold the right wing of the bird with your left hand firmly.
- Identify the site of injection.
- The R.D. vaccine is to be injected under the skin (subcutaneous)
- Pierce the skin for 1 mm with slanting state needle with syringe.
- Make sure the needle is right under the skin.
- Push 0.5 ml. of vaccine from the syringe.

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- Confirm the successful injection if 1 cm small raised skin appears and failure if the vaccine has leaked from another skin puncture site.
- If vaccine has leaked out, repeat in another place.
- Repeat the process in another site until good practice is achieved.

Field Practice

To be followed under the direct supervision and guidance of a Veterinary officer.

The link worker/youth facilitator vaccinator trainee should vaccinate at least 100-300 village birds. The constituted vaccine should be given to the trainees at this stage. After successful vaccination by the link worker, this must be allowed up by a reconstitution and vaccine injection of village poultry under the direct supervision and guidance of Veterinary Officer.

The process must be repeated a third time and when proved satisfactory to Veterinary Officer, the trainee can be allowed to work independently as Vaccinator of Poultry still he/she be supervised regularly.

The link worker / youth facilitator trainee as successful poultry vaccinator can be monitored through Random Antibody Titre Examination from Vaccinated birds and also if outbreak occurs and vaccinated birds survive.

F₁ Vaccine

Practical training of F₁ strain vaccination to chicks by farmers link workers/youth facilitators.

Introduction

To protect the chicks from Ranikhet disease an F₁ strain vaccination is performed. R₂B Mukteswar strain is utilized for protecting chicks after six week against R.D. One vial of F₁ vaccine will be sufficient for 100



chicks. The vaccine is made to protect chicks below six weeks against R.D.

Reconstitution of vaccine:

1. Take 10 ml of normal saline in a small vial and keep it in Ice.
2. The vaccine inside the vial is to be diluted with normal saline.
3. Mix the dissolved vaccine with the normal saline taken for preparation of the vaccine.
4. Now the vaccine is ready for use.

Vaccination Method:

1. Hold the chick securing the head with left hand's fingers.
2. Take out a few drops of vaccine into the dropper.
3. Put one drop of the vaccine into the open eye and another drop into the nostril.

Precautions:

1. F1 strain vaccine is like R.D. (R₂B) vaccine
2. The vaccine should always be kept in ice from the time of reconstitution until its use.
3. After reconstitution the vaccine should be utilized within 2 hours.
4. Villagers should be advised to identify vaccinated birds in order to avoid repetition on the same day.

LESSON PLAN-4			
Subject:	Rural backyard poultry and vaccination	Number of students:	20
Topic:	Control of R.D. and parasitic infestation	Duration:	120 Min
Lesson:	Theory /Practical		
Objectives: At the end of the lesson the students will be able to.... <ul style="list-style-type: none"> • Explain about the control of R.D. • State the common parasitic infestations in poultry birds • Describe about the routine deworming practice 			
Materials, Tools, Equipment:		Teaching Aids:	
		Audio visuals, charts, graphs. Black board, chalk, handout	
Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)			

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: Feedback on practical hand holding on vaccination at village – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
25 Min	MAIN PART * ○ Control and prevention of RD <ul style="list-style-type: none"> • Disposal of dead birds. • Sanitation and hygiene ○ Parasitic infestation and its control	Lecture	Visual Black Board
20 Min		Lecture	Chalk
30 Min		Demonstration Hand holding practice	handouts
5 Min	CONCLUDING SESSION – Summary, Review: By-students		

HANDOUT

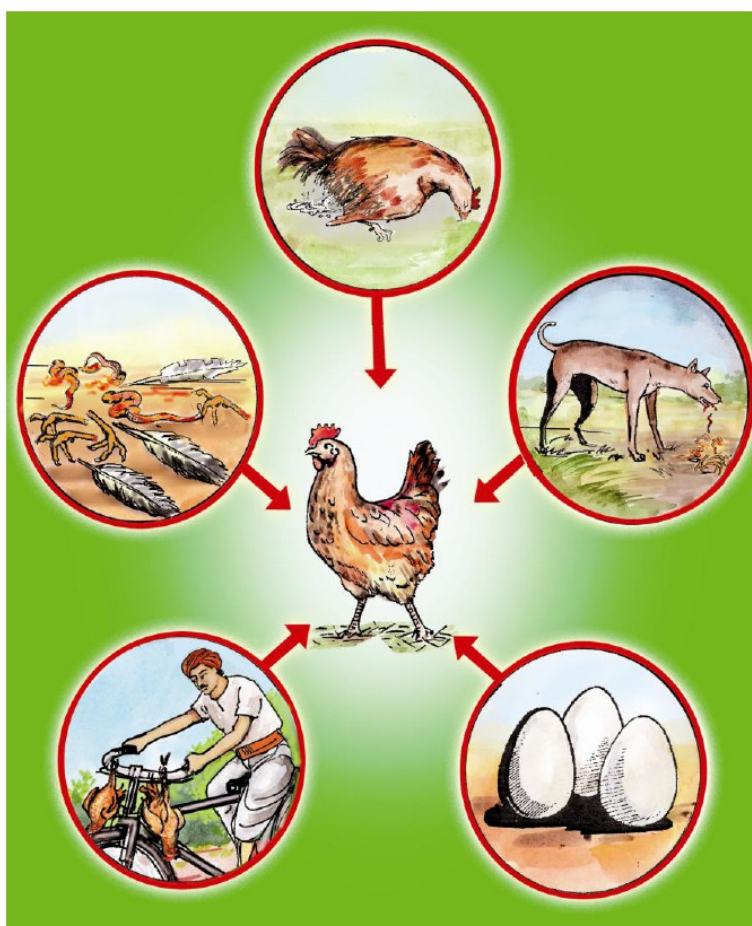
Subject:	Rural backyard poultry and vaccination	Session Code:	4
Topic	Control of R.D. and parasitic infestation		

Objective:

At the end of the session the participants will be able to

- Explain about the prevention and control of R.D.
- State the common parasitic infestations in poultry birds
- Describe about the routine deworming practice

Introduction



There is no treatment for this disease preventive vaccination or the only solution to self aid of the disease. So R₂B vaccine can be given for adults birds and F₁ or la Sota vaccine can be given to chicks (1 wk. age) F₁ vaccine protects the chick upto 2 month (8 weeks) of age. R₂B vaccine gives lifelong protection against ND to the bird.

Disposal of birds:

Dispose the dead birds and other wastes from poultry houses at a distant place from the house in a pit.



External parasite (Lice, Ticks, Fleas)

Lice usually suck the blood and found on the body and walls of the poultry houses.

Treatment

Mix Gamaxine – 5% and Ash in the proportion of 1:5

Thoroughly apply the mixture all over the body, interior of wings.

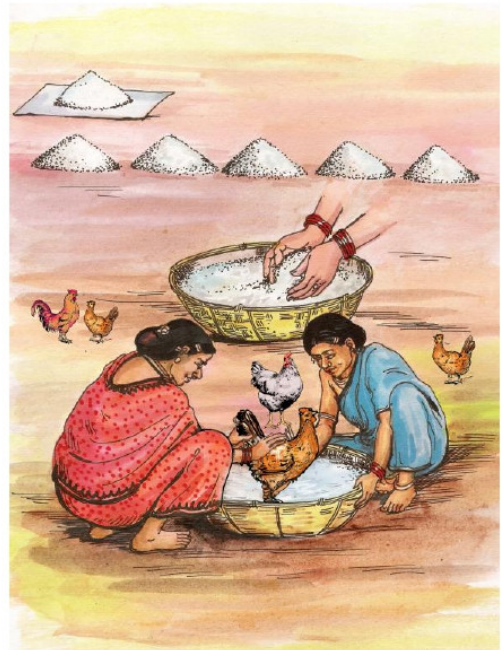
Mix water with Malathion (2% solution) and spray all over the walls of the poultry houses.

N.B. Take care while using these drugs, as these are poisonous.

Control of ecto parasites on poultry

- Poultry in the villages may suffer from ecto-parasite infestations such as lice, ticks and mites.
- Farmers are well aware of these parasites which are very tiny living creatures.
 - They bite/suck blood from poultry.

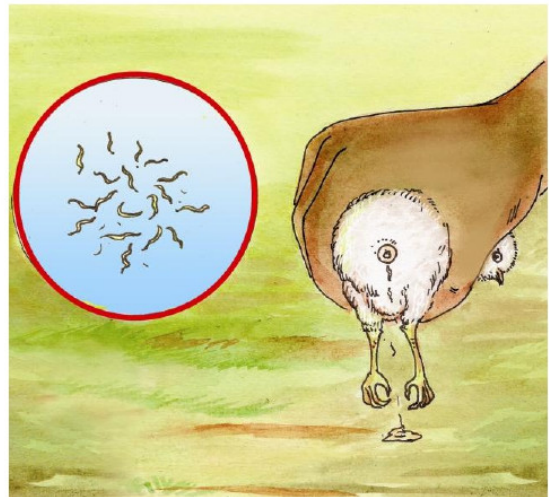
- They live on walls etc. of the poultry house.
- They crawl over face and body of human beings which is very irritating.
- The control of parasites depend on
 - Treatment of infested poultry.
 - Treatment of the walls and or the living place of the poultry until completely eradicated.
- Treatment and control
 - Dust bath
 - Malathion 1 to 3% dip in water is also effective.
 - Malathion 2 to 3% in water spray around the floor walls and poultry house has proved effective with mud and cow-dung and plastered on the walls. (It can also be mixed)
 - Painting the perches with strong tobacco extract (boiling 10 gm tobacco with 1 lit. of water for 10 minutes) and partially closing the house.



Control of endo parasite in poultry:

The poultry round worms are well known to most farmers. They are 2 to 2" in length and similar in shape to children defecating round worms at home

- They live in the small intestines and eat away all food.
- The poultry do not grow and often die when they suffer from.
- Round worms can be treated with medicine, which may be purchased from local medical shops. The medicines are:
 - PIPERZINE HYDRAGE
 - PIPERAZINE HEXA-HYDRATE.



N.B: The farmer can sow the used bottle of the above medicine in the Block Headquarter, Medicines store and purchases the same.

Treatment:

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1 ml (10 drops) of above medicine for 1 kg body weight poultry to be given through mouth.

Small chicks of 1-2 months can be given 5 drops each through mouth.

Repeat the treatment next month once again.

Tape worm

- Tape worms are flat, thin white worms
- They live in small intestines of poultry.
- The birds lose appetite, show mild diarrhea even paralysis.

Treatment

Niclosamide - Niclosan is available as 100 gm tabs.

Dose - 100 mg/kg body weight.

Albmar - 30 ml suspension is available.

Dose - Adults 5 drops orally

Chicks 1 to 2 drops orally

Coccidiosis:

It is a protozoan disease usually occurs in growing birds and young adults. It is seldom seen in birds under three weeks or in mature birds.

The clinical signs are paleness, droopy, tend to huddle, consume less feed and water, have dysentery (Blood mucous diarrhoea) , and may become emaciated and dehydrated.

Treatment –

Sulpha groups of drug and Vit ADEK are given. Amprosol and Bacitracin can also be given in the drinking water.

Tape worm Infestation:

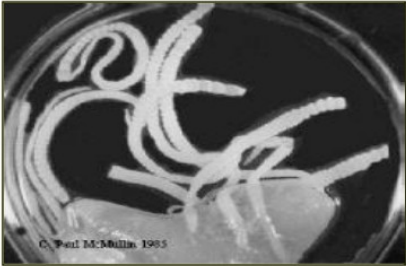

These are flat, thin and white.

Symptoms – Diarrhoea, loss of appetite

Treatment – Albomar – 30 ml suspension

5 drops per adult bird

1- 2 drops per chick.

Key points	Relevant pictures
<p>You cannot stop birds getting tape worm as they get them from all kinds of arthropods that they love to eat. Arthropods (insects etc) carry an intermediate stage of the tapeworm, a larvae that develop into the adult form after the poultry bird has eaten it.</p>	<p>Tapeworm</p> 
<p>Round Worm</p>	

- Photographs: McMullin.Paul, A pocket guide to poultry Health and Diseases,2004.

LESSON PLAN-5	
Subject:	PPR in Goat
Topic:	PPR and parasitic disease in goats
Lesson:	Theory /Practical
<p>Objectives:</p> <p>At the end of the lesson the students will be able to....</p> <ul style="list-style-type: none"> • State important parasitic infestation along with routine deworming measures • Explain about the symptoms of PPR. • Describe preventive and control measures for PPR in goats 	
Materials, Tools, Equipment:	<p>Teaching Aids:</p> <p>Audio visuals, charts, graphs.</p> <p>Black board, chalk, handout</p>
<p>Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)</p>	

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
30 Min	MAIN PART * Common parasitic infestation in goats <ul style="list-style-type: none"> • External parasite • Internal parasite • Routine deworming 	Lecture	Visual handouts
45 Min	PPR in goat <ul style="list-style-type: none"> • Symptoms, • Preventive Vaccination • Control measures 	Lecture Discussion	BB, Chalk
5 Min	CONCLUDING SESSION – Summary, Review: By-students		

HANDOUT

Subject:	PPR in goats	Session-5	
Topic	PPR and parasitic disease in goats		

Objective:

At the end of the lesson the participants will be able to :

- **State important parasitic infestation along with routine deworming measures Explain about the symptoms of PPR.**
- **Describe preventive and control measures for PPR in goats**

Parasitic diseases in Sheep & Goat:

Parasitic infestation is mostly seen in sheep and goat which could be more easily prevented then treated. Sanitation and proper management are essential to minimize the parasitic disease and infestation. Cleanliness around the pens, feed and water side is of the utmost important. Ticks and lice (pediculosis) are the most common ectoparasites of sheep and goat. Ticks do not cause skin disease but are responsible for transmission of a few protozoan, bacterial, viral infection.

1. Lousiness

Lice are the external parasites that live in the animal host.

Symptoms: The infested animal scratches and roughs due to constant itching. This interferes with the animals feeding and results in loss of weights.

Treatment: Dipping in an insecticide solution (linden, benzene hexa chloride toxafane or similar preparation) are effective.

Prevention: Cleanliness and sanitation is essential. Regular spraying of pens with disinfectant should be done.

2. Mange

Mange in sheep & goat occurs due to mites. Mostly occurs in dry winter. forehead, ears, neck and shoulders and also the entire body is affected. Mites penetrate the skin and release poisons secretion which sets up a local inflammatory reactions.

Symptoms:

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- i. Itching, alopecia, scab crust formation.
- ii. Rubbing of body in hard objects.
- iii. Productivity lost
- iv. Thickened, hyper keratinised skin
- v. Sheep are restless and runs constantly against stationary object due to intense itching. Animals feel to eat properly and loses weight.

Control: Control measures include regular dipping of animals and spray/dusting with insecticides. Malathion, Sumithion, Neguvon, Asuntol, Deltamethrin (Butox 2%) and Amitraz 5% can be used. Dipping with lindane or benzene hexachloride solutions (0.06%). Animal should be dipped in the morning. Ivermectin injection is also used for control of these parasites.

3. Ticks

Ticks are blood parasites and causes irritation.

Symptoms: The affected sheep bite and scratches at the spot where the tick has attached itself. This interferes with feeding.

Control: Spraying 0.03% linden solution is effective.

4. Gastro-intestinal nematodes

Symptoms: These parasites cause severe anaemia, diarrhoea, Hypo-proteinemia with bottle jaw. Death occurs due to debility, anemia and fluid loss.

Control: This can be controlled by periodical examination of faecal samples and administration of anthelmintics. Injectable broad spectrum Ivermectin can be given for control of parasites.



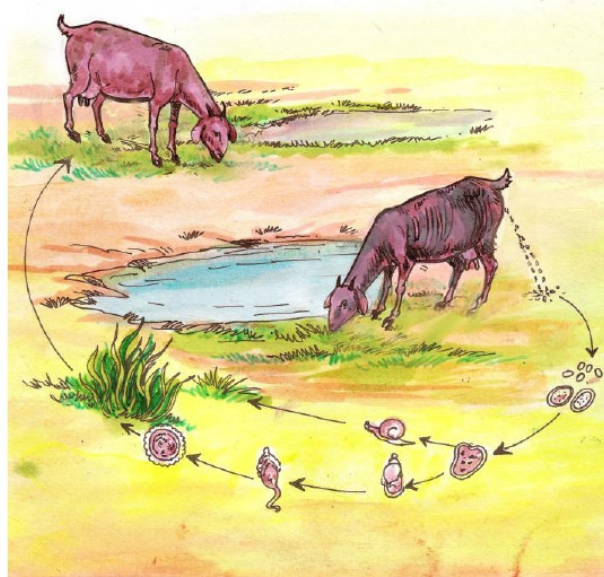
5. Helminthic disease

It is caused by liver flukes.

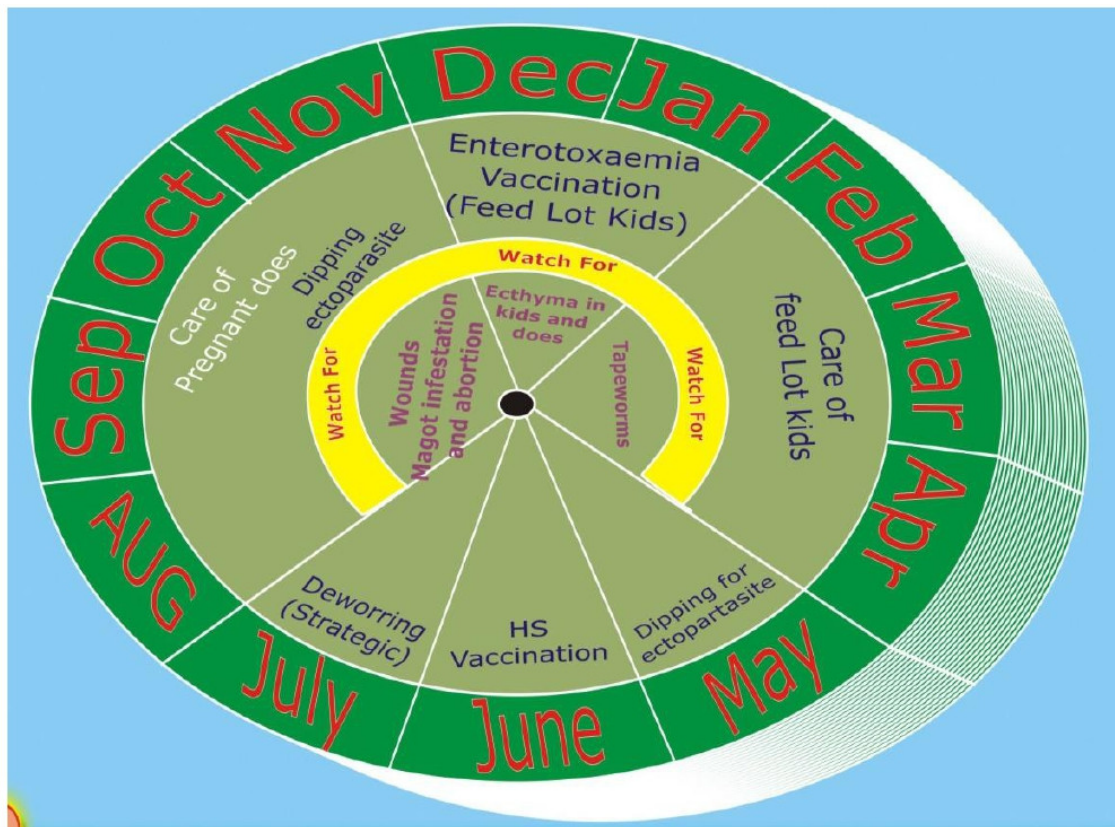
Symptoms: Loss of body condition, Anemia/Edema in inter mandibular space, Off fed & Death occurs due to gut obstruction by immature worms

Control: Use of snail killers like Copper Sulphate, Sodium Pentachlorophenate,

Duck rearing for control of snails.

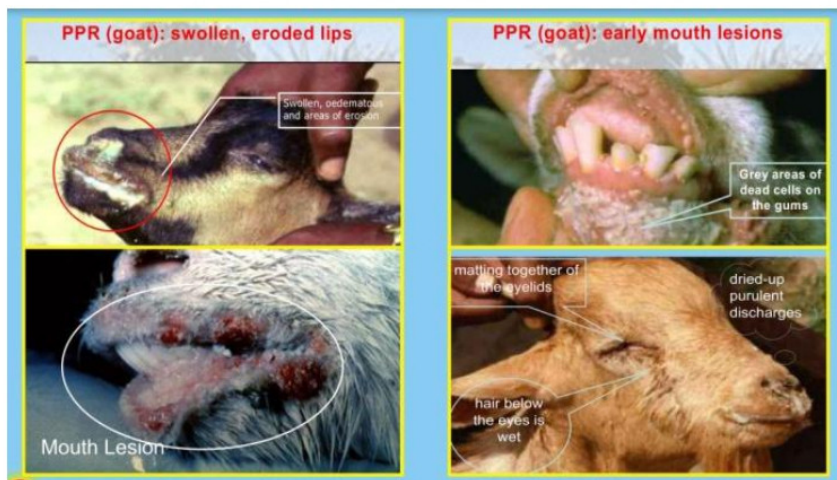


Drugs can be administered as per the advice of veterinary surgeon.



Pestes des petits (P.P.R) or Goat plague or Kata

PPR or peste-des-petits ruminants are a viral disease of goat and sheep. It is otherwise known as goat plague. In Odisha PPR mostly affects goat population causing 80%-100%



mortality. It is less seen in sheep. The causative virus has the capability to stay in the environment for a long time. Even it can remain alive in 60°C ambient temperature for 1 hour. In peak summer, while some places of Odisha reach 45°C-46°C, the virus remains in the environment for long time and get transmitted easily. The mode of transmission of the disease is through food, water, air and by direct contact.

Clinical symptoms

- High rise of temperature
- Animal becomes off fed.
- Mucosal discharge from nose.
- By 3rd day there is diarrhea with foul smell
- Muscles near gum, base of teeth get eroded and ulcerated.
- Lesions around gum and teeth smell foul.
- Diarrhea contains blood, intestinal scrapings.
- Symptoms of pneumonia, difficulties in breathing
- Death of animals by 6-7 days and 90% of affected animals die

Treatment of affected animals

As PPR is a viral disease, no effective antiviral treatment is available. However, as the animal suffers from diarrhea, antidiarrhoea medicines and antibiotics may be administered orally as well as in injectable form to check secondary bacterial infection. In most cases, animal succumbs to dehydration and difficulties in breathing.

Prevention – Vaccination is key to control the disease

Prevention of the disease by vaccination is the best effective measure to be taken in sheep and goat rearing. Vaccine arouses immunity and prevents the causative agent to create the disease. Available vaccines are live attenuated vaccines and are given as follows:-

- Animal including young ones of 3 months of age or above are given with the vaccine.
- The live attenuated vaccine provides immunity at least for 1 year.
- Vaccine works well, if the animal is dewormed at least 21 days before vaccination.
- As the vaccine is the live vaccine, it must be stored in freezing condition and should be in cold chain till it is inoculated in the animal.
- A PPR vaccine arouses protective antibody by 14-21 days of vaccination.
- The vaccine is administered subcutaneously.

Frequently Asked Questions

Q. – Where PPR vaccine is available and when the vaccine should be administered?

Ans. – In the state of Odisha, PPR vaccines are supplied to all the veterinary hospitals and veterinary dispensaries. Service of vaccination is provided by the Animal Husbandry Department at a nominal cost. Trained staffs administer vaccines. The vaccines can be administered throughout year. However vaccination before winter is recommended.

Q. Can the farmers purchase the vaccine and vaccinate by themselves?

Ans. – The vaccine is a live attenuated vaccine, which needs strict cold chain maintenance. Trained staff or farmers specially trained can administer the vaccine.

Q. – Is there any herbal remedies available for treating PPR in small ruminants?

Ans. – PPR is a viral disease for which no effective at viral agent is available. However, there is report that powder of “Triphala” (*Harida, Bahada and Amala*) works against the diarrhea. Triphala powder can be given orally to the affected animals. 25gm of this powder with molasses can be given twice a day.

Q. Animal died of PPR and affected by PPR disease can be slaughtered for meat purpose?

Ans. - No animals died of PPR and affected by PPR disease should not be slaughtered. By slaughtering the infectious virus spreading easily. Dead animals should be buried under soil with lime.

Q. What measures should be taken as the foremost point at the time of outbreak.

Ans. – Zoo sanitary measures, ring vaccination, isolation of sick animals, ban in the selling of sick animals in market are some measures that should be taken at the time of outbreak.

Q. In village areas, sheep and goats eat many poisonous plants and get affected. How farmers can face this situation?

Ans. Immediately the nearest veterinary doctor should be consulted. If there is emergency and lack of time, 50 ml of vinegar or acetic acid may be drenched to the animals. If vinegar or acetic acid is not available 50 ml of lime juice may be drenched to the animals to nullify the action of poisonous plants.

LESSON PLAN-6	
Subject:	Rural backyard poultry and vaccination
Number of students:	20
Topic:	Routine vaccination calendar of Ranikhet Disease
Duration:	90 Min
Lesson:	Theory /Practical
Objectives: At the end of the lesson the students will be able to.... <ul style="list-style-type: none"> • Explain about the vaccination schedule of Ranikhet Disease. 	
Materials, Tools, Equipment:	Teaching Aids: Audio visuals, charts, graphs. Black board, chalk, handout
Remarks: (Notes for changes and adaptations of the lesson plan, for use in future classes)	

Time	Content: Steps/ Key Points	Methods	Aids
10 Min	INTRODUCTION – Interest Raiser: – State the Learning Objectives:	Oral questions Oral	BB ,Chalk
40 Min 30 Min	MAIN PART * Common poultry Diseases <ul style="list-style-type: none"> • Ranikhet Disease: <ul style="list-style-type: none"> • Preventive Vaccination- F1,R2B • Vaccination calendar • Approach for vaccination in the village 	Lecture Lecture	Visual handouts BB, Chalk handouts
10 Min	CONCLUDING SESSION – Summary, Review: By-students		

HANDOUT

Subject:	Rural backyard poultry and vaccination	Session Code:	6
Topic	Routine vaccination calendar of Ranikhet Disease		

Objective:

At the end of the session the participants will be able to

- Explain about the vaccination schedule of Ranikhet Disease.

Introduction

Prevention of diseases through vaccination plays an important part in poultry health programme. Several vaccines are used in in poultry depending on the prevalence of the disease in a specific area. Where a specific disease is not prevalent it is unwise to introduce the infection by way of vaccination, especially live vaccines.

Layer birds must not be vaccinate except on emergency as there may be drop in the egg production. Preferably all vaccination should be completed at least a month before the expectation period of initiation of laying of eggs.

Vaccines as subject to rapid deterioration hence cold chain must be maintained or stored as per recommendation of the manufacturer. Vaccine should be not be stored at a temp. of beyond 45⁰ C. Expiry date must be checked before vaccination.

Don't prepare the vaccine unless ready to use. Prepared vaccines should be used with in 2-3 hours after reconstitution. Vaccines should not be exposed to direct sun light. Don't mix different vaccine and vaccinate the birds slowly. Time saving practices backfires causing more loss. Other should be a gap of 15-21 days between two separate vaccines. Keep vaccinate & non vaccinate bird separately. Vaccinate in the morning or evening hour. Anti-stress medicines may be provided to the birds after vaccination.

Burn/bury the unused prepared vaccine, syringe, needles, cartoons, vials etc. after the vaccination work is over. Proper sterilization of vaccination equipments is high essential. Vaccination should not be done in case of unfavourable climatic condition any if

Initiative on R.D. Vaccination

the birds are suffering from any disease/infection. Prescribed dose rate and other information prescribed by the manufacturer must be followed.

VACCINATION CALENDAR :

Name of Vaccine	Route	Age of birds
La Sota or RD F ₁ vaccine Ranikhet	Intranasal/ocular drop	3 - 7 days
La Sota Ranikhet	Intranasal/ocular drop	5 - 6 weeks
R2B Ranikhet	Sub cut or Intramuscular	8 - 10 weeks
R2B Ranikhet (booster)	Sub cut or Intramuscular	14 - 16 weeks
<p>Anti stress compounds and immuno modulators may be given during vaccination. Deworming of birds should be done 15 days before vaccination.</p> <p>Booster is essential for increase the disease resistance for a longer period.</p>		