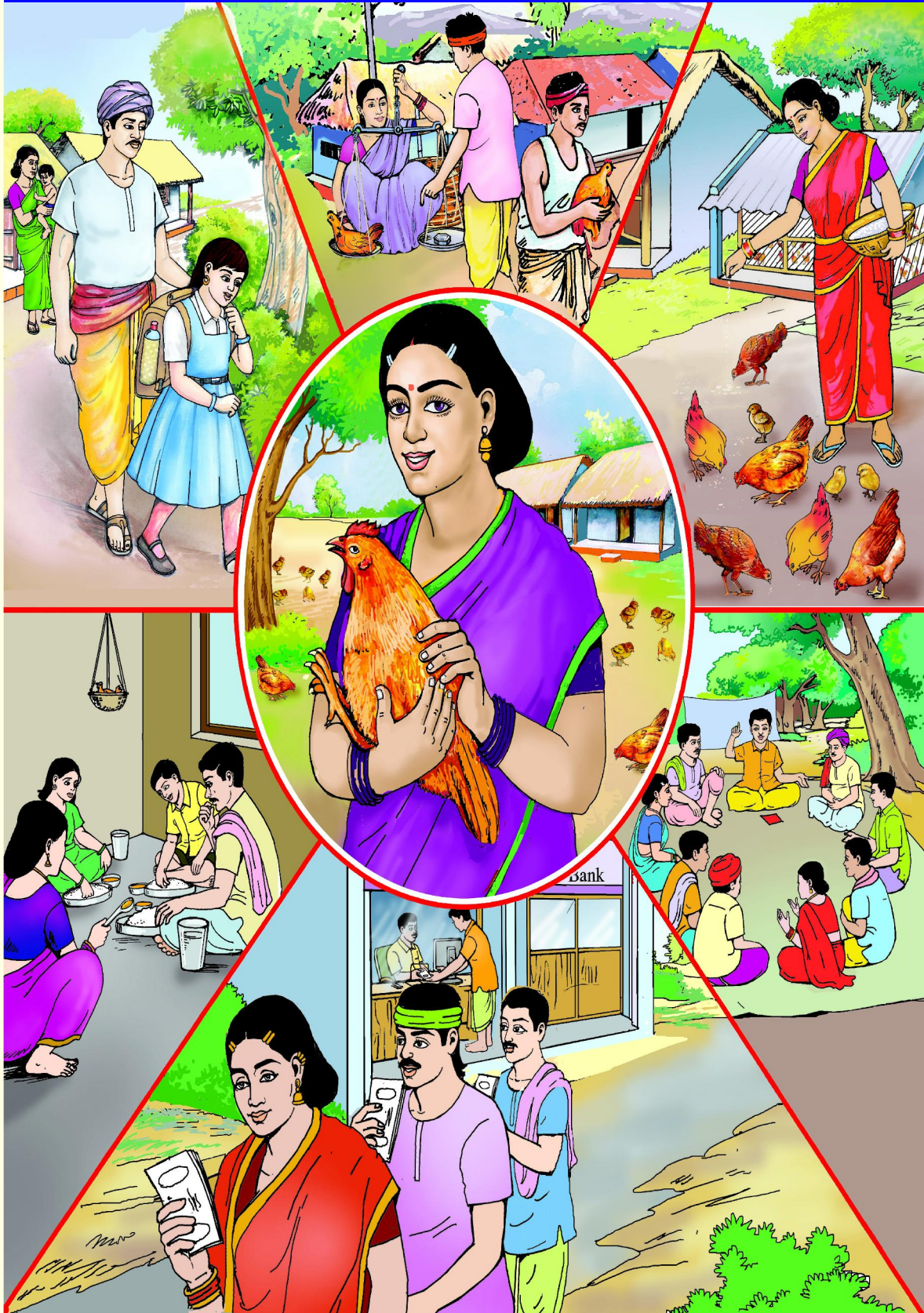


Practical Skills on Backyard Poultry Production in India



Das Kornel

List of Abbreviations

ATM	:	Any Time Money
BYP	:	Backyard Poultry Production
CAHW	:	Community Animal Health Workers
CPDO	:	Central Poultry Development Organisation
FP	:	Fowl Pox
Gm	:	Gram
KG	:	KiloGram
ND	:	New Castle Disease
N.B.	:	Nota bene
OUAT	:	Odisha University of Agriculture & Technology
RD	:	Ranikhet Disease
RIR	:	Rhodes Island Red
SHG	:	Self Help Group

This publication has been supported by GALVmed with funding from the Bill & Melinda Gates Foundation and UK Aid from the UK Government. The findings and conclusions contained within this publication are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation nor the U.K. Government.

I acknowledge with grateful thanks to Dr. Peetambar Kushwaha, Senior Manager, Commercial Development, Asia, GALVmed, New Delhi and Ms. Beatrice Ouma, Senior Manager, Communications, GALVmed, Nairobi for giving me an opportunity to compile this manual and guide for layout and design of this manual.

CONTENTS

Preface	1
Backyard poultry.....	3
Common poultry breeds	4
Body parts of Poultry	7
Poultry farming systems.....	9
Traditional backyard poultry farming	9
Deep litter system.....	10
Modern cage system for layer farming	10
Layman's economics and poultry rearing in villages.....	11
Poultry housing - night shelter.....	13
Equipment in the poultry house and backyard.....	14
Chick production and rearing in backyard poultry.....	16
Breeding male and hen ratio	17
Hatching of eggs by broody hens.....	17
Preparation of nests for broody hens at home	18
Candling of eggs:	19
Infertile egg, early embryonic death, fertile egg and storing of egg:	20
Summer egg hatching techniques.....	20
Chick rearing	21
Feeding chicks in backyard farming	23
Creep feeding of chicks	23
Saving the chicks from crow and kites:.....	24
Saving chicks and poultry birds from predators.	24
Feed and water for poultry.	26
Poultry feed ingredients.....	26
Preparation of backyard poultry feed ration in villages	27
Azola cultivation for poultry feeding	29
Feeding white ant/ termite to poultry	30
Enhancing chick production through increased clutch numbers in hens	32
Preliminary knowledge on poultry breeding techniques	33
Selection of breeding hens.....	35
Common diseases of backyard poultry.....	36
Ranikhet Disease (RD) or New Castle Disease (ND)	36
Thermo-tolerant lasota RD Vaccine	39
Fowl pox or Kukatbasant	44
Salmonellosis or white diarrhoea in poultry	45
Fowl Cholera	46
Bird flu or Avian Influenza	47
Vaccination of poultry and cold chain.....	49
External parasite of poultry (lice, ticks, fleas)	54
Endo parasite in poultry	55
Disposal of dead birds	57
Community animal health workers (CAHW) / prani-mitra	60
Marketing of backyard poultry and women production groups in rural india	61
Program Schedule for Practical skills on Backyard Poultry Production in India.....	62

PREFACE

- ◆ As per 20th Livestock Census, India has 851.81 million poultry. There are 317.07 million Desi or Backyard poultry population, which is about 37 percent of the total poultry in India.
- ◆ The Desi poultry varies from 30 to 70 percent of the total poultry population in different states of India. In tribal and backward dominant States the Backyard poultry population is high.
- ◆ There are about 60.52 million Desi hens in India and they produce 1089.37 adult from chicks in a year (One hen hatches 36 chicks per annum and 50% grow to adult). It produces 1634.055 million Kg of live bird i.e. 1089.37 million kg meat.
- ◆ Backyard poultry in India is producing 29 percent of the total egg produced. But except for 1 to 2 percent of the eggs all eggs goes for hatching chicks at homes. The eggs are rarely consumed or sold. Therefore, egg production from commercial sector should be considered for consumption purpose. The eggs in Backyard poultry are only to produce chicks and hence poultry meat production is the objective. Our farmers rarely consume eggs of the household birds or even sale. They hatch almost all eggs except few in summer; and grow chicks for meat. The birds thus grown are mostly consumed at home and the surplus goes to the market for sale. This is how the value addition of poultry occurs in villages.
- ◆ Ranikhet or New Castle Disease is a viral and highly infectious disease of the poultry. It strikes throughout the year in village. It inflicts very high mortality. The mortality rate varies from 70 to 90 percent of the poultry in an outbreak.
- ◆ The Ranikhet disease in poultry is preventable with regular vaccination. The vaccine is produced in both private and public sector. If the Ranikhet vaccine is administered effectively then the poultry population registers 600 to 800 percent growth in a year. Thus, routine preventive vaccination has direct effect on the livelihood of the poor farmers of all categories.
- ◆ The chick mortality is very high. It is about 40 to 60 percent of chicks in a clutch. The mortality is very high in the first month followed by second month of hatching. Diseases like Fowl Pox, White diarrhea, accidents and predators contribute to chick mortality.
- ◆ In many rural places the mortality of the poultry due to predator is also a major concern and limiting factor to its growth.
- ◆ In couple of States, mortality due to Bird Flu is seen; sparingly reported. The mortality is very high (90 to 100 percent) and the livelihood of the families is devastated for at least 2 to 3 years until poultry population is regained. Generally the Bird Flu strikes every third year where it is seen. It is essential that a Bird Flu vaccine is produced and used in India.

- ◆ Considering that the Desi poultry is nearly 30 percent of the population in India, the research and input in this sector is nil or least. All that is available is thrusting of exotic poultry into the sector; that has least known impact so far. The Research Institutes are at crossroad.
- ◆ It has been an established fact that the progestagens with estrogen in tablet form when given to the hen; it loses the broodiness and within couple of days it starts egg laying again. This treatment is well tested and effective under field condition. This was used to regain the poultry population fast after the severe outbreak of Bird Flu in Mayurbhanj district 2 years back. This low cost technology can make revolution in Backyard poultry production.
- ◆ In recent years Hester Biosciences, Ahmedabad with technical support from Global Alliance for Livestock Veterinary Medicines- GALVmed a non profit based in Edinburg has developed a thermo-tolerant Newcastle Disease (ND) vaccine and is marketed in India. The vaccine is used as drops in eyes. This is very effective. The future in backyard poultry will be wide scale use of thermo-tolerant and mixed (multivalent) viral disease vaccines.
- ◆ As said above, the use of hormone treatment as tablets to increase one to two additional clutches per hen per year along with above said thermo-tolerant ND vaccine in the villages are the two break-through technologies that have revolutionized the backyard poultry production in many BYP areas in Odisha.
- ◆ The main constraint in controlling Ranikhet and Fowl pox diseases is the availability of the vaccines round the year in rural markets.
- ◆ Poultry of different plumage colour is required for various social and religious ceremonies of majority of the Backyard poultry growers. It is a vital part of their life, culture, women income and economy of almost all tribal societies.
- ◆ The women play the pivotal role in Backyard poultry production in India.
- ◆ The rural poor need an indigenous improved Poultry called 'Super Desi'. This should be maturing between 5 to 6 months of age. It should lay 20 to 22 eggs per clutch and such 4 clutches in a year. The hen should have broody characteristics such that it can hatch her own eggs. The hatchability should be more than 85-90 percent. The hen should attain 2 kgs and male should attain 2.5 to 3 Kgs body weight in one year of age under semi-scavenging condition. This is possible through adoption of better management practices.
- ◆ The Vezaguda breed hens can lay 20 to 22 eggs per clutch; it can be further selected from the population. The Kalahandi and Khuda jauria breed hen has 4 clutches per year.
- ◆ The Hansli breed birds attain fast and heavy body weight, so also the Vezaguda. Breeding with the help of Geneticist such prolific and fast growing poultry strain can be developed from native breeds.

BACKYARD POULTRY

Most people and the poor in particular keep poultry at home. The flock size varies from average 10 to 20 and above per family. It depends on the land resource available around the household premises. Household keeping poultry in villages varies in tribal dominated villages. Before the onset of monsoon and start of agriculture operation, villagers sale most of their birds and keep 2 to 5 hens for their future breeding operation. The new hatchings start on the onset of winter and it reaches peak in the month of April.



- ▶ The majority of the poor are familiar with poultry keeping.
- ▶ The landless poor, small and marginal farmers keep poultry as an auxiliary investment.
- ▶ The investment is low.
- ▶ The generation interval is small and the turn-over is fast and assured.
- ▶ The results are visible within short time.
- ▶ Makes significant contribution to family income.
- ▶ Provides protein rich food to members of the family and to the visiting friends and relatives to the family.
- ▶ It is of considerable importance to meet social and religious obligations.
- ▶ Generates employment.
- ▶ People sale surplus poultry in the market after meeting the requirement at home.

- ▶ Poultry consumes least food compared to other domestic livestock. They scavenge in the backyard of the house and the families sometimes supplement the waste from the kitchen.
- ▶ Women spent their surplus time and labour in rearing the poultry at home.
- ▶ Helps in control of pests and insects.
- ▶ The cock fight is a traditional amusement to the men.
- ▶ The poultry manure is an important bio-fertilizer.
- ▶ It is the Any Time Money (ATM) for the poor.

COMMON POULTRY BREEDS

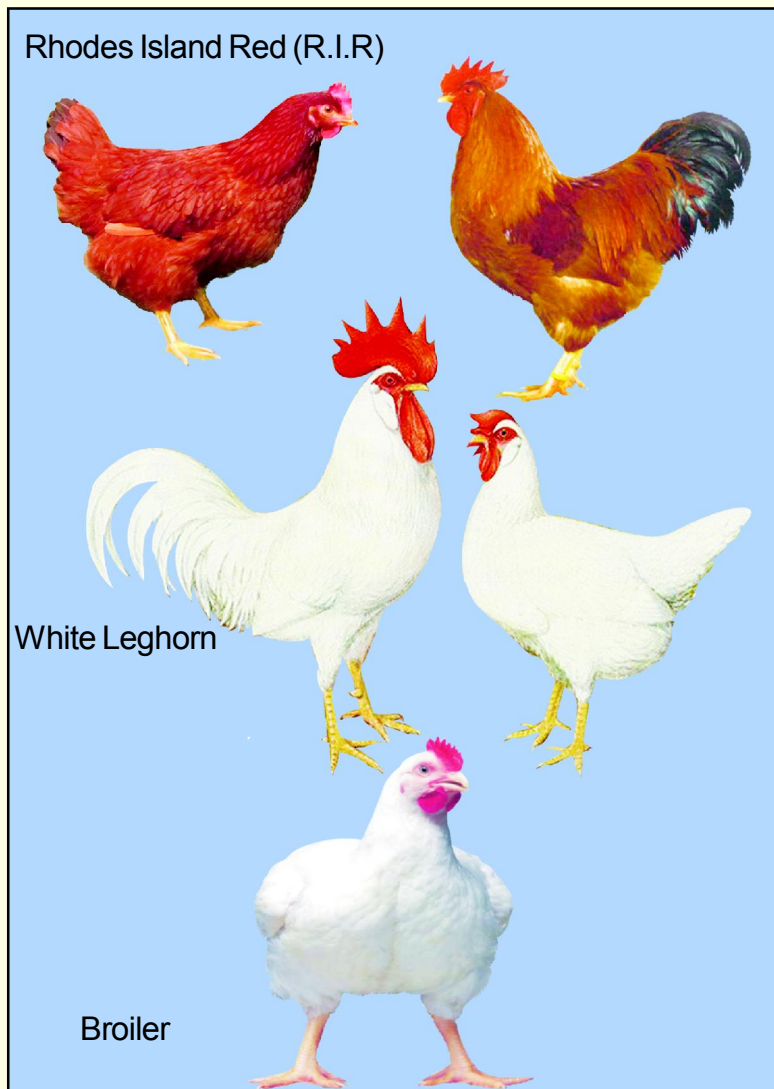
There are few foreign-imported familiar breed of poultry in India and many indigenous poultry breeds in India. They are:-

Leghorn:

It is of foreign origin. White and Brown Leghorn are popular poultry breeds world-wide. They are famous for laying high number of eggs. In India, White Leghorn is the most layer breed in commercial sector. They have single combs and white ear lobe. They lay white eggs. One hen lays 305 to 307 eggs per year and eats about 120 grams of balanced feed daily.

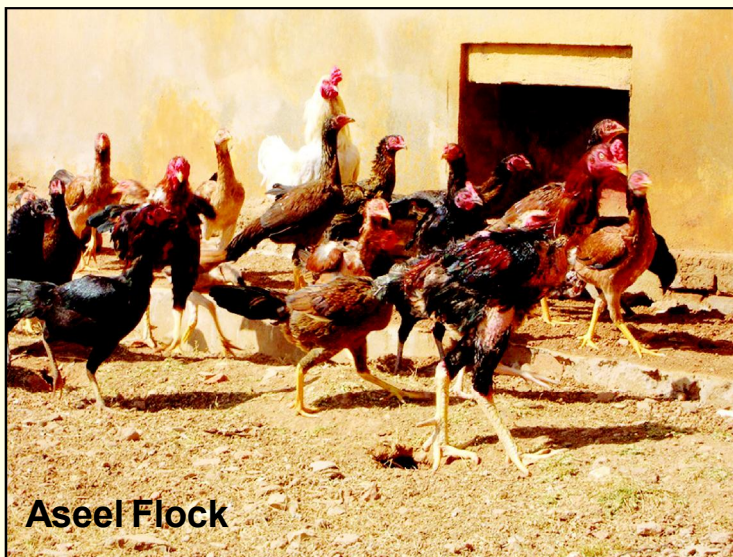
Rhodes Island Red (R.I.R.):

This is also another foreign origin breed. They have red plumage, the legs and skin are yellow colour; the hen weighs 2.5 Kg and the male weighs 2.5 to 3 kgs. The hens lay around 230 to 250 eggs per annum. They generally have single comb but you get rose comb also. The ear lobes are red thus the eggs are also light red in colour.



Broiler Breeds of Poultry:

These breeds of poultry are only developed for meat purpose. The Western countries have developed a meat breed called Red Cornish from the Indian breeds of poultry and now several commercial varieties of broiler breeds have been developed from it and marketed. Large Commercial Poultry Corporations are marketing special varieties of broiler chicks in India. Broilers in general attain 1.5 kg body weight in 35 days of age.



Some Indian (Odisha State) Breeds of Poultry:

Aseel:

This is a famous Indian poultry breed; and it is found in Rayagada district of Odisha. The origin of this breed is Andhra Pradesh. They are famous for cock fighting sports. It has long face, the neck is thick, the breast is broad, and the shanks are long and strong. The body has sparring feather pattern and is of various colour pattern. The skin is yellow and the ear lobes are red in colour.



The meat of this breed is acknowledged as very tasty. The hens weigh about 2 to 3 kgs and the adult male weighs 3 to 4 kgs body weight. They lay light brown eggs. The hens lay 7 to 12 eggs per clutch, generally such 2 clutches per year.

KhudaJauria:

This breed is found in Mayurbhanj district of Odisha. They are very small, hens weigh about 700 grams to 1.2 kgs and the cocks are 1.5 to 1.8 kgs. They lay 12 to 18 eggs per clutch and the women farmers claim to get 90 percent hatching. The hens give 4 clutches of eggs per year.

Veaguda:

Veaguda breed of poultry are found in Koraput mainly in Jeypore, Baipariguda, Kotpad region and also distributed in Malkangiri and east of Nabarangpur districts of Odisha. The breed is comparatively larger than the desi poultry. The females in 5



months of age are 1.3 kgs and the male are 2.0 kg body weight in the same age. (CPDO, Bhubaneswar). The breed has red, white, black, silver, slate, and different mixed colour plumages. The skin is white colour, the legs are long and strong. The ear lobe is red thus the eggs are light brown. The combs in majority cases are pea comb. The hens weigh 2 to 3 kgs and the cocks go 3 to 3.5 kg body weight. The meat of the breed is very tasty. They lay 12 to 15 eggs per clutch and some hens touch 22 eggs per clutch and hatch 20 chicks. They lay 3 clutches of eggs per annum. The Vezeaguda breed is one of the most prolific medium size poultry bred by the Tribal breeders of United Koraput district of Odisha. The cocks are good fighters and very attractive birds.

Kalahandi:

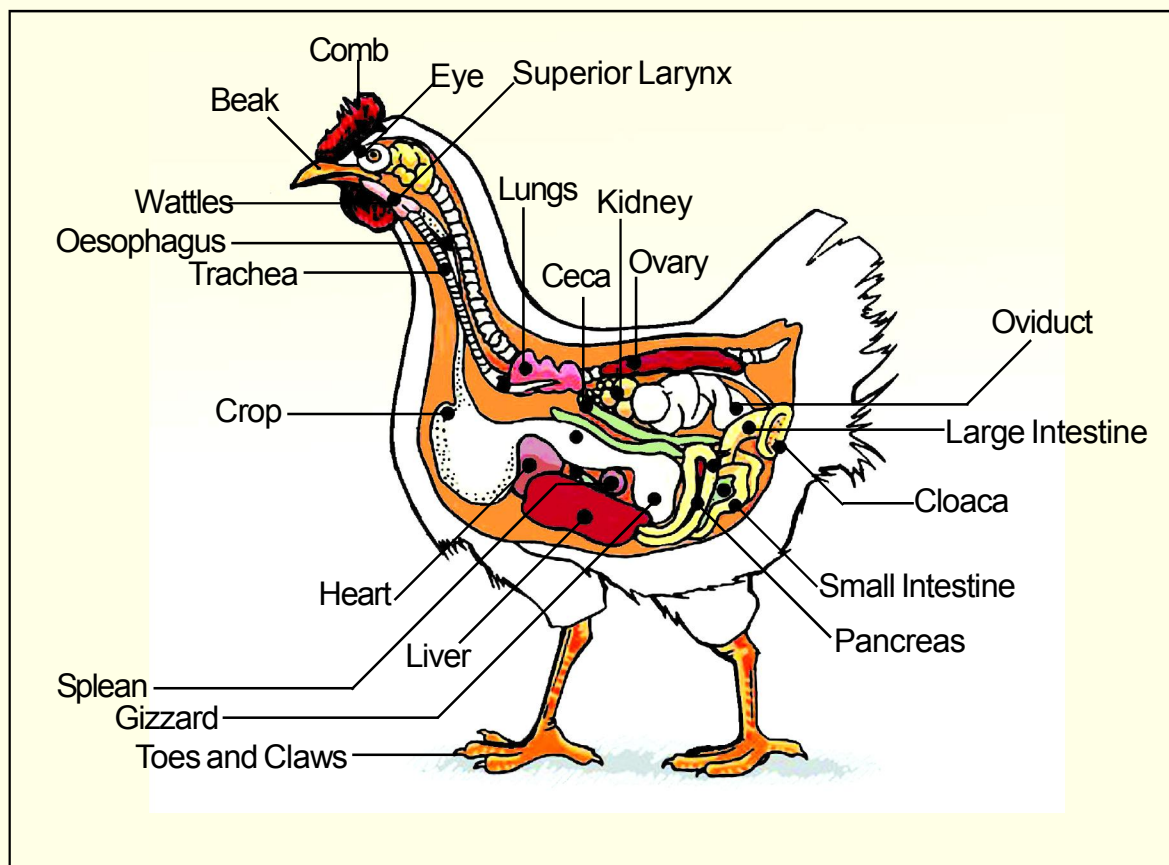
As the name implies this breed of poultry is found in Kalahandi district and the adjacent areas of Nabarangpur and Rayagada district like Kashipur etc. This is a very small breed of poultry resembling the Wild Red Jungle Fowls. The hen weighs 700 to 800gms and the cock 1.0 kg. They are single comb, the ear lobes are white, and the feathers are red, black, white and mixed colour. The tail is black. Generally, the male has black feathered belly and chest. The legs are dwarf; the skin colour is white to black. In a clutch they lay 12 to 18 eggs and such 4 clutches per annum. The eggs are very small and are about 25 grams. The meat is acclaimed to be very tasty and the bones very soft.

Hansli:

This breed of poultry is found in Mayurbhanj district of Odisha. They are red, black, yellow and mixed feather coloured birds. The ear lobes are red and the comb is generally the pea comb type. The beak is semi-curved on the top and very strong, slender shanks. The chicks grow faster and sometimes the chicks are without feathers or very slow feathering. The hens lay 12 to 15 eggs per clutch and suck 3 clutches per annum. The male gains 2.5 kg body weight at 5 months of age under restricted feeding condition (OUAT, Bhubaneswar). The Tribal of Mayurbhanj are the breeders and originators of about 5 more breeds of poultry.

BODY PARTS OF POULTRY

EXTERNAL BODY PARTS OF POULTRY BIRDS

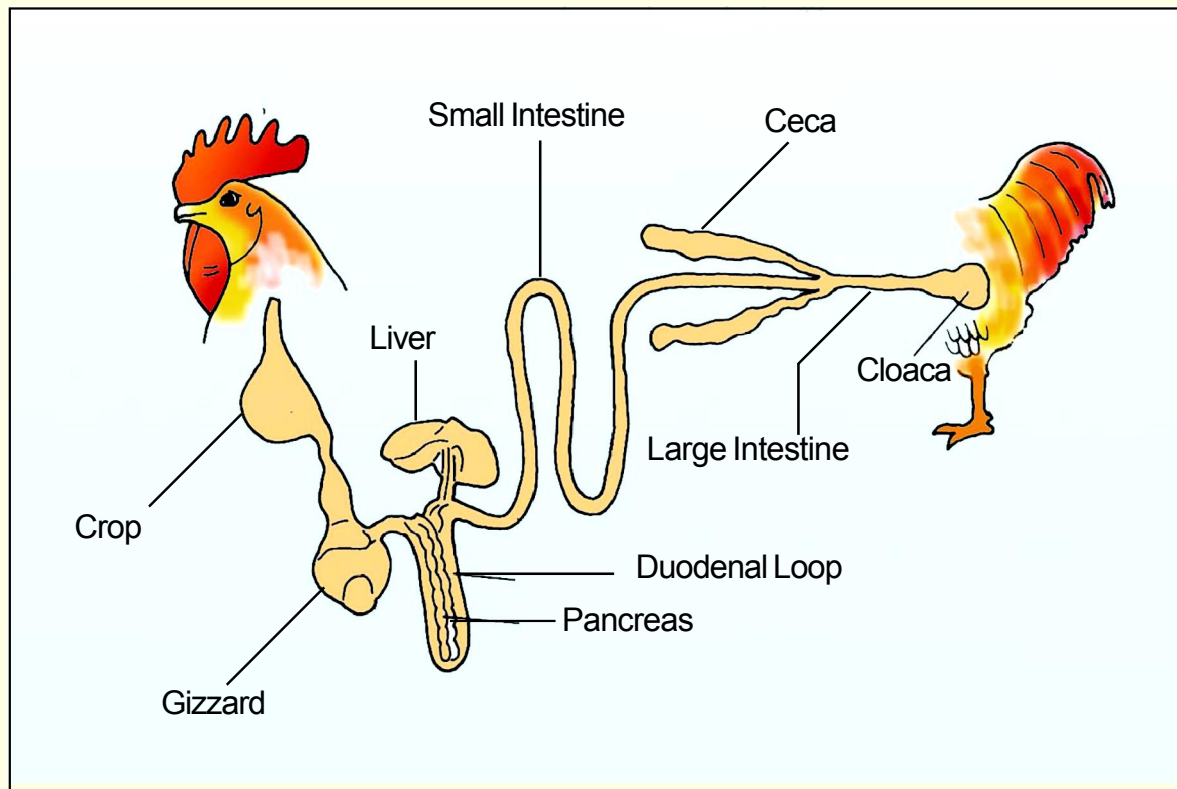


- ◆ Poultry birds are warm blooded animal. The body is covered with different coloured feathers. The leg and fingers have scales. The body is compact and bones are light with well developed wings and long legs.
- ◆ The basic external parts of a chicken include the comb, beak, wattles, ears, earlobes, eyes, eye rings, wings, tail, thighs, hocks, shanks, spurs, claws, and toes.
- ◆ The thigh of a chicken is the upper part of the leg attached to the body. The thigh

is connected to the shank (foot) at the hock joint.

- ◆ Externally there is a comb over the head, wattles below the face. The ear lobes are found below the ears, which may be red or white in colour.
- ◆ There are two legs and each leg contains 4 fingers, three in the front and one at the back. In the front of the finger, there is a claw. Adult birds have a spur in the leg at 3-4 centimeter above the finger.
- ◆ The ear lobe is a specialized skin located below the ear. The color of the ear lobe (red or white) depends on the breed of chicken.
- ◆ The poultry breeds are distinguished from plumage colour and combs. There are usually 4 types of comb viz., Single comb, Pea-comb, Rose comb and Walnut comb.
- ◆ The sex and age of poultry birds are known from its plumage colour, shape and size of tail, spur size and combs.
- ◆ Hackle and cape feathers of males have pointed ends, whereas those of females have rounder ends.
- ◆ In addition, males have sickle feathers in their tails and hackle feathers on their backs, and females do not.

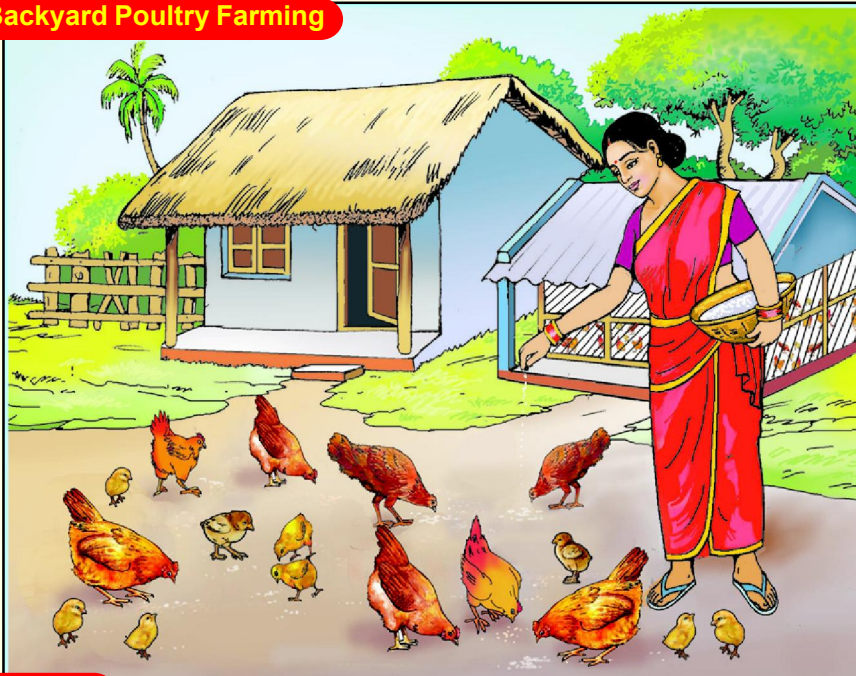
INTERNAL BODY PARTS OF POULTRY



- ⇒ Poultry birds collect feed by using its beak. Food picked up by the beak enters the mouth. Food tube carries food from the mouth to the crop, which is found just outside the body cavity in the neck region.
- ⇒ Gizzard is a small, semi-oval organ made up of two sets of strong muscles, which helps for grinding, mixing and mashing of food.
- ⇒ Poultry bird has small intestine and large intestine. The ceca are two blind pouches, special organ in poultry located where the small and large intestines join.
- ⇒ The hen has reproductive organs to lay eggs. The male bird has also reproductive organ, which is entirely inside the body and the sperm produced by male birds are viable in outside temperature.
- ⇒ In poultry birds, the fecal material and urine pass together.

POULTRY FARMING SYSTEMS

Traditional Backyard Poultry Farming



Deep Litter System



There are 3 major poultry farming systems.

TRADITIONAL BACKYARD POULTRY FARMING

- ◆ This is still prevalent in Asia and Africa continent including India.
- ◆ The breeds of poultry in this system are indigenous type and hatch their eggs to chicks. They also rear the chicks.
- ◆ This is an auto generating system.
- ◆ The birds scavenge their feed from the backyard, particularly from the manure pits, agriculture waste and kitchen waste.
- ◆ When the poultry in the traditional backyard system are supported with some feed, it is called Semi-intensive or Semi-scavenging system.
- ◆ During the night the birds in some villages stay on trees or top of the house; in many cases they are given night shelter in the bed room of the owner or in the verandah. This is a century old sustainable system of poultry farming.

DEEP LITTER SYSTEM

- ❑ A poultry house is made with roof and instead of wall in many places they cover it with wire mesh. The floor is filled with straw, rice husk or even saw dust.
- ❑ This system is still followed in keeping the Broiler birds in small scale farming system.
- ❑ The birds live in open space of the enclosure. Feed and water is provided for 24 hours with electricity lights.

MODERN CAGE SYSTEM FOR LAYER FARMING

- ▶ The birds are maintained in cages which are staked on each other horizontally and vertically.
- ▶ The birds stay in these cages for 24 hours of the day. There is provision of adequate feed and water and light to the layer birds in this system.
- ▶ Sometimes these cage farms have 1 to 8 lakh birds.
- ▶ It is automated, so saves expenses and labor.

Modern Cage System

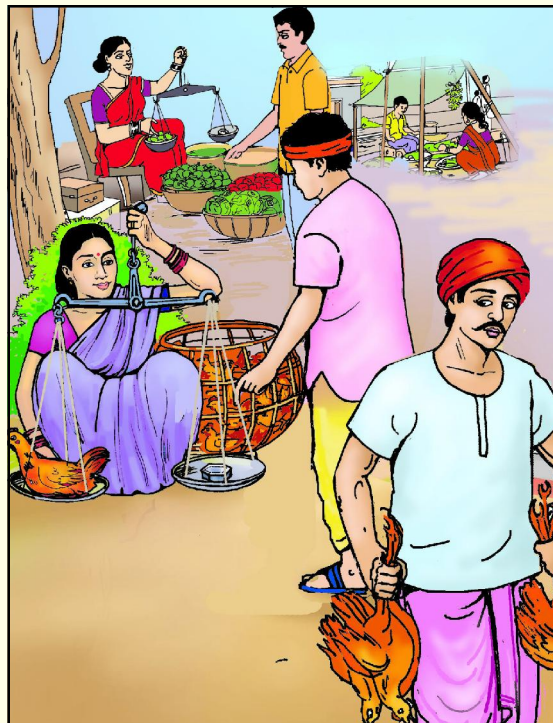


LAYMAN'S ECONOMICS AND POULTRY REARING IN VILLAGES

A. Indigenous Hen

Sl. No.	Production parameter	Output
1	One indigenous hen lays	12- 15 eggs per clutch
2	One indigenous hen hatches	12 chicks per clutch
3	One indigenous hen lays	3 clutches/ year
4	Annual Egg per Hen Unit	36 eggs
5	Chicks grow to adult stage per Clutch	6 adults
6	Annually chick grows to adult stage	18 adults
7	Price of poultry bird weighing one kilo body weight	Rs. 300/-
8	Value of 9 months to one-year age weighs 1.5 kgs; and it yield one kg of meat after dressing.	Rs. 400/- (Average)
9	Total price of the 18 adult poultry produced from one hen per year @Rs 400/- per bird	Rs. 7200/-
10	Household keeping 5 hen units at home: Total worth of the poultry that a household produces in a year under the village condition	Rs. 36,000/-

**Marketing of Poultry
in the Local Market
- Sale of poultry on
weight basis**



B. Layer Poultry

Sl. No.	Production parameter	Output
1	One White leghorn layer hen lays	305 eggs
2	Market price of egg	Rs. 6/-
3	Total income from egg sale from one hen per annum.	Rs. 1830/-
4	Balanced feed consumption per day to produce egg by layer hens	120 grams

- The feed cost contributes 70 % of the total cost of egg production. Along with it there is the cost of the housing, electricity, purchase cost of the chicks, medicines and vaccines labour etc. So, the producers get around 20 paisa per egg as profit.

C. Broiler Poultry

- Special meat producing faster growing and comparatively least feed consuming meat producing breeds of birds are called Broiler birds.
- The broiler meat is comparatively cheaper than the indigenous poultry meat in the market. The broiler meat costs Rs 180/ per kg of meat in the market.
- Per each one kg of broiler meat sold the producer/farmer gets on an average of Rs 35/- as profit

Indigenous poultry meat price per Kg	Rs 400/
Broiler poultry meat per Kg	Rs 180/
Egg from Indigenous Poultry	Rs 20/ per egg
Egg from layer Poultry	Rs 6/ per egg; Rs.1800/ - (305 eggs/year)

POULTRY HOUSING -NIGHT SHELTER

- ◆ Still in some villages the poultry stay on top of the house or the trees. It protects them from predators to some extent.
- ◆ Many families keep their poultry flock within the bed room. This is not a good practice.
- ◆ People make least cost poultry houses in their premises with the local available bamboos, and wood and make the roof from the paddy straw.
- ◆ They cover this house all round with thorny bamboo to give protection from predators.
- ◆ A sum of Rs 200/- is being spent for iron nail in such house construction.
- ◆ Families release their flock at 6 O'clock morning. They search their food like different insects, fly larvae and about 9 or 10 O'clock they are given some feed like rice bran mixed with broken rice etc.
- ◆ In the evening those families who can afford give the second round of feed.
- ◆ The poultry flock should be offered feed once they have scavenged fully. This will encourage them to be on scavenging sources.



Least Cost Poultry Housing

Construction of Poultry Shelter Using Locally Available Material

Making a Poultry Night Shelter

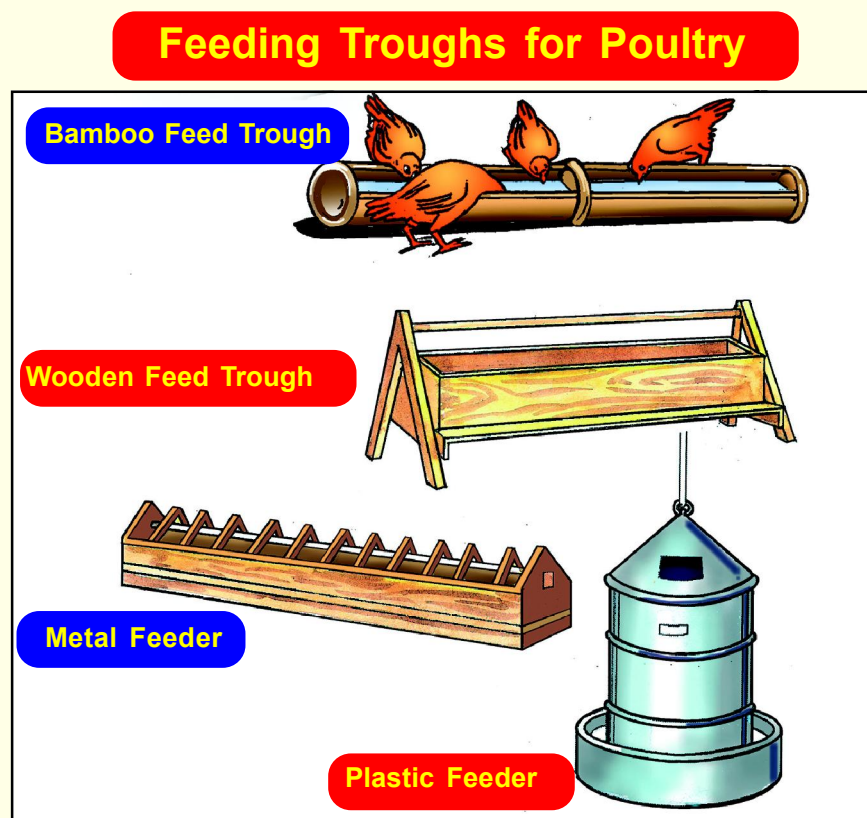
- Use locally available cheap bamboos and wood to make poultry night shelter at home.
- There should be proper ventilation to the shelter.
- It should protect the poultry flock from wind, cold and rains.
- The house should be strong enough to protect poultry from predator attack in the night.
- So people cover it with a layer of thorns, especially from special thorny bamboos.
- The door of the shelter should be wide such that a person can enter into it to clean it daily.
- For one bird one square foot space is to be provided.
- Do not overcrowd the shelter with birds.

- Some people design a first floor in the shelter to accommodate more birds
- In some region people make poultry shelter under the verandah with a strong fixed wooden door to it.
- Provide hanging nests in the shelter for broody hens.

Management of the Poultry Night Shelter

- Clean the poultry shelter daily and collect the waste for fertilizer.
- Keep the size of the flock that can support your backyard and the feed that you can afford to give.
- Keep the premises of your house clean from unwanted bushes to avoid attack of predators to the birds
- Lay a layer of dry lime powder or ash to keep the floor dry and this will reduce disease incidences.
- Make the poultry shelter close to the wall of your living house; that will deter thieves and wild animals.
- Use poultry waste as fertilizer in vegetable or backyard farming. This is very acidic so add some amount of lime to it before use.

EQUIPMENT IN THE POULTRY HOUSE AND BACKYARD



Feeding troughs for Poultry

- Provide feed to the poultry in local made feed troughs.
- This will reduce the waste of feed, reduce labour of feeding and is hygienic.

The Feed troughs can be made.

From Bamboo: This is made in the villages.

- A bamboo is divided horizontally in two equal parts. Cut the piece from node to node of the bamboo. The sides are well polished and smoothed. Some support the base with legs so that it stands on the floor leaving 5 to 6 inches height.
- The length of the bamboo feeder is between 2 to 3 feet.
- This can also be made from light wood.
- The number feeding troughs depends on the poultry population at home.

Feed troughs purchased from market are made from tin sheets or plastic. In this there is poultry guard that is placed on the top of the feed trough so that the birds cannot get into the feed channel and waste the feed or contaminate it.

Hanging semi-automatic Feed troughs:

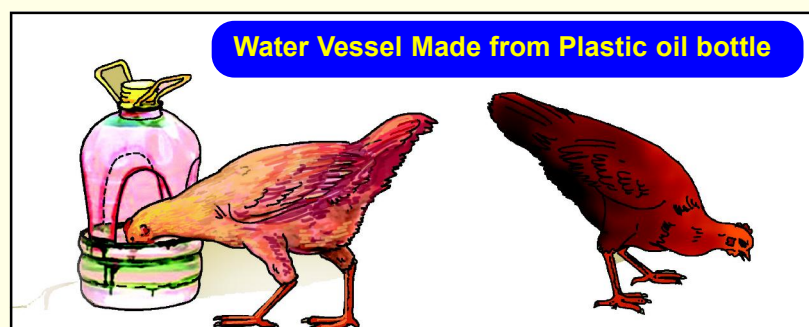
- These are generally made up of plastic or tin by large Poultry equipment manufacturers and are marketed.
- It is used in organized improved poultry farms.
- There is a cylinder of about 1 to 1.5 feet length.
- It is attached to a plate below.
- There is space between the cylinder and the plate.
- The feed is filled in the cylinder from the top and it slowly percolates to the plate where poultry pick feed.
- The whole equipment is hanged to the roof of the shed.

Waterers for Poultry:

- Clean drinking water supply to the poultry at home is most essential.
- This will save birds from getting infection from outside source.
- Give clean water to save the chicks from infection and mortality.

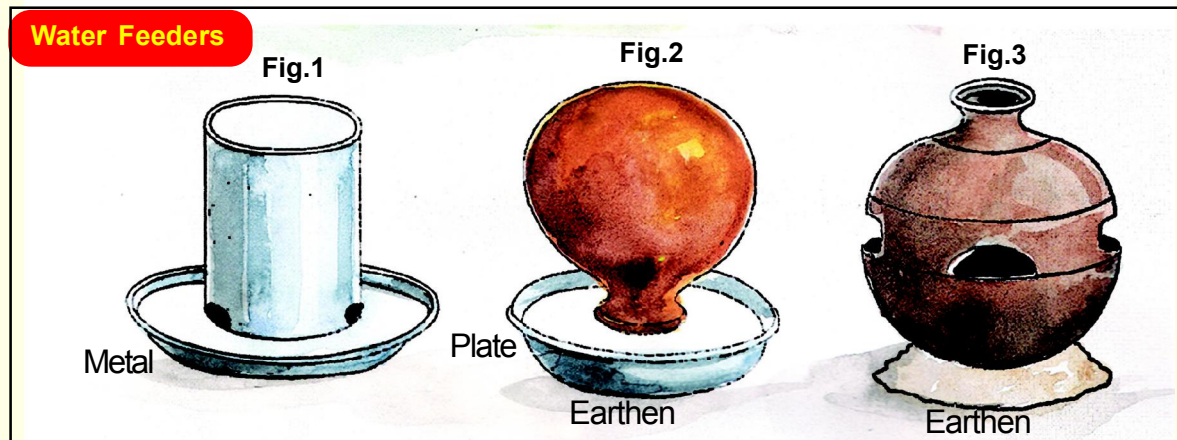
Making water vessel locally at home:

- Take one used plastic oil bottle of 2 to 3 litre capacity.
- In the middle of bottle make appropriate 4 cuts in 4 directions.
- The cut should allow the bird head to get into the bottle.
- Fill the bottle with clean water till the bottom of the cut and place it in the yard close to the feed troughs.
- After feeding, the poultry birds will drink water.
- Clean the bottle daily before filling it with fresh water.



There are 3 kinds of locally made Water feeders. They are illustrated in Figure 1, 2 and 3.

- The principle is to fill a vessel with water.
- Take a plate.



- Keep the plate over the face of the vessel with water.
 - Then suddenly invert the plate with the vessel. Keep the plate with vessel inverted.
 - Some small pores at the head of the vessel will help the water flow to the plate.
 - The poultry can drink water from the plate on continuous basis.
- In the Fig.3, it is a earthen pot with appropriate holes in 4 direction. It works like the plastic Oil bottle water feeder as described above.

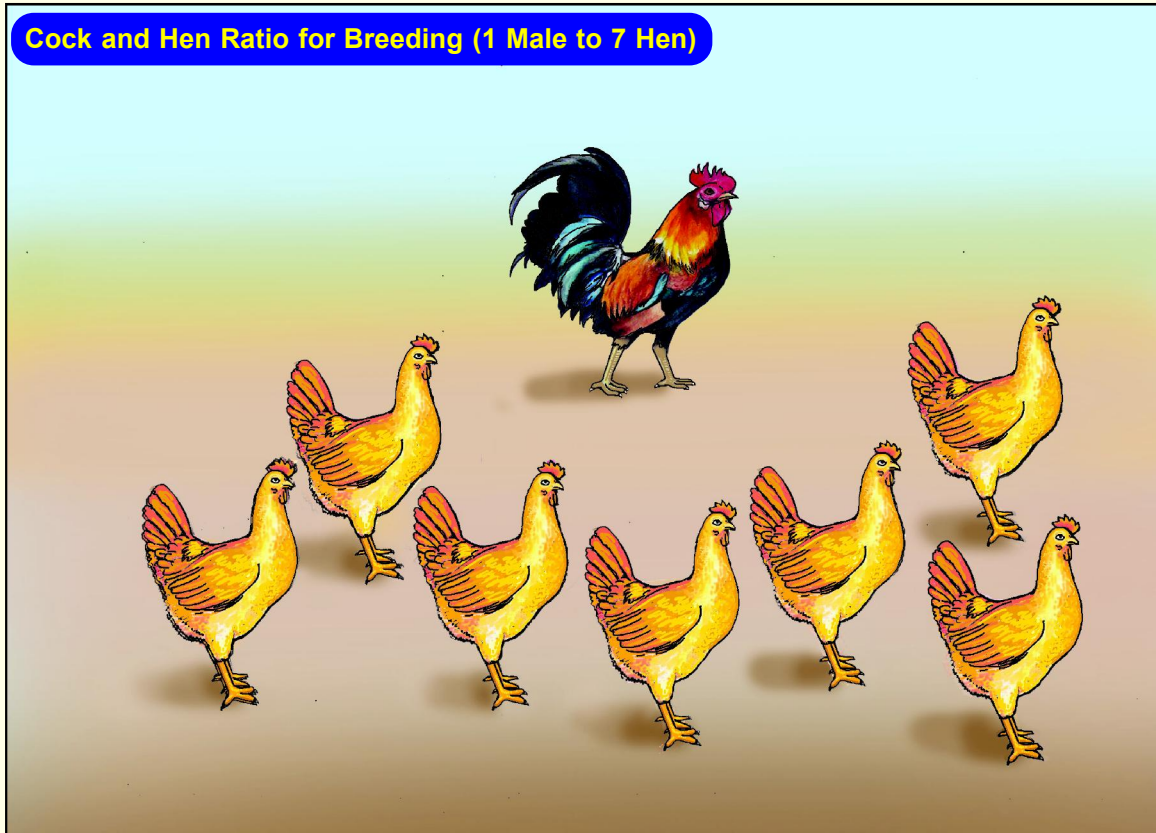
CHICK PRODUCTION AND REARING IN BACKYARD POULTRY

SELECTION OF BREEDING HENS

- ◆ Backyard poultry is for producing chicks from broody hens at home. It aims at meat production from adult birds.
- ◆ Number of chicks from a hen and number of hens at home determines income and profitability to the family.
- ◆ Generally a hen lays 10 to 15 eggs per clutch and hatches average 12 chicks. A hen at the most lays 20 to 21 eggs and hatches 20 eggs also.
- ◆ The hen that lays 10 eggs and hatches 8 eggs is not profitable. Cull and sale such hens.
- ◆ Those hens that lay more than 12 eggs per clutch and hatch 80 to 90 per cent of the eggs, select them for breeding purpose. More eggs and more number of chicks hatched by the hen give higher profit.
- ◆ The aim should be to select or purchase those hens that lay 15 to 20 eggs per clutch and hatch more than 80 percent of the eggs. The hen size should be large to medium.
- ◆ Retain such hens for breeding and select the future breeding males and females from the progeny of such hen. Continue the process; thus this in time will improve the quality of the breed of poultry and profitability.

BREEDING MALE AND HEN RATIO

- ◆ Keep one adult male to each of the 7 to 10 breeding hens in backyard poultry production.
- ◆ This will ensure production of fertile eggs for chick production at home.
- ◆ More adult males in the hen flock means they will fight between themselves and get injured. They will also obstruct the scope of breeding of hens by chasing the concerned males.



HATCHING OF EGGS BY BROODY HENS

- ◆ The indigenous poultry mature from 4 to 6 months of age. They lay and hatch their own eggs.
- ◆ They brood the eggs for 21 days.
- ◆ They lay 7 to 22 eggs per hatch/clutch; and average of 12 eggs per clutch.
- ◆ Generally, hens hatch 10 to 12 chicks per hatch but we have seen hatching of 20 to 21 eggs in a single hatch also.
- ◆ The place where broody hen will sit for brooding the eggs should be isolated and preferably dark.
- ◆ Place some thinly cut straw in a broken earthen pot or bamboo box and prepare a nest for the hen to sit.
- ◆ Break a used earthen pot at mid-point, horizontally. Then lay the bottom end over the face of the pot so that it forms an open face nest.
- ◆ Make arrangement of feed and water in the yard of the house for the hen along with other birds at home.
- ◆ The broody hen will get down of the brood when it is hungry or thirsty. Generally women feed by hand the broody hens during the period.

PREPARATION OF NESTS FOR BROODY HENS AT HOME

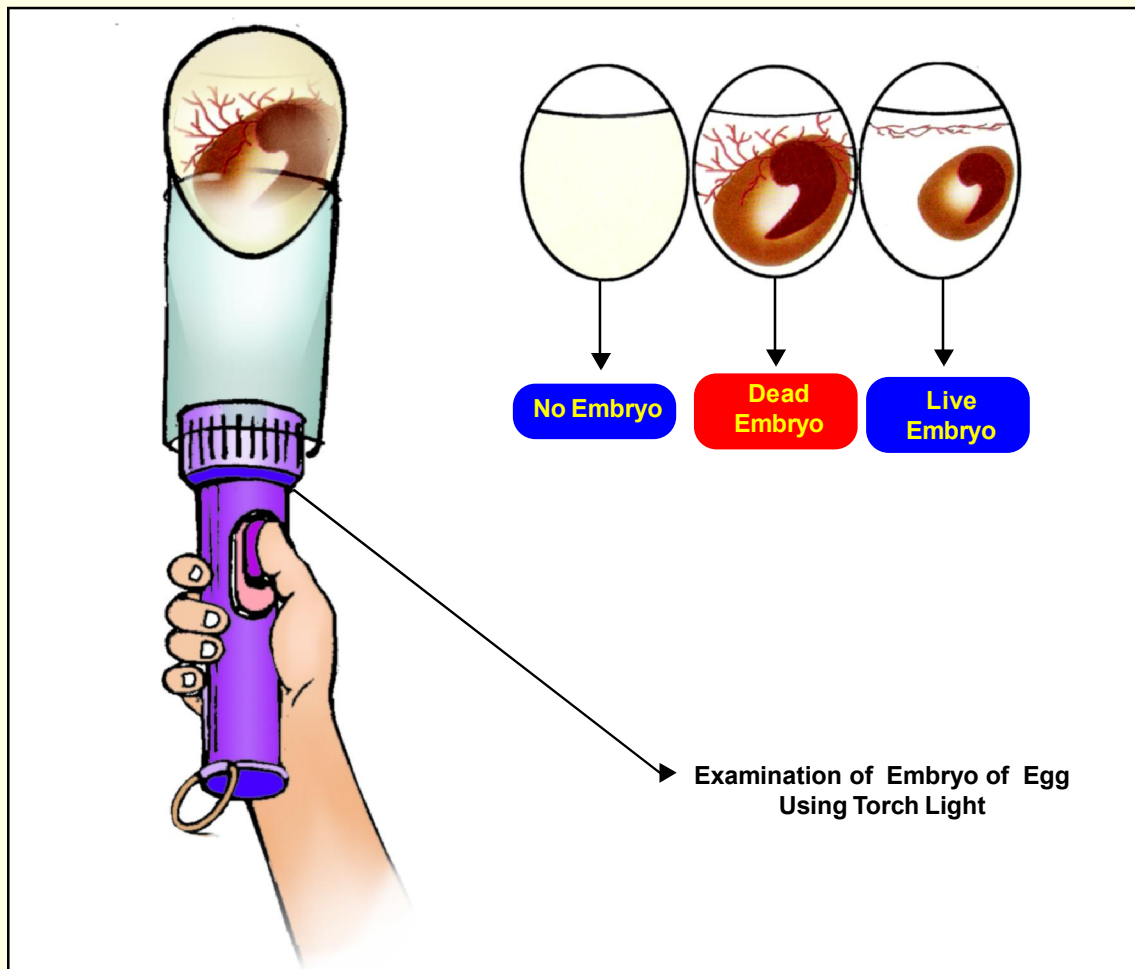
- ⇒ As said earlier, the indigenous breeds of hens brood their eggs for 21 days. It is essential that the hen has a clean nest and free of lice.
- ⇒ The locally available materials like bamboo boxes, earthen pots and card boards are used to make suitable nests for the laying hens to brood.
- ⇒ In winter prepare nest from earthen pots or such materials so that the bottom of the eggs are warm and not cold. Use rice husk or bhoosa, rice bran, and or clean dry sand as the nest fill.



- ⇒ In summer use bamboo boxes, or card board box. Keep rice straw, dry leaves or rice husk as the nest dressing material. This will allow sufficient ventilation to the eggs in hatching process.
- ⇒ In order to get a healthy hatch keep the nest of the broody hen in a safe and dry cool isolated place. You can hang the nest to the roof of the house also. It saves the eggs from dogs, rats and the cats.

CANDLING OF EGGS:

- ⇒ During summer hatching under the hen, there is about 30 to 50 percent hatching of the eggs.
- ⇒ This is due to high ambient temperature effect on eggs in the summer.
- ⇒ So the eggs are identified for fertility on the 7th day of the hatching; those eggs that are without embryo are taken out for consumption at home rather than leaving it to waste at the end of the hatch.
- ⇒ Infertile eggs can be consumed even if the hen broods for 7 to 8 days after identification by candling.
- ⇒ This is achieved by a technique called '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 are removed from hatching operation and this can be used for consumption.
- ⇒ On 17-18 day, again 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. 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.
- ⇒ Eggs are tested in water for its quality. Eggs are dipped one by one in a small vessel half filled with water. 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 can be preserved in refrigerator for several months before consumption.
- ⇒ 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 before hatching because it will destroy a very thin protective covering on the shell which protects it from the germs.

SUMMER EGG HATCHING TECHNIQUES

- ⇒ In summer the ambient temperature stays at more than 40 degree C.
- ⇒ If the eggs are kept in this temperature more than 10 to 15 days the egg embryos do not develop and the eggs thus become infertile.
- ⇒ This is why in summer there is low hatching of 30 to 50 percent.

Method No1:

- ⇒ You remove the first 5 laid eggs by the hen and consume in home or sale.
- ⇒ Place rest of the laid eggs; say 7 eggs of the hen for hatching.
- ⇒ This will improve the hatching percentage.

Method No2:

- ⇒ In this method efforts are laid to reduce the surrounding temperature of the eggs up to about 4⁰C by creating a refrigerator like environment.
- ⇒ Get a wide mouth medium size earthen pot.
- ⇒ Make a mixture of 1 part of soil and 3 parts of sand.
- ⇒ Add water to the said mix until it is just wet.
- ⇒ Fill the wet soil and sand mix up to the mouth of the wide face earthen pot.
- ⇒ Lay a dry gunny bag piece or a thick piece of dry cloth over the face of the pot. Take care that the cover remains dry.
- ⇒ Keep it at a cool ventilated place.
- ⇒ The hen lays one egg daily. Place this egg over the pot and collect all the eggs laid by her in the clutch. That may be 12 to 15 eggs.
- ⇒ When the laying of the hen is over remove all the eggs from the pot and transfer into the nest where the brooding will start.
- ⇒ This process is widely adopted in Mayurbhanj district of Odisha and is giving more than 80 percent hatch in summer months.

Summer Hatching Method



One part soil and three parts of sand



Mix the sand & soil and wet with little water



Place the mixture in an earthen pot



Cover the top with dry gunny bag or thick cloth



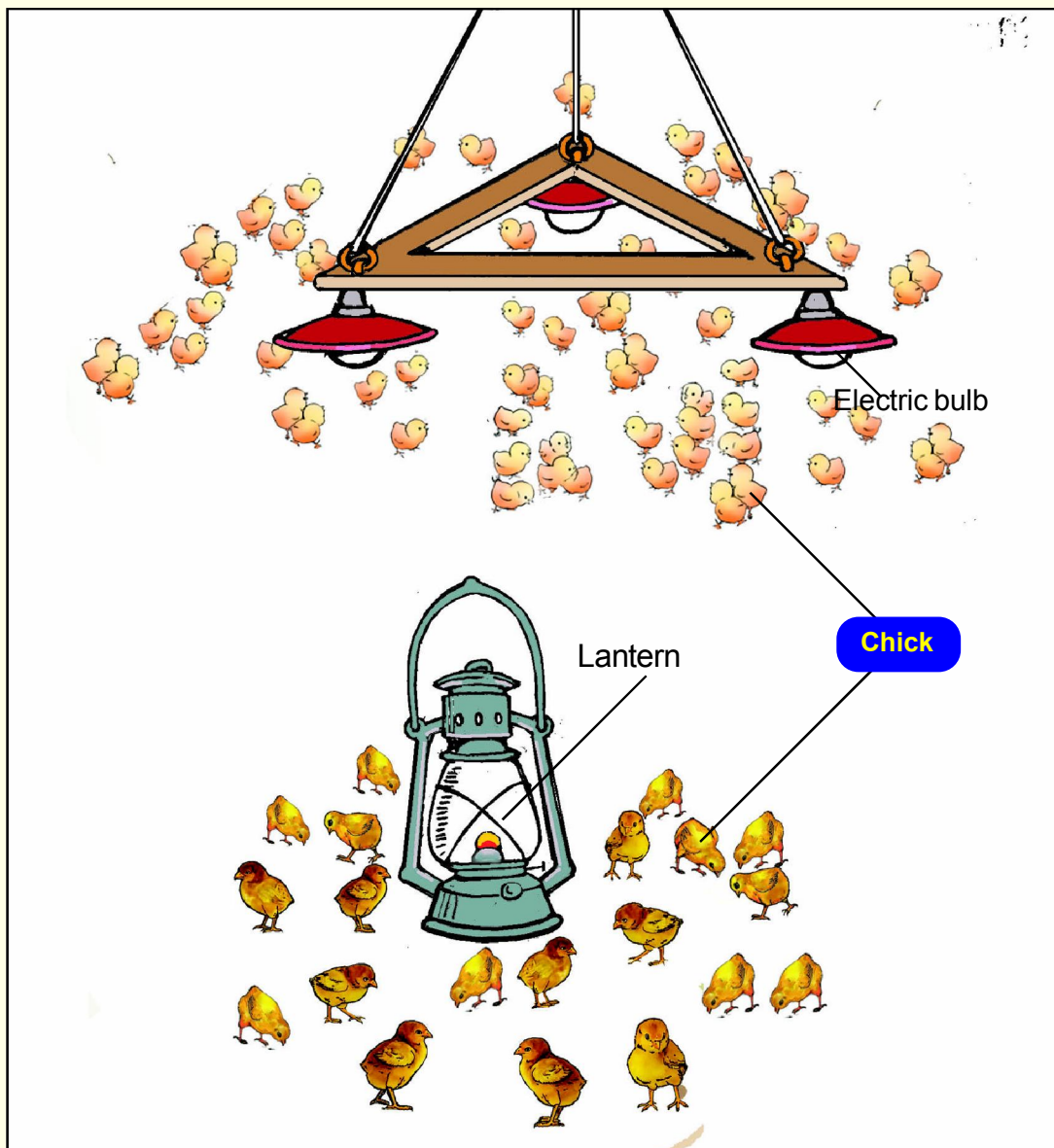
Place the daily laid eggs over the said pot until hatching

CHICK REARING

- Newly hatched chicks and chicks up to 6 weeks require warmth. In order to protect the chicks from cold of the floor suitable bed materials like dry paddy straw, leaves, rice husk or even papers are laid on the floor

- ❑ In winter and rainy seasons chicks die out of cold shock. Thus it is essential that the new hatch and chicks are provided with extra warmth from artificial sources.
- ❑ In commercial poultry farming the chicks in thousands are reared. Artificially warmth is provided to the chicks. This equipment is called 'Brooder". There are different type of brooders
 1. **Hoover brooder.** It is made up of wood or tin sheets.
 2. **Lantern fitted bamboo box brooder.** In a bamboo guard a lantern run by kerosene is fixed at its top. It provides warmth to the chicks. It is used to rear couple of chicks without broody hen.
 3. **The bamboo box brooder**

Different Brooding Method



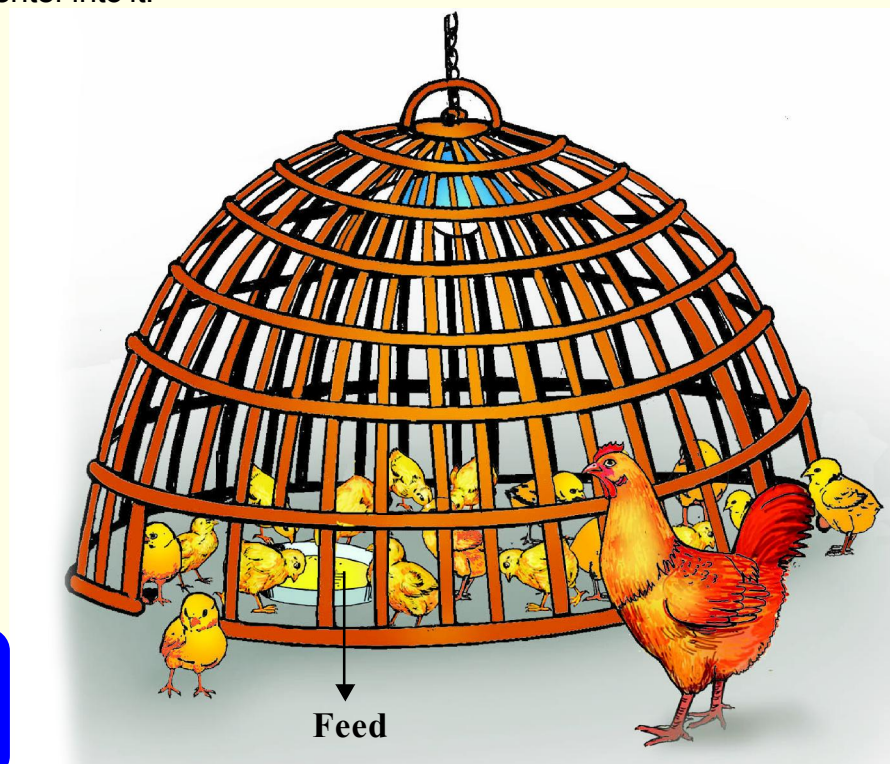
4. Coal heating brooder.

FEEDING CHICKS IN BACKYARD FARMING

- Do not allow the hen to take her chicks away from the front yard or backyard of the house.
- Allow them to go to the manure pit, where they will eat the insects and larvae of the flies etc.
- In front yard of the house make arrangement of feeding and drinking water for the hen and chicks.
- Keep the mother hen and chicks in a traditional bamboo guard for 4 to 6 weeks age.
- Provide clean water to the chicks. Keep the water plate little away from the feed plate.
- If rains, take the chicks on the veranda of the house or else sometimes they are drowned by the speedy streams of the drains.
- Remove the hair mesh from the tiny feet of the chicks, if they get it.
- Place a flat plate of wood under the feeding trough so that feed can be recollected.
- The feeder and waterier size and height is fixed as per the height and size of the poultry. Adjust the height of it to the back of the chicks; and it should be half inch above it.

CREEP FEEDING OF CHICKS

- ⇒ Keep the chicks in a bamboo cage, especially designed for chick rearing by the local people.
- ⇒ Make four slit opening in all four direction. The size of the slits should be about 5-6" X 5-6", such that the chicks can freely enter or come out of the cage but the hen cannot enter into it.



Bamboo Creep Feeder where chicks only enter in to take feed

- ⇒ The purpose is that the chicks can eat adequate chick special feed and the hen is maintained on its ration.
- ⇒ Inside the cage initially fine grinded rice or wheat flour or ragi flour is given to the new born chicks.
- ⇒ The feed is given in a small flat plate.
- ⇒ Clean water is also provided in a separate plate.
- ⇒ Give 5 per cent glucose water to the chicks for one to two weeks.
- ⇒ After three weeks, the chicks are given fishmeal or finely ground oil cake with the feed.
- ⇒ After four weeks, the feed is made wet and rice bran/ wheat bran, broken rice grain or ragi, or finely ground maize along with protein from fishmeal or oil cake is supplemented.
- ⇒ During this period if white ant is available; it can be fed to the chicks. They will respond with good growth.
- ⇒ This process of feeding chicks is called **Creep Feeding of Chicks**.

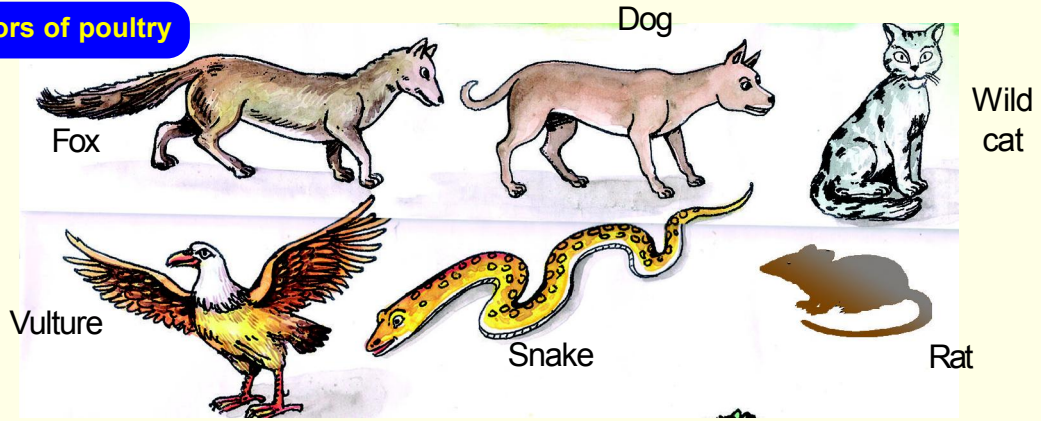
SAVING THE CHICKS FROM CROW AND KITES:

- ◆ The crows and kites in general attack the chicks for their food.
- ◆ The mother hen tries to protect the chicks from predator bird attacks by taking in the chicks under her wings and her body.
- ◆ If there are vegetation like trees and plants, the chicks take shelter beneath it and save from the attacks.
- ◆ If the attack of predator birds is high in the locality then plant quick growing plants like Red-gram or hang *used song tapes* in the yard or plant a mirror on the floor of the yard. This will prevent attack from predator birds.

SAVING CHICKS AND POULTRY BIRDS FROM PREDATORS

If your village is inside the forest or periphery to the forest, then the attack of predators is high. It is advised to rear small or light breeds of native poultry in such locality. The light birds flyaway and save themselves easily from the predator attacks. Here coloured plumage also gives partial protection. The predators generally attack the poultry at late afternoon when sun is going to set. So take care. Keep the homestead clean from weeds and bushes. If the wild cat and the Mongoose attack are common then use a large trap similar to rat trap and leave the beast in a far off forest.

Predators of poultry



Mother hen protects chicks from crow and vulture attack

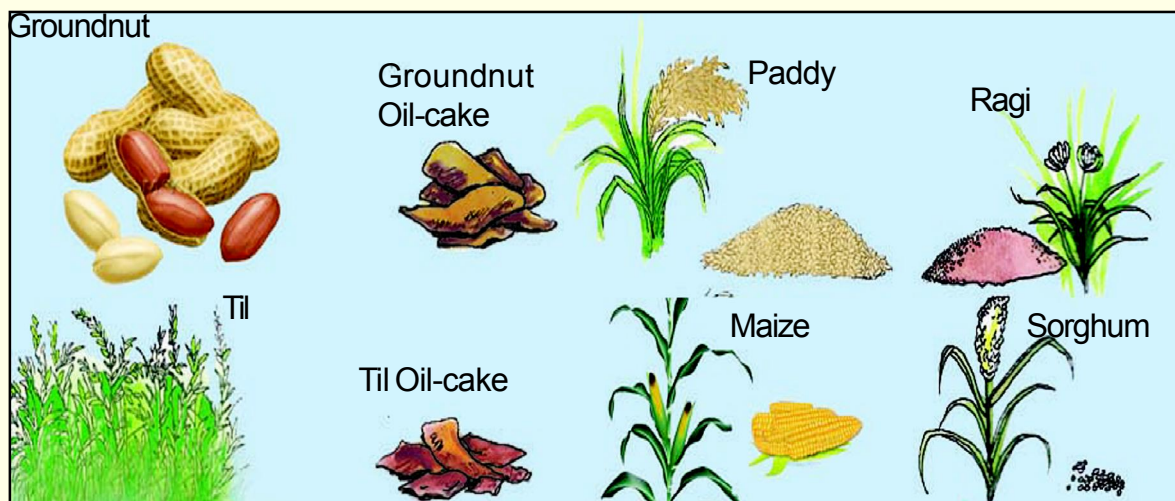


Chicks hide under bushes and protect from wild bird attack

FEED AND WATER FOR POULTRY

- ▶ Indigenous poultry scavenge in the backyard for feeding. They eat the insects, termites and even the soft grass blades.
- ▶ The families, with 2 to 3 hen units and with up to 8 poultry, mostly maintain them without feed supplement and birds totally depend on scavenging.
- ▶ Families with 5 hen units with followers have at least 20 birds at home. This is the common situation in north Odisha districts; here the women poultry farmer supplement the birds with rice bran and paddy or rice twice daily.
- ▶ If the flock size is more than 20 then feed supplement is essential and the environment cannot sustain the scavenging.
- ▶ During harvest season they collect food from the fields.
- ▶ Generally the backyard poultry feed is deficit in proteins. The women poultry at home offer rice, paddy, rice bran or ragi flour to the poultry for feeding. The offered feed should be fresh and it needs to be placed on a feeder.
- ▶ This is generally offered in the front yard of the respective houses.
- ▶ On the onset of monsoon, families in the rural India dispose off almost all poultry at home and retain 4 to 6 breeding hens at home. This is due to the upcoming agriculture season.
- ▶ As the winter sets in, the hatching of the chicks start in each house and it reaches maximum from the month of November to April.
- ▶ The backyard poultry under scavenging condition are prone to predator attacks and sometimes thefts.
- ▶ The feeding and management of the chicks have been described as above in detail.

POULTRY FEED INGREDIENTS



- ◆ The feed of the poultry consists of maize, sorghum, bajra, wheat, ragi, broken rice, paddy, rice and wheat bran etc. In the backyard, generally wet feed is given to the poultry but in intensive poultry the dry feed is given to the poultry. Finely grounded and one of the oil cakes (sunflower, soya bean, and groundnut, linseed, and mustard) are given as an ingredient in the mixed feed.

- ◆ For fast and good body weight it is essential that the poultry be given protein as fishmeal, snail meal or from oil cakes. If bone meal, or grounded sea grit is given at 2 per cent of the feed it gives very good result.
- ◆ Salseed cake, grounded cotton and sorghum are given at 5 per cent rate in the feed.
- ◆ In backyard poultry the farmers can grow azola, white ants and earthworm as poultry feed. This will economise the feeding.

PREPARATION OF BACKYARD POULTRY FEED RATION IN VILLAGES

- Backyard poultry under scavenging should be supplemented with 40 to 60 gms of feed per day for adult bird.
- The backyard poultry is highly deficit of protein in the feed. If this is supplemented adequately, then they grow fast, attain good body weight in short period and lay more eggs and the mortality is also reduced.
- Best protein supplement is through Fishmeal or else plant protein like Azola, dried leaves of legume tree like Soo-babul, oilcakes as said above.
- The feed should be prepared from local ingredients and it should be cost effective in other words cheap to the farmer.

Preparation of poultry feed at home



The following feed mixing will be cheaper at home. They are

Formula 1

Sl. No.	Ingredients	Quantity
1	Broken rice/ grounded maize/ Ragi flour/ broken wheat	30 parts
2	Rice bran or wheat bran	55 parts
3	Oil cake (Ground nut, Mustard etc.)	5 parts
4	Fishmeal or Soyabean cake	10 parts
Total		100

Formula 2

Sl. No.	Ingredients	Quantity
1	Broken rice/ grounded maize/ Ragi flour/ broken wheat	30 parts
2	Rice bran or wheat bran	55 parts
3	Oil cake (Ground nut, Mustard etc.)	15 parts
Total		100

The Fish-meal contains common salt, so use 1 per cent common salt in feed without Fishmeal.

Increase 2/3 chicks per clupch by feeding fish meal to hen

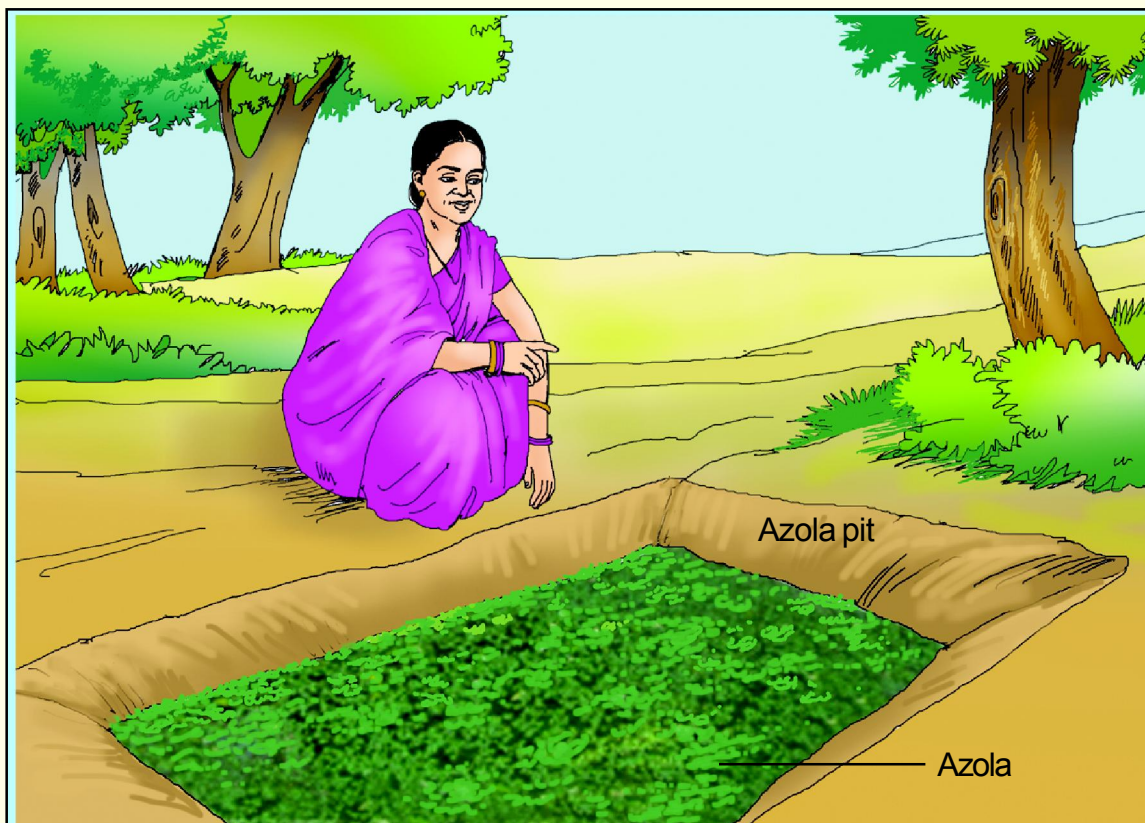


Less chicks without feeding fish meal

More chicks (2-3) by feeding fish meal to hens

- ◆ Ground all the ingredients, mix it well and store safely from rats. At the time of feeding take the required amount of feed, add little water and wet it and then mix it well.
- ◆ Feed this mix at least twice a day, in the morning and evening. Give the feed to the flock once they have scavenged around. Don't feed before scavenging. It will reduce the feed cost.
- ◆ If Fish meal is added to the feed the hens lay additional 2 to 3 eggs per clutch.
- ◆ The size of the eggs is significantly large. So the new born chicks are large and healthy and this reduces the rate of mortality.
- ◆ It is better to collect feed ingredients at the time of harvest as the price is low and competitive then.

AZOLA CULTIVATION FOR POULTRY FEEDING



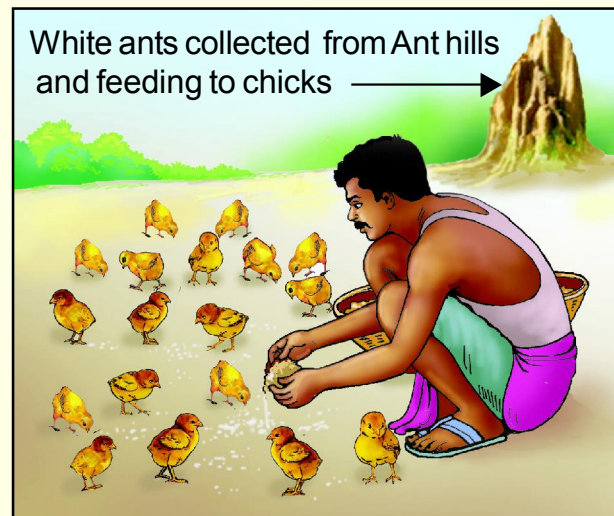
Growing azola in the backyard for feeding poultry

- Azola is a water loving and floating plant like.
- It contains 90 to 92 percent of water and the dry matter contains 25 to 35 per cent protein. (One kilo of Azola contains 200 to 300 gms of protein).
- Under the shade of a tree make a pit of 7 feet X 7 feet X 8 inches deep.
- Cover the said pit with a polythene sheet
- Mix 2 kgs of fresh cow dung in water and then separately, add 30 gms of Super phosphate in one litre of water; mix it all and add all into the pit filled with water.
- Add quality Azola seed of about 500 gms to 1 kg into the mixed water.

- After a gap of 7 to 10 days; the pit will produce 500gms to 1 kg of Azola.
- On every 10th day add 1 kg of cow dung with 20 gms of Superphosphate and replace some water on 15th day. Replace water before addition of fertilising elements
- Sieve the harvested Azola
- Wash it and dry it in shade. During washing recover the smaller azola and place it back in the pit for regeneration.
- The Azola grows well in 14 to 35°C.
- If the temp is very high then make provision of shade.
- In every 6 months dry the pit and start a fresh.
- Feeding azola will reduce feed cost. One kg of Azola will reduce one kg of balanced feed cost.
- This is a very good feed for the poultry.
- Add neem base insecticide to control the insects in the Azola pit.
- If you add Bacterial fertiliser to Azola pit the growth will be fine.
- Remove 1/3 rd of the azola daily, this will enhance production.
- People use cement made well rings instead of polythene covered pits to grow Azola at home. This is durable.

FEEDING WHITE ANT/ TERMITE TO POULTRY

- White ants hills grow in forests and in the fields of the villages including the backyard.
- The white ants live in colony underneath soil in hills. Here there is Queen ant of about 3 inches length that produces the army of white ants.
- The villagers cut the white ant hills and then remove ant balls.
- They bring these balls to home; these are very hard, so they cut them with sharp knife and thus release the white ants for the chicks as feed.
- These white ants are rich in protein, vitamins and minerals.
- The chicks relish white ants and grow well with it as a feed supplement.

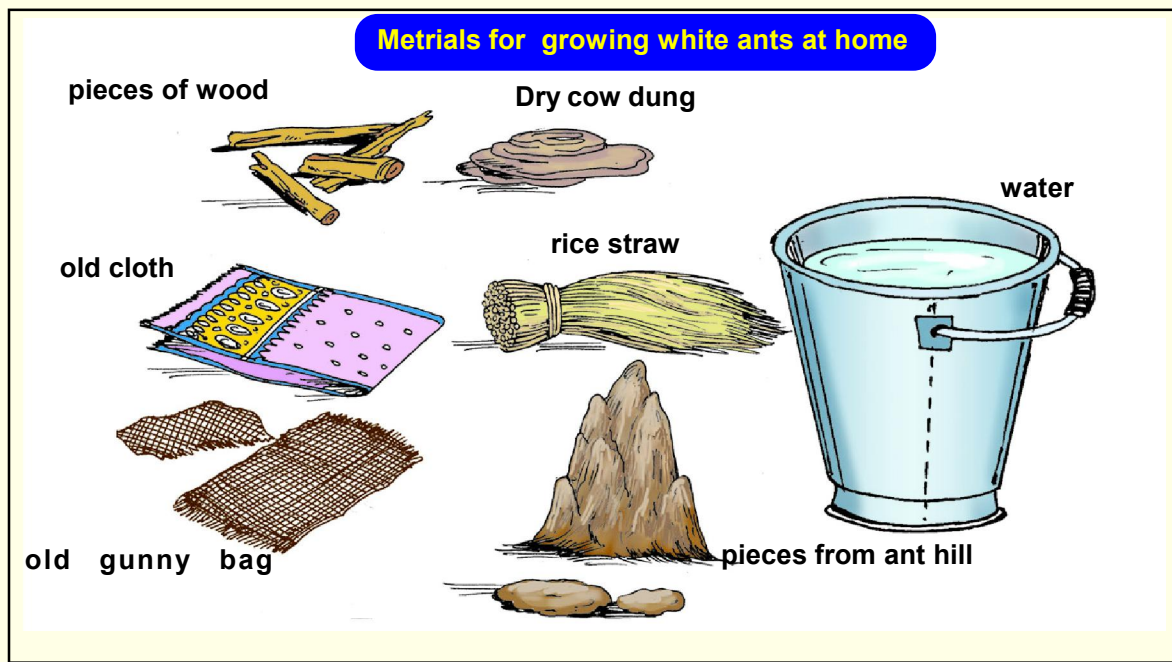


White ant production at Home

We can grow white ants and feed the poultry at home on regular basis.

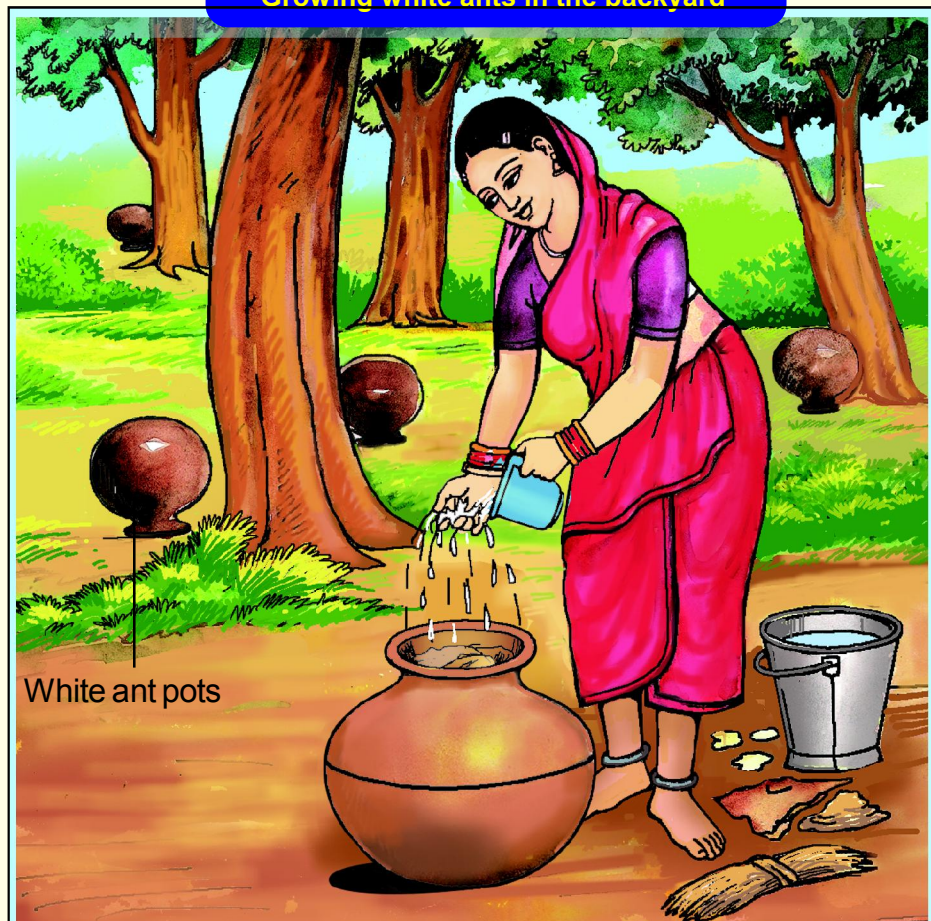
- We need one old and used earthen pot
- We need little of dry leaves, dry straw, small piece of old gunny bag and cloth, even a piece of news paper will do. Better if there is piece of wood, dry cow dung and a piece of white ant hill.
- Wet all these with water.
- Cover all these ingredients under the head of the earthen pot in such a way that everything remains inside the pot.
- Then turn the head of the pot down to the ground

Materials for growing white ants at home



- Place it on the floor with tilted head and place a piece of wood or pable so that air can pass in along with white ants into the pot face.
- Keep the said pot in a secluded place, especially behind the house.
- After 5 to 7 days the pot will be filled with white ants. Bring the new hatch of chicks with mother hen and wide open the pot face. This will expose the white

Growing white ants in the backyard



ants and the chicks will eat them. If you make such 5 to 7 pots per week this will meet the daily requirement of the white ants of the chicks at home.

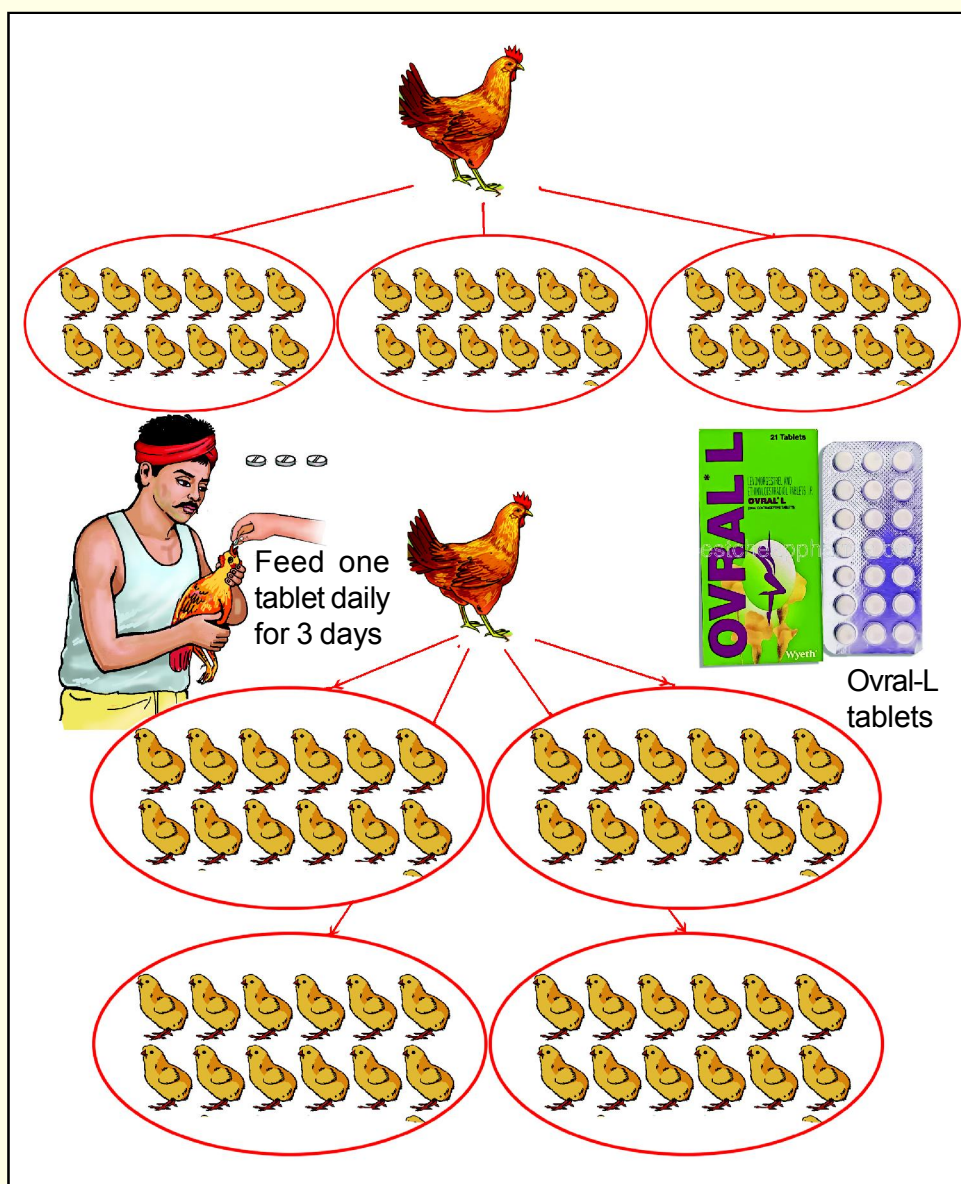
- If you lay a wet old gunny bag in foot of the paddy straw stake in the backyard, this will also attract white ant growth.

N.B. Red ants eat away white ants in summer.

ENHANCING CHICK PRODUCTION THROUGH INCREASED CLUTCH NUMBERS IN HENS

- A hen on an average lays 12 eggs per clutch (one egg a day so 12 days)
- It broods the eggs for 21 days (Chicks hatch out on 21 st day)
- It has 3 clutches of laying eggs, brooding and rearing the chicks. It means 120 days for each of the clutch (Laying days + days on hatching eggs + total days in Rearing chicks and preparing to start new clutch).

Administering ovrall-L Tablets increases additional one clutch of hatch per hen per year



In a period of 120 days clutch, it has spent 33 days in laying and brooding to hatch chicks. There is 87 days left that she spends rearing the chicks.

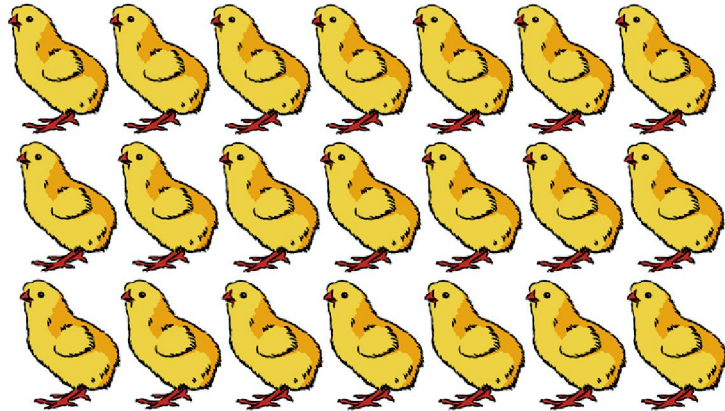
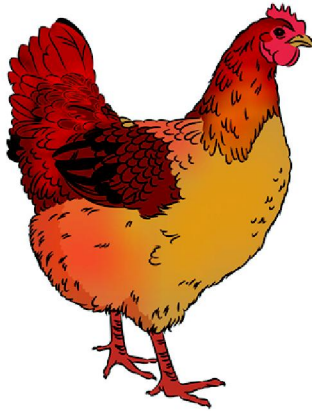
- If we want to increase the clutch to 4 per year per hen; then there is scope to manipulate the days for rearing chicks by the hen. It is the only option left as the laying and brooding the eggs hatch days are constant.
- This can be done genetically by identifying variants in the breed and then selection. This is possible in Khudajauria breed, Kalahandi breed and Phulbari breeds of Odisha poultry.
- The second way is to alter the physiology by suitable therapy. Here the first author has tried a hormonal therapy to alter the physiology of the hen and is described.
- In order to increase the average Clutch size from 3 to 4 has bearing to the economics of the poor poultry owners. This will increase 12 chicks per hen per year. If the family has 5 hen units then they benefit by 120 additional chicks to the family per annum. Among the poor this is a significant benefit in terms of meat and sale value.
- After 21 to 30 days of the hatching of eggs, administer Ovrall- L tablets to the hen. The dose is one tablet daily for 3 days. Most birds in different localities respond perfectly to 3 tablets regime; if not do not exceed 4 tablets per hen
- The treated hen will start laying eggs after 10 to 15 days after administration of the tablets. This starts the new clutch.
- Continue the process as said above and you will get at least 4 clutches of hatches per hen in a year.
- There are some indigenous breeds they lay 2 clutches of eggs only. Here it can effectively utilised.
- If you want more eggs for machine hatching of the indigenous poultry that yield only 3 clutches; this treatment can be utilised to enhance more egg production.
- The value of the three Ovrall-L tablets is only Rs 7/-
- These medicines are available in medicine stores all over. The medicines with different brand names like Combee-L, Ergest, Ovipur-L can be used for the purpose. Each tablet contains Levonorgestral 0.15mg and Ethinylestradiol 0.3 mg.

PRELIMINARY KNOWLEDGE ON POULTRY BREEDING TECHNIQUES

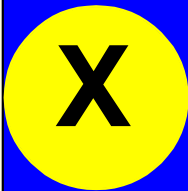
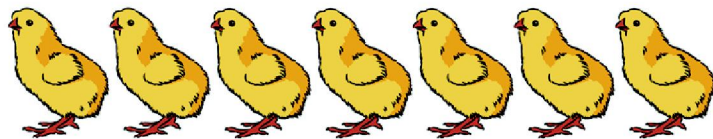
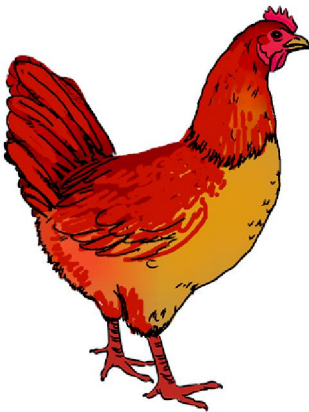
- ⇒ If the ear lobe of the hen is yellow/white then the egg shell is also white in colour. If the ear lobe colour is red, then the colour of the egg shell is light to dark brown. The white Leghorn and Kalahandi has white ear lobe and the eggs are white and the RIR and Vezaguda, Hansli breed have red ear lobes thus the egg colour is light to dark brown.
- ⇒ The cock has a spur, at 3 to 4 cm above the feet facing laterally. This is very sharp. This grows with age and the farmers draw the age of the cock from its size and length.
- ⇒ If the size of the breed of poultry is large, then they lay fewer eggs per clutch. Some birds lay about 7 to 10 eggs per clutch and they are considered large breed locally. So also the heavy broiler breeds lay comparatively less eggs per annum.

- ⇒ If the size of the breed is small it lays more eggs; like Kalahandi, Khudajauria and Phulbari also the white leghorns. In other words, the light breeds are highly prolific in nature.
- ⇒ There are some varieties of poultry where the neck is naked and they are called "Naked Neck". These birds grow faster and gain heavy body weight.
- ⇒ In some districts of Odisha like Mayurbhanj there are poultry without tail and locally people call them "Bandi". The Adivasi claim that they lay more eggs comparatively.
- ⇒ If the shank length or the length of the leg without feather is longer; then the bird will gain more body weight. Too long shank length interferes in mating of the male over female.
- ⇒ The rural population throughout the country are fond of dwarf pea comb poultry. They do not like the single comb males as it gets hurt in Cock fight. The famous native poultry breeds like Aseel, Hansli and Vezaguda are having dominant pea combs in their respective populations.
- ⇒ The lighter breeds have higher escaping capacity from predator attacks than the large once.
- ⇒ The Desi birds are smarter than the exotics. The exotic chick fails to escape from predators, trampling under the feet of cattle, jumping the canals, accidents under bicycles etc.
- ⇒ The Desi chicks have a strong memory and brood close relation; thus they move in flocks and remain with mother hen and return home. But the exotic chicks stray away and have least flock relationship. This is important in backyard poultry management.
- ⇒ The Desi chicks get full body coverage under the belly of the mother hen in winter but the exotic chicks fail and thus they die by cold shock in winter. This may be as the exotic chicks are large and do not get enough space under the desi broody hen.
- ⇒ The rural people need poultry for various rituals, festivals at home and village. They have thus requirement of various colour patterns and male or female or an egg offer in such cases. Thus various coloured bird are a necessity of their life and it should be kept in mind for breeding poultry breeds.
- ⇒ The Indigenous people of India and in particular of Odisha, Chhattisgarh and Andhra Pradesh have developed various standard native breeds of poultry. The Mayurbhanj, Keonjhar, Kalahandi and United Koraput Adivasis have been instrumental in developing a large number of poultry breeds. The Mayurbhanj people have developed at least 5 distinct breeds of poultry. They are the real Poultry Geneticists.

Selection of hens based on number of chicks hatched per clutch



Select hens with more chicks hatched (Above more than 15 chicks) per clutch for breeding



Cull hens with less chicks hatched (Less than 08 chicks) per clutch for breeding

COMMON DISEASES OF BACKYARD POULTRY

Common diseases of Backyard poultry are:

- ⇒ Ranikhet Disease or New Castle Disease.
- ⇒ Fowl Pox Disease
- ⇒ White diarrhoea or Salmonellosis
- ⇒ Fowl Cholera
- ⇒ Lice
- ⇒ Round worms
- ⇒ Tape worms.
- ⇒ Coccidiosis

RANIKHET DISEASE (RD) OR NEW CASTLE DISEASE (ND)

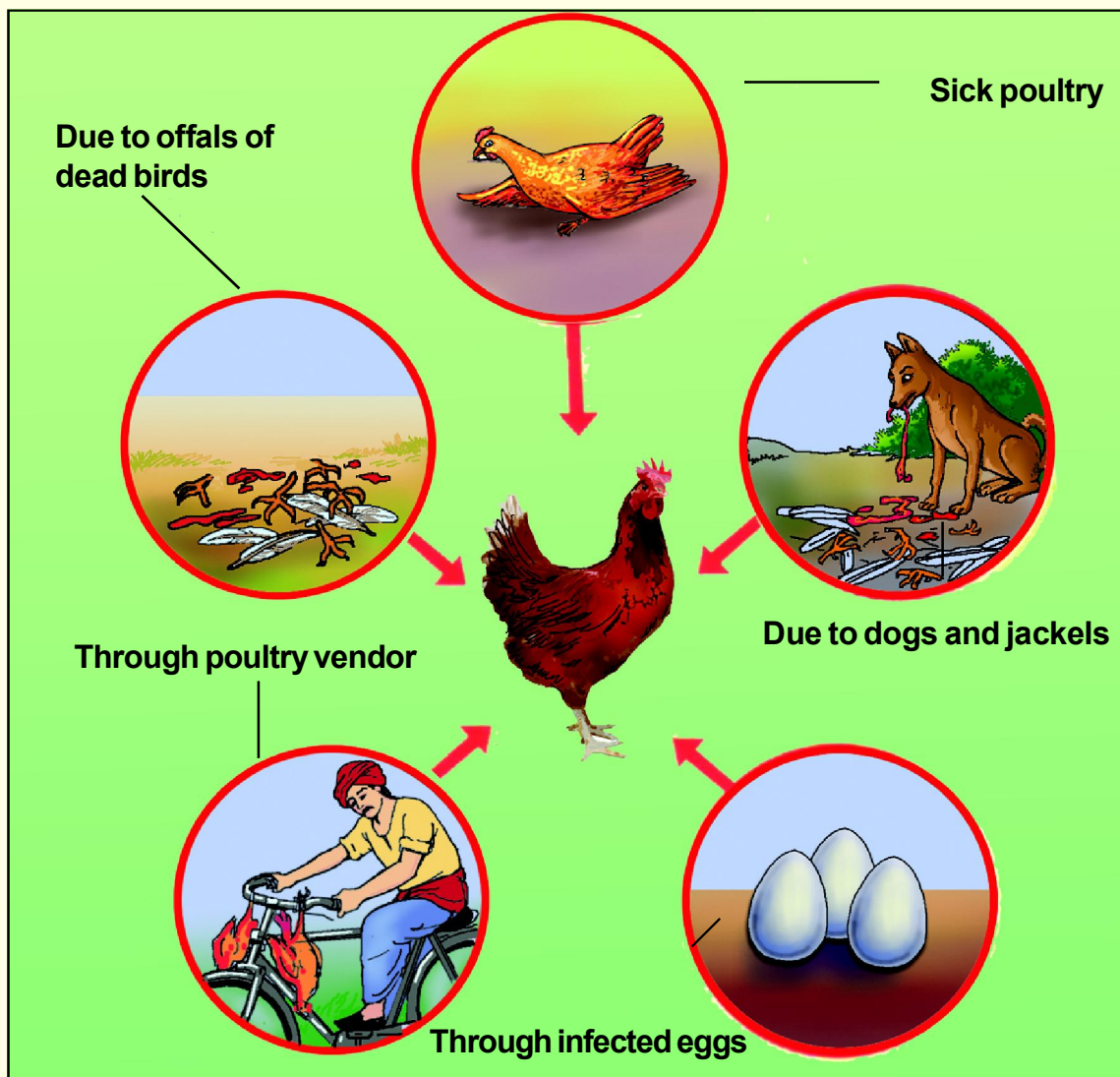


Poultry mortality due to Ranikhet Disease out-break

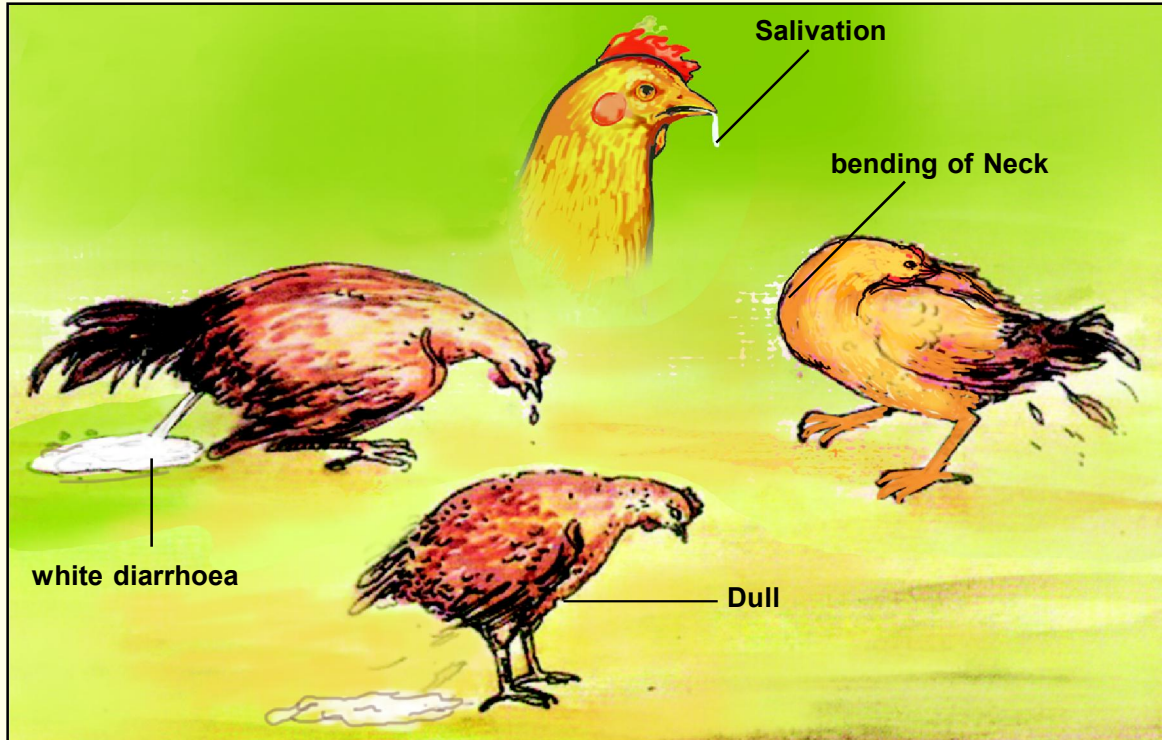
- RD is the major killer, mortality sometimes goes up to 90% of the birds in the village, followed by fowl pox which mostly kills the young chicks.
- The heavy losses due to diseases among poultry are the single most depressing factor and concern for all tribal farmers.
- RD is caused by a virus and is highly infectious.
- RD is prevalent throughout the year in epidemic form.
- It takes 7 to 15 days for a bird to show symptom of RD after the entry of the virus into the body.

Mode of transmission

RD is transmitted through infected poultry, contaminated eggs, offal of the dead birds, through hair, feed and worker direct contact. Market is the major source of spread.



Symptoms:



- ❑ Generally, symptoms of RD noticed are nasal discharge, excessive mucous in the trachea.
- ❑ Thus difficult breathing, gasping, coughing and sneezing is common.
- ❑ Cloudiness in the cornea of the eye is prominent.
- ❑ 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.
- ❑ Laying birds may stop egg laying suddenly and completely. Birds suffering from RD may lay soft shelled or mis-shaped eggs.
- ❑ There will be **white coloured diarrhoea**. This is a prominent symptom to the farmers for naming this disease.
- ❑ Mortality may go from 70 percent to 90 percent.

Treatment: There is no treatment for this disease.

Prevention:

- ⇒ A very effective vaccine for RD is available in the public and private sector.
- ⇒ Vaccination is the only reliable way towards controlling the disease.

Vaccination schedule are Lasota at 7 days and continue Lasota after 3 months regularly. You can use R₂B strain at 8-10 weeks and follow R₂B strain at 16-17 weeks.

Thermo-tolerant Lasota Ranikhet or Newcastle Disease Vaccine

- ⇒ In recent years Hester Biosciences has developed a new Ranikhet Disease vaccine in India.
- ⇒ Generally, all RD vaccines have to be maintained at +2° to +8° C temperature. This temperature maintenance is essential from factory, where it is produced up to the end user in the village.
- ⇒ The new above vaccine is called Thermo-tolerant Lasota Newcastle Disease Vaccine. This vaccine once taken out of refrigerator can be used in field without maintaining at 2° - 8° C. But once taken out of refrigerator, it should not be returned back to refrigerator for storing again.
- ⇒ It means this vaccine after reaching the Block Head-quarter Medical Store can be taken out of Cold Chain and this vaccine is claimed to be viable at +37°C for 10 days. i.e. room temperature. It thus does not require ice packs or cold chain to keep it viable. This vaccine is also claimed to be stable at +40°C for 7 days. But it is advisable to carry the vaccine in a cool box to prevent it from direct sun light.
- ⇒ If you keep the vaccine at +2° to +8°C in cold chain it will stay viable up to its expiry date

Usefulness

- ⇒ This Thermotolerant Lasota vaccine is a breakthrough for controlling RD in backyard poultry. It can be taken in a box to far-flung villages for vaccination of poultry without ice. Ice availability is a problem in villages so also the electricity. This constraint is now overcome.
- ⇒ The diluent of the Lasota vaccine specifically supplied by the manufacturer has to be used.
- ⇒ After reconstitution of the Lasota Thermotolerant vaccine, it should be used on birds within 12 hours but preferably at earliest possible (3-4 hours).
- ⇒ But the Cold chain dependent ordinary Lasota vaccine needs to be used within 2 hours of its reconstitution with the diluent.

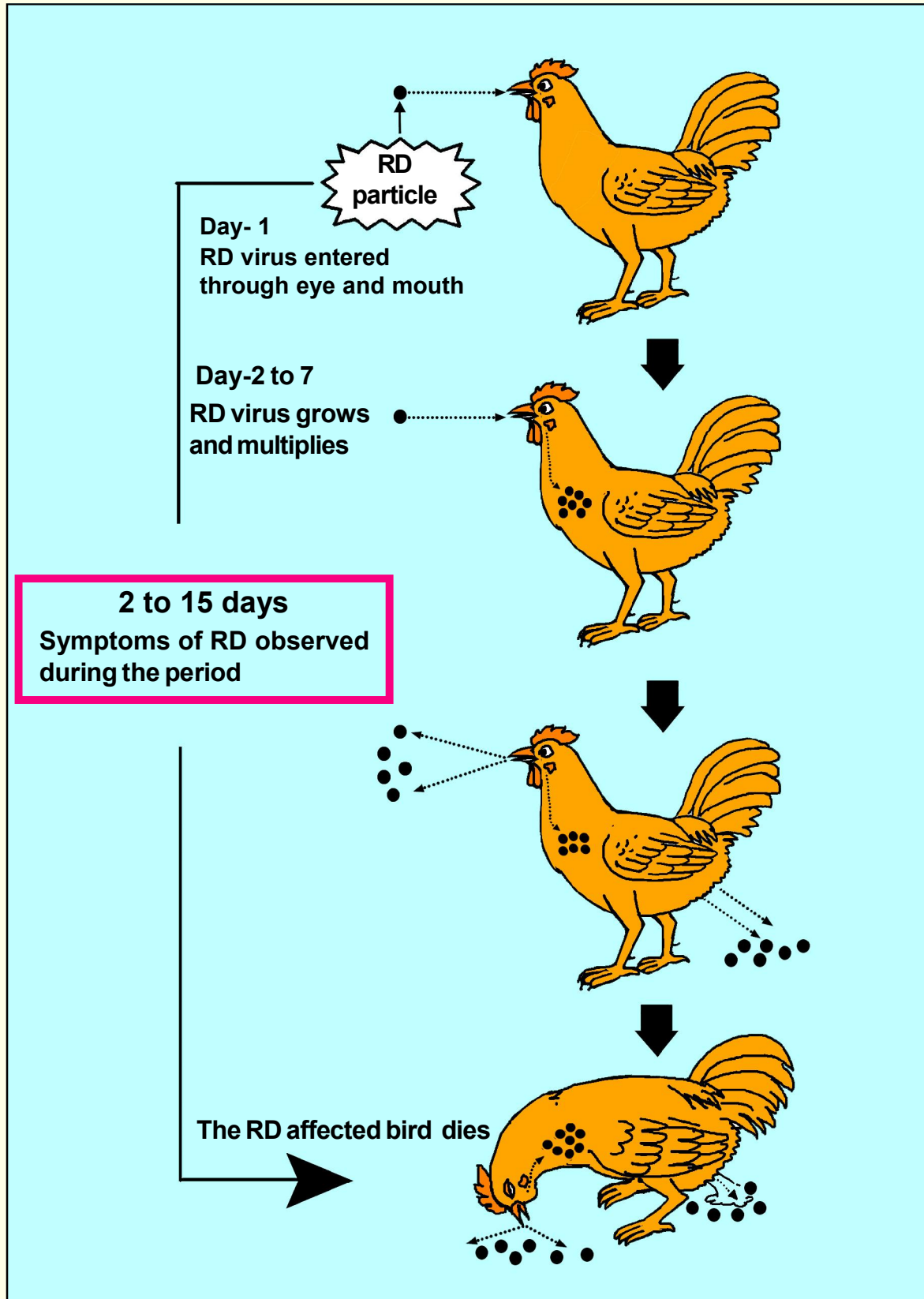


Thermo-tolerant RD vaccine

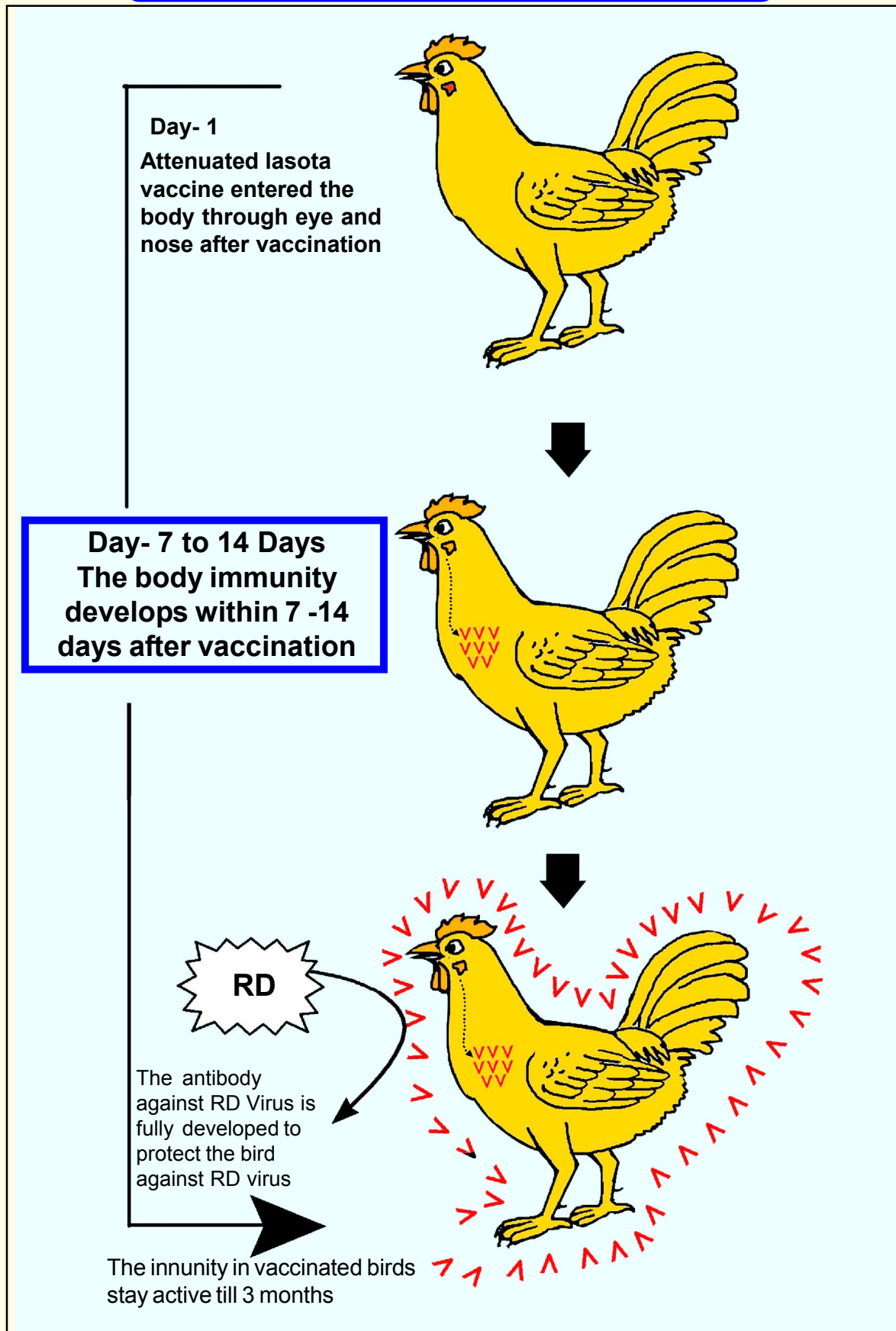
Outcome:

- ⇒ The Thermo-tolerant Lasota vaccine is very effective in field condition. We have used the vaccine in more than 5 lakh poultry in Mayurbhanj district of Odisha.
- ⇒ Vaccination of poultry flocks in villages with Lasota vaccine in every 3rd month i.e. beginning of the fourth month for one year increases the poultry population to 600 to 800 per cent of the base population. In some cases it exceeds this limit also.

Spread of Ranikhet Disease



RANIKHET DISEASE VACCINATION AND IMMUNITY



Backyard Poultry vaccination

Sl.No.	Vaccine	At what age	How to use
1.	Lasota(Ordinary) ²⁰ – 8 ⁰ Cfor Ranikhet or New Castle Disease	All poultry above 7 days of age	One drop in Eye or intra Nose, every 3 months once
2.	Lasota Thermostable for Ranikhet or New Castle Disease	All poultry above 7 days of age	One drop in Eye or Nose, every 3 months once
3.	R2B for Ranikhet or New Castle Disease	All poultry above 2 months age	0.5 ml vaccine S/C injection in wings in every 6 months.
3.	Fowl Pox	All poultry above 2 months age	0.2 ml S/C (Under the skin) injection or one stab to the muscle. Once in every 6 months.

Immunity against Ranikhet virus will develop within 7 to 14 days of the vaccination. After 14 days if the vaccinated bird is infected by the RD virus it will not be affected Ranikhet disease..

The Lasota vaccine works for 3 months and R2B vaccine works for 6 months to prevent disease.

Biosecurity:

- Strict bio-security measure should be followed so that this disease doesn't affect the birds.
- However if possible, measure should be taken to control the spread of the disease to other area.
- 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.
- Don't use any equipment (syringe, needle, waterier, feeder etc.) without prior disinfection.
- Disinfect the water source.
- Keep replacement birds or birds of different age separately.
- Dispose out all offal after dressing the bird and the dead birds suitably through burning or placing the carcasses in a deep in a pit.

- ◆ There are two kinds of vaccine and vaccination. One is given as injection under the skin called S/C. This is given in web of the wings.
- ◆ The second is the vaccine given by a lancet through stab to the muscle. The lancet is dipped in vaccine and then stabbed.
- ◆ Follow the instruction of the manufacturer to administer the vaccines.
- ◆ After giving the vaccine examine the vaccine site on 7th day. If there is swelling and scab is formed; it indicates that the vaccine is effective, if no scab or swelling there is a need to repeat the vaccine.
- ◆ Fowl pox vaccine is live. Therefore keep it in +2^o to 8^o C temperature in refrigerator or ice.

NB: Fowl pox vaccine produces solid immunity, usually carried out at 6-8 weeks of age by intra-muscular route or wing web method. It has been observed in the field that suffer from Fowl pox within 2 months of age and death rate is high. This is a problem area for research.

SALMONELLOSIS OR WHITE DIARRHOEA IN POULTRY

- ❑ It is a bacterial disease.
- ❑ This disease is transmitted to a healthy bird through fecal material, sick birds and through infected eggs.
- ❑ The main symptom is white diarrhea. Mostly it affects chicks below 2 months of age. The mortality in chicks is very high.
- ❑ The survived chicks do not grow well and are the source of disease to others.
- ❑ This disease can be prevented by adopting bio-security methods.
- ❑ Before the disease starts treat the chicks with Terramycin powder or opened capsule mixed in drinking water. Give this Terramycin mixed water daily for 5 days.
- ❑ Mix 1gm Terramycin powder in one liter of clean water and allow the chicks and adult to drink this water for 5 days. See that the birds drink this water throughout the day. The threat of the Salmonellosis will reduce.
- ❑ If the chicks are affected, give one mg of Terramycin powder per chick in drinking water.
- ❑ The Terramycin capsule of 250 mg strength is available in the market. Divide this in 5 doses. Mix one dose in 50 ml of water and give to 12 chicks clutch daily for 5 days.

Adminstration of terramycin to chicks

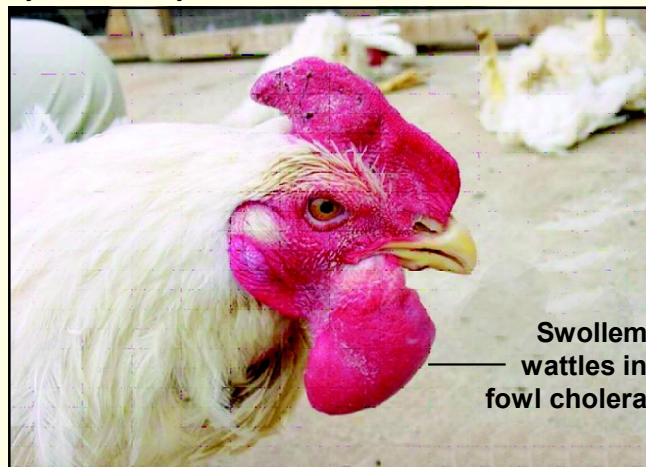


FOWL CHOLERA

- ⇒ This is a disease of poultry caused by Bacteria.
- ⇒ Outbreaks occur in cold and wet weather.
- ⇒ This disease is transmitted to poultry through rats.
- ⇒ Birds with chronic Fowl cholera, exhibit long illness.

Symptoms

- ⇒ The disease presents in two very different forms: acute and chronic.
- ⇒ Once the bacteria get introduced into a poultry flock, an outbreak of acute



Courtesy-Dr. Jaime Ruiz

Fowl cholera follows. Infected birds will die within 6-12 hours after contracting the disease.

- ⇒ The liver will have black spots over it
- ⇒ In acute cases green diarrhoea is seen. It is the earliest symptom of Fowl Cholera.
- ⇒ The most typical symptom, in chronic cases, is the swelling of the wattles (Below the face).
- ⇒ These often occur in the respiratory tract, hock joints, foot pads, and abdomen and egg tube.
- ⇒ In acute cases, there is the petechial haemorrhage over the heart. Black lesions on liver.
- ⇒ Due to the speed of infection and mortality, birds do not exhibit the signs of prolonged illness.

Treatment

- ❑ The most efficient treatment is individual intramuscular injections of a long-acting Tetracycline, with the same antibiotic in drinking water to the birds.
- ❑ Norfloxacin given in drinking water is very effective in Fowl cholera.
- ❑ The mortality and clinical signs will stop within one week, but the bacteria might remain present in the flock.
- ❑ Take the help of the Veterinary Doctor immediately for treatment.

BIRD FLU OR AVIAN INFLUENZA

- ◆ Bird Flu is a poultry disease caused by virus.
- ◆ It also affects pets, wild birds including migratory birds.
- ◆ The Bird Flu is recorded since 15 years in various parts of India and especially the northern districts and coastal belt of Odisha state
- ◆ The Highly pathogenic (HP) strain of the disease causes very high mortality in poultry.

Symptoms:

- ◆ Sudden 100 percent mortality of poultry within hours at home or village.
- ◆ In acute cases oedema of the head, blue discoloration of the head and the comb and wattles (Cyanosis); oedema and petechial hemorrhages and blue discoloration of shanks and feet, petechial hemorrhages of muscles, viscera; blood tinged nasal and oral discharge is seen. In serious cases greenish diarrhea is common.
- ◆ Some birds develop Central Nervous System (CNS) involvement like paralysis, torticollis and drooping wings,
- ◆ The symptom of the disease is very close to New Castle or Ranikhet Disease of poultry except for sudden very large number of deaths; blue or black discoloration of face, combs and shanks.

Treatment and Vaccination:

- ◆ There is no known treatment for Bird Flu.
- ◆ There is no Vaccine for Bird Flu in India to prevent the disease.

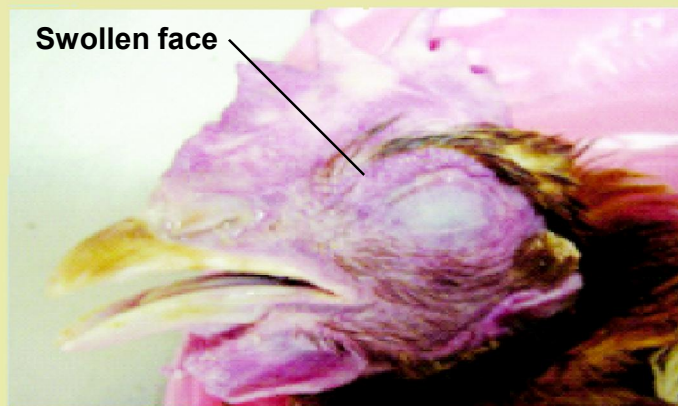
Precaution:

- ◆ Do not handle dead birds or their discharge that have died due to Bird Flu or similar symptoms with bare hands. This disease can be transmitted to human being, and then it is highly fatal.
- ◆ Do not keep or house poultry in the bedroom.
- ◆ Wash the floor with phenyle lotion, where poultry died .
- ◆ Dispose off all dead birds in deep burial or better burn them.
- ◆ Intimate nearby Veterinary Institution if your poultry is affected with Bird Flu and obtain their assistance.

Symptoms of bird flu



Dark blue or black combs and wattles



Swollen face



Pin point haemorrhage on leg and feet

Courtesy-FAO ECTAD Southern Africa, 2010

VACCINATION OF POULTRY AND COLD CHAIN

- ◆ Prevention of diseases through vaccination plays an important part in poultry health programme.
- ◆ Several vaccines are used 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.
- ◆ Vaccines are subjected to rapid deterioration, hence cold chain must be maintained or stored as per recommendation of the manufacturer.
- ◆ Live Vaccine should not be stored at a temp. of beyond 8⁰ C. Expiry date must be checked before vaccination.
- ◆ Don't prepare the vaccine unless ready to use within 2 hours after reconstitution.
- ◆ Vaccines should not be exposed to direct sun light.
- ◆ Don't mix different vaccines.
- ◆ There should be a gap of 15-21 days between two separate vaccinations i.e. the Fowl pox vaccine should be administered 21 days after the Ranikhet vaccination.
- ◆ Vaccinate in the morning or evening hour.
- ◆ Burn/bury the surplus diluted vaccine, used syringe, needles, cartoons, vials etc. after the vaccination work is over.
- ◆ Vaccination should not be done in case there is another disease in the flock.

Vaccine:

Vaccines are produced from the same microorganisms or toxins that cause disease, but in either case microorganisms or toxin are modified so as to be harmless to livestock and birds.

Three types of vaccine are prepared. They are

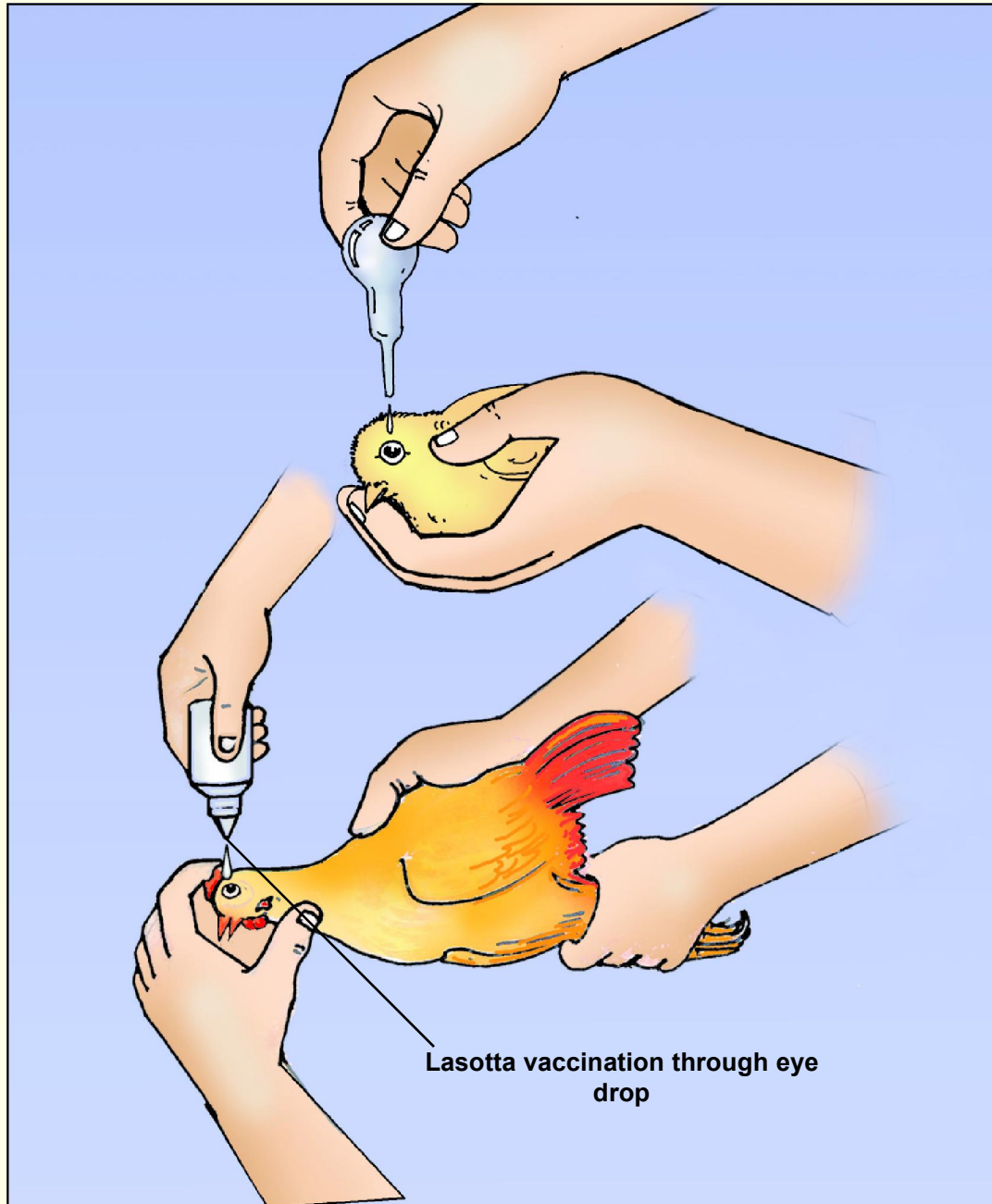
1. LIVE microorganisms
2. KILLED microorganisms
3. TOXOIDS

- All vaccines are sensitive biological substances which are susceptible to heat, light and/or freezing.
- Always read the product label and instruction leaflet for information on the best storage temperature.
- Do not store any vaccines outside cold chain.
- Most vaccines are best kept at 2⁰ - 8⁰ C.
- Transport vaccines in Cold Boxes or Vaccine Carriers only.
- Check ice packs before packing vaccines.
- Some vaccines damaged by freezing; and some vaccines like Swine flu are to be kept in freezing temperature.
- Damage results in loss of potency and once potency is lost, it is permanent
- Discard all vaccines after the expiry date as mentioned in the vial.

Immunity:

- ◆ Vaccines protect animals and birds from getting diseases.
- ◆ They are for preventing diseases, not for treating or curing them.
- ◆ By vaccination, body starts developing antibodies to the virus or bacteria within 7 to 15 days of vaccination.
- ◆ These antibodies remain in the body to prevent the disease from 3 months to 1 year mostly.

Poultry Vaccination



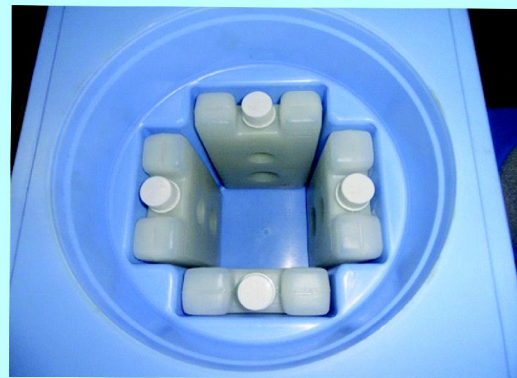
Cold Chain

- ◆ The Vaccines are manufactured by private vaccine manufacturing companies or by Government Biological Laboratories.
- ◆ The vaccine is live thus it is maintained in 2^o - 8^o C temperature.
- ◆ The vaccine is sent by aeroplane in cold box with ice to mostly the capital city of the different States.
- ◆ From here the vaccine is again sent to District headquarters in Cold box in ice and then to Block Medical Stores. This transport is generally by motor vehicles.
- ◆ The Block Medical Stores keep the vaccine in Refrigerator.
- ◆ The Vaccinators buy this vaccine from the Block Medical stores and carry it in Cold box to the villages and vaccinate the poultry at farmer's door.
- ◆ In all these events the vaccines is transported in Cold box and ice. This whole system is called "Cold Chain".

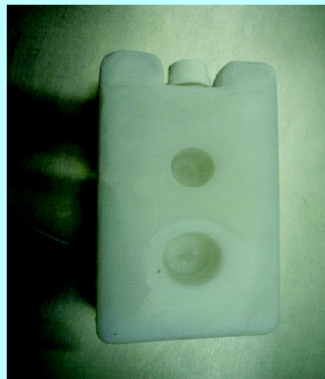
Poultry vaccine storage



Cooler Box



Ice pack inside cooler box



Ice pack



Vaccine stored in between Ice pack

Vaccine reconstitution and poultry vaccination



- ◆ If anywhere during the transport the cold chain is failed and the vaccine is exposed to temperature above 10° C then the vaccine should be totally discarded.
- ◆ Physical appearance of damaged vaccine may remain unchanged.

Refrigerator

The refrigerator is a machine that produces controlled low temperature and manufactures ice in small quantity. Everyone knows this machine.



Do's

- ❑ Keep the refrigerator in a cool room away from direct sunlight and at least 10 cms away from the wall.
- ❑ Keep the refrigerator properly leveled.
- ❑ Keep the refrigerator locked and open it only when necessary.
- ❑ Fix the plug permanently to the socket.

- ❑ Use a voltage stabilizer.
- ❑ Check the temperature with a digital thermometer twice a day and maintain a record.
- ❑ Keep the vaccines neatly stacked with space between the stacks for circulation of air.
- ❑ Defrost periodically (if you have this type of refrigerator).
- ❑ Check the rubber seal around the door.
- ❑ Paste the name and Mobile number of the contact person over door of the refrigerator for repair in case of breakdown.
- ❑ Know whom to contact and where to check for a blown fuse.
- ❑ Identify and organise an alternate place for storing vaccines.
- ❑ Take action if the temperature is not maintained within the safe range.

Don't

- ❑ Open the door unnecessarily
- ❑ Keep food or drinking water in the refrigerator
- ❑ Keep vaccines or other products which have expired
- ❑ Sit on any cold chain refrigerator
- ❑ Disturb thermostat setting unnecessarily

Cooler box

- ❑ Clean and dry after every use
- ❑ Keep lid unlocked and open while box is not in use
- ❑ Examine inside and outside surface after every use for cracks
- ❑ Check that the rubber seal around the lid is not broken; if broken, replace immediately
- ❑ Do not leave in sunlight - keep in shade
- ❑ Lubricate hinges and locks routinely.

Monitor temperature of refrigerator

- ❑ Essential element of cold chain
- ❑ Helps to identify problems before vaccine (which may be damaged) is used
- ❑ Place the digital thermometer near the vaccine
- ❑ Read and record temperature each day (twice a day is better)
 1. Read the thermometer
 2. Record date, time, (minimum and maximum*) temperature and your initials on the temperature chart or log. If the temperature in the refrigerator rises above +8°C or falls below +2°C there has been a break in the cold chain and you must take action!

Diluents

- ◆ Only use the diluents supplied and packaged by the manufacturer: correct volume, pH level and chemical properties
- ◆ May be stored outside the cold chain but keep in refrigerator for at least 24 hours before use to avoid thermal shock

EXTERNAL PARASITE OF POULTRY (LICE, TICKS & FLEAS)

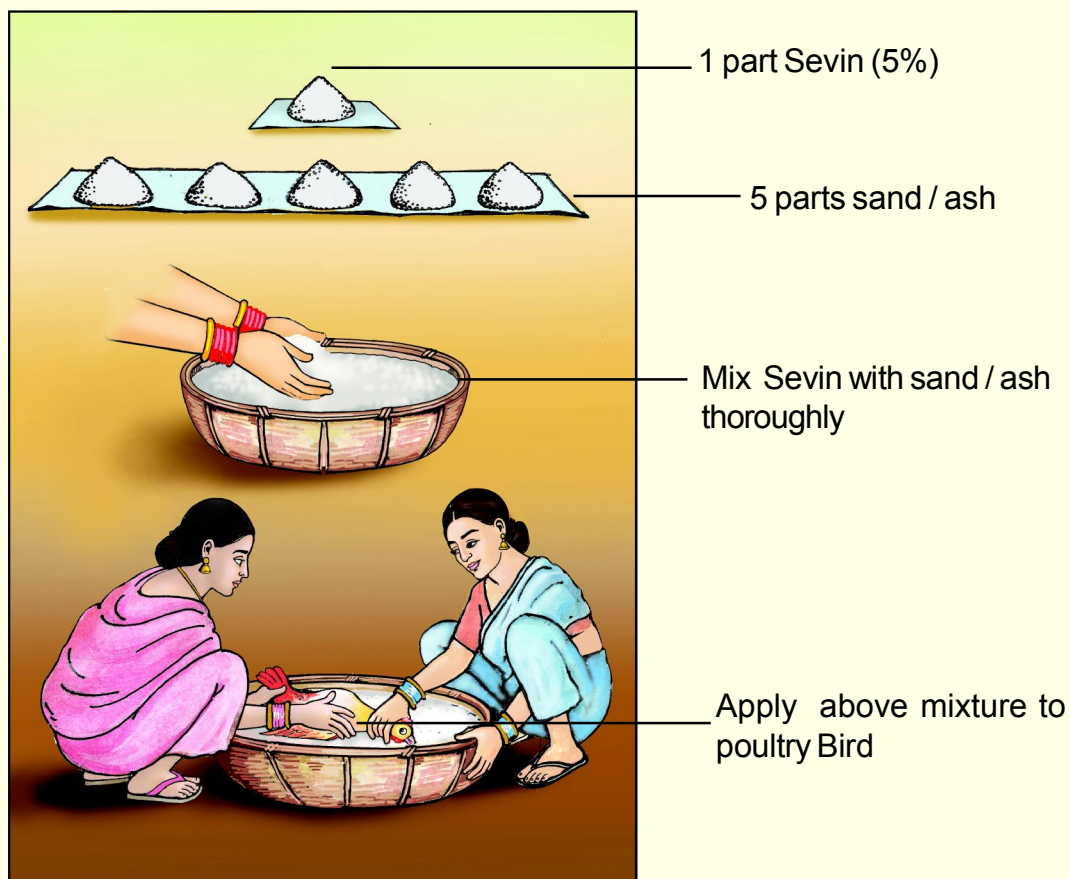
- ◆ It is very common to see poultry lice in villages.
- ◆ Farmers are well aware of the lice infestation in poultry.
- ◆ The lice suck blood from the body of the poultry.
- ◆ The lice also live on the cracks of the wall and doors of the house.
- ◆ They crawl over face and body of human beings which 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 of Lice in Poultry

- ◆ Dust bath: give 5% Sevin or Gamaxine (BHC) 5 % dust bath. Mix 1 part of the Sevin/BHC with 5 parts of dry clean sand or ash and give dust bath by catching individual bird.
- ◆ 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.
- ◆ Use mud or buffalo dung to plaster the walls and floor. The local adivasis(tribal) say buffalo dung can deter the lice.



- ◆ Painting the perches with strong tobacco extract (boiling 10 gm tobacco with 1 lit. of water for 10 minutes) and partially closing the house is also effective.
 - ◆ Burn *Banatulasi* in the poultry house or hang a bunch of the *Banatulasi* plant in the poultry house it will eliminate lice. This is a local practice.
 - ◆ Asuntol 1gm in 1 to 2 litres water and then bathing the poultry will also be effective to kill lice.
 - ◆ Natural Mite Garlic Juice Spray: Take 300 ml of water and add 30 ml of garlic juice (150 gm garlic crushed and filtered using a piece of old cotton dhoti) Mix in a spray bottle and spray the poultry.
 - ◆ Pestoban is an Ayurveda product of Indian Herbs. Take one ml of the Pestoban liquid and dilute with 10 ml of water and spray or bathe the birds also spray the walls and nests of the birds to control lice.
 - ◆ In order to eliminate the lice totally it is necessary to treat them with suitable insecticide on 10th day of the first treatment. This will eliminate the larvae that have hatched out of the eggs. The lice eggs are not destroyed by insecticides.
- N.B.** Take care while using these drugs, as these are poisonous.

ENDO PARASITE IN POULTRY

Round Worm in poultry

- ⇒ The poultry round worms are well known to most farmers.
- ⇒ They are 1" to 2" in length and similar in shape to children defecating round worms at home
- ⇒ They live in the stomach and small intestines and eat away all food.
- ⇒ The poultry do not grow satisfactorily and often die when they suffer from worms.

Treatment

- ⇒ Round worms can be treated with medicine, which may be purchased from local medical shops.
- ⇒ Albendazole, an anthelmintic (worm medicine) is very effective. This medicine is available in market. Many companies prepare this medicine and sale in the market. These companies give different names to the same albendazole and sale. It is sold as Albendazole, Albomar, Kalbend, Biworm, Alba S, Albendazole suspension etc.
- ⇒ Albendazole has to be given to all chicks and birds above two months of age. The dose for different age group is different and has been described in detail in the figure as given above.
- ⇒ Give Albendazole to all birds 7 to 10 days before the RD and Fowl pox vaccination.
- ⇒ Repeat the medicine once in every 3 months. Follow the schedule with Ranikhet Disease vaccination regularly.

N.B: The farmer can show the used bottle of the above medicine in the Block Head

quarter, Medicines store and purchases the same.

Tape worm in Poultry

- ⇒ Tape worms are flat, thin white worms.
- ⇒ In the faecal material they look like broken rice grain, very tiny.
- ⇒ They live in small intestines of poultry.
- ⇒ The birds with tapeworm infestation lose appetite, show mild diarrhoea even paralysis.
- ⇒ The chicks suffer the most.

Transmission:

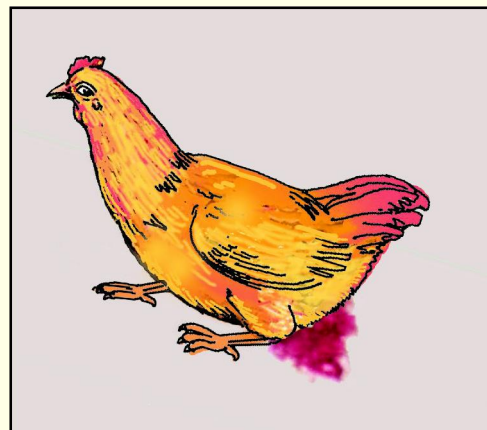
- ⇒ The tapeworm in poultry needs the earthworm as intermediate host. The Earth worm ingests the eggs of the Tapeworm and it passes a phase in the earthworm. When a healthy chick eats such earthworms, the larvae hatches in the small intestine and it grows to an adult tapeworm.

Treatment

- ⇒ Tanil Powder-100 gms packet is available in the market. The dose is 100 mg per one kg body weight bird.
- ⇒ Niclosamide - Niclosan is available as 100 gm tabs. Dose - 100 mg/kg body weight.
- ⇒ Albendazole - 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 symptoms are paleness, droopy, tend to huddle, consumeless feed and water, have dysentery (blood mucous diarrhoea), and may become emaciated and dehydrated before death.



**Blood-tinged diarrhoea
(dysentery)**

Treatment

- ▶ Sulpha groups of drug and Vitamin ADEK are given.
- ▶ Amprosol and Bacitracin can also be given in the drinking water.
- ▶ Consult nearest Veterinary Doctor for treatment.

Use of Albendazole



Age Group	Drops	Illustration
2 to 4 months	1 drop	Small brown chick
5 to 7 months	2 drops	Medium brown chick
7 to 8 months	3 drops	Large brown chick
8 to 10 months	4 drops	Adult brown hen
1 Year & above	5 drops	Large brown hen

DISPOSAL OF DEAD BIRDS

- ▶ There is frequent poultry mortality in villages due to diseases like Ranikhet (ND), Bird Flu, Salmonellosis and Fowl cholera.
- ▶ In tribal villages of central India people consume the dead birds.
- ▶ If the poultry mortality is very high then they dress the birds to dry in sun and keep it for future food. Even some time the hygiene is very bad.
- ▶ If there is outbreak of Ranikhet in villages then they sale the birds at cheaper rate in the nearby market to save from total loss or even gift birds to relatives in different villages.
- ▶ These infected sick birds thus become source of infection for diseases in different new villages.

- ▶ This results to wider outbreak of different diseases in the poultry.
- ▶ In order to contain this disease in one locality and reduce the losses to the communities it is always advisable that the dead birds from outbreak area should not be sold in markets or be purchased and the dead bird carcasses should be disposed properly.
- ▶ During outbreak of diseases stop all sale and purchase of birds
- ▶ Buy birds only from villages, where it is known to be free of any disease.

Methods for Disposal of dead birds

- a. Deep burial under the ground
- b. Burning of all the dead birds

Deep burial of dead birds



Deep burial of dead birds

- ▶ Make a deep pit away from the village. It should be fitting to the number of birds that are dead in the given period. Small pit of 1 foot length X 1 foot width X 2 feet depth is all right for 4-5 birds
- ▶ This is well known to the people.
- ▶ Lay some dried lime in the pit surface and then lay down all the dead birds or the offal of birds .
- ▶ Fill the pit with soil and cover it properly.
- ▶ This is a good method of disposal of dead birds but many a times the fox, dogs and Jackals dig the pit to eat the dead birds. This has the potential for spread of the diseases. Therefore, bleaching powder is spread over the closed pit.
- ▶ After burial of the dead birds wash your hands and feet with Lifebuoy soap and water properly.

Burning of dead bird in fire

- ▶ It is better to dispose dead birds through burning.
- ▶ Collect some wood and dry cow dung, lay all the dead birds over it in stag and then burn with kerosene - oil.
- ▶ In case of Bird Flu deaths hold the dead birds with two sticks and avoid holding birds with bare hands.
- ▶ The dead bird should be burned along and the feathers.
- ▶ Wash the floor where the birds were found dead with antiseptic solution like Phenyl, Dettol etc.
- ▶ Burning is the best method of disposal of dead birds; but availability and cost of the fire wood is a question. Segregation of household bird for a couple of days during outbreaks does reduce the spread of disease and loss. People tie their bird individually around the house. This works.

Burning of dead bird in fire



COMMUNITY ANIMAL HEALTH WORKERS (CAHW) / PRANI-MITRA

- ◆ A Community Animal Health Worker (CAHW) / Prani-Mitra either male or a lady is selected from a cluster of village with minimum class 8 or higher education. He or she should have experience in rearing poultry and livestock at home and also has the aptitude to serve as a CAHW/ Prani-Mitra.
- ◆ A short duration training in backyard poultry with handholding support in a village setting can build the capacity of these CAHWs. Similarly they can be trained on Veterinary First Aid also.
- ◆ They are trained to administer First aid, De worming and vaccination to Sheep, goat and Backyard Poultry in village under the supervision of the local Veterinary staff.
- ◆ The CAHW serves as a link between Government Livestock Department and the People of the village so far as backyard poultry and small animal is concerned. The CAHWs receive service charge from the farmer for services they render.
- ◆ This concept is functional in many parts of Odisha, Chhattisgarh, Madhya Pradesh and Jharkhand states. They are sustainable when they are linked to local Medical Stores and Govt Veterinary Institutions for small ruminant/ Backyard poultry vaccination and deworming.



Meeting of community Animal health workers

MARKETING OF BACKYARD POULTRY AND WOMEN PRODUCTION GROUPS IN RURAL INDIA

- ⇒ The Backyard poultry (BYP) is a family smallholder production system under the Traditional Farming System setup in India.
- ⇒ It is primarily a family food production unit; and the family sales out the surplus from the production system.
- ⇒ The BYP has niche market in India and is sold at attractive price.
- ⇒ The market demand for BYP is high thus the colored broilers are sold in the name of “Desi Chicken/ Egg” to the consumer.
- ⇒ The BYP birds are sold as unit price in local markets or vendors who visit the villages. The BYP needs to be sold by weight in the interest of the farmers.
- ⇒ The producer of BYP when sells birds directly to the consumer they receive good price.
- ⇒ In future the BYP should be converted into a commercial production unit by Scientists and the Women groups to organize the production units and its marketing.

Marketing of poultry on weight basis



<p>Day 2 Pre-lunch session</p>	<p>prevention, first aid)</p> <ul style="list-style-type: none"> • Ranikhet/New castle disease • Fowl pox • Salmonellosis • Diarrhea • Internal parasites • Ectoparasites • Vitamins and calcium deficiency • Bird flu <p>Importance of vaccinations to prevent contagious diseases in poultry</p> <p>(Ranikhet and Fowl pox),</p> <p>Knowledge on Vaccine preparation, vaccine handling, different vaccines in RD and Fowl pox, dose, routes of administration,</p> <p>Importance of anthelmintic, administration and dose- frequency deworming and vaccination Schedule</p> <p>COLD CHAIN-importance, process, procedure etc</p> <p>Cold Chain maintenance of poultry vaccines</p> <ul style="list-style-type: none"> □ How to monitor the vaccine temperature □ How to monitor the Refrigerator temperature □ Importance of fridge cleanliness □ How to manage vaccine stocks □ Vaccine transport (from retailer's shop to farmers house) □ Vaccine storage at the farm 	<p>Video films\</p> <p>Power point slides different infectious diseases of poultry</p> <p>Power point on Cold chain, maintenance etc</p> <p>cool box , ice packs , thermometer , bubble wrap</p>
<p>Post lunch session</p>	<ul style="list-style-type: none"> □ Knowledge on Syringe and needle, S/C injection for Fowl pox and R₂B injection, Thermo-tolerant RD vaccine 	<p>Practice to handle vaccines, practice to inject vaccine on banana leaves, syringe gradation etc</p>

<p>Day 3 Morning session</p>	<p>Regular management tips for preventing the production losses(measures to be taken every day, once a week, once in 2 weeks and once a month)</p> <ul style="list-style-type: none"> ▶ Poultry Housing and equipments ▶ Hatching methods, Brooding ▶ Better feeding methods, Creep feeding chicks ▶ White ant growing method ▶ Low cost feed preparation ▶ Use of Fish meal in poultry ration, Use of Azola in feed ▶ Poultry breeding Enhancing additional Clutch by administration of Ovral L tablets to hens- describe the process ▶ Technique of Summer hatching eggs by broody hens. ▶ Disposal of dead birds ▶ Bio-security ▶ Marketing of poultry on weight 	<p>Power point on housing, feeding, white ant production etc</p> <p>Practical preparation of poultry feed: Rice bran-, Wheat bran, broken rice, Maize crushed -, Oil cake-, Soybean cake, Dal chuni, Fish meal, Mineral mixture</p> <p>One earthen pot of 4 lit size</p>
<p>Post lunch session</p>	<p>"Theoretical Tips on method of vaccinating the birds "How to advice farmers "Planning with the farmers for vaccinations</p>	
<p>Evening</p>	<p>Field visit and carry out vaccinations practically in one village, vaccinate the entire poultry population of the village.</p> <p>Review of the practical vaccinations, identifying problems, discuss solutions</p> <p>Recap through quiz program or a small exam</p> <p>Feedback and conclusion</p>	<p>Lasota vaccine sample, R2B vaccines with diluents in cold box, syringe needle and other required equipment as above. Albendazole medicine bottle and droppers</p>