

## DUCK MANAGEMENT GUIDE:

### DUCK BREEDS AND VARIETIES

Desi or indigenous duck varieties	Pati duck, Chara and Chemballi, Nageswari, Cina-Hanh-a local muscovy type duck
Exotic duck breeds	Campbell, Indian Runner, Pekin, Aylesbury, Rouen, Muscovy, Mallard, Crested etc.
Meat type	Pekin, Cina-Hanh or Muscovy and Rouen
Egg type	Campbell, Indian Runner, Nageswari, Chara, Chemballi, Graded duck, <i>Pati</i> duck

#### a. Pekin duck

- The white variety of Pekin is most popular for meat. It is Chinese breed.
- It has creamy white plumage, yellow flesh, long, broad and deep body with bills and legs deep orange.
- It is the fast growing variety and lays about 160 eggs/ year. Standard body weight: Drake= 4.0 Kg, Duck= 3.6 Kg.



Muscovy duck



Pekin duck

#### b. Cina-Hanh or Muscovy:

- The Muscovy duck (*Cairina moschata*) is considered neither a duck nor a goose despite similarities to both genera. Muscovy grazes like goose but the drakes have no curled feathers in tail like that of goose.
- In Assam, Muscovy types Cina hanh are kept by farmers for meat production under scavenging system of rearing.
- The age at sexual maturity of Cina hanh range from 240 to 310 days.
- The average number of eggs laid by Cina hanh up to 40, 52 and 72 weeks of age is found to be 15, 36 and 56 respectively.
- The annual egg production range from 50 to 60 numbers.
- The average egg weight of Cina hanh laid during 52 weeks of age is 75 g with a range of 58-86 g.
- The Cina hanh ducks are very much broody; sit on eggs twice in a year.
- The weight of male and female Cina hanh at 30 weeks of age is 2.85 and 1.92 kilogram respectively.

#### c. Campbell:

- This breed was developed by Mrs. A. Campbell and introduced in 1901 as a result of crossing strains of fawn and white Runner, mallard (wild) and the

Rouen.

- Out of three varieties Khaki variety is most popular for egg production.
- Khaki Campbell (K.C.) duck starts laying at the age of 120 to 130 days with annual egg production of 300 eggs per duck.
- Its egg weight is averaged 60 g.
- The plumage colour is khaki with black bills and shanks. K C ducks have a longer productive life. Standard body weight: Drake= 2.2- 2.4 Kg, Duck= 2.0- 2.2 Kg.



কেম্পবেল হাঁহ



Chara duck



Chemballi duck



নাগেশ্বরী হাঁহ



Graded duck

#### d. Nageswari:

- Nageswari is one of the important egg type native varieties of duck presently confined to a few pockets of Cachar and Karimganj districts of Barak valley of Assam..
- Nageswari ducks are also locally called "Nagi" the snake deity, may be due to its head-high snake like posture with a white stripe in the neck extending up to the breast and for the eggs which have a bluish tinge.
- The original homeland of this variety of duck is believed to be the erstwhile Sylhet district of Assam that is now in Bangladesh.
- Over the years, rampant crossbreeding and lack of scientific management has eroded this valuable germplasm.
- The average annual egg production range from 100 to 120 numbers with an average egg weight of 60 g.

#### e. Chara and Chemballi:

- These two types of ducks are native of Kerala state

Production records of Chara and Chemballi

❖ Average age of flock at first egg (days)	:138-150
❖ Average age of flock at 50% production (days)	:148-187
❖ Annual egg production per duck (nos.)	:150-200
❖ Weight of first egg (g)	:61
❖ Mean egg weight (g) at 40 weeks of age	:68-70
❖ Average body weight (g) at 40 weeks of age	:1560
❖ Daily feed consumption per adult duck (g)	:120-150

**f. Pati duck:**

- In Assam, Pati ducks are widely distributed in Brahmaputra and Barak valley.
- The annual egg production of Pati duck is 60 to 80 eggs.
- Growth rate of desi duck are slower and their age at first egg is about 200-240 days.

**SYSTEMS OF DUCK MANAGEMENT**

- Scavenging system
- Herding system
- Semi-intensive system

**DUCK FEEDS AND FEEDING**

- Ducks are voracious eaters and foragers.
- There are generally 2 methods of feeding ducks i.e. Wet mash method and pellet method.
- Wet mash should be provided 5 times a day during brooding period and thereafter 3 to 4 times a day. The feed should be sufficient for eating up to 10 minutes only. Left over feed should be removed after each feeding.

**Feed intake**

- Feed intakes of duck vary from 150 to 170 g/day/layer.
- Annual feed consumption is about 50 to 60 kilogram per duck.

**Lean season feeding**

- It has been observed that the natural feed resources for duck present in different water beds are available for 9-10 months of the year.
- The rainfall reduces drastically during the month of December to February and thereby the natural feeds like insects, vegetations, snails, earth worms etc. become unavailable for the ducks during foraging.
- The ducks suffer from deficiency of protein and hence the egg production almost drops unexpectedly.
- For getting production during this period, the ducks should be provided layer feed daily two times in the morning and evening at the rate of 40-50 g per duck.

- If layer feed is not available, a mixture of paddy, rice polish, wheat bran and dried fish could be used at the following proportion:

Paddy	:	50 parts
Rice Polish	:	15 parts

Wheat bran : 10 parts  
 Dried fish : 25 parts

- The kitchen wastes should be provided to the ducks
- Mineral mixture should be mixed along with the above feeds at correct proportion.
- Ducklings should be fed with starter feed. If starter feed is not available, a mixture of boiled rice with dried fish could be provided. Boiled rice powder may be also fed to the ducklings.
- Drinking water mixed with vitamin should be supplied.

**WATER REQUIREMENT:**

- Ducks drink plenty of water as they eat i.e. 6 times water than feed (in chicken 2 times).

**NUTRIENT REQUIREMENT FOR DUCKS:**

Nutrients	Starter(0-2 weeks)	Grower		Layer	Breeder
		(3-8 weeks)	(9-20 weeks)		
Metabolizable energy	2750	2750	2700	2650	2650
Protein (%)	20	18	15	18	18
<b>Minerals</b>					
Calcium (%)	0.8	0.8	0.8	2.5	2.5
Phosphorus (%)	0.45	0.45	0.45	0.45	0.45
Sodium (%)	0.15	0.15	0.15	0.15	
Copper (mg/kg)	8.0	8.0	8.0	8.0	8.0
Iodine (mg/kg)	0.6	0.6	0.6	0.6	0.6
Iron (mg/kg)	80.0	80.0	80.0	80.0	80.0
Manganese (mg/kg)	100.0	100.0	100.0	100.0	100.0
Zinc (mg/kg)	60.0	60.0	60.0	60.0	60.0
<b>Vitamins</b>					
Biotin (mg/kg)	0.1	0.1	0.1	0.1	0.2
Choline (mg/kg)	1800.0	1800.0	1100.0	1100.0	1100.0
Folic acid (mg/kg)	1.0	1.0	1.0	1.0	1.5
Niacin (mg/kg)	60.0	60.0	60.0	60.0	60.0
Pantothenic acid (mg)	15.0	15.0	15.0	15.0	15.0
Riboflavin (mg/kg)	5.0	5.0	5.0	5.0	8.0
Thiamine (mg/kg)	4.0	4.0	4.0	2.0	2.0
Vitamin A (IU/kg)	4000.0	4000.0	4000.0	6000.0	8000.0
Vitamin B <sub>12</sub> (mg/kg)	0.01	0.01	0.01	0.01	0.01

Vitamin D <sub>3</sub> (ICU/kg)	600.0	600.0	600.0	1000.0	1000.0
Vitamin E (mg/kg)	20.0	20.0	20.0	20.0	20.0
Vitamin K (mg/kg)	2.0	2.0	2.0	2.0	2.0

- Niacin is very much important for ducks. Its deficiency causes bowed leg condition and weakness.
- For this 5-7% brewer's yeast is added in broiler and starter ration for improving growth and reducing leg weakness.
- Ducks are very much susceptible to aflatoxin produced by fungus *Aspergillus flavus*. Ducks can tolerate it up to 0.03 ppm as against 0.2 ppm in chicken.
- So particular care should be taken not to include mouldy feed grains and cakes in their ration specially ground nut cake.

### Feed formulation for ducks

Ingredients (kg/100 kg)	Starter 0-2 weeks	Grower		Layer (21 wks onwards)
		3-8 weeks	9-20 wks	
Maize crushed	41	40	40	40
Rice polish	10	13	14	10
Wheat bran	5	8	7	4
Broken rice	5	7	8	5
Till oil cake	10	7	10	8
Soyabean meal	12	10	8	10
Dried fish crushed	10	8	8	10
Meat meal	5	5	3	6
Bone meal	0.5	0.5	0.5	0.5
Oyster shell/limestone	-	-	-	4.5
Mineral and vitamin mixture	1.5	1.5	1.5	2.0

\*For every 100 kg ration, vitamin (A, B<sub>2</sub> and D<sub>3</sub>)= 25 g ; Niacin = 5 g ; Total 30 g.

### MANAGEMENT OF STOCK

- Brooding of ducklings- similar to chicken
- Grower ducks can be reared mostly in semi-intensive system with provision for an enclosure outside their house. The outside yard/run should have space of 10 sq ft per duck. The separating fence should be of 2 ft height.
- The layer ducks can be reared mostly in semi-intensive system with provision of sufficient enclosed run/yard of 15 sq ft per duck with separating fence of 2 ft height. The rearing house should be roomy, well ventilated and rat proof.
- Layer ducks should not be allowed to go outside as they mostly lay eggs before 8 AM. To get fertile eggs for hatching laying flock with ratio of one male

to 6-8 layers should be reared.

## DUCK EGG INCUBATION

- Although ducks start laying from 20-24 weeks of age, hatching eggs are collected from 30 weeks and above only.
- Hatchability of soiled eggs can be improved by washing in water at a temperature slightly higher than that of egg. A number of detergents, sanitizers and disinfectant agents are available for dipping the eggs.
- Eggs may be fumigated after they have been washed or dipped.
- Eggs for hatching should be stored at a temperature of 13-16<sup>o</sup> C with a relative humidity of 75% upto 7 days.
- In artificial incubator, principles used in chicken are applied to duck eggs except that temperature should be 1<sup>o</sup> F lower and humidity little higher than chicken eggs.
- From 2<sup>nd</sup> day onward warm water should be lightly sprinkled over the eggs once daily. From 15<sup>th</sup> day up to the end of 23<sup>rd</sup> day water should be sprinkled 3 times daily.
- Turning should be done twice a day upto the end of 23<sup>rd</sup> day
- On 24<sup>th</sup> day of incubation, dead germs can be removed by candling.
- Duck eggs require cooling during incubation. Best results are obtained when eggs are cooled to 32<sup>o</sup>C for maximum 30 minutes per day from 5<sup>th</sup> day of incubation onwards.

### Causes of poor hatchability and common defects noticed during incubation of duck eggs:

Defects noticed	Probable causes
Smudgy- burst yolk, excessive number of almost clean eggs	Temperature too high at the commencement of hatch
Ducklings fully formed but fail to hatch	Temperature too high towards the end of hatch
Ducklings start to peep but die. The bill of dead ducklings protrudes through a single hole. Ducklings that do hatch leave pieces of shell sticking to them and ducklings tend to hatch late.	Humidity too low at hatching time
Ducklings fully formed but die before pipping and ducklings appear slimy.	Humidity too high at hatching time
Hatching extended beyond normal 26 days	Temperature too low throughout the hatch.
Ducklings hatch early	Temperature is little higher than required throughout the incubation.

**DUCK-CUM- FISH FARMING:** Generally for one hectare water area, 300 ducks could be reared economically.



### **Advantages of duck-cum-fish farming:**

1. Fish utilizes the feed spilled by ducks and eat their droppings directly by some fishes.
2. Ducks keep water plants in check.
3. Duck get its required quantity of water from the fish pond.
4. Ducks increases the pond productivity by releasing the nutrients from the pond bottom soil through dabbling the pond bottom mud.
5. From the same places at the same time duck meat & eggs and also the fish can be produced.
6. Duck get 50- 75% of their total feed requirement from the pond itself in the form of aquatic weeds, insects, mollusks, etc. which do not form the food of the fish.
7. Duck act as a self manuring machine which helps in saving the expenditure involved in labour in applying manure in the pond.

### **COMMON DUCK DISEASES**

#### **1. Duck plague:**

Symptoms:

- First sign of the disease is floating dead in water.
- Affected ducks are listless with drooping wings, ruffled and dull feather and conjunctivitis.
- Watery greenish diarrhea.
- Swollen and moist eyes with sticky discharge.
- Nasal discharge with dirty nostrils.
- The characteristic feature of the disease is swollen and protruding penis.
- Drop in egg production in layers.

Treatment: Nil

Prevention and control:

- By vaccination: Ducks are vaccinated against D.P. vaccines as per manufacturer's recommendation. D.P. vaccines produced by the Institute of Vety. Biologicals, Khanapara are vaccinated to those ducklings which are above 6 weeks of age.

## 2. Duck Cholera:

Symptoms are:

- Affected ducks do not like to drink water.
- Whitish or yellowish colour diarrhea.
- Nasal discharge with sticky materials.
- Swollen joint of legs
- Lameness
- Mortality with 24 hours if proper treatment is not provided.

Prevention and control:

- Heavy dose of antibiotics or sulpha drugs are effective in curing the disease.
- Vaccination is available, but need to be vaccinated at every 6 months interval.
- The ducks should be restricted from foraging in areas having decayed materials.

**3. Aflatoxicosis:** It is caused by ingestion of aflatoxin, the toxic metabolite of the fungus *Aspergillus flavus* from infected feed ingredients specially ground nut cake.

Symptoms are:

- a. Decreased feed intake
- b. Poor growth.
- c. Falling of feathers.
- d. Lameness.
- e. Purple discolouration of feet and leg.
- f. Drop in egg production.
- g. Young ducklings develop ataxia followed by convulsion and death.

Prevention:

- h. Mouldy feed should not be fed.
- i. Feed bins and feed trays should be properly cleaned.

**4. Duck pox:** It is caused by pox virus different from that of fowl pox. Ducks of all age groups are affected. Disease spread by direct contact. There are 3 types-

- **Skin type** duck pox- is characterized by wart like growth on bill, head and sometimes on foot.
- **Eye type**- is characterized by purulent conjunctivitis with closed eye lids and sometimes blindness.
- In third type- mouth and corners of the mouth are affected.

**Symptoms:**

- Drop in egg production in layers.
- Mortality is usually less than 5%.

## 5. Botulism or Limber neck:

- It is caused by C-type toxin liberated by *Clostridium botulinum*. When ducks have an access of any decayed materials, the toxin is consumed along with it.

The affected ducks are completely paralysed prior to death. Addition of salt in drinking water for purgation is the treatment.