

## Duck Farming, Fascinating Option in India

Dharmendra Singh Rajput, Shiv Pratap Singh, Sudipta Ghosh\* and Nema RP

Department of Livestock Production and Management, College of Veterinary Science and Animal Husbandry, India

### Abstract

Duck rising is a lucrative livestock industry in the globe because of its egg, meat and feather. Like chicken, ducks are reared for eggs and meat. As per livestock census 2007, the duck population of India is 27.43 million constituting 8.52 percent of the total poultry population. The distribution and demographic dynamics of duck population revealed that they are concentrated in Eastern, North eastern and Southern states of the country. Duck farming in India is characterized by nomadic, extensive, seasonal, and is still held in the hands of small and marginal farmers and nomadic tribes. There are three systems of duck rearing i.e., free range system, Confined system and Indoor system. Duck can also be reared integrated with other farming such as fish farming

and/or paddy cultivation. Duck feeds on insect, snails, kitchen waste, paddy grains and weeds are the food sources for ducks in addition to the feed received from foraging. But for better production extra feed supplements is necessary. Grower stage of duck up to 16 weeks of age and after that laying starts. The age at first egg and 50 percent egg production are 120, 140 days and the annual egg number is 320 eggs for Khaki

Campbell ducks in intensive farming. The desirable sex ratio for good fertility and hatchability for ducks is 1:6 for intensive rearing and 1:15-20 for extensive rearing system. Ducks are more vigorous and less subject to diseases than chicken and turkeys. For better disease prevention vaccination is necessary.

**Keywords:** Rearing; Integration; Grower; Layer; Breeding

### Introduction

Duck rising is a lucrative livestock industry in the globe because of its egg, meat and feather. Like chicken, ducks are reared for eggs and meat. Duck eggs are relatively larger, weighing about 4.5% of duck's body weight, compared to chicken, whose egg weight is only about 3.3% of the hen's body weight [1]. Moreover, ducks are more prolific than chicken and more adaptable to free-range system of rearing. They also grow faster than chicken. That is why; they are more popular in many European and Asian countries. They need simple housing, compared to chicken.

### Duck Farming- Indian Scenario

As per livestock census 2007, the duck population of India is 27.43 million constituting 8.52 percent of the total poultry population. As per FAO [2] statistics, the duck meat production increased from 0.026 million tonnes to 0.15 m tonnes, recording 577 percent increase in growth rate, in two decades. The distribution and demographic dynamics of duck population revealed that they are concentrated in Eastern, North eastern and Southern states of the country. The leading states in duck population are West Bengal, Assam, Kerala, Andhra Pradesh, Tamil Nadu, UP, Bihar and Orissa [1]. Duck farming in India is characterized by nomadic, extensive, seasonal, and is still held in the hands of small and marginal farmers and nomadic tribes. Traditionally West Bengal and Kerala are the major consumer states for duck egg and meat and one of the reasons is that duck egg and meat highly suits and remains tastier for their fish based culinary preparations.

### Systems of Duck Rearing

There are many ways in which ducks can be reared. In practice farmers can adapt this rearing system to their own needs and the materials available.

### Free range system

The ducks are only kept enclosed at night. During the day the ducks are free to roam outside in search of feed. They are brought inside at

night by putting some extra feed in the shelter. The ducks only require night shelter and nests for laying eggs. Ducks will stay around the place, provided you treat them well. An advantage of this system is that the ducks go to the feed and harvest it themselves. This way, nutrients become available that the farmer cannot reach otherwise. Some farmers in Asia herd their flocks to graze large areas after the rice harvest [3] (Table 1).

Nutrient	Starter (0- 8weeks)	Grower (9-20 weeks)	Layer	Breeder
ME Kcal/kg	2750	2750	2650	2650
CP %	22	16	18	15
Lysine	% 0.70	0.65	0.75	0.60
Methionine %	0.40	0.30	0.29	0.27
Ca %	0.65	0.60	2.5	2.75
Phosphorus %	0.40	0.30	0.45	0.30
Vitamin A , IU	2500	2500	6000	4000
Vitamin D3, ICU	400	400	1000	900
Vitamin E Mg	10	10	20.00	10
Vitamin K Mg	0.50	0.50	2.00	0.50
Riboflavin ppm	4	4	5.00	4
Pantothenic acid ppm	11	11	15.00	11
Niacin ppm	55	55	55.00	55
Pyridoxine ppm	2.5	2.5	6.00	3.0

Srivastav and Panda [17], Sreenivasaiah [18]

**Table 1:** Nutrient requirements of Ducks.

\*Corresponding author: Sudipta Ghosh, Department of Livestock Production and Management, College of Veterinary Science and Animal Husbandry, India, Tel: +91-975-3157229; Fax: +91-766-2226816; E-mail: [sudivet@rediffmail.com](mailto:sudivet@rediffmail.com)

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## Confined system

The ducks are kept enclosed permanently, either in a covered shelter (indoor system) or with a run in the open. The ducks stay in the same place. It is easy to keep an eye on them and check them. An outside run makes it easier to give the ducks access to water, as a pond can be put in the open run area [4].

## Indoor system

The indoor system is for large-scale duck farms, where the production is mechanized to reduce labour costs [5]. The system requires more investment than the other two systems of housing. Farmer has to provide all feed and water and clean it regularly. If properly managed, growth can be fast and production cheap. Provide a large shallow container with water so that ducks can wash and bathe. Like open drinkers they should be located over a drained area covered with wire or slatted floor.

## Integrated Duck Rearing Systems

Duck keeping combines well with other forms of farming. In these systems the different forms of production complement each other and the farmer will have better production and more profit. Waste and by-products are used. It covers two well-known integrated systems.

### Duck keeping combined with paddy cultivation

In paddy fields ducks eat harmful insects and snails, this is a help for the paddy and at the same time the ducks get nutritious feed. The farmer spreads risks. For example if the rice yield is low there is still a yield of eggs and duck meat. Migratory duck farming is a method of duck farming practiced by the poor agricultural laborers in South India. Farmer starts duck farming during December by rearing ducklings. Ducklings were obtained from large farmers. By February as the harvest of second crop of paddy is over the laborers starts migration with the ducks. The paddy cultivators of Tamil Nadu and Kerala generally welcome the ducks [6].

The ducks feed on left away paddy grains on the field as well as snails and small fishes. Water stirring caused by the ducks activities inhibits the growth of weeds through photosynthesis reduction when the water becomes turbid. Their activities also enhance the rice root, stalk and leaf development, thereby accelerating rice growth. In addition, a reduced application of pesticides and fertilizers benefits the ecological system. During night the ducks are stays on the fields. One or two hours after sunrise, the ducks are released, by which time egg laying is almost completed and eggs can easily be collected. Owners of the land are given duck eggs as remuneration. The ducks grows well by feeding on paddy fields and the fields in turn become fertile by duck castings.

### Duck keeping combined with fish ponds

The waste from the duck shed can be recycled and may be used for fish culture in integrated duck-fish farming [7]. This increases the production of natural food in the ponds, which in turn enhances the fish production. By integrating the duck and fish culture, more returns can be achieved. This gives the good benefits to the farmers. If the ducks are allowed to swim freely in the fishponds, the waste can be dispersed uniformly in the ponds and it can also be used as a good fertilizer. Because of these, expenses for fertilizer, feed, supplementary feed for fish is minimized. Since the ducks are in the fishponds, it prevents the growth of the aquatic weeds and increases the biological productivity of the ponds. Because of the swimming action of the ducks, the amount of

oxygen in the ponds gets increased. Ducks eat the weeds, insects, larvae, worms etc present in the pond, and hence there is no need to add more additional feed to them.

In duck - cum fish culture, fishes with 10 cm length only to be stocked because fishes less than this length may be eaten by the ducks. Fish seeds can be stoked at the rate of 10000 numbers/ha. Depending upon the nature of the fishpond and the availability of fish seeds the stocking density may vary. Raising of ducks depends upon the type of the species and egg laying capacity[8]. To get more meat and egg from the duck-fish culture, proper management plays a vital role. The shed should be well ventilated and stagnant of waste water should be prevented. For fertilizing 1 ha pond, 200 ducks are sufficient. Ducks get their natural food from the pond itself. The domestic waste, rice bran, broken rice and pulses are more than enough for them.

### Duck, fish along with paddy cultivation

In the same field where paddy is being cultivated duck and fish can be reared together.

## Feeding Management of Ducks

Most of the duck farmers fed with broken rice, rice bran, coconuts stem powder or similar products between hatching and 4 weeks of age [9]. In some places ducklings are given sago and grains purchased from market as feed. According to Reddy [10], the duck farmers in Tamil Nadu fed their ducklings different diets according to age. After that insect, snails, kitchen waste, paddy grains and weeds are the food sources for ducks in addition to the feed received from foraging. The duck excreta become the fertilizer for the rice paddy. Reddy [10] reported main feeding source for adult ducks were post-harvested paddy fields for grains, ponds and waterlogged areas for fish, snails and insects [11]. Duck farmers in Kerala, Andhra Pradesh and Tamil Nadu feed adult ducks with the mixture of locally available feed ingredients.

## Watering of Ducks

Though ducks are water fowls and fond of water, in contrast to the prevailing myth among farmers, water for swimming is not essential at any stage of rearing [12]. However, water in drinkers or water channels provided in the house should be sufficiently deep enough to allow the immersion of their heads and not themselves. If they cannot do this, their eyes will get scaly and crusty and in some cases, blindness may follow. In addition, they also clean their bills periodically and wash them to keep it clean.

## Brooding of Ducklings

Ducklings may be brooded on wire floor, litter or batteries [13]. The brooding period of layer ducklings is 3-4 weeks. For meat type ducklings, brooding for 2-3 weeks is sufficient. In general, in colder season, brooding period may extend up to 1-2 weeks longer than the regular period. Provide hover space of 90-100 sq.cm per duckling under the brooder. A 100 watt bulb can brood 30-40 ducklings. The temperature of 32°C is maintained during the first week. It is reduced by about 3°C per week till it reaches 24°C during the fourth week. In wire floor, space of 0.5 sq.ft per bird and in litter 1 sq.ft per bird is sufficient up to three weeks of age. Water in the drinkers should be 5.0-7.5 cm deep, just sufficient to drink and not to dip themselves. In deep litter brooding, the thickness of the litter will be 3 cm and above to absorb the excess moisture in the ducks' droppings. In extensive system, no artificial warmth is provided, but the heat of brooding shed is conserved by making "Closed tents" (Tent brooding) to provide the

required warmth. The ducks are allowed to swim in water after the brooding period is over.

### Grower Management

Ducks may be reared in intensive and semi intensive system. Under intensive system, floor space of 3 sq.ft per bird up to 16 weeks of age is sufficient. Under semi intensive system of rearing, a floor space of 2-2.5 sq.ft per bird for night shelter and 10-12 sq.ft per bird for outside run is necessary for free flow of birds up to 16 weeks. Water in the drinkers should be 10 -12 cm deep to allow the immersion of their heads. Partitions up to the height of 60-90 cm separating the pen and run are adequate for control of ducks. In rural duck farming, straight run ducklings (male and female) will be reared up to 10 to 15 weeks of age [13].

### Layer Management

Under intensive system, a floor space of 4 sq.ft per bird is essential. In semi intensive system a floor space of 3 sq.ft per bird for night shelter and 10-12 sq.ft per bird of outside run space is required [14]. For wet mash feeding 10 cm of feeding space and for dry mash or pellet feeding 7.5 cm of feeding space per bird is required. For the collection of clean hatching eggs, a nest box with 30x30x45 cm dimension shall be provided at the rate of one per three ducks. A light of 14-16 hours is necessary for optimum egg production. The age at first egg and 50 percent egg production are 120, 140 days and the annual egg number is 320 eggs for Khaki Campbell ducks in intensive farming. The daily feed intake during laying period will be 120-140 g, depending on the rate of egg production and body weight. The body and egg weights at 40 weeks of age are 1.8 kg and 68 grams, respectively.

### Breeding Management

The desirable sex ratio for good fertility and hatchability for ducks is 1:6 for intensive rearing and 1:15-20 for extensive rearing system. In extensive system of rearing of rural ducks, farmers keep a wide sex ratio of 1:20-25, however they get a reasonable good fertility of 70-80 percent [15]. Drakes usually mate during swimming.

### Health Care

Ducks are more vigorous and less subject to diseases than chicken and turkeys. If diseases occur, it is most likely the result of unsanitary surrounding and faulty management or inherent weakness due to breeding. In order to know whether a duck is sick you first have to know how a healthy duck looks. Table 2 lists the most important characteristics of healthy and unhealthy ducks.

The most important information in this table tells how to recognize a healthy duck: how it should be growing, how the eyes and cloacae (genital/anal area) look and how the skin feels. A good way of becoming familiar with how a healthy duck looks is to regularly study ducks for a short while. This does not mean you have to pick up each duck every

Characteristics	Healthy ducks	Unhealthy ducks
General condition, first impression	Lively	Listless, unusually quiet
Weight	Good	Often light
Growth rate	Normal	Too slow
Eyes	Lively, bright	Listless, dull
Cloacae (genital / anal area)	Large, soft, moist, pink	Shrivelled, dry, discoloured
Skin	Soft, loose	Wrinkled, dry

Table 2: Main signs of health and illness in ducks.

S. No	Name of the vaccine	Route	Dose	Age of ducks
1.	Duck Cholera (Pasteurellosis)	Subcutaneous Ducklings, Adults	1 ml	3-4 weeks
2.	Duck Plague	Subcutaneous Adults	1 ml	8-12 weeks

Table 3: Vaccination schedule.

day, but just spend about 10 minutes observing the flock wandering around, noting how the ducks look and whether they are eating well. Good hygiene and vaccinating ducks are the two most important aspects of preventing ducks becoming ill [16].

### Vaccinations

Some diseases are so infectious or so common that it is worth vaccinating the ducks to protect them. If duck keeping is very common in the area it is especially worthwhile vaccinating your ducks (Table 3).

### Conclusion

Ducks are more prolific and produce about 20 eggs more than backyard chicken. Size of the duck egg is 10-15 gram larger than chicken egg. Ducks have long productive and profitable life *i.e.*, they lay eggs profitably during second and third year also. Ducks supplement their feed by foraging; hence it will reduce the feed cost. It lays their eggs during early in the morning and saves time and enables easy egg collection. Duck farming is having symbiotic relationship with paddy cultivation, so ducks and paddy cultivation can be integrated in the entire paddy farming areas. These are quite intelligent birds and they can be easily trained for their daily routine and it reduces the labour for management. They are quite hardy birds and can be easily brooded and are resistant to common avian diseases. Broiler /green ducks are very fast growing than chicken, with better growth rate and feed efficiency. Duck farming in India is in an emerging sector. It needs lot of awareness in people for its betterment in future.

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