Turkey Farming

Breeds of turkeys in India

1. **Broad breasted bronze**

The basic plumage color is black and not bronze. The females have black breast feathers with white tips, which help in sex determination as early as 12 weeks of age.

2. **Broad breasted white**

This is a cross between Board breasted bronze and White Holland with white feathers. White plumage turkeys seems to be suitable Indian-Agro climatic conditions as they have better heat tolerance and also good and clean in appearance after dressing.

3. **Beltsville small white**

It closely resembles the Board breasted white in color and shape but smaller in size. Egg production, fertility and hatchability tend to be higher and broodiness tends to be lower than heavy varieties.

4. **Nandanam Turkey-1**

Nandanam Turkey – 1 variety is a cross between the black desi variety and exotic Beltsville small white variety. It is suited for Tamil Nadu climatic conditions.

Economic Parameters in Turkey Farming

Male – Female ratio	1:5
Average egg weight	65 gms
Average day old young one weight	50 gms
Age at sexual maturity	30 weeks
Average egg number	80 -100
Incubation Period	28 days
Average body weight at 20 weeks	4.5 – 5 (Female) 7-8 (Male)
Egg production period	24 weeks
Marketable age Male Female	 14 -15 weeks 17 – 18 weeks

Marketable weight Male Female	 7.5 kg 5.5 kg
Food efficiency	2.7 -2.8
Average feed consumption upto marketable age Male Female	 24 -26 kg 17 – 19 kg
Mortality during brooding period	3-4%

General turkey management

I. Incubation:

The incubation period is 28 days in turkey. There are two methods of incubation.

(a) Natural incubation with broody hens:

Naturally turkeys are good brooders and the broody hen can hatch 10-15 numbers of eggs. Only clean eggs with good eggshell and shape should be placed for brooding to get 60-80% hatchability and healthy young ones.

(b) Artificial Incubation:

In artificial incubation, eggs are hatched with the help of incubators. The temperature and relative humidity in setter and hatcher are as follows:

Temperature (Degree F)	Relative humidity (%)
Setter 99.5	61-63
Hatcher 99.5	85-90

Egg should be turned at hourly intervals daily. Eggs should be collected frequently to prevent soiling and breakage and also to get better hatchability.

Brooding

In turkey 0-4 weeks period is called as brooding period. However, in winter brooding period is extended upto 5-6 weeks. As a thumb rule the turkey young ones need double hover space as compared to chicken. Brooding day old young ones can be done using infra red bulbs or gas brooder and traditional brooding systems.

Points to be noted during brooding:

- The floor space requirement for 0-4 weeks is 1.5 sq.ft. per bird.

- The brooder house should be made ready atleast two days before the arrival of young ones
- The litter material should be spread in a circular manner with a diameter of 2 mtrs.
- To prevent the young ones from wandering away from source of heat, a fence of atleast 1 feet height must be provided
- Starting temperature is 95^0F followed by weekly reduction of 5^0F per week upto 4 weeks of age
- Shallow waterers should be used.

The average mortality rate is 6-10% during the first four weeks of life. Young ones by nature are reluctant to eat and drink in the first few days of life, primarily because of bad eyesight and nervousness. Hence, they have to be force fed.

Force Feeding

Starve out problem is one of the major factors for early mortality in young ones. So special care should be taken for supplying feed and water to turkey poults. In force feeding, milk should be fed at the rate of 100ml per liter of water and one boiled egg have to be given at the rate of one per 10 young ones up to fifteen days. This will compensate the protein and energy requirements of the young ones.

Young ones can be attracted to the feed by gentle tapping of the container with the fingers. Colored marbles or pebbles placed in feeders and waterers will also attract young ones towards them. Since turkeys are fond of greens, some chopped green leaves should also be added to the feed to improve the feed intake. Also colored egg fillers can be used for the first 2 days as feeders.

Turkey rearing systems

Turkeys can be reared under free range or intensive system.

A. Free range system of rearing:

Advantages:

- It reduces the feed cost by fifty percent.
- Low investment.
- Cost benefit ratio is high.

In the free range system, in one acre of fenced land we can rear 200-250 adult turkeys. Shelter should be provided during night at the rate of 3-4 sq.ft. per bird. They should be protected from predators during scavenging. Planting of trees is desirable for providing shade and cooler environment. The range should be rotated which will help to reduce incidence of parasite infestation.

Free range feeding

Since turkeys are very good scavengers, it can consume earthworms, small insects, snails, kitchen waste and termites, which are rich in protein and that will reduce the feed cost by fifty percent. Apart from this leguminous fodder like Lucerne, Desmanthus, Stylo etc., can be fed. To avoid leg weakness and lameness in free ranging birds, calcium should be supplemented at the rate of 250gm per week per bird

in the form of oyster shell. Ten percent of feed can be substituted with vegetable waste to reduce the cost of feed.

Health cover

Turkeys in the free range system are highly susceptible for internal (round worms) and external parasites (fowl mite). Hence once in a month deworming and dipping is essential to improve the growth of the birds.

B. Intensive system of rearing

Advantages

- Improved production efficiency.
- Better management and disease control.
- **Housing**
- Housing protects turkeys form sun, rain, wind, predators and provides comfort.
- In hotter parts of the country the long axis of the house should run from East to West.
- The distance between two houses should be at least 20 meters and the young stock house should be at least 50 to 100 meters away from the adult house.
- The width of the open house should not exceed 9 meters.
- The height of the house may vary from 2.6 to 3.3 meters from the floor to roof.
- An overhang of one meter should be provided to avoid the rainwater splash.
- The floor of the houses should be cheap, durable and safe preferably concrete with moisture proof.
- When turkeys are reared under deep litter system, the general managemental conditions are similar to that of chicken but care should be taken to provide adequate floor, waterer and feeder space to accommodate the large bird.

Floor, feeder and waterer space requirement of turkeys

Age	Floor Space (Sq .Ft)	Feeder Space (cms) (Linear feeder)	Waterer Space (cms) (Linear waterer)
0-4 weeks	1.25	2.5	1.5
5-16 weeks	2.5	5.0	2.5
16-29 weeks	4.0	6.5	2.5
Turkey breeder	5.0	7.5	2.5

Care to be taken while rearing Turkeys

The temperament of turkeys is usually nervous; hence they get panicky at all stages. Hence entry of visitors in to the turkey's house should be restricted.

Debeaking

Young ones should be debeaked to control feather picking and cannibalism. Debeaking can be done at day old or 3-5 weeks of age. Remove the beak at about one half the distance from nostril to the tip of the beak.

Desnooding

Removal of the snood or dewbill (the fleshy protuberance near the base of the beak) is to prevent the head injuries from picking and fighting. At the day old the snood can be removed by finger pressure. At 3 weeks of age it can be cut off close to the head with sharp scissors.

Detoeing or toe clipping

Clipping is done at day old by removing the tip of the toe just to the inside of the outer most toe pad including the entire toenail.

Feeding management of turkeys

The methods of feeding are mash feeding and pellet feeding.

- The energy, protein, vitamin and mineral requirements for turkeys are high when compared to chicken.
- Since the energy and protein requirements for the both sexes vary they must be reared separately for better results.
- Feed should be given in feeders and not on the ground.
- Whenever change is made from one diet to another it should be carried out gradually.
- Turkeys require a constant and clean water supply at all times.
- Provide more number of waterers during summer.
- Feed turkeys during the cooler parts of the day during summer.
- Provide shell grit at the rate of 30-40 gm per day per bird to avoid the leg weakness.

Green feeding

In intensive system, greens can be fed upto 50% of the total diet on dry mash basis. Fresh Lucerne is first class green feed for turkeys of all ages. Apart from the Desmanthus and Stylo can be chopped and fed turkeys to reduce the feed cost.

Body weight and feed consumption

Age in weeks	Average Body Weight	Total feed consumption	Cumulative feed efficiency

	(Kg)		(Kg)			
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Upto 4th week	0.72	0.63	0.95	0.81	1.3	1.3
Upto 8th week	2.36	1.90	3.99	3.49	1.8	1.7
Upto 12th week	4.72	3.85	11.34	9.25	2.4	2.4
Upto 16th week	7.26	5.53	19.86	15.69	2.8	2.7
Upto 20th week	9.62	6.75	28.26	23.13	3.4	2.9

Breeding practices

Natural mating

The mating behavior of adult male tom is known as Strut, wherein it spreads the wings and makes a peculiar sound frequently. In natural mating, the male: female ratio is 1:5 for medium type turkeys and 1:3 for large types. On an average 40-50 young ones is expected from each adult female. Adult males are rarely used for mating after first year due to reduced fertility. There is a tendency in adult males to develop affinity towards a particular female, so we have to change the adult males for every 15 days.

Artificial insemination

The advantage of artificial insemination is to maintain high fertility from turkey flock throughout the season.

Collection of semen from adult male

- The age of tom should be 32-36 weeks for semen collection.
- The tom should be kept in isolation at least 15 days before semen collection.
- The tom should be handled regularly and the time required to collect the semen is 2 minutes.
- As the toms are sensitive to handling, the same operator should be used to get maximum volume of semen.
- Average semen volume is 0.15 to 0.30ml.
- Use the semen within one hour of collection.
- Take the collection three times weekly or on alternative days.
- **Insemination in hens**
- Artificial insemination is done when the flock attains 8-10% egg production.
- Inseminate the hens every three weeks with 0.025-0.030ml of undiluted semen.
- After 12 weeks of the season it may be better to inseminate every fortnight.
- Inseminate the hen after 5-6’ O clock in the evening.

- The average fertility should be 80-85% over a 16 week breeding season.

Common Diseases of Turkey and their prevention

Disease	Cause	Symptoms	Prevention
Arizonosis	*Salmonella arizona*	Poults unthrifty and may develop eye opacity and blindness. Susceptible age 3-4 weeks	Elimination of infected breeder flock and hatchery fumigation and sanitation.
Blue comb disease	*Corona virus*	Depression, loss of weight, frothy or watery droppings, darkening of head and skin.	Depopulation and decontamination of farm. Give rest period.
Chronic respiratory disease	*Mycoplasma gallisepticum*	Coughing, gurgling, sneezing, nasal exudates.	Secure *Mycoplasma* free stock
Erysipelas	*Erysipelothrix rhusiopathidae*	Sudden losses, swollen snood, discoloration of parts of face, droppy	Vaccination
Fowl cholera	*Pasturella multocida*	Purplish head, greenish yellow droppings, sudden death	Sanitation and disposal of dead birds.
Fowl pox	*Pox virus*	Small yellow blisters on comb and wattles and scab formation	Vaccination
Haemorrhagic enteritis	*virus*	One or more dead birds	Vaccination
Infectious synovitis	*Mycoplasma gallisepticum*	Enlarged hocks, foot pads, lameness, breast blisters	Purchase clean stock
Infectious sinusitis	*Bacteria*	Nasal discharge, swollen sinuses and coughing	Secure young ones from disease free breeders
Mycotoxicosis	*Fungal origin*	Haemorrhages, Pale, fatty liver and kidneys	Avoid feed spoilage
New Castle disease	*Paramyxo Virus*	Gasping, wheezing, twisting of neck, paralysis, soft shelled eggs	Vaccination
Paratyphoid	*Salmonella*	Diarrhea in poults	Prevention and flock

	pullorum		sanitation
Turkey coryza	*Bordetella avium*	Snicking, rales and discharge of excessive nasal mucus	Vaccination
Coccidiosis	*Coccidia spp*	Bloody diarrhea and loss of weight	Proper sanitation and management of litter
Turkey venereal disease	*Mycoplasma meleagris*	Lowered fertility and hatchability	Strict sanitation

Vaccination Schedule

Day Old	ND – B1 Strain
4th & 5th Week	Fowl Pox
6th Week	ND – (R2B)
8 – 10 Week	Cholera Vaccine

Turkey meat and egg

Turkey egg

- The turkey will start lay from the 30th week of age and its production period is 24 weeks from the point of lay.
- Under proper feeding and artificial lightening management turkey hens lay as much as 60-100 eggs annually.
- Nearly 70 percent of the eggs will be laid in the afternoon.
- The turkey eggs are tinted and weigh about 85 gms.
- Egg is noticeably pointed at one end with strong shell.
- The protein, lipid carbohydrate and mineral content of turkey egg are 13.1%, 11.8%, 1.7% and 0.8% respectively. The cholesterol is 15.67-23.97 mg/gm of yolk.

Turkey meat

People prefer turkey meat because of its leanest nature. The protein, fat, energy value of turkey meat are 24%,6.6%, 162 Calories per 100 gm of meat. Mineral like potassium, calcium, magnesium, iron, selenium, zinc and sodium are present. It is also rich in essential amino acids and vitamins like niacin, vitamin B6 and B12. It is rich in unsaturated fatty acids and essential fatty acids and low in cholesterol.
A market study shows that a male turkey sold at 24 weeks of age weighing 10 to 20 kg with expenditure of Rs.300 to 450 will give a profit of Rs. 500 to 600. Likewise a female will give a profit of Rs.300 to 400 in

a span of 24 weeks of time. Besides, the turkey can be reared in scavenging and semi-scavenging conditions also.