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Feeding and Health Management of White Pekin Ducks for Meat Purpose

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FEEDING AND HEALTH MANAGEMENT OF WHITE PEKIN DUCKS FOR MEAT PURPOSE

Rationale

In India, ducks (*Anas platyrhynchos domesticus*) are mostly domesticated for the purpose of meat and egg production. However, White Pekin ducks are largely used for meat purpose. The genetic potential of the ducks are exploited fully, when they are fed well balanced ration. As feed cost is around 75% of the total cost of production, the success of the duck farming depends not only on the quality of the ration, but also on the economy of the ration. Therefore, knowledge on the production potential, nutrient requirements, feeds & feeding practices and health management of the White Pekin ducks are highly essential.

Production potential of White Pekin ducks

The origin of White Pekin duck (WP) is China. However, now it is the most popular duck breed in United States. They have potential to attain adult body weight of about 4.0 kg (drake) and 3.5 kg (duck); and about 2.84-3.40 kg BW in 8 weeks. However, average body weight of 1.82 kg and 2.32 kg in 6 weeks and 8 weeks, respectively are common, depending upon different climatic condition, rearing system and nutrient availability. The feed conversion ratio (FCR) *i.e.* unit of feed consumed per unit body weight gain during 0-6 weeks and 0-8 weeks is about 2.65-2.67 and 2.75-2.93, respectively.

Nutrients requirement of White Pekin ducks

For optimum production for the ducks, the different requirements of nutrients in proper amount and proportions are carbohydrate, protein, fat, minerals and vitamins. Ducks get these nutrients from their feed ingredients for their

maintenance, production and reproduction purposes. Besides, many feed supplements and additives are being used in the diets to optimise the production and reproduction potential of the ducks. The nutrient requirements of the White Pekin ducks can be divided into two phases *i.e.* starter (0-3 weeks) and finisher (4-6 weeks). However, very often in field conditions, the finisher phase is extended up to 8 weeks. The CP% of the diet during starter and finisher phase should be 22% and 20%, respectively. During the starter and finisher phases, high ME content of the diet (2900 kcal/ kg) is preferred; but, it is very difficult to achieve with the commonly available duck feed ingredients; unless maize or vegetable oil or animal fat is added. Generally, with the commonly available duck feed ingredients, ME content of about 2750 kcal/ kg is achieved. The predominant source of these nutrients has been discussed below.

Water

Water helps in absorption of food material from the digestive system and in elimination of the waste products from the body. Drinking water is the main source of water for the birds and therefore, clean drinking water must be provided *ad-libitum* (free choice) throughout the day for optimum production. However, when ducks remain in water, they get chances to drink water adequately.

Carbohydrate

The main function of carbohydrate is to provide energy. The main sources of carbohydrate are cereal grains like maize, wheat, broken rice (rice kani), etc. Besides, the byproducts of the cereals like rice polish, de-oiled rice polish, wheat bran; and many tuber crops like cassava, etc. are also good sources of carbohydrate.

Proteins

Proteins are made up of amino acids, which are used in the body to synthesize tissue proteins. However, if the feed contains excess proteins than the required amount, these are used by the body to get energy, which is not economical. Based on sources, proteins can be broadly divided into two types *i.e.* vegetable proteins or animal proteins. The major sources of vegetable proteins are oil seed cakes like soybean meal, groundnut cake, mustard oil cake, til oil cake, etc. It is advised to soak the mustard oil cake over night and decant the water before feeding to reduce the bitterness. The cereal byproducts like maize gluten meal, rice polish, de-oiled rice polish, wheat bran etc. are fair to good sources of protein. Although the quality of animal proteins is better than vegetable proteins, it is generally used in limited quantity. Fish meal is generally not used in the diet more than 10% level. As a single source of protein is not rich in all the essential amino acids, to get a balance of amino acids for proper protein synthesis, it is always encouraged to feed protein from two or more sources. However, lysine and DL-methionine are generally supplemented in the feed to optimise the production potential of the birds.

Fat or oil

Fat or oil provides 2.25 times more energy than the carbohydrate. Besides, it provides essential fatty acids (fatty acids, which are not synthesized in body but are required by body), makes the feed more palatable and reduces dustiness of the feed. Sometimes, to make the feed more energy dense, edible fat or oil is added in the feed.

Minerals

Minerals help in proper utilization of other nutrients (carbohydrate, protein and fat), keep the birds healthy and

increase the production and reproduction performances. Minerals are broadly divided into two groups *i.e.* macro (require in large quantities) and micro (require in small quantities) minerals. For ducks, the important macro minerals are calcium, phosphorus, sodium, potassium, magnesium, chloride and suphur; while the important micro minerals are iron, copper, zinc, manganese, cobalt, iodine, molybdenum, selenium and chromium. Although, ducks fulfill most of their required minerals from their feed, but some macro and micro minerals are supplemented in different forms. Oyster shell (~35% Ca) and ground limestone (~33.8% Ca) are good sources of Ca; while, dicalcium phosphate (~26.5% Ca & 20.5% P) is a good source of both calcium and phosphorus. Trace mineral supplements mostly contain manganese, zinc, copper, ferrous (iron), selenium, iodine, cobalt, chromium, etc. Besides, common salt is a good source of sodium and chloride.

Vitamins

Like minerals, vitamins also help in proper utilization of other nutrients (carbohydrate, protein and fat), keep the birds healthy and increase the production and reproduction performances. Vitamins are of two types *i.e.* water soluble vitamins and fat soluble vitamins. Although each vitamin has its own importance; for ducks, the important water soluble vitamins are vitamin B_1, vitamin B_2, vitamin B_6, pantothenic acid, nicotinic acid, biotin, vitamin B_{12}, choline, etc; and fat soluble vitamins are vitamin A, vitamin D, vitamin E and vitamin K. Similar to minerals, although, ducks obtain their vitamins requirements from their feed, but many vitamins (vitamins A, D, E, K, B-complex) are being supplemented in the diet.

Toxin binders

Toxin binders are feed additives that are able to bind harmful substances, mostly mycotoxins or endotoxins, within gastrointestinal tracts of the birds. The commonly used toxin

binders are sodium bentonite, activated charcoal, aluminosilicate, zeolite, glucan products, etc. Toxin binder is generally added @ 100-150g/ 100 kg feed.

Examples of starter duck feeds

Ingredient	Feed-1	Feed-2	Feed-3	Feed-4	Feed-5
Wheat (kg)	60	45	30	54	58
Rice Kani (kg)	00	15	30	--	--
Soybean (kg)	25	28	30	27	25
Fishmeal (kg)	05	05	05	05	05
De-oiled rice bran (kg)	08	05	03	09	08
Oyster shell (kg)	01	01	01	01	01
Di-calcium phosphate (kg)	01	01	01	01	01
Vegetable oil (kg)	--	--	--	2.5	2.0
Trace minerals(g)	100	100	100	100	100
DL-Methionine (g)	50	50	50	50	50
Lysine (g)	50	50	50	50	50
Vitamin AD_3B_2K (g)	20	20	20	20	20
Vitamin E & Selenium (g)	20	20	20	20	20
Vitamin B -complex(g)	20	20	20	20	20
Choline chloride (g)	100	100	100	100	100
Toxin binder (g)	100	100	100	100	100
Common salt (g)	100	100	100	100	100

Different rearing system of White Pekin ducks

Ducks can be reared under extensive, semi-intensive and intensive rearing system. Under extensive rearing system, ducks are only provided with night shelter and are completely allowed to scavenge outside. Under semi-intensive rearing system, the birds are kept in the house and are provided with some supplementary feed besides allowing them to scavenge outside during day time; and is mostly practiced by the farmers. Under intensive rearing system, ducks are kept in closed house and the provision for feed and water are made completely inside. The closed house under intensive rearing system may be with or without provision of water channels. The ducks are mostly kept in deep litter system and paddy husk or chapped straw are generally used as bedding material.

Feeding of White Pekin ducks

Generally, ducklings are not left outside and are fed under intensive system during the brooding stage (day-old to 4 weeks). Concentrate feed can either be purchased or made in home or farm to be fed under semi-intensive (supplementary feed) and intensive rearing systems. The particle size of the concentrate feed should be about 1.0-1.5 mm for proper utilization by the birds. The concentrate mixture can be fed as dry or moist (mixing with small amount of water) forms. The daily feed requirement should be provided in 2-3 divided doses to avoid wastage. The approximate feed intake of White Pekin ducks up to 8 weeks has been provided below.

Feed intake in White Pekin ducks

Particulars	Age (weeks)							
	1	2	3	4	5	6	7	8
Feed (DM) Intake (g)/ duck/day	16.31-27.12	42.85-53.57	113.36-129.51	121.48-214.71	126.99-197.48	140.86-187.26	148.13	153.02
Cumulative Feed Intake (g)/ duck	118.20-189.83	393.67-564.84	1300.24-1358.34	2208.68-2803.22	3097.61-3987.98	4083.62-5298.79	5120.51	6191.65
Approx. Body Weight (g)/ duck	74.36-111.34	255.33-283.38	620.71-645.35	927.67-1209.02	1278.88-1644.47	1590.90-2041.62	1941.90	2322.01

Feed conversion ratio (FCR) in White Pekin ducks

The feed conversion ratio (FCR) in White Pekin ducks is provided below:

Period	Feed conversion ratio
1st week	1.98-3.02
2nd week	1.59-2.19
3rd week	2.16-2.37
4th week	2.45-2.82
5th week	2.52-2.65
6th week	2.67-3.27
7th week	3.10
8th week	3.95
0-2 weeks	2.42
0-4 weeks	2.51
0-6 weeks	2.65-2.67
0-8 week	2.85

Carcass characteristics of White Pekin ducks

The carcass characteristics of White Pekin ducks have been provided below.

Attributes	Approximate values
Dressing percentage	66.32-68.47
Cut-up parts as percentage of dressed weight	
Leg	24.61-26.51
Breast	20.58-21.75
Neck	10.88-12.04
Back	25.61-27.16
Wings	13.11-14.08

Health management of White Pekin ducks

Ducks are resistant to most of the poultry diseases. The common infectious duck diseases may be bacterial (duck cholera, duck septicaemia, colibacillosis and salmonella infection); and viral (duck viral enteritis *or* duck plague and duck viral heapatitis).

Week	Days	Treatment
1st week	Day 0-4	Electrolyte solution (As prescribed)
	Day 1-5	Antibiotics: Neomycin + Doxycycline or Amoxycillin Cloxacillin (As prescribed)
		Multivitamins (A, D_3, E and K) (As prescribed)
2nd Week	Day 8-12	Vitamin B- complex and vitamin C (As prescribed)
		Probiotics (As prescribed)
3rd week	Day15-19	Calcium and vitamin D_3 (As prescribed)

Besides, as ducks are 100-200 times more sensitive to aflatoxins than chicken, they are more prone to aflatoxicosis. For optimum health of the ducks, the following precautionary measurements should be taken:

Vaccination of White Pekin ducks

In India, vaccines against two diseases *viz.* Duck Cholera and Duck Plague are available. The vaccination schedule for White Pekin ducks are provided below:

Age of ducks	Vaccine	Route	Dose
3-4 weeks	Duck Cholera	Subcutaneous/ Intramuscular	1 ml
5-6 weeks	Duck Plague	Subcutaneous	1 ml

Availability of duck vaccines:

The following institutes may be contacted for the availability of different duck vaccines.

Vaccine	Institute
Duck Cholera and Duck Plague	Director, Institute of Animal health and Veterinary Biologicals, No. 37, Balgachia Road, Kolkata, West Bengal-700 037
Duck Cholera	Director, Institute of Animal Health and Veterinary Biologicals, Hebbal Bangalore, Karnataka-560024
Duck Cholera and Duck Plague	Director, Institute of Animal Health and Veterinary Biologicals (IAHVB), Palode, Thiruvananthapuram, Kerala-695 562

Important tips on White Pekin duck production

- Ducks are water fowls, they like to be in water; and therefore, water channels with provision of clean and fresh water should be made available, even if they are reared under intensive rearing system.
- Always use fresh feed ingredients during preparation of duck feeds; as they are highly susceptible to afltatoxins.

(Day-Old White Pekin ducklings)

(Brooding of White Pekin ducklings)

(One week old White Pekin ducks)

(Four weeks old White Pekin ducks)

(Six weeks old White Pekin ducks)

(Eight weeks old White Pekin ducks)

(Male White Pekin duck)

(Female White Pekin duck)

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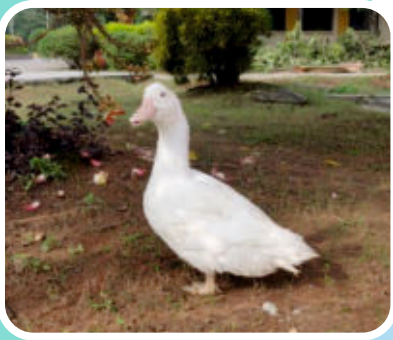

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