

Poultry Feeding:- Poultry prod<sup>n</sup> mostly depends on the types, source & quality of feed. Feed represents about 70% of the total cost of egg prod<sup>n</sup> and 55% of the cost of broiler prod<sup>n</sup>.

→ The following facts should be considered while computing ration for poultry -

1. The poultry birds are omnivorous. They are habitats of eating both of vegetables & animal products.
2. Poultry birds have simple stomach unlike ruminants which is comparatively short & has quite rapid digestion.
3. Poultry birds have no lips or teeth and they cannot chew their feed. Hence, they require a more concentrate ration.
4. Poultry birds are small in size so they feed collectively rather than individually.
5. The poultry birds have crop for storage of foods & gizzard for grinding of food.
6. The hen lays egg. Calcium, protein, vit. & minerals are required for formation of egg shell & yolk & albumin of egg.

### Nutrient requirements

- ① Water:- Birds can live longer without food than without water. Lack of a consistent supply of fresh water hinders the growth of young poultry, it leads to low egg prod<sup>n</sup> and early molting in the laying flock. Water consumption by broiler chickens at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> week is 225 ml, 480, 725, 1000, 1250, 1500, 1750, 2000 ml → respectively at 21°C temperature. Laying hens may consume from 150-300 lit. per 1000 birds daily, depending on the temp. and other factors.

- ② Protein:- protein from animal sources - liver, fish scraps, meat or meat meal is more effective in promoting growth & egg prod<sup>n</sup> than protein from most vegetable sources.



\* Methionine is 1<sup>st</sup> limiting A.A in maize, soya based diet for poultry and lysine is most limiting A.A in soya free diets.

→ Threonine is often considered as the 3<sup>rd</sup> limiting A.A. Birds also need glycine as it is required for biosynthesis of uric acid, hence essential for young birds. Cysteine & tyrosine are semiessential & arginine is essential for poultry.

③ Carbohydrates: These are the starchy material in grains & grain products. They supply fuel & energy, the excess going to form fat in the body/egg.

④ Fats: Linolic acids is the only essential fatty acids needed by poultry and it's main effect in laying bird is on egg size. The linolic acid req. of poultry bird is estimated as 1% of diet.

⑤ Minerals:  $\text{CaCO}_3$  (from limestone or oyster shells, bones etc) in the trace of vit. D forms most of the egg shell. Salt supplies some essential minerals. Green feed contains small amt. of certain highly important minerals.

⑥ Vitamins:-  
Vit. A  $\Rightarrow$  Obtain from green feed, yellow corn and fish oils and protects against colds and infections.

Vit. D  $\Rightarrow$  Zn marine fish oils and synthetic products or formed in body when exposed to sunlight (UV rays). Helps in laying down of minerals in shell or bone and in preventing leg weakness and rickets.

Riboflavin (Vit. B<sub>2</sub>)  $\Rightarrow$  Milk, liver, yeast, green feed etc promotes the growth of chicks and poultry.



And prevents 'curled toe paralysis' in young chicks.

Common feed stuffs for poultry:

1. Energy feeds: These are the feeds which form 70-75% of

the poultry diet and further subdivided as

(a) High energy feeds: These are energy rich feed ingredients and included about 50-55% of total ration.

They have more than 2500 Kcal per kg ME value.

These are maize, wheat, Bajra, sorghum etc.

Maize (3300 Kcal ME/kg) is the most commonly used feed ingredient in poultry ration.

(b) Low energy feeds: These are the low energy feed stuff and included at 10-20% in poultry ration.

wheat bran, rice polish, dehulled rice polish, damaged grain, maize germ etc. are commonly used low energy feed ingredients.

2. Protein feeds: They provide protein for growth and egg production and are also req. for elaboration of digestive enzymes & hormones.

They form 25-30% of poultry ration and sub grouped as -

(a) Vegetable protein feeds: Soyabean, groundnut, mustard, cottonseed, linseed and sunflower seed, oil cakes/meals are commonly used vegetable protein feeds & included about 20-25% level in poultry ration. Soyabean meal is the most commonly used vegetable protein feeds.

(b) Animal protein feeds: They are added about 6-8% level in poultry ration. Fish meal is most commonly used animal protein feeds, which can also be replaced by meat cum bone meal, liver meal, blood meal etc.

3. Mineral feed stuffs:

Essential minerals serve as constituents



bone, egg shell and maintain the necessary acid-base balance of body fluids. It accounts for 2-3% of Poultry ration. Bone meal, marble chips, limestone, oyster shells and common salts are commonly used mineral feed stuffs.

#### 4. Feed Additive/Supplements :-

Vitamin supplements, Coccidio <sup>stat</sup> stat, antibiotics, enzymes, prebiotics & probiotics are also used for specific functions.

#### Nutrient Requirements of Poultry :-

##### # Nutrient req. of Commercial White Broiler chicken [ICAR-2013]

Nutrients	* 0-14 days		
	(Prestarter)	(Starter)	(Finisher)
<del>ME</del> ME (Kcal/kg)	3000	3050	3100
<del>CP</del> CP %	20 <del>20.5</del>	21.5	19.5

  

# Nutrient req. of egg type pullets			
Nutrient	0-8 weeks	8-16 weeks	16-18 weeks
<del>ME</del> ME	2600	2600	2700
<del>CP</del> CP	18.5	15.5	15

##### \*\* Nutrient req. of chicken [BIS 1992]

Characteristics	Broiler starter (0-6 weeks)	Broiler finisher (6-9 weeks)	Chick (0-8 weeks)	Grower (8-20 weeks)	Layen (over 20 weeks)
Moisture % (max)	11	11	11	11	11
ME (Kcal/kg) (min)	2600	2500	2600	2800	2900
CP % (min)	20	16	18	23	20
CE % (max)	7	8	8	6	6
ATR % (max)	4	4	4	3	



Salt % (minim)	0.6	0.6	0.6	0.6	0.6
Ca % (minim)	1	1	3	1.2	1.2

## # Methods of feeding

### 1. Whole grain feeding system

Birds are allowed to have their required ingredients kept them in separate containers. The system though permit birds to balance their ration acc. to individual needs, rather it is doubtful.

### 2. Grain and mash method.

Slightly better.

### 3. All mash method. → whole grain mixture.

### 4. Pellet method → 10% more expensive but little wastes in feeding.

### 5. Crumble form → can also feed to day old chicks

## # Feeding system

(a) Ad-libitum feeding. (b) controlled/force feeding. (c) Restricted feeding.

free choice of feed.

Attempted for short time

→ in 6-20 weeks of Pullets

in young chicks which do not

→ delayed sexual maturity.

learn how to pick their feed.

→ less small size eggs laid.

Physical feed restriction      Skip-a-day feeding      Lighting programmes      Low protein      Low energy      Diets      diets

## # Feeding various categories of poultry.

→ Growing = 5-20 wks  
Pullets

### \* Early feeding.

→ I 25-42 weeks      II 42-62 "      III 62-76 "

### \* Phase feeding.

## # Calorie-protein ratio