



Lecture title: Feeds and Feeding of Poultry

Lecturer Affiliation: University of Mosul, Ali Abdalwahab .M.Alkahla, BSc, MSc, PhD. <https://orcid.org/0000-0001-8320-0558>

Summary:

Feeds and feeding of poultry

- Poultry feed ingredients are classified as energy rich feedstuffs, protein rich feedstuffs, vitamin and mineral sources, and non-nutritive feed additives.
- Generally 10-15 feed ingredients are mixed together to prepare commercial poultry feeds.
- **Energy rich feedstuffs :-**
 - About 45 to 65% poultry feed is constituted by energy rich feed ingredients. The common energy rich feed ingredients are maize grain, wheat, barley, wheat bran, broken rice/ rice bran.
- **Protein rich feedstuffs :-**
 - Protein rich feed ingredients are mainly used to supply protein but at the same time they also contribute some energy. They are divided in to two groups, vegetable protein and animal protein.
 - The common vegetable protein sources are soybean, sesame seed, sunflower.
 - The common animal protein sources are fish meal, meat meal, blood meal, liver residue meal, poultry hatchery by-product meal.
- **Mineral sources :-**
 - The common mineral sources are common salt, oyster shell (37.4 % Ca), lime stone (37.5% Ca), bone meal (27% Ca and 12.11 % P), dicalcium phosphate (23% Ca and 18.1 % P),. Nowadays various mineral mixtures are commercially available in the markets.
- **Vitamin sources :-**
 - The feed ingredients used in the manufacturing of balanced poultry feed generally supply different types of vitamins. However, vitamin mixtures are commercially available in the markets, which may be used as per the requirements of birds.
- **Feed additives :-**



- These are not essentially nutrients, but their presence in feed in minute quantity increases the nutritive value of feed leading to increase feed efficiency, growth and production of the birds. The most common nonnutritive feed additives are antibiotics (e.g., oxytetracycline, chlortetracycline, penicillin, streptomycin, etc.), coccidiostat, antioxidants (e.g., vitamin E.), antifungal, vitamin supplements, antistress medicines, enzymes, etc.

➤ **Types of chicken feed :-**

- For layer chicken, three types of feeds are commonly used for commercial production of eggs, viz., **chick feed** (0-8 weeks), **grower feed** (9-20 weeks) and **layer feed** (21-72 weeks or during the laying period).
- For broiler chicken, two types of feeds are commonly used for commercial production of meat, 1- **broiler starter** (0-4 weeks) and **broiler finisher** (5-6 weeks).

Feed requirement for different categories of poultry (Quantities)

A. Feed requirement for layer chicken

- Total feed requirement up to 72 weeks of age is 47.5 kg per bird.
- **Chick feed** : (0-8 weeks) - 2 kg
- **Grower feed** : (9-20 weeks) - 5.5 kg
- **Layer feed** : (21-72 weeks) 40 kg @ 110 g/bird/ day.
- **Feed requirement for layer chicken may vary due to genetic makeup** of bird (strain variation), **feed quality**, **laying percentage**, **environmental conditions**, **system of feeding** and other **management practices**.

B. Feed requirement for broiler chicken

- Total feed requirement up to 6 weeks of age is 3.8 kg per bird (weighed 2 kg each) @ 1.9 kg /kg live weight (maximum).
- Approximate weekly feed requirement for a broiler chicken (finished weight 2 kg at 6 weeks of age) is given below.

➤ **C/P ratio:** - It's the percentage of **calorie** to the **protein** in diet.

➤ C/P in broiler diets:-

1. **Starter diet** (used at 1-3 week of age) , C/P = 132 – 152
2. **Finisher diet** (used at 4-6 week of age), C/P = 155 – 175



Example :- Perform a starter and finisher diet (ration) for broiler chicken, then calculate the protein percentage , total energy and C/P ratio?

Ingredient	Starter	Finisher
Corn	0.60	0.62
Soybean meal	0.29	0.26
Meat meal	0.05	0.05
Oil	0.02	0.03
Limestone	0.01	0.01
Dicalcium phosphate	0.02	0.0175
Minerals & vitamins	0.01	0.01
Salt	0.0025	0.0025

➤ **Energy & Protein calculation : (Starter diet)**

1- Protein :-

Ingredient	Starter	*	=
Corn	0.60	9.2	5.52
Soybean meal	0.29	41.7	12
Meat meal	0.05	56.2	2.81
Total energy	=		20.33



2- Energy :-

Ingredient	Starter	*	=
Corn	0.60	3309	1985
Soybean meal	0.29	2694	781
Meat meal	0.05	2319	116
Oil	0.02	9000	180
Total energy	=		3062

3- C/P ratio :-

Total energy	/	Total protein	C/p ratio
3062	/	20.33	150

➤ Energy & Protein calculation : (Finisher diet)

1- Protein :-

Ingredient	Finisher	*	=
Corn	0.62	9.2	5.70
Soybean meal	0.26	41.7	10.84
Meat meal	0.05	56.2	2.81
Total energy	=		20.33



2- Energy :-

Ingredient	Finisher	*	=
Corn	0.62	3309	2051
Soybean meal	0.26	2694	700
Meat meal	0.05	2319	116
Oil	0.03	9000	270
Total energy	=		3137

3- C/P ratio :-

Total energy	/	Total protein	C/p ratio
3137	/	19.35	162