

Calculating Daily Requirement of Protein for Developing Meat Chicken (Broiler)

- Requirements are divided to three parts as follows:

1- Protein required to save a life (sustainability): It is calculated on the basis of nitrogen internal representation (the bird loses as a result of damage to cells), which is estimated at about 250 milligrams of nitrogen per kilogram of live body weight) (0.0016 g protein). And the efficiency of the chicken in the conversion of food protein to protein in the body, estimated at around 65%.

$$\text{A protein required to save a life (g / day)} = \{\text{Body weight (g)} \times 0.0016\} / \text{Protein efficiency (0.65)}.$$

2- Protein required for the growth and tissue building: It is calculated on the basis of the proportion of protein in the body chicks, estimated at about 18%.

$$\text{A protein required for tissue growth (g / day)} = \{\text{Daily increase in body weight (g)} \times \text{percentage of protein in the tissues (0.18)}\} / \text{protein efficiency (0.65)}$$

$$\text{A protein required for tissue growth (g / day)} = \{\text{D.I.B.W} \times 0.18\} / 0.65$$

3- Protein required for the growth of feathers: feather represents about 4% of the live weight of the first 4weeks from the age of bird and increase to 7% from the age of four weeks and remained almost constant. The proportion of protein in the feathers is 82%.

$$\text{A protein required for the growth of feathers under the age of 4 weeks (g/ day)} = \{\text{daily increase in body weight (g)} \times 0.04 \times 0.82\} / \text{protein efficiency (0.65)}.$$

A protein required for the growth of feathers aged more than 4 weeks (g/ day) = {daily increase in body weight (g) × 0.07 × 0.82} / protein efficiency (0.65).

Feed intake

To calculate the amount of feed consumed daily depending on the daily requirement of protein is used the following equation:

Feed intake (g/day) = Daily requirement of protein / proportion of protein in the diet

- **Example:-**

Calculate the daily requirement of protein with the feed intake to broiler, two weeks old and weighing 238 g and the weight of day-old chicks was 38 g. The proportion of protein in the diet 22%

- **Example**

Calculate the daily requirement of protein with the feed intake to 10,000 birds, 5 weeks old and weighing 1950 g with the knowledge that the weight of chicks in the age 4 weeks was 1335 g and the percentage of protein in the diet 20%.

- **Example**

Calculate the daily requirement of protein with the feed consumption for Broiler flock consists of 5000 birds if you knew that the weight of bird 2500 g and the rate of weekly body weight increasing 595 g, the proportion of protein in the diet 19 %.