Lecture 2: Raising broiler and their economic traits

Definition & purpose of Meat type poultry

✓ Meat type poultry = broilers: are birds or fowl that are raised for the production of meat as chickens, turkeys, water fowls (geese, ducks, swans…), ratites (ostrich, emu, kiwi…), pea fowl, guanine fowl, quail, pheasant, pigeons and etc.

Poultry house preparing for receiving chicks:

- Provide chicks with cleaned (dry and wet) and disinfected house; surrounding areas, and all equipment.
- Spread litter material evenly to a depth of 3-5 in summer and 5–10 cm in winter.
- Vehicles, equipment and labors should be disinfected before entry.
- Preheating the house is vital at chick placement.
- Must provide artificial lighting. To help the chick adapt to the new environment and encourage feed and water intake.
- Make a check of feeders and waterers availability and distribution within the house prior to delivery of chicks.
- Adequate fresh, clean water must be available at all times to all birds with access points at an appropriate height.
- Provide textured feed as a dust-free crumble or mini-pellet on feeder trays and on chick paper to give a feeding area occupying at least 25% of the brooding area
- Place chicks quickly, gently and evenly onto white paper within the brooding area.
- Leave chicks to settle for 1 to 2 hours to become accustomed to their new environment. After this time, make a check to see that all chicks.
- Check mortality, quality and thriftiness of the chicks.
- **Some standards for chick quality at arrival** are: **a)** no deformities (eyes, beak, legs, toes). **b)** no unhealed naval **c)** above a minimum weight **d)** not dehydrated and not stressed **e)** well covered by down **f)** chicks standing up well and being active **g)** no signs of gasping or heavy breathing

Economic traits of broilers

The factors or characteristics of broilers that influence profitability in broiler production are termed the economic traits of broilers. They are:

1- Body weight and body weight gain

- This is the average live weight of a broiler when sold to market.
- It is obtained by dividing the total weight of birds sold by the number of broilers.
- Since the broilers fetch a price based on their body weight, it is an advantage if the birds are heavy at an early market age (fast growing).

Body weight gain = Body weight (g) at the end of the period – Initial body weight (g).

2- Feed conversion ratio (FCR)

The term indicates the quantity of feed required to raise the live body weight by one unit. Since feed involves 70-75 percent of the cost of production, feed efficiency or efficiency of feed conversion by the broilers, largely determines the profit margin. It is calculated as:

$$\text{FCR (kg feed/kg gain)} = \frac{\text{Cumulative feed intake (kg)}}{\text{Total weight gain (kg)}}$$

The lower the feed efficiency value, the better it is for the farmer.

3- Livability at market age

$$\text{Livability} = \frac{\text{Number of birds alive at market age}}{\text{Number of chicks purchased}} \times 100$$

$$\text{Mortality \%} = \frac{\text{Number of dead birds}}{\text{Initial number of birds housed)}} \times 100$$

OR

Mortality % = 100- Liveability %

Under standard rearing conditions the mortality rate should not exceed 4 %.

4- Production Efficiency Index (PEI) or production index (PI)

Which is calculated using the following formula:

$$PEI\ (\%) = \frac{\text{Body weight (kg) x livability (\%) x 100}}{\text{Age (days) x feed conversion ratio}}$$

Q/ Calculate the production index efficiency for a flock, if you know that:

Average initial body weight = 42 g
Average marketing weight at 42 days = 3200 g
Feed conversion ratio = 1.7
Mortality % = 3 %

Is the flock efficient? Why?

$$PEI\ (\%) = \frac{\text{Body weight (kg) x livability (\%) x 100}}{\text{Age (days) x feed conversion ratio}}$$

PEI = ((3.2* 97) *100)/(42*1.7)= (310.4* 100)/71.4= 434.73

Yes, the flock is efficient, because PEI value is more than 250.

Q/ Calculate the production index efficiency for a flock, if you know that:

Average initial body weight = 45 g
Average marketing weight at 42 days = 2.15 Kg
Feed conversion ratio = 1.7
Mortality % = 3
Is the flock efficient? Why?

Q/ Calculate the production index efficiency for a flock, if you know that:

Average initial body weight = 40.5 g
Average marketing weight at 35 days = 2200 g
Feed conversion ratio = 2.3
Mortality % = 4.2 %
Is the flock efficient? Why?

Q/ Calculate the production index efficiency for a flock, if you know that:

Average initial body weight = 43 g;
Average marketing weight at 35 days = 2100 g
Feed intake = 1850 g; Mortality % = 7 %