

PUM

Netherlands senior experts



Feeding Broilers



Supply of Nutrients

Energy

- Broilers require energy for growth of tissue, maintenance and activity.
- Carbohydrate sources, such as corn and wheat, and various fats or oils are the major source of energy in poultry feeds.
- Energy levels in diets are expressed in Megajoules (MJ/kg) or kilocalories (kcal/kg) of Metabolisable
- Energy (ME), as this represents the energy available to the broiler

Protein

- Feed proteins, such as those in cereals and soybean meal, are complex compounds which are broken down by digestion into amino acids.
- These amino acids are absorbed and assembled into body proteins which are used in the construction of body tissue, e.g. muscles, nerves, skin and feathers.

Key Points

- Use recommended digestible amino acid levels for optimum broiler performance.
- Ensure high-quality protein sources are used.
- Provide the correct levels of the major minerals in the appropriate balance.
- Vitamin and mineral supplementation depends on feed ingredients used, feed manufacturing practices and local circumstances

Feeding Programme



Source: Ross Manual

Starter Feeds

- The objective of the brooding period (0-10 days of age) is to establish good appetite and maximum early growth in order to meet the seven-day body-weight objective. It is recommended that a Broiler Starter feed be fed for ten days.
- The Starter represents a small proportion of the total feed cost and decisions on Starter formulation should be based primarily on performance and profitability rather than purely on diet cost.
- The benefit of maximising nutrient intake on early broiler growth and subsequent performance is well established. Feeding broilers the recommended nutrient density will ensure optimal growth is established during this critical period of life.

Grower Feeds

- Broiler Grower feed is generally fed for 14-16 days following the Starter.
- Starter to Grower transition will involve a change of texture from crumbs/mini-pellets to pellets.
- Depending on the pellet size produced, it may be necessary to feed the first delivery of Grower as crumbs or mini-pellets.

Grower Feeds

- During this time broiler growth continues to be dynamic. It therefore needs to be supported by adequate nutrient intake.
- For optimum feed intake, growth and FCR, provision of the correct diet nutrient density, especially energy and amino acids, is critical.

Finisher Feeds

- Broiler Finisher feeds account for the major volume and cost of feeding a broiler.
- It is therefore important that feeds are designed to maximise financial return for the type of products being produced.

Finisher Feeds

- Finisher feeds should be given from 25 days until processing.
- Birds slaughtered later than 42-43 days may need a second Finisher feed specification from 42 days onwards.

Lighting Programme

- Day 0-4 Dark hours 3 X 1
- Day 5 Dark hours 4
- Day 6 4
- Day 7-21 6
- Day 22-28 4
- Day 29-sale 1

Partial House

- Aim to reduce heating costs.
 - Up to 7 days - 1/2 of the house
 - 8 to 10 days - 1/2 to 3/4 of the house
 - 11 to 14 days - 3/4 of the whole house



Withdrawal periods

- Withdrawal periods for drugs will dictate the use of a special Withdrawal Finisher feed.
- A Withdrawal feed should be fed for sufficient time prior to slaughter to eliminate the risk of pharmaceutical product residues in the meat.
- Statutory withdrawal periods for prescribed medicines that are specified in product data sheets must be followed.
- It is not recommended that extreme dietary nutrient reductions be made during the withdrawal period.

Key Points

Broiler Feeding

1. It is recommended to feed the Starter diet for ten days. Decisions on Starter feed formulation should be based on performance and profitability.
2. The Grower feed must ensure that nutrient intake supports the dynamic growth during this period.
3. Broiler Finisher feeds should be formulated to maximise financial return and be adjusted for bird age, but extreme nutrient withdrawal is not recommended.

Diet specifications for broilers up to 2 kg

	Starter	Grower	Finisher 1	Finisher 2
Age in days	0-10	11-22	23-30	>31
ME/kg	3000	3050	3150	3200
CP %	22.5-23	20	19	17.5

Feed Form and Physical Feed Quality

- Broiler growth and efficiency of feed use will generally be better if the Starter feed is crumbs or mini-pellets, and the Grower and Finisher feeds are pellets .
- Depending on pellet size fed, it may be necessary to provide the first delivery of Grower feed as crumbs or mini-pellets.

Feed Form and Physical Feed Quality

- Poor quality crumbs and pellets will reduce feed intake and performance.
- On the farm, attention should be given to reduce breakage of crumbs and pellets during handling.

Form of Feed by Age in Broilers

Age Feed Form	Size
0-10 days	1.8 – 2 mm ø sieved crumbs or mini-pellets
11-20 days	2.8-3 mm ø pellets
21-30 days	3.0- 3.5 mm ø pellets
25 days to processing	3.5 mm ø pellets

Form of Feed by Age in Broilers

- Good quality crumbled and pelleted feeds are preferred to mash feed
- however, if feeding a mash feed, feed particles should be sufficiently coarse and uniform in size
- Mash feeds may benefit from the inclusion of some fat in the formulation to reduce dustiness and improve homogeneity of feed components.

Key Points

1. Poor physical feed quality will have a negative impact on broiler performance.
2. Use good quality crumbled and pelleted feeds for optimum performance.
3. When feeding mash, ensure a coarse uniform particle size is achieved.
4. Minimise fine particle (<1 mm) levels to less than 10%.



Whole-Wheat Feeding

- Feeding of compound feed with whole wheat may reduce feed costs per tonne
- However, this must be offset against loss of eviscerated and breast meat yield

Whole-Wheat Feeding

- The level of inclusion of whole wheat must be precisely accounted for in formulating the compound or balancer feed
- If an appropriate adjustment is not made, live bird performance will be compromised, as the diet will now have an inappropriate nutrient balance.

Safe Inclusion of Whole Wheat in Broiler Rations

Ration	Inclusion Rate
Starter	Zero
Grower	Gradual increase to 10%+
Finisher	Gradual increase to 15%+

Wheat Inclusion

- Whole wheat must be removed from the feed two days before catching to avoid problems of contamination during evisceration at the processing plant.



Feed and Heat Stress



Feed and Heat Stress

- Correct nutrient levels and balance, together with the use of feed ingredients with higher levels of digestibility, will help to minimise the effect of heat stress.



Feed and Heat Stress

- Providing optimum crumb and pellet textures will minimise the energy expended to eat the feed and thereby reduce the heat generated during feeding
- Optimum feed form will also improve feed acceptability and help compensatory feed intake to occur during cooler periods.

Feed and Heat Stress

- Providing an increase in feed energy from feed fats (rather than carbohydrates) during hot weather has been shown to be beneficial in some situations due to reducing the heat increment of the diet.
- Readily available cool, low-salt water is the most critical nutrient during heat stress
- Strategic use of vitamins and electrolytes, either through the feed or water, will help the bird deal with environmental stresses.

Key Points

1. Providing the correct nutrient levels and using more digestible ingredients will help to minimise the effects of heat stress.
2. Optimal feed form will minimise heat stress and allow compensatory feed intake to occur
3. Provide cool, low-salt water. Ensure feed is available to the birds during the coolest part of the day

Thank you for your attention!!



Source: Ross Manual