Laying hen feeding guide

Published on 9 June 2017 Higher laying rates, better persistence and longer production cycles are observed over time (Fig. 1). This trend will continue as breeding companies, egg producers, and animal feed companies collaborate more and more to maximize animal performance, feed efficiency and animal welfare. Genetic advances and longer production cycles have consequences for nutrition. When layers are kept in production for 100 weeks instead of 60 or 80 weeks, egg output and export of related nutrients is much higher. The mass of the egg, and therefore also the output of the yolk, increases enormously, as is the case with the egg shell and calcium in it. High-performance birds need a perfect feeding strategy to maintain the desired level of performance. This article looks at the factors to take into account when designing the perfect feeding strategy. In addition, make sure you are familiar with the genetic potential of your birds and the specific nutritional requirements of their breed. The actual intake of nutrients in gram nutrients per chicken per day is the result of the composition of the diet (feed formulation) and the level of feed intake (feed consumption). The actual intake of nutrients should correspond to the nutritional requirements in all stages of development of the bird: growth, growth combined with (initial) production, only production. In addition to growth and/or production, nutrients are always needed for maintenance. Nutritional needs are also affected by the level of egg mass production, which is the result of egg weight and precipitation. In the period of 18-35 weeks of age, birds are still growing and therefore need nutrients and energy for growth, in addition to their standard needs for maintenance. Since birds also begin to be produced in this period, nutrients and energy are also necessary for egg production. Unfortunately in the period of 18-25 weeks, feed intake capacity is still limited and may not cover the nutritional and energy needs that result in deficiencies. Another factor that can cause deficiency is when daily feed intake is low due to high environmental temperature. In this situation additional midnight feeding can be offered to birds to increase the daily feed intake. If the daily feed intake is low, also check the level of water intake. Restrictions on water or water intake are too strong with flavor deviations because pollution can result in lower feed intake, which can result in lower egg weight and eventually lower egg mass being produced. The situation of low feed intake resulting in a lack of nutrients and energy at the beginning of laying eggs, can have an impact on the entire production cycle with, for example, lower production in terms of lower egg laying rates and weight, increased mortality, and decreased quality of egg shells. Therefore always check the requirements with the actual level of feed intake, because: nutrient intake = dietary composition x feed intake. Requirements for amino acids can be expressed in the profile of ideal amino acids (defined as a percentage of lysine) or in mg amino acids per per eggs produced. In fact, three different stages and the corresponding ideal amino acid profile can be distinguished: growth, growth combined with (initial) egg production, and egg production. Although all essential amino acids can be a limiting factor, lysine is the most commonly observed limiting factor for growth because the development of muscle mass is at a high level, while it is methionine during egg production. At the beginning of egg production, feed intake capacity is still limited and may not include nutritional requirements for amino acids resulting in deficiencies. Therefore the levels of amino acids should be adjusted to the actual feed consumption observed and the mass of eggs produced. Then in the production cycle, the requirement for for example digestible methionine reduces by about 12% from 60 weeks to 90 weeks of age. However, birds in the same flock will differ in their production performance levels and consequently show variations in their need for methionine. This stretches that approach later in the production cycle, after the growth is complete (about 30-35 weeks), amino acid levels should be determined based on the daily egg mass produced (deposition and egg weight) and not at the age of the bird. Another important fact to take into account is that the 'average laying rate in percentage' does not match the performance of the individual and it could be that two-thirds of the flock performs above this average. If the average laying rate is used to estimate the daily needs of amino acids, this can lead to underestimation of the actual requirements of most birds. Due to differences between birds in performance, nutritional requirements should take into account the uniformity of the flock by feeding and managing the weakest birds while allowing the best birds to produce their genetic potential. This can be achieved by respecting the safety margin for the inclusion of digestible amino acids in situations where uniformity is low. If the levels of digestible amino acids are set above theoretical concentrations (+5%) excellent results can be achieved. To conclude, give enough amino acids (taking into account the daily egg mass and actual feed intake), keep in mind the uniformity of the herd and provide amino acids above the theoretical requirements for excellent results. Energy requirements are determined by maintenance (weight, plumage, temperature and activity settings), egg production, and growth. As mentioned earlier, the three stages of development of birds during lying that affect the requirements are: growth, growth and production, only production. Energy consumption is determined by the concentration of energy feed, feed presentation, and distribution / management of feed. There is a relationship between feed consumption and metabolic energy intake because layers adjust their feed consumption according to the concentration of energy in However, this regulatory mechanism is not perfect and the concentration of energy (in Kcal/kg) leads to higher energy intake (in Kcal/day/animal) although daily feed consumption (in grams per day) is reduced due to increased concentrations of metabolizable energy. Like other nutrients, energy intake is challenging in the layman's initial period where feed intake capacity is still low and requirements are high due to growth and early production. Therefore, at the beginning of lay the priority is to reach the adult weight to gain good persistence in lying down during the cycle. To achieve this, high-energy metabolic feed is required, higher than the diet provided later in the cycle. If the bird is still struggling with gaining enough weight at the beginning of the layman, the energy content can be increased by an additional 50-100Kcal / kg. After reaching adult weight and egg weight has reached the desired level, energy levels can be lowered towards the end of the cycle. The goal in today's bird feeding program is to avoid birds getting fat. Prevention of obese birds by lowering energy levels and controlling energy intake can be achieved by increasing the fiber content in the diet towards, for example, 7%. When insoluble fibers, such as wheat hull, are used mainly in coarse form, increased liveability can be expected. For good energy management, monitoring of feed intake and body weight is often very important. Thus, control the energy balance of birds by respecting the amount of energy needed for growth, performance and maintenance. In addition, lower energy levels towards the end of the cycle and control feed consumption by adding insoluble fiber (such as wheat hull) to the diet in order to succeed in a longer production cycle of 90-100 weeks. The liver is considered a key organ for birds in a long production cycle when birds produce eggs for 90-100 weeks. The reason for this is the influence of the liver and its health and serves on the weight of the egg, the rate of laying eggs, persistence in laying eggs, the quality of the egg shell, death and conversion of feed. The older birds become the more mass of eggs they have yielded and the more challenging it is for the liver to stay healthy. The main challenge is the omnipresent risk of developing fatty liver, since factors tend to often exist in the current state of commercial egg production. The source in which energy is given to birds has an effect on the liver. From a metabolic point of view the formation of lipoproteins with lipids (fats) is efficient and easy for the liver, while energy from proteins and carbohydrates/starch is more taxed for the liver. Therefore a diet rich in fats helps keep the liver healthy. Another very common predisposition factor seen in situations with production problems as a result of fatty liver is temperature high energy intake, corn diet, fat birds, and cage housing system. Fatty livers do not work and birds will drop their production performance. DeKalb White birds during production in the aviary In addition, liver health is related to the quality of egg shells through the metabolism of vitamin D. The quality of the egg shell deteriorates when the liver is less efficient in activating vitamin D3 necessary for the transport of calcium to the ovum glands. Nutritional factors capable of stimulating liver recovery and also able to prevent problems with fatty liver are a high-fat diet instead of high in carbohydrates and the inclusion of choline, vitamin B12, folic acid, and vitamin E. Choline is very effective and is present in a variety of raw materials, such as in soy foods and rapeseed foods, although the availability of choline in rapeseed foods is low. Wheat and corn also contain choline and higher concentrations seen in wheat compared to corn. Although choline is present in a variety of raw materials, additional choline is always beneficial for the birds in production and therefore should be included in the diet layer. Several factors determine the amount of additional choline required. The main factors are the selection of raw materials, the length of production period, and the desired safety margin as part of risk management. In an increased situation the incidence begins to complete the choline at the age of 18 weeks. It is recommended to add choline levels in feed layers is 500 1000ppm, with 250ppm as the absolute minimum. Maintain chicken capital throughout the longer production cycle by focusing on liver health and preventing the development of fatty liver by providing energy from fats instead of energy from carbohydrates and by supplementation with sufficient amounts of choline. The period of maintenance is the most important factor for preparing the bird for the laying period. The development of the skeleton is completed for 95% about 11 weeks and when birds come to the availability of calcium production again is very important. Early herds should receive a pre-layer diet to meet calcium requirements, and a good and safe strategy is to start with a pre-layer diet in the two weeks before the first egg is expected and hold up to 2% of the lay at the latest. At the beginning of the export of lay calcium to eggs is 1.9g. When birds receive an average developer diet, only 0.9g of calcium is offered through feed. This situation will result in desalification and transport of calcium from the bone towards the egg shell. To obtain a strong medullary bone, declassification must be prevented. During egg production there is no major difference in mineral needs between young and old birds. But calcium sources become more important towards the end of the cycle. The source of calcium should be coarse (2-4mm) and slowly dissolve to prolong the period of calcium absorption from feed in the intestinal tract and thus lower the level of delification of the bones, which will also improve the quality of the egg shell. Therefore, make sure the calcium supply is at the correct level especially at the end of the maintenance period (pre-layer diet) to minimize decalcification to reach strong medullary bones and provide coarse calcium and slowly dissolve during egg production. There is a strong relationship between the applied feeding techniques and the dynamics of minerals. Although calcium requirements will not differ dramatically for birds in longer production cycles, adaptation in management by adjusting feeding techniques has proven beneficial. To maintain good quality egg shells, feeding techniques seem to be more important than actual nutrition in birds at the end of a longer production cycle. The purpose of changing the feeding technique is to provide calcium from the feed at the time of the ratification of the egg shell. In this way the use of calcium from feed is maximized, while minimizing the mobilization of calcium from the bones. Details of the recommended feeding techniques are as follows: feed the morning (40% of the amount of feed), make sure the feeder is empty in the middle of the day (for 1.0-1.5 hours to increase the feed consumed at the end of the day), do an afternoon meal for 6 or 7 hours before the light moment (60% of the amount of feed) , if possible include midnight feed (1 -2 hours of light starting from 3.5 hours after the deadly moment of light). If possible in daily surgery, apply the concept of split feeding where two different diets are provided in a day. Separate feeding allows birds to meet their specific requirements, which results in higher absorption of energy and amino acids in the morning, while in the afternoon calcium absorption is higher. This supply of nutrients corresponds to the needs of better egg formation and generally results in an increase in the quality of the egg shell. In a long production cycle when nutrients are available it is essential to maintain performance and therefore provide calcium at the time of curling. Calcification.