Targeted early nutrition takes off in pullet rearing

In the broiler industry, the use of a pre-starter in the first days after hatch has become a growing practice. But for layers, this is quite a new concept. Backed by solid science, pre-starters are now also making their way into pullet rearing.

By Emmy Koeleman, freelance journalist



A nutrient deficiency from the start can result in long-lasting, irreversible deficits in broilers and layers.

The key to a successful start in the life of a chicken is in the feed. The diet should meet all the nutritional requirements right from the start, and ingredients should be easily digestible.

This is because right after hatch, massive functional growth (of organs, bones, and muscle) and development of the intestinal tract take place. If the diet does not meet these high nutritional needs of the young bird, it can have serious negative effects for the rest of the production period.

RISK OF UNDERFEEDING

In the broiler industry, the use of a pre-starter in the first days after hatch has become a growing practice, as it clearly shows the benefits of healthy development and getting the birds market-ready in a certain number of weeks.

Pre-starter diets are applied before the chicks start with their 'starter' diet, followed by the 'grower' diet. "However, in the layer industry, the use of a pre-starter is not as common yet.

This is not because layer farmers do not see the benefits; it takes time to change feeding practices and protocols in this sector. In addition, layer integrations that produce their diets do not always have the possibility or specific formulation and processing support to make a pre-starter feed in their feed mill.

This means that often only a starter diet, which is not tailored to the needs of pullets at this young age, is given.

The risks of doing this are underfeeding and creating an irreversible negative effect," Roland Koedijk, head of poultry nutrition at Trouw Nutrition, told International Poultry Production.

NEW INSIGHTS FOR PULLETS

While in broilers, the first couple of days are crucial, in layers, we are talking more about the first weeks, as the rearing period is much longer.

"Layers stay on the farm for 60 weeks or beyond. The rearing phase of pullets (up to 18 weeks of age) is crucial to producing robust, healthy, and productive layers from week 19 onwards (when the laying period starts).

The first two weeks after hatch are particularly important, and this is the period where a pre-starter diet can make all the difference, as shown by the research we have done over the last few years. We already knew that faster bodyweight growth from an early age has a positive effect on the start of laying, the average egg size, and the persistence of the peak of production. But in our research, we also found that feeding a pre-starter diet increases the size of the birds and hence their bone size.

The medullary bone tissue (including the tibia bone, leg bone, and ulna bone, wing) is of particular importance for layers. This bone tissue serves as a calcium reservoir, needed for the formation of eggshells, and is ideally the first source that is mobilised when more calcium is needed.

Having a maximum quantity of medullary bone reservoir at the onset of lay is therefore key," Koedijk added.

KINETICS AND MICRO PELLETS

Looking at the size of pullets is a new way of thinking, but it is getting more on the industry's and genetic companies' radar. In addition, new insights around the kinetics (speed) of protein and fibre digestion are increasingly being applied to formulate more targeted diets for young animal diets.

"Kinetics is increasingly applied in diet formulation nowadays and helps to determine the best feed ingredients for each production phase and type of diet.

Slow protein sources cannot be handled by young animals and can flare up pathogen growth in the gastrointestinal tract.

If we use protein ingredients that are 'faster' in digestion, the pullet can utilise the protein faster and better. For fibre-rich nutrients, we must find the balance in structure levels to both optimise gizzard and intestinal/gut development," Koedijk continued.

Another new insight gained over the last years is the use of pellets for pullets. In the broiler industry, the use of pellets throughout the whole production period is quite common in most regions. In the layer industry, crumble and mash feed are mostly used.

But using small pellets can increase feed intake levels in young birds. Using a pellet for young layers also has practical benefits, as it reduces dust in the poultry house and minimises feed losses compared to mash or crumble.

PERFORMANCE DRIVES PRODUCTIVITY

The dramatic physical changes that pullets undergo during the 14 days post-hatch can influence the entire laying period. Feeding a diet tailored to developing pullets' needs in the first two weeks can position birds to achieve their ideal size in terms of body weight as well as height.

Trials and validation studies with Trouw Nutrition's pre-starter diet for pullets



demonstrated a range of improvements (see box), including an increase in pullet body weights at weeks two and five compared with birds fed mash or crumble feeds in the same period. It also led to a decrease in mortality levels, an increase in bone size at 5 weeks, and an increase of 3 eggs per bird during the laying period between 18 and 25 weeks.

"With the increased focus on longer production cycles in layers (layer longevity), we are convinced that our new concept helps to achieve target body weight, early onset of lay, maintain high performance, and improve laying persistency from the onset of lay till the last egg produced.

This is how we reach the full genetic potential of layers under all kinds of farm conditions, right from the beginning," Koedijk concluded. ■

Trouw Nutrition's poultry R&D team and Trouw Nutrition Poultry Research Centre (PRC), based in Spain, play a pivotal role in the development of new products, including pre-starter diets.

Clara Alfonso Carrillo, poultry nutritionist at PRC and key researcher, explains: "Our latest innovation is a pre-starter diet for pullets, which combines the latest insights in functional proteins, nutritional requirements, additives, the physical form of the feed, and the digestibility of certain feed ingredients.

Trials showed great results in terms of growth, robustness, and body uniformity. We also noticed that the pullets had a better developed gastrointestinal tract (including optimal development of the proventriculus-gizzard) and an improved nutrient digestibility capability during the first five weeks of age."