



Like an athlete, commercial laying hens need carefully balanced nutrition to achieve production targets and maintain peak performance

THE FALSE ECONOMY OF LOWER QUALITY POULTRY FEED

With fluctuations in egg prices and volatile raw material costs, feed costs are a potential target for savings. However, cheaper feed is a false economy, which can have a negative effect on efficiency and performance of a flock.

If diets are not nutritionally adequate, then birds may eat more to compensate, and poor quality raw materials can also upset the birds, adversely affecting bird health and egg production. Hens nutritional needs can change during the laying period but can be sensitive to dietary variations. As birds are kept being kept for longer, maintaining egg quality and immunity throughout this longer life is particularly important. Quality feed is an

investment, and shortcuts will impair performance over the lifetime of the flock.

A high-performance athlete

A commercial laying hen is a high-performance animal, and like an athlete, she needs carefully balanced nutrition to achieve production targets and maintain peak performance. At different stages of her productive life she has specific needs across a range of proteins and

amino acids, fats, carbohydrates, vitamins and minerals. The quality of raw materials and focus of formulations to meet the hen's changing requirements during their life, are critically important to maintaining her health and productivity.

"Lesser quality raw materials may be available at certain times of the year by non-poultry feed specialists when demand in their own sector drops," explained James Wilson, a field specialist for Humphrey Feeds and Pullets, looking after poultry farmers across the Welsh borders and surrounding areas. "These diets tend not to be formulated with the same level of knowledge of nutritional levels nor with the specific needs of poultry in mind."

A false economy

Lesser quality feeds, which are not so carefully formulated to the birds' specific requirements, can result in dietary imbalances or simply just higher feed consumption. A flock that consumes greater quantities of lesser quality feed over its life, will cost the producer more in the long term - to achieve egg weight and production targets. "We work on the basis that an average bird will consume about 50kg of feed over its lifetime, although with our diets and pullets they often eat less," James described. "For a flock of 16,000 birds this equates to 800 tonnes of feed for the entire flock, which at a price of £230 per tonne adds up to £184,000. If each bird eats just 5g extra per day in order to sustain its energy and nutrition requirements, this equates to an extra 2kg per bird over her lifetime, which for the flock as a whole adds £7,360 to the feed bill.

By understanding the needs of the laying hen over the cycle and formulating diets accordingly, egg quality, feed conversion and number of eggs laid per hens housed can be targeted. Further supporting the increased need for productivity over a longer cycle helps to offset eroding margins due to feed and other cost increases.

Egg size and quality

Using feed containing less suitable ingredients can also have a negative impact on egg quality and production. Insufficient nutrients in the feed will affect the birds' productivity, egg size and shell quality which is key to making a profit over a longer laying cycle. As flocks age eggs get larger and shells tend to get thinner. This is because shell thickness does not increase along with egg weight. Therefore, the aim should be to cap egg size, to support eggshell quality. As hens age they do not absorb and mobilise minerals, particularly calcium, as efficiently. This is when source availability and presentation of minerals are particularly important.

Consistent feed quality

Consistency and quality of diets are important for efficient feed consumption and performance. Regular analysis of raw materials, is therefore essential. Raw materials can vary in nutrient content depending on a number of factors, including origin, growing conditions and grain variety. Humphrey Feeds and Pullets, formulates and manufactures more than 400 focussed layer feeds in order to match the individual requirements of a flock.

"We use a narrow selection of raw materials which are consistent in quality and nutritionally wholesome," said Martin Humphrey, Sales Director of the Hampshire-based company. "Incoming materials are sampled and inspected prior to acceptance and feeds are automatically sampled and assessed before being cleared for dispatch." This ensures that every delivery leaves the mill with a consistent nutrient and grist profile. "Our internal procedures and audit programme enable us to ensure continual assessment and ingredient traceability in our manufacturing process."

Assurance for producers

Checking for the presence of bacteria, heavy metals, mycotoxins and other undesirable

substances prevents contamination of both the feed and the mill itself. "We have a 'Total Clean Policy' at our mill because the health and performance of livestock, along with our customers' businesses, are paramount," said Martin. "We submit around 50 samples of raw materials for salmonella testing every month, which is many times higher than the legal minimum because we want to be assured of the cleanliness of our feed."

There are other factors in feed production for which producers may also want assurance. For example, organic egg producers need to buy feed from a manufacturer, who has organic accreditation.

Getting the formulation right

Some free range diet offerings are simple with just three or four diets, making big step changes with each transition. However, if more rations are used, then each step will provide smaller, targeted nutritional changes. The aim with this strategy is to keep feed intake up and egg production on target. "Chickens can be fussy eaters," according to James Wilson, "particularly when they are coming into lay, and increasing their intake, and the birds themselves are our best critics. My customers say their hens notice whenever the feed is different and that's why at Humphrey Feeds and Pullets we have over 400 layer diets to slowly introduce any changes without affecting the birds' feed intake or performance."

Once the hens are laying consistently and post peak, nutrient levels can be adjusted, and more in-soluble fibre included. When she reaches maturity, her body weight needs to be controlled and a more stable plane of nutrition can be used. The aim is to feed enough for body maintenance and egg development, so that she does not become overweight, or produce excessive eggs. From the middle of lay the priorities adjust to control egg size and ensure consistent

eggshell quality. Towards the end of lay, the nutrient density of the diet is further adjusted, and calcium levels are increased further in order to minimise seconds. Hens need to be nutritionally supported throughout their lives, to allow for a longer productive life.

Why do we feed mash to laying birds?

Most laying birds are fed mash as it is a cost effective form that encourages the birds to eat for longer. Mash also helps to develop the the gizzard and support digestion. The grist/particle size of the mash is important: too small and the birds cannot pick it up and lose interest, too large and they may be picked out, leading to an un-balanced intake. The care that goes into milling the feed is important in order to make the feed more desirable to birds. James explained that, "Humphrey Feeds and Pullets custom mills all its feeds on site, maintaining grist at a size that makes it attractive for hens. This results in happier and calmer birds, who are less stressed, retain feather cover, with less feed wasted."

Grist quality and consistency can be just as important as formulation, with limits imposed on certain ingredients for both nutritional and functional reasons. For example, too much oil in a diet would lead to a sticky mess but not enough and the mash will be dusty. Certain raw materials will be excluded from diets for young birds, whose digestive system are not fully matured. Or an upper limit may be imposed to prevent a reduction in bird performance due to anti-nutritional factors.

Additives

Additives are often the first thing to be removed when looking to cheapen a diet. The reason they were added to the ration in the first place should be carefully considered. Is there a particular challenge hens face at a certain age or time of year – and is that still the case?

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There are many additives whose mode of action is to improve performance by supporting gut health: probiotics, prebiotics, fibre, plant extracts, essential oils etc. Enzymes also work to reduce the negative effects of anti-nutritional factors and improve digestibility of certain raw materials used in the diet. By so doing more nutrients are available for egg production – optimising persistency and quality.

Fibre level and type is also an important consideration, particularly in order to help prevent vices in laying hens. It has been shown that birds have an innate requirement for roughage and will seek out fibrous material to satisfy this need. Therefore, more attention needs to be paid to the birds' fibre requirements in order to improve layer health, welfare, performance and their behaviour. Dietary specification, raw materials used, additive inclusion and supplementary fibre sources, should all be carefully considered.

Why you should buy quality feed

Finding the balance between the cost of inputs and productivity is crucial for any

business' success. Feed is the greatest cost in free range egg production, so whilst price increases can eat into profits, cutting corners can be a false economy. A feed that contains higher quality ingredients, with consistent and balanced formulation, and is milled to an optimal feed form, will result in a healthier and happier flock. This is the key to long-term feed efficiency and therefore profitability.

Having an understanding of what is going on outside the house as well as inside is particularly important in the case of free-range production. There is not a *one diet fits all* approach, and a diet that is flexible to the changing needs of individual flocks is essential. The age-old adage *you get out what you put in* definitely applies to laying hens. Producers profits depend on the number and quality of saleable eggs they produce – an investment in quality feed is an investment in lifetime flock performance.