What is really meant by poultry feed quality?

Before we consider what is meant by poultry feed quality let us consider what we actually want our feed to do. First and foremost we want to convert it into eggs or meat and obviously cost is a key issue here.

In this context feeds are formulated to either minimise feed costs per tonne or to maximise bird productivity and it is important to realise that these two are not synonymous. To achieve the latter usually requires a more expensive feed.

More cost effective

However, when we consider it in terms of feed cost per dozen eggs or per kilogram of feed this more expensive option is often cost effective.

Why should this be so? One key reason is in the degree of match between the amino acid profile in the feed and that which is required to produce meat or eggs.

The better this match is the lower will be the FCR and the lower will be the quantity of feed required. If the feed quantity required reduces at a rate faster than the unit cost price of the feed rises, then our meat or egg cost of production will reduce.

Greater spread of fixed costs

Even if this cost remains static or even rises slightly we can be much better off because greater productivity can give us more eggs or meat over which we can spread our fixed costs. Thus, one key aspect to the quality of the feed is the quality of the protein.

This can be in the ingredients or in this plus added synthetic amino acids. Ironically, some of the best proteins come from animals and fish and yet many customers do not want us to use these in our feeds.

If we then consider in more detail what we want our feed to do at different ages then this will influence our perception of feed quality. In young birds emphasis is going to be placed on skeletal development and in table egg layers emphasis could be placed on shell quantity and quality. In this scenario we are going to be looking closely at calcium, phosphorus and vitamin D in our definition of quality.

Importance of bird health

Bird health is an important prerequisite to productivity and so our definition of quality is going to include those special additions, such as vitamins, minerals and the like, in terms of their quality, quantities and uniformity of distribution in the feed.

Good examples of vitamins and minerals that are important in this context are vitamins E, C and B and minerals such as selenium and zinc. In quality feeds these are best added in organic rather than pure forms.

In some feeds, for example broiler feeds, specific products are added to control certain diseases and a good example would be the anticoccidials. Thus, our definition of quality is going to encompass these substances in qualitative and quantitative terms.

Particle size critical

The format and particle size of the feed is going to influence daily uptake and, hence, bird performance. For example, a better feed intake is often achieved by using a pelleted feed.

However, when we use a pelleted feed what percentage of the feed contains pellets of the correct size and what proportion of the feed is wasted as a dust?

How often do you actually check your feed on receipt for this? Remember dust can settle on a journey and the type of lorry and how the feed is extracted from it can dictate whether a disproportionally high amount of the dust is in the first or last feed to be taken off the lorry.

Importance of storage

Storage conditions can greatly influence feed quality. For example, if feed is produced with too high a water content then it can 'go off' quicker.

Alternatively, if it becomes wet in storage the same can happen. This may be as a consequence of chemical changes in the feed (and here fat quality can also be an issue) or as a consequence of mould growth and the generation of mycotoxins.

Our definition of feed quality may well also include its salmonella status and, to some extent, this will be governed by your customers on whether or not salmonella is an issue for them.

For some, freedom from Salmonella enteritidis and S. typhimurium will be enough; for others an absence of all salmonella will be required. In some situations the levels of enterobacteria are important.

These bacteria are closely related to salmonella but are present in all animal faeces unlike salmonella, which is only present intermittently.

Use of enterobacteria counts

Enterobacteria are also present at much higher levels and so present a much more sensitive indicator of the probability of salmonella being present. For this reason enterobacterial levels are now coming into some people's definition of feed quality.

So if we consider quality in general terms, and in this article we have only touched on some facets of this vast subject, we need to be able to judge the quality of the feed we receive.

Yes, some of these judgements can be made by a visible assessment, but much of it can only be done through expensive laboratory tests.

This being the case, we must place trust in our supplier(s) and retain representative samples for spot testing or for retrospective analysis should something go wrong. ■