

Rearing management's key role in capturing potential nutritional efficiency

by Pete Sbanotto, product manager, Cobb-Vantress.

The need to produce meat protein as efficiently as possible has never been greater. There is an increasing demand for coarse grains – for fuel as well as food – limited by finite arable land and climate challenges.

As one of the most efficient converters of grain into meat protein, today's chicken is the result of many generations of genetic selection for improved feed conversion.

Selecting the fastest growing and most efficient converting birds from each generation reduces the maintenance requirements of broilers.

In conversations about poultry, several 'buzzwords' often keep recurring – uniformity, feed density, consistent performance, nutritional strategies, cost and value are all issues facing producers. Adopting the best combination of growing procedures will help companies survive the twin threats from market downturn and near-record feed prices.

Probably the single most important item is the 'value' that any decision adds to the company's bottom line. Escalating coarse grain prices are decreasing profit margins and forcing companies to seek ways of optimising performance. And since feed costs amount to the majority of the cost of growing a pound or kilo of live broilers (Fig. 1),

Fig. 1. US broiler production cost structure, July 2011 (EMI Analytics).

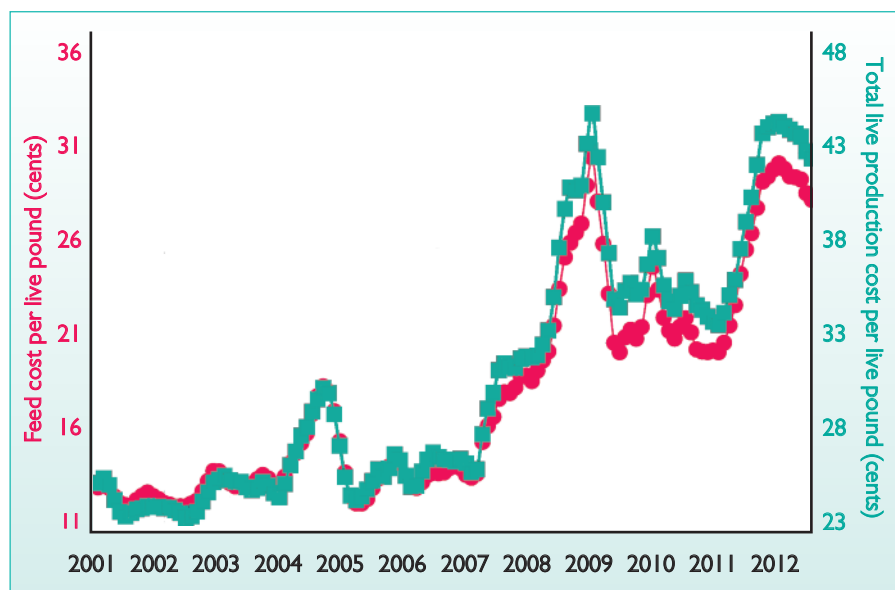
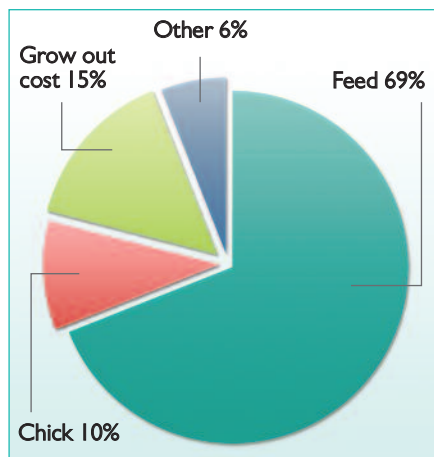


Fig. 2. The cost of producing poultry closely follows the price of grain, September 2011 forward forecast (EMI Analytics).

nutritional management becomes the key component.

The volatile costs of broiler rations are due to many factors including weather challenges, feed ingredient quality, the use of corn as an ethanol source and the growing demand for more grain to feed the expanding world population. Because most other costs are fairly stable, the total cost of producing poultry closely follows the price of grain (Fig. 2).

Genetic progress

As genetic progress continues to improve broiler and breeder performance, bird management needs to be altered. Value comes not from just reducing input costs, but from using inputs which will enhance performance and return more than the added cost.

For example, the recent trend has been towards bigger and heavier broilers at processing because the cost of growing that larger bird was offset by the added value of the meat produced.

Today, however, integrators have reduced slaughter weights as grain prices rise and poultry meat prices go down. The increased

amount of meat in an oversupplied market will simply not pay for the extra feed to attain that meat.

Much has been written recently about ration densities, costs per ton of feedstuffs and best value of broiler rations. But none of the planning and research by nutritionists and researchers can make a difference unless this knowledge is applied through good management practices on the farms.

Among these, what happens in the first 24 hours of brooding can have a large impact on flock performance. The proper set-up to supply readily accessible feed and water reduces stress and helps chicks begin growing properly.

Feed availability can be assured by using at least one feeder lid per 80-100 chicks or by using brooder paper covering 60% of the starting chamber. Feed can be placed directly on the paper, making it easy for the chicks to begin eating. Water should be near and easily reachable, using chick founts or water jugs for additional water sources.

There are two 'chick checks' to determine if the starting procedure is correct. The first is made 4-6 hours after placement – checking the temperature of the chick's feet

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against your neck or cheek. If the feet are cold, the internal temperature of the chicks is also reduced, resulting in poor early feed intake and growth, leading to reduced uniformity. The second check is done 8-24 hours after placement. By palpating the crops of several chicks from different areas of the house, one can determine if the birds have found feed and water. At this time, 95% of crops should feel soft and pliable.

Hard crops indicate that the chicks have found feed but not water. Swollen and distended crops show that the chicks have found water but not feed. Of course, empty crops mean that the birds have not found either. If the crops do not feel right, then

the starting set-up must be immediately evaluated.

In broilers and pullets, the first week is the time that makes the most difference in overall flock performance. For broilers, after one week the birds are robust enough to eat and drink to fulfill their needs fairly easily, as long as they are comfortable and can adequately reach the feed and water.

Broilers

'Value' in broilers is measured in two main areas – feed efficiency and meat yield. Feed efficiency is related to the amount of feed needed per pound of liveweight produced

and the cost of the feed ration. Superior lines of broilers will not only achieve good feed conversion, but also will gain efficiently on a less dense (protein and energy) ration which reduces the feed input cost.

It is not unusual to attain feed formulation savings of \$10.00/US ton (€10/tonne) for the same broiler performance when comparing breeds. With some breeds, reducing the ration density somewhat can be done with no detrimental effects on conversion, which could produce an annual saving over \$2 million (US) for an operation processing one million birds per week.

In an article by Dr Chet Wiernusz (International Poultry Production – October 2008), it was noted that pelleting poultry feeds has been long recognised as a method to enhance bird performance.

Pelleting is known to increase bodyweight, reduce feed wastage and improve feed conversion. Its exact mode of action, however, has been speculative.

Work reported by Dr Robert Teeter at Oklahoma State University, USA, noted that broilers fed pellets spent less time eating and more time resting than those fed mash. Consequently, the more pellets a bird consumes, the shorter time is spent feeding. (Fig. 3).

Broilers respond to pelleted feed by spending less time to eat the same amount of feed. Hence, more time is spent resting, which decreases energy expenditure and leaves more energy available for weight gain (Fig. 4).

Meat yield is determined by the broiler breed as well as the age of processing. To capture the highest possible yield, management of lighting and ventilation procedures is important. If kept comfortable, birds will express more of their genetic potential.

Breeders

The first week management of parent stock is also critical. Growth during this period determines the skeletal strength the birds will need for proper growth and maintenance. For breeder pullets, supplying the necessary nutrients during the rearing stage is now widely recognised as good value due to the increased number of hatching eggs produced by a well prepared hen.

Producers are also more conscious of reducing the feed ration of post-peak hens, knowing that the added feed adds more to the cost of maintaining that hen at a higher weight throughout the production cycle.

But regardless of the value built in by feed formulation and grain price and quality, the best policy for the parent stock manager is to use management techniques to maximise feed utilisation and maintain flock uniformity.

The following techniques are important to attain the potential from the latest bird genetics and the best feed formulation:

1 Provide enough feeder space to accommodate all the birds eating at the same time. If not enough space exists, the more aggres-

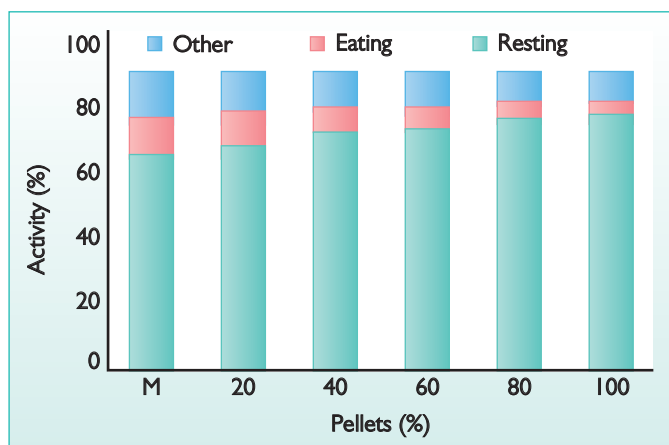


Fig. 3. Pellet quality effects on behaviour.

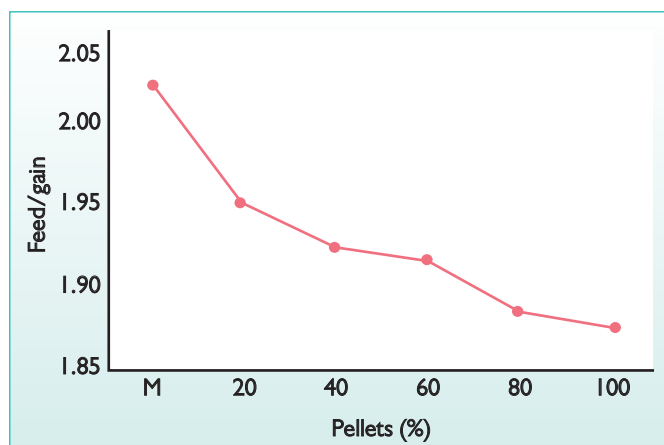


Fig. 4. Pellet quality effects on FCR.

sive birds will push the timid birds away, causing uneven consumption and development.

1Feeding a low density mash slows the consumption time due to higher volume, allowing the less aggressive birds more time to eat their share.

1A delivery system that puts the feed in front of the birds as quickly as possible will help prevent crowding at the point where the feed first appears.

1Filling the feeders in the dark, both in rearing and in production, allows the feed to be in front of the birds when the lights come on. A similar effect can be accomplished by raising the feeders out of reach to fill them, and then lowering them at feeding time.

1The use of auxiliary hoppers strategically placed along the feeder lines can effectively and inexpensively reduce the feeder times. Two minutes to completely fill the track or all pans should be considered the maximum.

The underlying principle in all of these suggestions is to make feed available to all birds as equally as possible. If these techniques are begun at the onset of limit feeding during rearing, it will train the birds not to be aggressive.

This encourages slower consumption, extending the feeding period and allowing more birds more time to consume the required nutrients.

Even a perfectly formulated and manufactured feed will not give the expected results if every bird is not able to eat the ration that it needs.

Conclusion

Today's commercial broiler is the fastest growing and most efficient bird through combined improvements in genetics, nutrition and management.

All aspects of providing broilers and parent stock with good housing, dietary needs and correct management are interactive and can be quantified to help make decisions that will enhance efficiency.

Then attention to fine detail at the farm level is critical in attaining the breed's full potential. ■