The importance of feed quality and moisture management

Feed efficiency and quality go hand in hand to support optimal poultry performance. All birds, layers, broilers, turkeys and breeding stocks require high quality feed to grow, reproduce and produce meat and eggs efficiently.

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Demand for meat and eggs worldwide continues to increase, pushing producers to extract maximum value from their feed and full potential from their birds.

Feed efficiency and quality are not simple matters and can be evaluated through multiple perspectives.

Feed quality encompasses microbial and physical quality, whereas feed efficiency concerns how efficiently the bird extracts energy and nutrients for growth and reproduction.

Microbial contamination and its impact on feed safety and quality

Feed delivered to the farm with low microbial loads and in its desired form is more efficiently consumed and used by birds, which benefits producer profitability. To fully appreciate the impact of microbial contamination on feed and food production, it is essential to explore how microbial loads influence the safety and quality of feed.

Feed microbial loads impact bird performance. Studies have shown that broilers and broiler breeders fed feed with reduced microbial loads demonstrate better health and, as a result, improved performance.

Feed contamination can occur at any point in the field-to-feeder journey and contribute to the microbial load.

High microbial loads containing bacteria, viruses and fungi contribute to bird morbidity and mortality and have been associated with increased prevalence of pathogens such as salmonella and clostridia.

Controlling feed microbial loads and feed-source pathogens is critical to supporting bird performance and food safety.

Few solutions can give producers a high level of control over variable feed microbial loads.

Feed sanitisers, such as Finio, are applied to feed at low inclusion rates, effectively reduce feed microbial loads and provide long-term protection against feed recontamination, enabling producers to effectively reduce feed-source pathogens and variable feed microbial loads from application to the point of consumption.

Research in broiler breeders has demonstrated that reducing feed microbial loads through feed sanitisation leads to decreased hen mortality and improved eggshell hygiene and chick quality ratings.

A trial evaluating the impact of feed sanitisation on broiler breeders performed in collaboration with the University of Georgia

Fig. 1. Microbial load of control vs. sanitised feed.

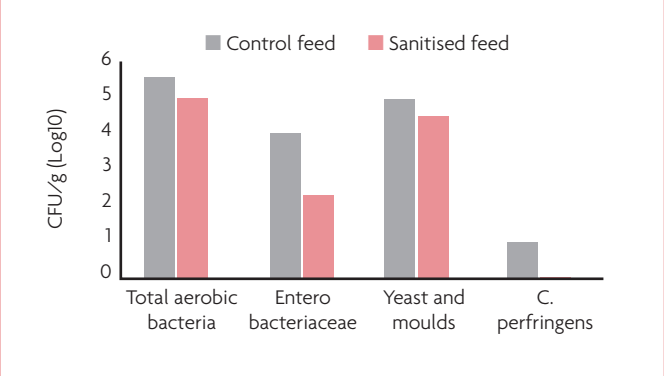
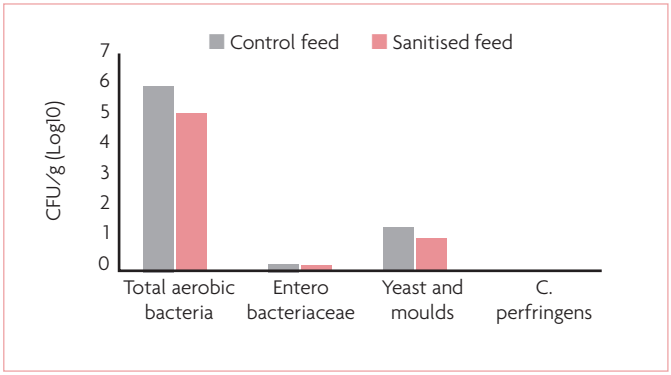


Fig. 2. Microbial load of eggshell surfaces for hens consuming control vs. sanitised diets.



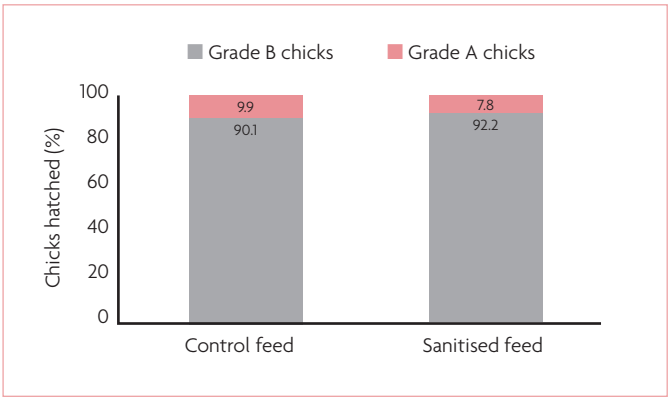


Fig. 3. Chicks from hens fed sanitised feed were more likely to receive 'Grade A' ratings.

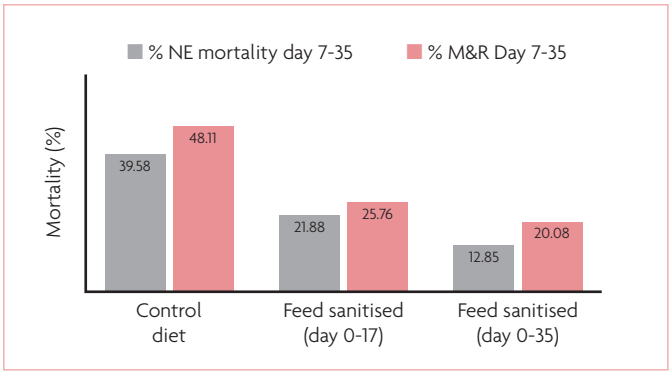


Fig. 4. Birds fed sanitised feed had lower NE-related mortality and removal rates compared to birds fed a control diet following a NE challenge.

found that decreasing feed microbial loads improved broiler breeder hen mortality and positively impacted their offspring. Hens fed a sanitised diet had reduced microbial loads on eggshell surfaces, resulting in a higher percentage of 'Grade A' chicks and lower seven-day mortality.

Further research, this time conducted in partnership with Colorado Quality Research, has revealed that using a feed sanitiser during the first two weeks of a broiler's life can enhance its ability to withstand necrotic enteritis (NE) during a challenge.

Results demonstrate that birds consuming sanitised feed had noticeably lower NE-specific lesion scores, fewer oocyst excretions and better performance metrics than those fed untreated control diets. Moreover, broilers who consumed sanitised feed had fewer NE-related fatalities overall and fewer deaths between day 7 and day 35.

Moisture management and its impact on feed milling efficiency and quality

Moisture management within feed production promotes feed quality and efficiency by optimising pellet quality. Managing moisture with milling efficiency aids, such as Maxi-Mil, can also enable producers to make higher-quality feed.

Published reports show that feed form significantly impacts animal performance. For example, studies have shown that the form of feed given to animals can significantly impact their performance. One study from West Virginia University found that increasing the proportion of pellets in the feed pan from 50% to 70% resulted in a 3-point improvement in feed conversion.

Results such as this suggest that improving pellet quality can reduce the cost of achieving target bird weight. Supporting feed form enables producers to reduce excess feed expense and achieve better conversion, growth and mortality rates.

Producing high-quality feed at least cost is the ultimate objective of efficient feed milling.

Balancing production efficiencies and nutritional value requires strategies and tools that optimise resource use and minimise waste.

An effective milling efficiency aid facilitates better feed form and feed microbial quality by improving moisture absorption during conditioning, enhancing starch gelatinisation, improving pellet quality and extending feed shelf-life.

In addition to improved pellet quality, milling efficiency aids such as Maxi-Mil significantly reduce process loss while improving mill throughput and reducing power consumption during pelleting. In these times of soaring energy costs this benefit must not be underestimated.

Commercial trials with Maxi-Mil have demonstrated its ability to enhance the conditioning process, moisture retention and pellet durability, while also reducing friction-related temperature surges in the pellet press and mill energy consumption.

Feed efficiency and quality are crucial to poultry performance.

Microbial contamination and moisture management impact feed efficiency via digestibility and nutrient utilisation. Reducing microbial loads using a feed sanitiser leads to improved bird health and performance, lower mortality rates, and decreased prevalence of pathogens like salmonella.

Implementing strategies to promote optimal moisture management promotes feed quality and efficiency by optimising feed form and enhancing production efficiency.

Managing the safety and form of animal feed is crucial to ensure its quality, which in turn helps feed and livestock producers achieve their goals of optimum milling efficiency and performance. Producers looking to enhance their feed efficiency and quality can learn more about feed pathogen control and milling efficiency by visiting the website. ■

Fig. 5. Maxi-Mil impact on finished product moisture levels (A); on pellet press energy consumption (B); on pellet quality and fines production (C).