

SALMONELLA SOLUTION

Wyreside discusses emerging technology to prevent Salmonella infection in poultry production

Salmonella is a bacterial infection that can affect humans and animals. In the production of broiler chickens, Salmonella is a significant concern as it can lead to food contamination and foodborne illness. Therefore, proper biosecurity measures should be implemented to prevent Salmonella contamination.

Emerging technologies also represent promising solutions for Salmonella prevention as they aim to control the pathogen in the gut of the birds. By implementing strict biosecurity measures and using effective feed additives, broiler producers can produce safe and high-quality broilers while minimising the risk of Salmonella infection.

A new technology, based on an exclusive formulation and a new double encapsulation approach, called NUQO SAFE, has been developed with double micro-encapsulation. One layer is made of phytogenics and phycogenics (active molecules from plants and algae), and an inner core contains multiple organic acids. The new product enables an accurate and precise controlled release of ingredients in the gut: active compounds are released specifically between the duodenum up to the colon, with a sequenced release of the different ingredients, so that every compound gets released on spot to enhance digestive functions and control gut microflora.

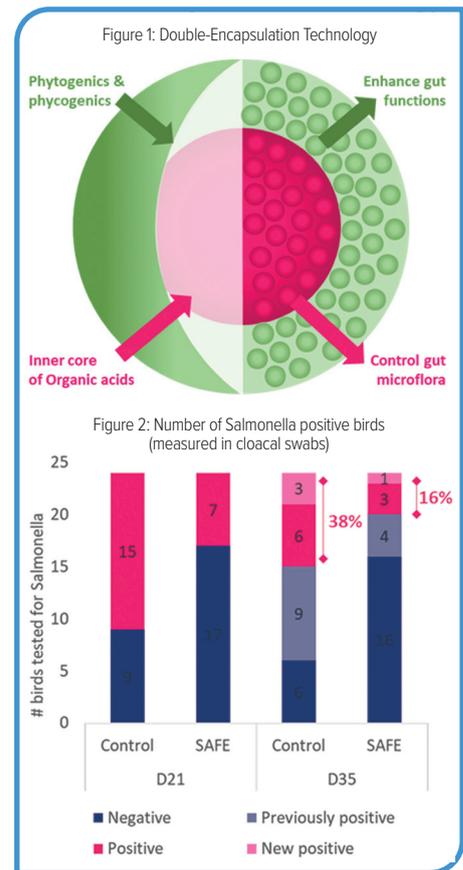
Multiple trials have confirmed a positive

effect. One recent trial was performed at Ridgeway Research in the UK. Ross 308 female day-old chicks were brought into the facility on day 0, weighed and randomly allocated to different treatments. At day 14, all chicks were inoculated with 0.1 ml containing 1×10^8 CFU of *Salmonella enteritidis* suspension. The animals were separated into two groups: One control group (NC) and one group fed with the new product (NQ) at 400 g/t. Prior to infection, no birds were infected with Salmonella. Post-infection, 63% and 38% of the birds in the NC group were infected at day 21 and day 35, respectively. The number of Salmonella-positive samples was reduced by half at both time points for the animals from the NQ group. From the birds that were positive at day 21, one part naturally recovered from the infection. The recovery rate was similar in both treatment groups (~60%). From the birds positive at day 35, some of them were already testing positive at day 21 and the rest became positive between day 21 and day 35 ("new positive").

The NQ group had much less 'new positive' than the NC group, which indicates a stronger support against Salmonella, not only shortly after the infection but during the whole production cycle. Overall, there were fewer birds ever infected with Salmonella for the NQ group (33% total infection rate vs 75%) and, at day 35, there were fewer positive birds in the NQ group than in the control (16% vs 38%).



Dr Stephanie Ladirat



In parallel, scientists measured the immune response via the concentration of Salmonella IgA in blood. Prior to infection, the base level of IgA was around 15ng/ml in both treatment groups. At day 21, the blood IgA concentration increased to about 40 ng/ml in the NC group, showing the immune response of the birds to the Salmonella infection.

Birds from the NQ group had 11% more blood IgA at day 21 than birds from the NC group, which indicates a better immune response.

Finally, scientists measured the impact of both treatments on performance. The birds from the NQ group had a 1-point improvement in feed conversion ratio, which shows the effects of some of its components on digestibility and gut integrity.

CASE STUDY NUQO SAFE IN LAYER RATIONS

Thompsons Of York introduced Wyreside's new product NUQO SAFE into their range of conventional and split feeding layer rations back in 2022. Early results indicated a good response on the farms using the products.

From December 2022 all new

flocks placed received Nuqo Safe in all rations. These flocks cover a cross section of all commercially available layer breeds and a variety of housing systems.

One of the first to adopt the new feeding strategy was North Yorkshire farmers Andrew and Christine Warriner who initially reported:

○ Excellent early body weights.

- Lower early feed intakes.
- Increased early production.
- Increased early egg weights.
- Excellent bird health.

Wayne Hardy, of JJ Tunstall, whose manager Mark Chapman reported:

- The birds settle more quickly after movement from rearing farm.
- Excellent early body

- condition.
 - Increased early egg production.
 - Farm has been able to reduce feed specification without an increase in daily intake.
 - The birds are displaying extra vigour and vitality.
- Thompsons of York are currently feeding new flocks totalling over 200,000 birds with these new feeds, focusing on gut health.