New insights into treating mycoplasma without compromising egg quality

Egg quality in commercial layers can be affected by a variety of factors, including nutrition, disease status (Mycoplasma synoviae; infectious bronchitis virus) and management or husbandry practices. Most of these are well known and have been well documented over the years. Any reduction in egg quality can have a significant financial impact on producers, who may be forced to either market these eggs into liquid eggs at significantly lower prices, or to discard them altogether.


In respect of the effect on egg quality and egg yield when medicating layers, the evidence is less clear. However, it is known that treating birds with tiamulin (which is licensed for the treatment of Mycoplasma spp. infections in layers) can result in reduced water intake, and it is widely acknowledged that this can lead to decreased feed intake and ultimately a lower egg output – thus inevitably impacting the producer’s bottom line.

But now, a new treatment offers producers a solution to this issue: ECO Animal Health recently received an EU market authorisation for the use of Aivlosin Water Soluble Granules (WSG) in commercial layers with a zero day egg withdrawal.

As part of the product development, the company undertook a variety of studies to assess whether the treatment of mycoplasma had any effect on egg quality.

**Trial results**

Results showed that the administration of Aivlosin WSG at the approved dose (25mg tylosalosin/kg bodyweight/day for three consecutive days via drinking water) had no adverse effect on egg production or egg quality in commercial layers.

All eggs from the treated birds were suitable for human consumption and, importantly, no reduction in water intake was observed.

During the studies, healthy commercial layers were treated for three days at the approved treatment dosage through the drinking water and were observed for 24 days (six days before treatment and 17 days after the starting day of treatment). All produced eggs were assessed for a variety of egg quality parameters. A similar group of layers was studied for the same period without treatment.

The visual inspection of eggs comprised shell soundness, shell shape, blood in egg and ‘meat’ spots on yolk.

Egg shell thickness was measured using an Egg Shell Thickness Gauge and egg shell strength measured using an Egg Force Reader. Egg production, egg weight, albumin height and yolk colour (DSM classification) were also determined and the Haugh unit, a measure of internal egg quality, was automatically calculated for each egg collected using an Egg Analyser. Results showed similarities across all parameters for eggs from treated and untreated layers.

Good uniformity of body weight data in the medicated group was observed and all birds maintained a consistently high level of egg laying throughout the study.

Additionally, the group mean water daily consumption on the treatment days ranged from 0.218kg to 0.237kg for the non-medicated group and 0.214kg to 0.233kg in the medicated group. This confirmed that the presence of Aivlosin WSG in the drinking water did not affect water consumption.

These results suggest that the use of Aivlosin WSG in commercial layers may offer veterinarians and their clients a real opportunity to benefit from effective mycoplasma treatment, whilst avoiding some of the negative impacts such as reduced water intake associated with other treatments.

**Changing times**

Historically, Mycoplasma gallisepticum spp. have been the main species challenging the poultry industry, as they cause serious damages with steep egg production drops, mortality and secondary infections like E. coli, and more IB outbreaks.

With the National Poultry Health schemes for the members of the EU community, the main focus has been kept on this pathogen... Continued on page 47
and live and inactivated vaccination programs and targeted treatments have been installed with serological and PCR diagnostics regularly done, to reduce vertical transmission from breeders to their offspring and keep flocks healthy and free where possible.

With the sustained focus on Mycoplasma gallisepticum, much less attention was given to Mycoplasma synoviae, until more and more global markets experienced egg abnormalities (Egg Apex Abnormalities) in eggs from commercial layers and other issues which have been associated with Mycoplasma synoviae spp.

However things have changed. As its name indicates, Mycoplasma synoviae affects the synovial membranes in poultry, with clinical signs variable with the respective strain involved, like growth retardation in replacement pullets delaying the onset of egg production, synovitis with lameness, respiratory lesions and salpingitis causing reduced egg production, smaller eggs and egg abnormalities.

The delayed and reduced egg production can often be seen on the egg production curves in a ‘zig zag way’ where production decreases regularly over time and picks up again at a lower and lower level.

Easily 5% or more of eggs can be lost and egg quality affected with much more seconds and worse feed conversion rates.

Recent research has also demonstrated that there is a relation between Mycoplasma synoviae positive flocks and increased occurrence of egg peritionitis in the production phase, making things worse with higher mortalities and more serious damages.

**Netherlands leads the way**

The Netherlands has been leading research into the epidemiology of Mycoplasma synoviae spp in poultry flocks and has found high infection levels in layers, especially in rearing and production, with levels going up to 70% plus (see Table 1 above).

Other countries worldwide, with their local epidemiological studies have reported similar trends and infection levels in commercial layers.

It is therefore mandatory to install reliable diagnostic operational procedures in commercial layer flocks for both mycoplasma species, enabling good flock monitoring and installing responsible biosecurity, vaccination and treatment programs to reduce and limit the apparently not so clearly recognised losses in commercial layers.

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>No. of farms</th>
<th>No. of samples</th>
<th>MS Positive (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat grandparent</td>
<td>53</td>
<td>53</td>
<td>10</td>
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<tr>
<td>Rearing broiler parent</td>
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<tr>
<td>Broiler parent (production)</td>
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<td>Turkeys</td>
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<td>16</td>
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</tbody>
</table>

Table 1. Monitoring of poultry flocks in the Netherlands for Mycoplasma synoviae (2006).