Poor production... spirochaetosis?

Many producers will need no reminding that flocks don't always achieve their full laying potential.

But a closer look might reveal an underrunning disease problem that is harming production and preventing birds reaching their peak or causing a production 'wobble'. Increasingly, Exeter-based veterinarian Alan Beynon is finding avian intestinal spirochaetosis as one of the major causes.

"Some producers almost accept poor production as normal in free-range flocks, but it is not necessary to do so," says Mr Beynon. "Hens have a good genetic potential these days and should reach up to 94 per cent at peak lay."

However, peak laying is a stressful time for the bird and if they have a concurrent infection, which they are having to fight at the same time, they will either not reach it or will wobble shortly afterwards. If they do not reach a satisfactory peak production, then it is worthwhile to consult your vet and investigate the possible causes and find a suitable treatment.

Free-range hens are exposed to gastro-intestinal infections more commonly than their caged counterparts because they have close access to the ground which may carry several infections from faecal contamination, such as worms, coccidia and bacteria such as spirochaetes.

Spirochaetes were commonly found in the caeca and rectum of hens but they were not always associated with disease. Recently, microbiologists have been able to distinguish between ones that do not cause disease (*Brachyspira innocens*) and those that do, such as *B. pilosicoli* and *B. intermedia*, which are associated with increases in brown to yellow-coloured, soft to watery, even frothy, diarrhoea.

In laying hens, they are also associated with drops in egg production of 5-10 per cent, drops in bodyweight and feed consumption and increases in mortality. Other conditions will do this as well such as infectious bronchitis (IB) (commonly virus variants), coccidiosis, mycoplasmosis and worms, so a series of diagnostic tests need to be carried out to confirm the problem.

Mr Beynon, working closely with David Burch of Octagon Services, investigated a series of 10 farms with reported production problems, such as peak laying between 60-90 per cent, and the presence of brown to yellow (caecal) droppings, to see what the major causes of the problems were. The microbiological work was supported by Novartis Animal Health, which has an interest in spirochaetes in pigs with their product Tiamutin.

Three farms had worm problems, two with caecal worms and one with gape worms. Two of the farms had concurrent

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Pictured on the left is a dropping from a healthy bird but infection with spirochaetosis can lead to yellow, frothy diarrhoea such as that on the right

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spirochaete infections, one *B. pilosicoli* and one *B. intermedia*. Two farms had blood samples with high IB variant antibody titres and reported head-shaking and egg quality problems. IB can cause intestinal changes on its own but one also had *B. intermedia* present. Overall, *B. innocens* was detected alone or in mixed infections in 9 farms, *B. intermedia* in 6 farms and *B. pilosicoli* in 1 farm.

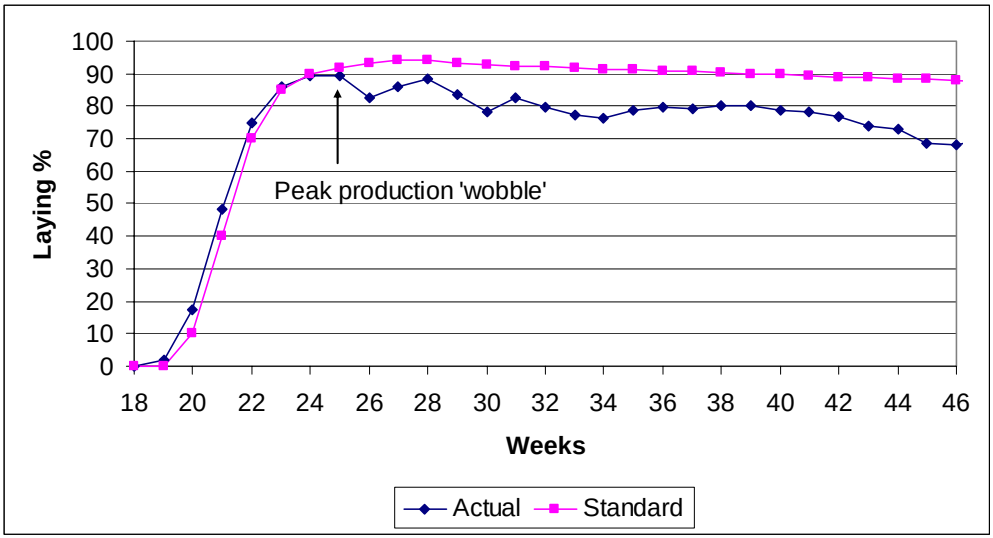
Spirochaetosis is causing production problems on many free range farms, believes vet Alan Beynon

Most of the flocks responded best to treatment in the early stages of infection (around peak laying period) with the antibiotics tiamulin or chlortetracycline, used either singly or together for the spirochaetes and any other bacterial infections, as well as flubendazole for the worms.

Most returned to close to normal peak and continued to perform well. Flocks that were treated later around 40-50 weeks of age did not always show as dramatic a response in laying terms. Possibly, the damage to the gut had already occurred and it was too late for them to fully recover.

In the case of a flock infected with *B. intermedia* only *(see graph below)*, the flock peaked at 90 per cent instead of 94 but by week 46 it was 20.3 eggs/hen-housed (down 12.6 per cent) behind the breed standard and had a 4 per cent higher mortality at 6.4 per cent, which cost almost £1.00 per hen-housed in lost production.

The new findings from this work, say the research team, are that disease-causing spirochaetes are commonly found in UK flocks associated with poor production. *B. intermedia* seem to be more common in free-range flocks than *B. pilosicoli*, which seems to be more common in caged hens. Also, there is no need to put up with poor peak production. Although it can take some time and effort to find out the cause, it is well worthwhile in the end.



Comparison of laying percentage of a B. intermedia-infected flock with breed standard