EXPERIENCES OF AVIAN INTESTINAL SPIROCHAETOSIS IN THE UNITED KINGDOM

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Introduction and Objectives

The presence of weakly fluorescing spirochaetes in replacement pullets was described as early as 1987 (1) using a *Brachyspira hyodysenteriae* stained antibody test (FAT) for pigs. The infection caused increased mortality, immaturity and a delay in the onset of lay. Work in Australia (2) characterised intestinal spirochaetes colonizing chickens both genetically and phenotypically and allocated the known pathogenic isolates into genetic groups, now known as *B. pilosicoli* and *B. intermedia*. The first report of a chronic *B. pilosicoli* infection in laying hens was described (3) causing a 6% reduction in egg production and an increase in mortality of 8.8%. Treatment with tiamulin (Denagard® – Novartis) at 12.5mg/kg bodyweight for 3 days proved highly effective in treating the infection. This led to an increased interest in the condition, especially with veterinarians involved with free-range egg production, which accounts for over 30% of the UK's 30million laying flock.

Material and Methods

a. Pilot survey – A small survey of 10 free-range laying flocks, with reported problems with egg production and the presence of frequent, brown caecal droppings, which could be wet and frothy, were investigated. Samples were sent to Jill Thomson, SAC Veterinary Services, Edinburgh, for faecal testing for parasites and spirochaetes. Blood samples were sent to a local laboratory for routine screening for viral and mycoplasmal infections. This was compared with a collection of case reports from caged-hen flocks.

b. Effect on production – A free-range flock's egg production, where *B. intermedia* infection only was demonstrated, was compared with the breed standard to assess the effect of the chronic infection.

c. Treatment and prevention – A free-range flock, with recurring infections of *B. intermedia* and egg production drops 3-4 weeks following treatment with tiamulin, was put onto a preventive medication programme of 4mg/kg bodyweight for 2 days/week to see if it would stabilise the infection and egg production.

Results and Discussion

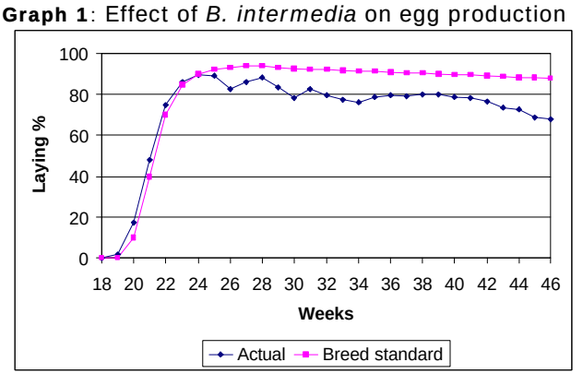
a. Survey – a high number of free-range flocks were infected with mixed spirochaete infections, especially *B. innocens* and *B. intermedia* (see Table 1). Worm infections were found in 30% of cases and increased infectious bronchitis sero-titres in 20%. This contrasted with the caged hens where *B. pilosicoli* was more frequently encountered.

Table 1: Pilot survey results

	Free-range flocks (n=10) (%)	**Caged flocks** (n=6) (%)
B. innocens	90	17
B. intermedia	60	0
B. pilosicoli	10	83

b. *B. intermedia* – effect on production (see graph 1.)

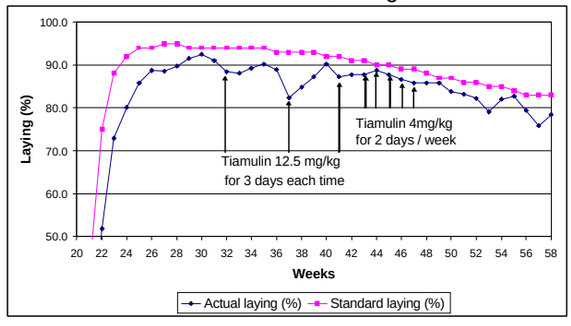
Graph 1: Effect of *B. intermedia* on egg production



In the flock, which had been monitored, there was a 10.6% drop in egg production from point of lay to 46 weeks of age. The drop typically started near peak production.

c. Treatment and prevention of B. intermedia infections

Graph 2: Treatment and prevention of recurring B. intermedia infections in a free-range flock



Treatment was given on two occasions but the infection and egg production drop returned. The birds were put onto the preventive medication for 5 weeks, which stabilised production for a further 5 weeks.

Conclusion

(i) *B. intermedia* is commonly found in UK free-range laying flocks

(ii) It may depress egg production by over 10%

(iii) Most cases of AIS respond to tiamulin, but in refractory cases prevention may be considered.

Acknowledgements

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References

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