

Serology Survey of Broiler farms in South West England

Executive Summary

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Supported by Pfizer Limited



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Disclaimers

The views expressed in this report are those of the authors and are not necessarily shared by other contributors or their employing institutions, nor are they necessarily shared by Pfizer Animal Health Ltd.

All remaining errors and omissions remain the responsibility of the authors.

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E.1 Background to the Survey Report

The Serology Survey was commissioned by Datapoul Ltd, a programme being undertaken as part of the South West Health Initiative (SWHLI); part-funded by the Rural Development Programme for England (RDPE) and administered by the South West Regional Development Agency (SWRDA).

The Serology Survey provides the first serology monitoring across the region and aims to form the basis of better disease and welfare control for the poultry sector. It has been made possible with a generous Educational Grant from Pfizer Animal Health Ltd.

Blood samples were analysed for; Infectious Bronchitis 793B, Infectious Bronchitis QX and Infectious Bursal Disease (IBD - Gumboro). These diseases were chosen because they affect crop production and often remain undetected in flocks.

E.2 Methodology

Blood testing was carried out by Sci-Tech Laboratories who tendered and were awarded the work. Sci-Tech has a dedicated technician responsible for Haemagglutination Inhibition (HI) testing, who processes a large numbers of samples every day, ensuring confidence in the consistency of results. For further information on Sci-tech Laboratories refer to Appendix 4.

Due to cost restrictions, there were only 15, rather than the preferred 20 samples taken on each farm. It should be understood that a degree of caution is necessary when using this sample number.

The majority of blood samples were taken at kill. A few samples were taken on farm at visits.

Information relating to the sample was obtained on:-

- Age of birds
- Age at vaccination for Gumboro and IB
- Name of the Gumboro and IB vaccination

The survey was conducted during October 2010 to February 2011.

E.3 Analysis of the Serology Data

E.3.1 Robustness of the Serology Survey

The validity and robustness of the survey is dependent on many factors and the following points need to be clear. Interpretation of normal bloods is variable and depends on many factors. Also, the level at which a sample is said to indicate infection will depend on many factors, such as test sensitivity, time between infection and testing, vaccination history on farm and hatchery and so on, for a full list refer to 3.1.2 of the full report.

Results were interpreted by two vets; one vet who provided interpretation on behalf of Datapoul - Richard Turner MA Vet MB MRCVS and the vet with responsibility for the farm.

As previously indicated only 15 bloods per farm were taken and a degree of caution has been used on this sample number.

Where the results are said to be suggestive of disease this might indicate disease plus vaccine titres.



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E.3.2 Clarification of how the results were analysed

For Infectious Bronchitis, the titre is looked at for an average; the spread of titres and the history on farm of vaccine usage. For this survey, a large sector of the surveyed farms only had H120 vaccine given in the hatchery and no other vaccines; making an inconclusive variant IB titre more possible.

Farms with non negative results were advised to investigate in more detail after taking advice from their vets and advisors.

QX titres are compared to the 793B with the same degree of caution and the QX is said to be positive where the mean titre is higher than the 793B mean titre.

Interpretation of HI IB tests is difficult and this approach is used in order to give some better method of presentation of the results as a group.

Regarding the Infectious Bursal Disease – IBD (Gumboro), there were different titre groups for those farms where the use of intermediate vaccination once before 20 days of age and bloods at least 20 days later and those using the hotter strain vaccines and once before 20 days of age with bloods at least 20 days later

This has made the difference between vaccine titres and challenge difficult to define, as there might be some delay between early infection and late sampling age.

The report is anonymous of any farm identification.

E.4 Presentation of the Serology Results

The Serology results have been categorised into three groupings (key):-

- Positive i.e. suggestive of disease
- Inconclusive / normal
- Negative i.e. no infection (but vaccine only titre)

Bloods were taken from a total of 169 farms during the course of this Serology Survey, to the best of our knowledge, this equates to 93% of broiler farms in the region.

15 samples of each of the three tests were carried out, equating to 7605 tests being analysed by Sci-tech and interpreted by the same Datapoul Vet - Richard Turner MA Vet MB MRCVS.

The results mapped, showed all production types; as well as providing a breakdown showing the Standard and Lower Stocking Density Indoor production types, and the Free Range and Organic production types.

81 farms were of the Standard or Lower Stocking Density Indoor production type, representing 48% of farms in the survey. 88 farms were either Free Range or Organic, representing 52% of farms in the survey.



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E.5 Conclusions

Table 1 - Percentage of disease in each Production Type

	IB 793B	IB QX	IBD (Gumboro)	
Table 1				
Combined	20.71%	7.10%	23.67%	Percentage of disease across all Production Types
Free Range & Organic	27.27%	7.95%	28.41%	Percentage of disease within the Free Range and Organic Production Types Only
Standard & Lower Stocking Density Indoor	13.58%	6.17%	18.52%	Percentage of disease within the Standard and Lower Stocking Density Indoor Production Types Only

Table 2 – Percentage of across all production types

	IB 793B	IB QX	IBD (Gumboro)
Table 2			
Average	3.55%	10.36%	11.84%
Free Range & Organic	4.14%	14.20%	14.79%
Standard & Lower Stocking Density Indoor	2.96%	6.51%	8.88%

Of all the farms tested, a higher percentage of the Free Range and Organic production types tested positive for disease.

IB 793B

20 % of farms (35) assessed tested positive for IB 793B infection across all production types, other than a few isolated cases. This level was higher than expected and was not associated with any clear clinical signs on the farms in question.

IB QX

The level of IB QX infection is still not high, other than a couple of isolated cases is in area of Sampford Peverill, Somerset. 7% of farms (12) were designated as positive to QX across all production types. The positive broiler farms were found in areas where QX virus had been already diagnosed in the layer farms.

IBD (Gumboro)

24% of farms (40) had IBD (Gumboro) titres suggestive of infection on top of vaccine across all production types. The Gumboro titres were very interesting in that there seems to be a large number of farms where the disease is sub clinical and blood titres are raised.



E.6 Recommendations

The recommendations from this report derive from a combination of the findings from the evidence base and the combined knowledge and experience of the vets involved with the serology analysis.

Infectious Bronchitis 793B

All farms with positive titres should move from H120 to a 793B vaccine on farm.

Infectious Bronchitis QX

These farms were reviewed on an individual site basis, and advice on biosecurity given together with a more robust vaccination programme. These farms were advised to vaccinate at day 1 and day 10.

The most important thing that farmers can do to protect their flocks against IB is to have good biosecurity/hygienic measures in place.

IBD (Gumboro)

With regards to IBD (Gumboro), farms with low antibody levels or unevenly distributed antibody levels may have a vaccination problem and are advised to undertake a vaccine audit.

Similarly results showing high antibody levels may have had IBD in the crop and therefore a vaccine audit is also advised. Veterinary interpretation of the serology will advise of any vaccine changes which may assist in improving results.

The administration and type of vaccine was reviewed by the farmers' vet and as a result of this all farms on intermediate vaccine with evidence of sub clinical infection were moved to a hotter strain of vaccine.