WEBINAR Q&A

Reovirus – How to Interpret the Serology

About the speaker

Dr. Beatriz Cardoso graduated as DVM and got a Master in Epidemiology from Universidade de São Paulo. Later on, she got her Ph.D. at Universidade Federal Fluminense. She has been dedicating her entire professional life to preventive veterinary medicine and animal health, working in different countries. Since April 2019, she becomes an independent consultant.

1. What is the importance of maternal immunity for the protection of chicks against Reovirus?

The importance of maternal immunity for REO is related to the severity of the clinical signs. Reovirus is more pathogenic the younger is the bird. If they have certain level of maternal antibodies, they can be infected but will not be sick. If the titer is negative or too low, and there is reovirus circulating in the house, you can see clinical signs (depending of course on the virulence of the virus) or subclinical signs.

2. How can we identify the involvement of Reovirus in broilers' problems?

As mentioned in the presentation, the final diagnostic is not easy, but you can have a better idea in the involvement of Reovirus in broilers with the following procedures.

Measure the titers at day of age and at slaughter (fix one age if there is variation of ages at slaughter more than 3 days). Do it in several flocks, with and without problems and trace them back to the breeder flocks. If you have high titers at slaughter age (not GMT, but individual) you have a reovirus activity. If you, have it more frequently within problematic flocks, it shows a pattern that Reovirus can be involved. Compare with the maternal antibodies titers to check if the problem is related with the lack of antibodies and/or some breeder flock.

If the birds are showing lesions, do histopathology and quantitative PCR for Reovirus but only in the lesion's tissues. If you have lesions compatible with virus infection, high quantity of Reovirus in the same tissue and high titers for Reovirus at slaughter age you can close the diagnostic.

Serology only will show viral activity, i.e., there is an infection, but not necessarily due to a virulent Reovirus.

3. Do we need to classify the data according to the individual farms/production unit?

It is always wise to do it. All information will be handy at some point. This is especially important for disease control studies. It will be easier to check which management/action was/were effective or not.

4. Is it advisable to test Reovirus in broiler at marketing age?

It is always advisable to check titers at one day of age and at slaughter (or market age). This will allow to check for Reovirus infection and flock health status. The other main diseases you need to check as well are chicken anemia and Gumboro, to monitoring the viruses that can cause immunosuppression and economic losses. Generally, immunosuppression leads to decrease in production results, more secondary infections and decrease in treatments responses.

5. Which is the minimum number of samples needed to rely on CV obtained?

First of all, it is important to understand that the numbers of samples are defined by and for different situations, objectives, needs and approaches. In the case of a regular monitoring purpose only.

If you already have a base line, 18-20 samples are enough. For the construction of baselines: 23-30 samples are necessary.

6. A flock of 8 weeks old broiler breeder showing a mean titer of 2000, unvaccinated flock, what could be the interpretation?

There is a viral activity (infection with antibody production), but I would always prefer to see the histogram instead of only the mean titer.

7. Why do you prefer the geometric mean to the arithmetic mean?

GMT is less influenced by outliers.

8. What is the appropriate/recommended age for serum sampling?

For broilers: day of age and slaughter age – fixed age if the slaughter age has a variation of more than 3 days, or you can build a prediction curve for different ages based on your baseline. Do not test with serology in the middle of production, only if you want to see the curve. If the birds are slaughter at old ages (more than 46 days) you can fix it at 42. For breeders, the sampling schedule will depend on the vaccination program.

9. The vaccine and field strains mentioned in the presentation are all from old strains, from 80's and 90's. Recently we have seen the emergence of new genetic groups with much lower homology to the S1133 strain. What titers do you expect to see in breeders infected with these strains?

Those are strains used in the papers I mentioned. Unfortunately, there are just few papers with the same type of studies found in the past. As I mentioned in my presentation, it is difficult to predict how different strains will behave, in serology, pathogenicity, cross

protection and virulence. One thing I am sure, there will be some antibody response detected by serological tests that use the complete antigen as IDEXX ELISA kit. Having a base line to compare, the antibody curve will behave like any field infection, boosting the expected titer.

10. What are protective maternal antibodies (target titer) for IDEXX ELISA kit?

Of course, the higher the better, but if you have titers from group 1 or 2 onwards, will be enough to prevent clinical symptoms, but maybe will be not enough for control a subclinical presentation of the disease if faced with a virulent strain. Then a group 3 onwards is better.

11. Does high CV mean well protected birds?

No, high CV mean low dispersion of titers. For instance, if you have titers only in group 0 or 1 you have a low CV with unprotected birds.