DAIRY HERD HEALTH & PRODUCTIVITY SERVICE

Newsletter 2019, Q3 August 2019

What are the cows really telling us?

Herds use metabolic profile blood testing in a variety of different ways. Some test sporadically when there are concerns regarding herd fertility or transition cow diseases, whilst others test regularly to pick up problems before they impact on milk in the tank. Regardless as to how herds choose to use the DHHPS metabolic profiling service, some questions seem to crop up repeatedly. With many herds currently reporting that the cows are milking well, this seems like a good time to try and answer these recurrent queries.

1) Aren't high BHB and NEFA levels "normal" in dairy cows around calving?

There is some truth to this, in that all cows will undergo a degree of Negative Energy Balance (NEB) around calving. However, interpretation of BHB and NEFA levels makes use of carefully selected thresholds that take this into account. Indeed, there are a large number of studies associating BHB and NEFA levels raised above these thresholds with reduced milk production, increased risk of diseases (such as LDAs and metritis), and poor reproductive performance. When we talk about high BHB and NEFA levels, we are therefore referring to excessive negative energy balance (eNEB) i.e. a high degree of NEB that has been shown to have an adverse and economically significant impact on the cows – both individually and at the herd level.

Analysis of our own records has shown that eNEB in UK dairy herds is common (*Veterinary Journal* 2019 Vol 248, p51). Between April 2006 and March 2015, approximately ½ of cows in the last 10 days before calving and ¾ of cows in the first 20 days in milk have evidence of eNEB. The flip side to this is that ½ of dry cows and ¼ of fresh calvers have good energy results i.e. eNEB is not inevitable. The variation between herds is significant, and many herds manage to keep cows with impressive milk yields in good energy balance around calving.

2) Cow 497 had a high NEFA value but did not get an LDA and was in calf by 55 days calved, so surely the blood test is wrong?

This misunderstanding is best explained by the following example, looking at the association between LDAs and NEFA levels in 100 cows with high NEFAs and 100 cows with low NEFAs:

High NEFA group	Low NEFA group
100 cows	100 cows
10 LDAs = **10% LDA rate**	1 LDA = **1% LDA rate**

As you can see from this example, the risk of developing an LDA increases significantly for cows with high NEFAs. However, 90% of the high NEFA group did not develop an LDA! Cows with high NEFAs are therefore at least 10 times more likely to get an LDA than cows with normal NEFAs, but having a high NEFA does not guarantee that the cow will develop an LDA…..

3) We changed the diet and re-tested, so why didn't the cows' blood test results improve?

In the majority of cases, the underlying issue behind poor energy results is not a lack of energy in the diet. More commonly, cows get eNEB due to poor intakes or poor utilisation of a diet that contains enough energy, or poor transition dry cow management. Interpretation of high BHB and NEFA levels in freshly calved cows needs to take all of this into account, not just the cows' ration.

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Mobility scoring course

We are running a Register of Mobility Scorers approved training course on Tuesday 3rd September 2019 at Langhill Farm, Midlothian, EH25 9ST from 10am-4pm (lunch provided). Please contact the DHHPS office to register.

Infectious Bovine Rhinotracheitis (IBR)

IBR is a highly contagious infectious disease affecting cattle of **all** ages. The disease is caused by Bovine Herpes Virus – 1, and typically results in inflammation of the upper airway. In recent years IBR has been implicated in some dairy herds that are not milking to expectation or that have had "milk drop" in individual cows. Abortion may also occur after infection.

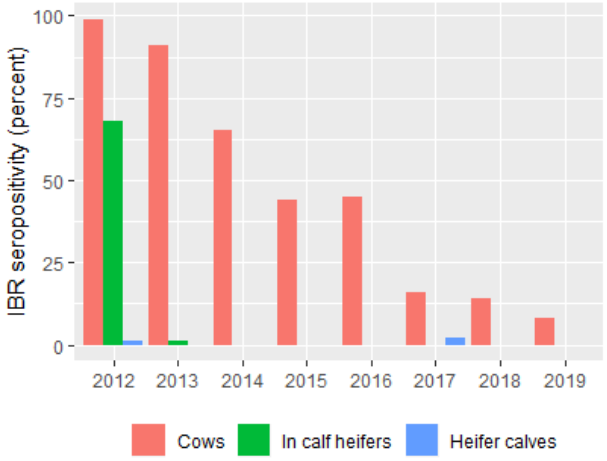
Being a herpes virus (related to the cold sore virus), infection can persist in cattle populations long-term as a result of latency. Therefore, latently infected cattle are always considered a potential source of infection within the herd.

Update on IBR Farm Case Study

For the last 7 years, the farm department at the University of Edinburgh Vet School has been following the progress of a dairy herd that had an acute IBR breakdown in spring 2012. This outbreak was strongly suspected to have occurred as a result of an older cow latently infected with IBR starting to shed virus, presumably after a period of stress.

In May 2012, a milking heifer showed clinical signs of IBR and died, with IBR confirmed by PCR testing and histopathology. Following the IBR breakdown (likely from one latently infected cow), comprehensive individual animal antibody testing was performed in June 2012. Initially, herd status was investigated by testing all cows and heifers for milk (gE) or blood (gB) IBR antibody to define herd seroprevalence. It was established that nearly all of the adult herd (99%) had seroconverted, and 68% of the pregnant heifers had also been exposed to wild type IBR virus. A robust vaccination regime (using live and inactivated IBR marker vaccines) was then put in place from June 2012 onwards for the adult herd and youngstock. The long-term plan for this farm is to try to gain IBR-free status.

The figure below shows the dramatic fall in IBR seroprevalence in the dairy herd from 2012 to 2019, once vaccination was started.



Summary

- Within 5 years of ceasing an IBR vaccination programme, clinical disease reappeared and spread widely in a closed 230 cow dairy herd
- Vaccination with a live followed by inactivated IBR marker vaccine programme has to date controlled further clinical disease
- Within 7 years of re-starting vaccination, the adult cow herd seroprevalence has fallen from 99% to 8%

It is worth noting that the seropositive cows that currently remain in the herd were 1st lactation cows or pregnant heifers during the outbreak in 2012. In 2017, 2% heifer calves tested IBR positive, but this was later confirmed to be due to maternally derived antibodies.

On the basis of the farm's own current culling policy (which has not considered individual animal IBR status), this dairy is close to achieving IBR eradication. However, good biosecurity and a continued robust vaccination plan is essential to prevent history repeating itself. Once the herd is free from IBR, the discussion on whether or not IBR vaccination should stop can begin!