DAIRY HERD HEALTH & PRODUCTIVITY SERVICE

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Poor colostrum yield

We all know about the importance of the antibodies in colostrum to calf health. Usually when we think about dairy farming, we worry about cows producing large volumes of dilute colostrum, containing low concentrations of antibodies. Recently however, we have received an increasing number of enquiries from herds struggling with precisely the opposite problem: poor colostrum yields.

The first question that usually arises relates to the dry cow ration and whether changes to the ration would improve yields. Studies examining the impact of nutrition on colostrum yield have frustratingly had conflicting results. Experimental studies suggest that dietary restriction during the dry period needs to be particularly severe to have any noticeable impact on colostrum production. One study in suckler cows for example found that cows fed silage in late pregnancy produced on average 4.5 litres of colostrum, whilst those fed just straw produced 3.9 litres (IRISH J AGR FOOD RES, 2006, 45, 157). Whilst this result was statistically significant, it is striking that cows on such restricted rations still produced so much colostrum!

There are in fact very few studies that look at the risk factors for low colostrum production in dairy cows. Work in the USA in a single large Jersey herd suffering from poor colostrum yields each autumn found a huge range of colostrum yields of 0 to 26.5 kg (J. DAIRY SCI. 2018, 101, 6399). Strikingly, 1 in 20 cows in this herd that had had a previous lactation produced no colostrum at all. The effect of season in this herd was dramatic, with average colostrum production dropping from 6.6 kg in June to 2.5 kg in December of the same year. When the authors looked at the factors that affected the colostrum yield of individual cows, they found that dry period length, calf sex, twins, cow age, cow sire, month of calving and previous lactation length were all important factors - but only season explained the drop in herd average yield.

Unfortunately, it seems that we are still a way off understanding why some herds suffer from prolonged periods of time where colostrum yields are poor. Feedback we have received to date suggests that the following interventions have been helpful:

- Freezing excess good quality colostrum when it is available to supplement calves during periods of poor yield
- Increasing the length of the dry period, particularly for cows that have suffered from mastitis during the previous lactation
- Improving dry cow ration management, including increased frequency of feeding and push-ups
- Supplementing the dry cow ration with additional protein has helped in some herds.

To look into this problem more, we would be very interested in hearing from any herds that periodically struggle with colostrum yields, as we are interested in looking into this further.

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Twins – hassle all round?

The UK average twinning rate in Holstein cattle is thought to be around 4-5%, although there are indications that the rate has increased in recent decades. Some herds report twinning rates as high as 20%, and undoubtedly high levels of twins can be a major concern in a number of herds.

Twins have significant negative impacts on both the cow and the calf around calving. Around 18% of twins require assistance at calving (compared to only 8% of singleton calvings), and the mortality rate of twin calves is 16% at calving. Cows that give birth to twins are more likely to develop retained foetal membranes (RFM) and metritis, as well as other transition cow diseases such as LDAs and ketosis. Even including the extra calf, twins have been estimated to cost £231.32 per calving, mostly as a result of reduced fertility and an increased risk of being culled.

What might be behind this apparent increase in twinning rate? Monozygous identical twins are relatively rare in cattle, and indeed 90% of twins arise due to double ovulations. There is a genetic effect on the double ovulation rate, and dairy breeds and older cows are more likely to be affected. A number of studies have associated double ovulations with increased milk yield prior to ovulation, and Paul Fricke at the University of Wisconsin – Madison has shown that low levels of progesterone during the growth of the preovulatory follicle increases the double ovulation rate. Such a situation can arise in high yielding cows due to increased progesterone metabolism, or may be associated with excessive negative energy balance. Studies have shown that hormone synchronization protocols that result in high progesterone levels during follicular development (eg. Double Ovsynch or CIDR/PRID synch programmes) will help to reduce double ovulations and so twinning rates.

So what can be done about twins?

- Identify cows with twins early by ultrasound scanning (the presence of two CLs in the ovaries may provide a clue), and clearly identify them using tail tape or spray markers.
- Should cows diagnosed with twins be aborted? Current advice is **not** to do this: it is difficult enough to get modern dairy cows back in calf, without having to start all over again. The cost of the subsequent substantially extended lactation is not worth it. In addition, cows that have twins are more likely to have twins again, and so you might end up in the same situation.
- Repeat scanning at 60 – 90 days may also be beneficial, as a recent study has shown that only 50% of cows carried both calves to term (30% lost both calves, and 20% lost one calf).
- Monitor body condition score in cows with twins monthly, and adjust feeding if practical.
- Cows with twins will calve 5 – 10 days early. Therefore dry them off 2 weeks earlier than normal, especially if they are in poor BCS.
- Studies feeding cows with twins more energy in the dry period did not make any difference. However, early calving is an issue: move cows into the "close up" transition dry cow group 2 weeks earlier, or keep them in the "close up" dry cow group for the whole dry period if thin.
- As twins have a much higher risk of calving difficulty, monitor them closely at calving.

Agriscot 2019

As usual, the Royal (Dick) School of Veterinary Studies will have a stand at Agriscot on Wednesday 20th November. Please pop in for a chat if you are coming along to the show.