DAIRY HERD HEALTH & PRODUCTIVITY SERVICE

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Long-term protein balance in ewes

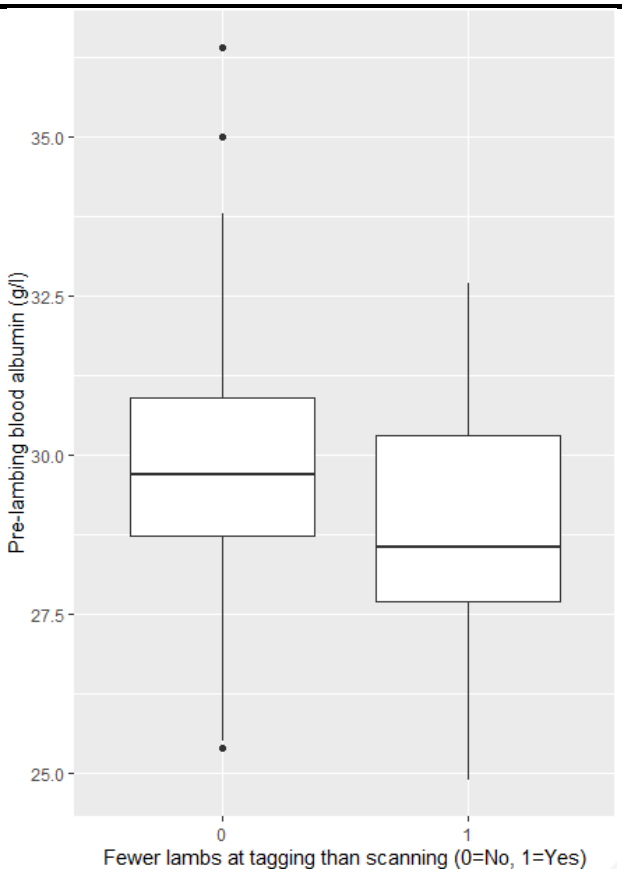
The importance of ewe body condition and energy balance in late pregnancy on newborn lamb survival has been well understood for some time. However, the impact of ewe protein status on lamb survival is less well studied.

Feeding trials that have looked at the impact of supplementing late gestation ewes with additional rumen bypass protein have produced inconsistent results. Some report improvements in measures such as colostrum yield, lamb birthweight and ewe body condition. However, the interactions with parasite challenge and pre-existing feed restriction are complex, and many trials have failed to show any impact on lamb or ewe performance. As such, current industry advice remains to ration ewes according to AFRC (1993) protein requirements.

Despite this, it is becoming increasingly popular to supplement pregnant ewes with additional rumen bypass protein during late pregnancy. Given that bypass protein supplementation can be expensive, it is not clear when such supplementation is justified.

As part of a larger study examining neonatal survival (funded by AHDB, HCC and QMS), we conducted a metabolic profile on every ewe in the University of Edinburgh Vet School flock of Cheviot Mules. Whilst energy balance across the flock was good, long term protein balance (as measured by blood albumin levels) was variable, with around half the ewes in the flock having low blood albumin results.

Strikingly, as can be seen in the graph opposite, ewes that lost one or more lambs between scanning and tagging at 24 hours old had lower blood albumin levels than those that did not lose a lamb. This surprising finding indicates that poor long-term protein status is an important factor for newborn lamb survival. Furthermore, we found that lambs that needed help with colostrum feeding also came from ewes with lower blood albumin concentrations,



indicating that the effects of ewe protein status were not just confined to mortality during pregnancy and birth.

We are currently undertaking more work to explore the risk factors for poor long term protein status in late pregnancy. However, these results highlight the importance of ensuring that ewes are fed to meet both their energy and protein requirements in late pregnancy, whilst also addressing any diseases that may be adversely affecting ewe protein status. As such, we would recommend that flocks:

- Always analyse forage, and supplement ewes as necessary to supply 100% of AFRC (1993) Metabolisable Protein requirements
- Put in place a comprehensive liver fluke control programme, and faecal sample ewes to ensure fluke burdens are controlled
- Perform faecal worm egg counts in ewes if *Haemonchus contortus* is a possibility to ensure worm burdens are under control

Dairy Herd Health and Productivity Service, Division of Veterinary Clinical Sciences, Royal (Dick) School of Veterinary Studies, University of Edinburgh, EBVC, Easter Bush, Roslin, Midlothian EH25 9RG

Tel: 0131 651 7474 Fax: 0131 651 7473 DHHPS@ed.ac.uk www.ed.ac.uk/vet/dhhps

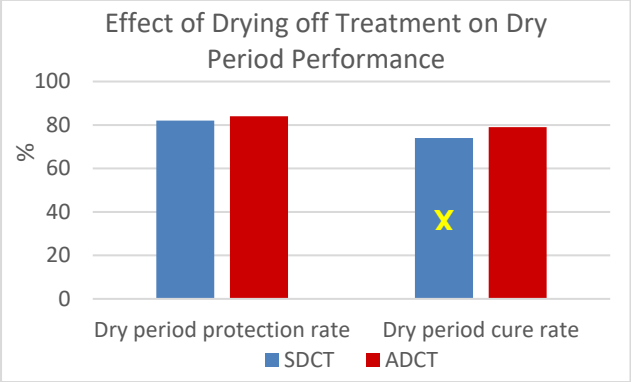
Selective Dry Cow Therapy in action

With the current pressure on the responsible use of antibiotics in agriculture, many dairy farms have been reducing prophylactic antibiotic use in dry cows by using Selective Dry Cow Therapy (SDCT). Cows with low somatic cell counts in late lactation (usually below 200,000 cells/ml) and no clinical mastitis history are given teat sealant only, whereas those cows with evidence of udder infection (high cell count or mastitis) in the three months prior to drying off receive both antibiotic dry cow therapy and teat sealants.

However, some farmers remain concerned that not using antibiotics at drying off will put their cows' health at risk, and lead to increases in cell count and mastitis. With this in mind, a recent project has been looking at the use of SDCT in Scottish dairy farms in detail, to assess whether there were any harmful effects of SDCT. The project was funded by the Scottish Government's Knowledge Transfer and Innovation Fund (KTIF) and managed by SAC Consulting with additional support from Zoetis, the University of Edinburgh and Müller.

There were eight farms in Aberdeenshire and nine farms in Ayrshire that took part in the study, all of whom milk recorded each month, and kept detailed records of their clinical mastitis cases. Dry period performance data was received from 3342 cows, of which 57% were given teat sealant only at drying off (SDCT – shown in blue on the graph) and 43% were given both antibiotic dry cow therapy and teat sealant (ADCT – shown in red on the graph).

Cell count performance was assessed using two main criteria: the Dry Period Protection Rate, which was those cows who had a LOW cell count (under 200,000 cells/ml) for the three months prior to drying off, and whose cell count remained LOW at the start of the next lactation. The other measure was the Dry Period Cure Rate, which was those cows who had a HIGH cell count at some point in the three months prior to drying off, and whose cell count then went LOW at the start of the next lactation (ie. they had got rid of any udder infection during the dry period).



As can be seen in the graph above, the performance of the cows was no different between the two treatment groups, and over 80% of cows remained uninfected over the dry period regardless of whether they received teat sealant alone or not.

It is of interest that there were 373 cows who were misclassified at drying off: they did have a HIGH cell count prior to drying off and should have received ADCT, but actually only got teat sealant (yellow cross on the above graph). This occurred because some farms had different selection criteria for choosing which dry cow therapy to use, and as anticipated, their cure rates were slightly lower compared to ADCT.

If you are undertaking SDCT on your farm then:

- Work with your vet in choosing which dry cow therapy is most appropriate for your farm, and which cows to select for SDCT and ADCT
- Monitor performance using both cell counts and clinical mastitis cases
- Include 1st calving heifers in this analysis. They do not get any dry cow therapy prior to calving that might influence their mastitis or cell count, and so they can be a good reflection as to dry period environment and management at calving

Do you use technology on your farm?

We have a 5 minute short questionnaire to gather information on the use of technology on UK dairy farms as part of a student PhD project. Please click on link below or QR code to access.

https://edinburgh.onlinesurveys.ac.uk/the-use-of-automated-cow-monitoring-technology-on-uk-dairy

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