

# Dry cows

Research at Teagasc is aiming to identify and provide recommendations to farmers on using teat sealant alone at drying-off of uninfected cows. We touched on this in the last edition but with drying-off season imminent, we will go into greater detail.

**I**nfusing cows' teats with intramammary antibiotics at drying-off has been a common practice to cure existing infections and to prevent new infection over the dry period. The dry period and calving period are when cows are most at risk of new intramammary infections. However, regulation on veterinary medicinal products by the European Union states that antibiotics should not be used as a preventive measure.

It is no longer justifiable to treat cows with antibiotics at drying-off to prevent infections in the dry period. An alternative is selective dry cow therapy. This involves treating uninfected cows at drying-off with an internal teat sealant, an inorganic product that acts as a physical barrier preventing the entrance of bacteria to the gland.

Infections are indicated by a measure of somatic cell count (SCC), with the common cut-off point being 200,000 cells/mL for uninfected cows, explains Teagasc Research Officer Pablo Silva Bolaña. "International research has shown no difference in the prevention of new dry period infections in uninfected, low SCC cows treated with an antibiotic plus internal teat sealant or with a sealant alone," he says. "However, Teagasc research has found that cows with a SCC of less than 200,000 cells/mL treated with an internal teat sealant alone had higher SCC and infection levels in the following lactation compared to cows treated with antibiotic plus sealant." Pablo further explains that most infections were caused by *Staphylococcus aureus*.

This differs from international production systems. Therefore, treating cows with an internal teat sealant alone is a challenge as some farmers might see this practice resulting in higher infection levels and SCC.

## Factors linked with reduced SCC

To address this situation, Teagasc has conducted studies in 21 commercial herds, using dry cow treatment, milk recording and bacterial infection data from >2,000 cows to identify factors that can help implement selective dry cow therapy with reduced risk to udder health. The team found that the following factors at drying-off and the dry period were associated with reduced SCC in the following lactation:

- **Milk yield and dry cow treatment:** There was no difference found in SCC at the beginning of the next lactation between internal teat sealant alone or antibiotic plus internal teat sealant treated cows, when their milk yield at the last milk recording (30 days before drying-off) was  $\leq 15$  kg.

- **SCC at the last milk recording of the previous lactation:** Cows with lower SCC at the end of their lactation were also likely to have a low SCC at the beginning of the following lactation. Cows with an SCC of 50,000 cells/mL at the end of their lactation had an estimated 60,000 cells/mL ( $\pm 30,000$ ) lower SCC in the following lactation compared to cows with an SCC of 150,000 cells/mL.

- **Cleaning cubicles:** Farmers that cleaned and disinfected cubicles twice per day had estimated 40,000 cells/mL lower SCC cows compared to farmers doing it just once a day during the dry period and beginning of lactation.

- **California Mastitis Test (CMT):** This helps farmers identify subclinical infections (i.e. no visible signs) in cows. Farmers that regularly used the CMT to identify their high SCC cows had lower SCC cows (estimated 7,000 cells/mL lower) compared to farmers not using it.

## The importance of recording

A previous study showed that the best information to predict infection



in late lactation was the SCC at the last milk recording of the lactation. "If farmers are not milk recording, they should start by doing one in late lactation to guide dry cow therapy decisions," explains Pablo.

"However, we encourage farmers to do multiple milk recordings throughout the year, as it is a helpful tool to manage mastitis."

The researchers also explored the SCC cut-off point that improved detection of infection in late lactation. The quarter level SCC that maximised the correct classification of both infected and uninfected cows was 61,000 cells/mL for first lactation cows and 100,000 cells/mL for  $\geq 2$  lactation cows.

However, the cut-off point for  $\geq 2$  lactation cows was less accurate in classifying both infected and uninfected cows, meaning that using any cut-off point will result in a higher error in correctly classifying  $\geq 2$  lactation cows as infected or uninfected compared to first lactation cows.

Pablo explains that there's no clearcut solution to adjusting SCC cut-off: "By lowering the SCC cut-off point, farmers could detect and treat more of their truly infected cows; however, they will be unnecessarily using antibiotics on more uninfected cows," he says.

"Conversely, by increasing the SCC cut-off, farmers could be missing the opportunity to treat more of their infected cows, but would reduce their antibiotic use."



**For now, the team has a set of concrete recommendations:**

- Farmers should use their milk recording information to make dry cow therapy decisions.
- Internal teat sealant alone should be considered if SCC is  $\leq 61,000$  cells/mL in first lactation cows and at least  $\leq 100,000$  cells/mL in  $\geq 2$  lactation cows.
- If treating with teat sealant alone, implement measures to reduce milk yield to  $\leq 15$  kg/day near drying-off.
- Do not look at an increase in SCC in late lactation as normal. This is due to increased infections and will affect the cows' SCC in the following lactation.
- Clean cubicles twice per day during the dry period and early lactation.
- Use the CMT to detect high SCC cows and quarters and take action when identified (treat, dry, cull).
- Infections with *Staphylococcus aureus* need to be reduced to improve the outcome of selective dry cow therapy. (TRResearch, autumn 2023.)

**EU-FarmBook**

EU-FarmBook, is a Horizon Europe project that is working at re-



gional, national, and European (EU) levels, to build a Digital Platform, gathering and sharing agriculture and forestry knowledge. The EU-FarmBook Digital Platform is being developed to test a big idea: Can all the tangible outputs of EU-funded research and innovation projects be brought together and organized in one user-friendly platform to help get practical knowledge into the hands of the farmers, foresters, and advisors across Europe who need it most?

The challenges to doing this are great (data or database quality, compatibility issues, language barriers, and intergenerational considerations to name a few), but we believe that the future of agriculture and forestry innovation in Europe is digital, and requires a vastly increased and improved digital exchange of knowledge between EU regions and Member States, as well as between different agricultural stakeholders. We will return to this initiative as it progresses.

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**60 Important Days Ahead**

Maeve Regan,  
Head of Ruminant Nutrition, Agritech

When costs associated with clinical cases are assessed alongside the time and labour involved in such cases during a compact calving season, prevention is always better than cure.

**Cost of Metabolic Disorders**  
(Estimated cost/clinical case)

Milk Fever	€312
Clinical Ketosis	€190
Retained Afterbirth	€392
Displaced abomasum	€515
Mastitis	€262

Milk fever continues to be a thorn in the side of many herds. Although clinical signs may be few and far between, sub-clinical cases of milk fever are often more prevalent on farms, being estimated to cost just over €100 on average; with six sub-clinical cases going undetected on farm for every clinical case seen. This often presents itself as retained afterbirths, slow calvings, and a high incidence of follow-on metabolic issues in early lactation. A cow that suffers from clinical/sub-clinical milk fever is three times more likely to retain her placenta, 4.5 times more likely to suffer from an LDA and eight times more susceptible to ketosis and mastitis. Magnesium (Mg) is the most important dietary factor involved in the prevention of milk fever. Cows do not store Mg; therefore, they need a constant daily supply from the diet (40g/day; typically, 25 to 30g/day via mineral) during the dry period.

In recent years, grass-based systems in their nature tend to produce silages high in Potash (K). High levels of K in the diet limits/blocks Mg absorption, delaying the release of calcium and increasing the incidence of milk fever. Grass silage with greater than 1.8% K can cause issues. Where K% in the silage offered to cows in the run up to calving is over the risk threshold, additional soluble sources of Mg supplementation may be required, and/or dilution of K% in the total diet e.g., straw + supplementation. Where this may be a concern a mineral analysis should be conducted on the forage to put a preventative plan in place.

Body Condition Scoring (BCS) also has a major influence on the likelihood of experiencing metabolic issues, hence it is always best practice to dry off cows in the same condition that she should calve down in (Target 3.0-3.25). Therefore, her nutrition over the dry period should just maintain condition (thin cows ideally dried off early to allow for recuperation of condition). Where large variation in BCS occurs within a herd, grouping of cows is advisable. The requirement for dilution or supplementation will depend on silage analysis.



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