

Managing dairy cow reproductive performance

Dairy herd health management is constantly evolving in response to massive increases in technology concerning cow health, production and reproductive performance. The main drivers of change include the global increase in herd size, the milk quota removal in Europe and ever-tightening milk margins. A major goal for the sector is to improve livestock welfare, productivity and profitability and to extend the productive life of the dairy cow.

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Increasing cow longevity and the number of productive lactations is obviously associated with achieving better profitability. Cows will inevitably produce more milk in 3-5 lactations than they will in 1-2 lactations.

In addition, milk produced by multi-lactation cows will be more profitable as heifer rearing/purchase costs only have to be paid off once, enabling cows that milk for longer to achieve a lower depreciation value.

Cows which have to be culled before their third lactation will also not reach their full genetic potential, given that the highest milk production figures can be expected to be achieved after the third lactation. Having to



be culled early, therefore, should be considered as resulting in a loss of genetic potential.

Increasing the longevity of cows also leads to lower replacement rates, with fewer calves needing to be kept for replacement purposes.

Farmers across the EU and US are increasingly adopting the practice of inseminating their dairy cows with beef genetics, a move which doubles the value of the calf, providing a second source of income for the dairy farmer in the face of tightening milk margins. This, of course, can only be done when the need for replacements is reduced.

According to an article published in 2009 by the Dairy Cattle Reproduction Council, reproductive failure is the main reason for culling dairy cows, while improving their reproductive performance is associated with extended longevity and the number of lactations.

Reproductive performance in high-yielding dairy cows determines not only the culling rate but also leads to higher milk production, more calves, lower replacement costs and lower relative reproduction costs.

According to a Dutch study published in 2010, improving the reproductive performance of the dairy herd can increase the net profit per cow by €34 to €231.

Factors affecting cow fertility

Several factors potentially affect cow fertility. These include genetics, nutrition, welfare, stress management around calving, heat stress, negative energy balance and so on. Natural additives, such as probiotics, can help to improve the overall health of dairy cows and may have a positive effect on reproductive performance.

For example, supplementing dairy cows

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Fig. 1. Number of AIs required for conception in multiparous cows.

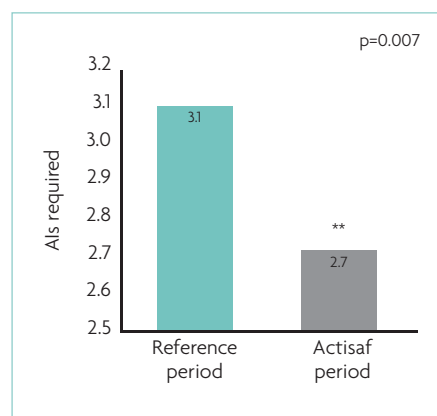
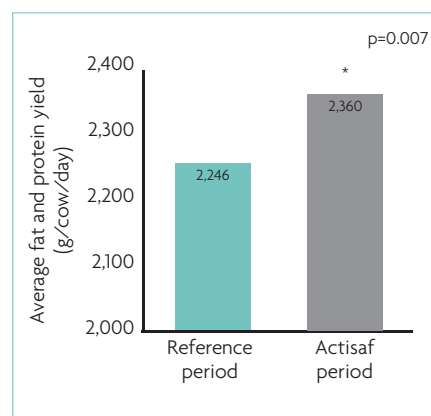


Fig. 2. Average fat and protein yield in multiparous cows (g/cow/day).



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with the proprietary yeast probiotic Actisaf Sc 47, given during the transition period, has been shown to significantly reduce inflammatory markers around calving and BHBA blood levels, while also appearing to increase feed intake before and after calving.

Considering that negative energy balance and systemic inflammation around calving may have a serious impact on future fertility rates, we estimate that supplementing diets with proprietary yeast probiotics may help improve reproductive performance.

To clearly assess the effect of yeast probiotics on reproductive performance, a long-term study is needed, involving large numbers of animals at different stages of lactation.

Yeast probiotics, in such a study, should be supplemented for a complete year for the entire herd in order to obtain relevant information on the efficacy of the diet in relation to fertility.

Most studies in dairy cows involving probiotics are performed for short time periods, however, usually running for 2-4 months and focusing only on selected animals according to targeted criteria, such as days in milk, number of lactations and so on.

To better understand the link between the yeast probiotic Actisaf and dairy cow reproductive performance and production, we carried out a large scale study in

collaboration with the French animal genetics and reproduction technologies group, Gènes Diffusion. The study involved 14 French dairy farms and a total of approximately 2,500 dairy cows.

The study was conducted over 13 months of supplementation for all lactating cows, with Actisaf being included at the recommended dose of 5g/cow/day, mixed into the daily ration.

Study data was compared to a reference period of the two previous years.

The study farms were located in the same geographical area and were all situated within a 100km radius, with all their reproduction being managed, monitored and recorded by Gènes Diffusion's technical team.

All reproduction data was extracted from Gènes Diffusion's databases with the agreement of the study farmers, with data being collected from the various individual animal milk recording systems for the entire duration of the study.

Trial results showed statistical differences in production and reproduction, mainly in multiparous cows.

Primiparous cows were less affected by the supplementation, which was expected, considering that they had generally better reproductive performance.

The cows supplemented with Actisaf had a significantly higher overall artificial insemination (AI) success rate – 38% vs 34%

($p<0.05$), a significantly higher AI success rate from the first insemination – 46% vs 31% ($p<0.05$), and a significantly lower number of inseminations per pregnancy – 2.7 vs 3.1 ($p<0.01$).

The cows supplemented with Actisaf also had an overall increase in milk fat and protein yields (2,246 vs 2,360g/d) and an increase in milk production by an average of 1.5 litres per cow per day.

Conclusion

This is the largest study to date to focus specifically on the effect of yeast probiotic supplementation on the reproductive performance of dairy cows.

Our conclusion is that supplementing the diet with the yeast probiotic Actisaf not only improves milk production and milk solids but also improves dairy cow fertility and may contribute to greater dairy cow longevity.

As for the cost of the supplementation, compared with the value of milk, milk fat and protein and the cost of artificial insemination, the calculated return on investment (ROI) from using Actisaf during the study was 1:6. ■

References are available
from the author on request