Economic benefits of abrupt dry-off with cabergoline injection in dairy cows. A field case in Vietnam

Author: Philippe Gisbert, Tung Nguyen, Carla Azevedo, Juan Munoz-Bielsa, Tam Nguyen Minh

Objectives

In order to dry-off dairy cows with the lowest possible milk yield at the time of the last milking, farmers often resort to gradual dry-off by reducing feed intake and/or milking frequency during the last weeks of lactation.
Drying-off abruptly, i.e. stopping milking without first reducing feed intake or milking frequency, makes it possible to limit the workload and optimize the animals' milk production. However, this can lead to an increase in udder pressure particularly 24-48 hours after the last milking. This causes discomfort for the cow and milk leakage, linked to the development of new intramammary infections at dry-off[1]. The use of cabergoline (Velactis®) just after the last milking helps to overcome these negative aspects of abrupt dry-off.

This study aimed to evaluate the reduction of milk leakage and the economic value of Velactis® in terms of milk production gains on a commercial dairy farm in Vietnam under field conditions.

Material and methods

The study was carried out on the Nutimilk farm located in a semi-mountainous area of central Vietnam. 97 Holstein cows were included. The cows were randomly assigned to two groups: cows in Velactis group (n=41) remained on the same feed ration until the last milking, and received an injection of Cabergoline 5.6 mg (5mL, Velactis®, Ceva Santé Animale, France) given intramuscularly just after the last milking. Cows in control group (n=56) were dried-off according to the farm's usual procedure: switching from the lactation ration to the dry cow ration one week before the day of dry-off, and housing with cows already dried. After the last milking, animals from both groups received dry-cow therapy and were grouped together in the dry-cow barn.
Milk production for the last 7 days of lactation was collected from the farm's production management software. In addition, milk leakage was assessed two times: once 24 hours and once 48 hours after last milking using an inspection mirror placed under each teat. Milk leakage was considered to have occurred when a stream of milk emerged from one or several teats, milk drops were visible at the end of at least one teat, or milk was observed on the floor beneath the udder.

Results

Average production over the last 7 days of lactation was 103.48 kg milk per cow in the control group and 152.22 kg milk per cow in the Velactis group. Cows that dried-off abruptly therefore produced 48.74 liters more milk than cows progressively dried-off.
The price of milk in Vietnam is 1,500,000 VND (around 64 USD) per 100 liters. The value of the extra production is 48.74/100 * 1,500,000 = 731,100 VND. As a dose of Velactis® is sold for 530,000, the profit is VND 201,100 per cow (around 8.25 USD). However, other costs such as the difference in feed costs and labor costs could not be estimated in this study.
There was no significant difference between the two groups in milk leakage at 24h and 48h (p=0.13 and p=0.39 respectively, Fisher exact test). This shows that abrupt dry-off with Velactis® delivers the same benefit in reducing milk leakage than gradual dry-off. In contrast, published data comparing abrupt dry-off with and without cabergoline showed an 82% reduction in the risk of milk leakage in favor of treated animals[2].

Conclusions

This field study demonstrated the economic benefits of the systematic use of Velactis® under Vietnamese breeding conditions: 48 kg additional milk produced for the last 7 days and net profit gain of 8.25 USD per cow. A more detailed economic study incorporating differences in feeding costs, labor costs and the economic impact of reducing new intramammary infections during the dry period (treatments, production losses, early culling) would provide additional and show very likely a higher level of return of investment.

References

[1]Gott, P. N., Rajala-Schultz, P. J., Schuenemann, G. M., Proudfoot, K. L., & Hogan, J. S. (2016). Intramammary infections and milk leakage following gradual or abrupt cessation of milking. Journal of dairy science, 99(5), 4005-4017.

[2]Hop, G. E., de Prado-Taranilla, A. I., Isaka, N., Ocak, M., Bertet, J., Supré, K., ... & Deflandre, A. (2019). Efficacy of cabergoline in a double-blind randomized clinical trial on milk leakage reduction at drying-off and new intramammary infections across the dry period and postcalving. Journal of dairy science, 102(12), 11670-11680.