

Delicate Artistic Cereal Provision to Reduce Negative Nutrient Balance and Improve Dairy Cow Health

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Abstract

This article introduces a pragmatic approach of delicate cereal grain feeding to improve high-merit cow health in modern dairy farms. Meticulous inclusion of moderate amount of wheat and barley grains along with corn or sorghum grain has the capacity to moderately manipulate milk fat. This manipulation attempts to reduce the intense pressure on high-producing cows in meeting increased nutrient requirements. As a result of attenuated negative energy balance, liver and splanchnic metabolism and cow's systemic immunity can improve.

Keywords: Wheat-Barley; Energy balance; Dairy cow; Health

Philosophy and Discussion

High-producing dairy cows usually undergo prolonged negative energy and nutrient balance during early weeks of lactation when increased dry matter intake lags behind increased milk synthesis [1-5]. As a consequence, cow relies on internal fat and protein reserves that may not be free of risks for health and longevity. In light of the justified theory that the incremental trend of milk production early postpartum obliges super cows to consume more but yet inadequate feed, visceral adipose tissue release several signals that make cows prone to a variety of metabolic and health issues. Since improving feed intake is a priority in reducing negative nutrient balance, the degree of improvement may not be large enough to considerably reduce super cows' inevitable dependence on internal depots.

This article, thus, develops a pragmatic strategy fuelled by extensive farm experience that involves artistic feeding of cereal grains to modulate milk secretion of nutrients towards improved nutrient balance. Soft grains of notably wheat and barley possess higher rate and extent of rumen fermentation compared to hard grains of mainly corn and sorghum [6]. Although barley grain feeding is very common in many regions, wheat grain is not often fed to dairy cows. Artistic provision of wheat and barley alongside corn or sorghum has the capability to induce modest grades of altered rumen conditions that can maintain milk fat content and yield within ranges that impose less pressure to the already metabolically challenged cows. Such ranges vary depending on animal and herd management properties, feeding systems, milk market norms, consumer preferences, and level of milk production [7-19]. For instance, for a Holstein dairy herd with average daily raw milk yield of 37-40kg and milk fat content of 3.5-3.7%, milk fat content may be manageably decreased down to 3.2-3.4% to significantly but healthfully reduce negative energy and nutrient balance. Such a decrease in nutrient requirements can easily reach to 10-20% and even more (in line with limit milk programs) that is of high significance in helping pressured cows better cope with the challenging weeks of lactation [8,16,19].

Research is required to specify local and global guidelines to accomplish such an attenuated negative nutrient balance through optimizing cereal grain nutrition, especially in early and peak lactation cows. Such pragmatic approaches should be matched with dry matter intake improving strategies to empower the efforts and yield more pronounced responses. Scientists and farmers education must persistently be pursued to improve understanding and optimum practice of the strategy [20].

Conclusion

Artistic and delicate optimization of dietary cereal grains inclusion is a pragmatic approach to be practiced alongside feed intake improving efforts to attenuate negative energy and nutrient balance in overly pressured early and peak lactation dairy cows. The goal can be accomplished through modulating milk nutrients secretion that consequently affects nutrient requirements. Care must be taken to not sub-optimize rumen conditions when wheat and barley grains are to be fed in critical amounts.

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