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Optimizing Starch Utilization: The Postmodern Art of Dairy Cow Management

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Abstract

This article describes how artistic nutrition of starch in dairy cows makes management profitable. It is more efficient to utilize combinations of different cereals rather than feeding only a single grain. Feeding the four cereals of corn, barley and where feasible wheat and sorghum would be a commercial recommendation. However, depending on cow productivity and physiological stage, the rate of cereals would differ. Likewise, a combination of different processing methods would be an optimization towards more efficient starch use by dairy cows.

Keywords: *Starch; Dairy cow; Management; Nutrition; Processing*

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The objective of this article was to describe some postmodern artistic starch feeding strategies in dairy cows. Starch is a major component in dairy cow rations that requires optimization in both inclusion rate and processing [1-4]. Although not always wise, it is a common practice to feed up to 35-40% cereal grains in dairy diets (dry matter basis). This is very risky when highly fermentable grains such as barley and wheat are fed. But, it is not as risky when corn and sorghum are fed because these grains possess harder endosperm (comparing barley and wheat) that is fermented much less rapidly in the rumen [5-11].

A careful strategy would be to not feed more than 35% grain (dry matter basis) to dairy cows even at high production levels. Another effective strategy would be to not grind all the grain. Steam- or dry-rolling would be optimal processing methods when highly fermentable grains such as barley are fed. Alternatively, a combination of ground and rolled grains may be fed to optimize rumen fermentation [5].

Based on a long-term strategy, it is better to start starch feeding from younger ages. Feeding different grains processed differently from younger ages will enable the adult dairy cows to better assimilate starch and absorb glucose. This means reduced incidence of metabolic problems such as subacute rumen acidosis (SARA) and proinflammatory immune responses. Long-term adaptation to starch feeding is a critical practice that must be exercised in commercial dairy farms to prevent diseases and sustain high production levels.

Feeding grains in total mixed rations may be a sound strategy in environments with competitive feeding (e.g., group feeding, yard feeding), but it may interfere with effective forage utilization in noncompetitive environments (e.g., individual housing and feeding). Thus,

component feeding of forage and concentrate may be an optimum strategy to ensure maximal starch use by dairy cows in some management scenarios. This requires further research.

Conclusion

This article provided insight on optimal starch feeding and processing strategies for postmodern artistic dairy cow management.

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