

The Art of Manipulating Nutrient Bioprocessing In Ruminants: Behind the Rumen Wheel

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Editorial

This article emphasizes the art of managing rumen fermentation in securing efficient nutrient bioprocessing and economy-boosting production in modern dairy and beef ruminant production. A special focus is made to not overestimate post-rumen nutrient assimilation capacity. Rumen is where any modern ruminant enterprise must concentrate on towards improved food safety and security.

Philosophy and Discussion

Nutrient bioprocessing efficiency in modern ruminant production depends increasingly on maintaining healthy and metabolically stable rumen environment [1-3]. Controversies have existed on the relative ultimate importance of rumen versus post-rumen gut in improving dairy and beef production without compromising or even jeopardizing ruminant health and longevity [4-8]. For instance, maximizing starch bioprocessing efficiency in high-merit ruminants is of utmost significance to maintaining economical levels of milk and beef production. However, increased production must not be targeted through unwarranted increases in rumen fermentation that would adversely affect rumen and ruminant health and economy [9-11].

Neither recklessly raising extent and rate of rumen starch fermentation nor fearfully limiting rumen starch availability and overfocusing on post-rumen starch bioprocessing will yield real success. The art of nutrient bioprocessing in modern ruminants is embedded in capacious management of rumen fermentation and leading the post-rumen gut to just complement the bioprocess towards improved efficiency. Quantitatively, assimilation and bioprocessing of no less than 70-80% of dietary starch and neutral detergent fibre must be accomplished in rumen. This is because the small intestine possesses limited capacities to effectively assimilate starch. In addition, any increased fermentation of undigested or partially digested nutrients in the large intestine elevates waste and reduced efficiency [12,13].

Ruminant management must be led in ways that ensure no over-limit nutrient is by-passed the rumen either in undigested or insufficiently-digested forms, blindly hoping to be effectively assimilated in the post-rumen [14]. Rumen serves as an engine for the ruminant machine to work efficiently and sustainably [15]. To drive the ruminant productively and healthfully, the wheel to be seated behind is certainly the rumen ecology management. No overfocuses on post-rumen sections must be made, as they are to merely complement the rumen achievements and not more.

Creating and securing a global art of effective rumen fermentation depends highly on optimized forage nutrition, grain processing and management, grain feeding strategies, ration preparation and

presentation systems, feeding frequency and sequence, and suitably adopted dairy and beef production strategies [10-12]. The latter includes lactation cycles properties, growing and fattening duration, dietary adaptation techniques, dry period modifications, reproduction management and supplement nutrition. These players must be managed and set to maximise nutrient efficiency through a global leadership of rumen nutrient bioprocessing in modern ruminant production.

Conclusion

Rumen must become the gold-goal of any modern ruminant production in managing nutrient bioprocessing for maximal efficiency and economics. Overattention to the post-rumen gut would be a first and foremost step towards catastrophic situations in animal health and food safety and security in the new times.

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