

Beet Pulp in Dairy Production: Cropping a Commercial Critique

Akbar Nikkhah*

Department of Animal Sciences, Faculty of Agricultural Sciences, University of Zanjan, National Elite Foundation, Iran

Abstract

Space and digestibility limitations largely affect diet formulation and rumen function and health measures in modern dairy production. Beet pulp as a rich source of pectin and ruminally available fibres introduces challenges to functional rumen ecology, particularly in fresh and peak-milk cows. Considerations are required as for its expensiveness, ineffective cell wall fiber, very rapid rumen degradation, and milk fat-lowering effect. The current careless strategies in overusing beet pulp, when not practically needed, are criticised in this article, improving global and local awareness on the facts about beet pulp.

Keywords: Beet pulp; Dairy production; Pectin; Nonfiber carbohydrate; Rumen

Critical On-Farm Analyses

Philosophically, human brain work for quality life evolves based on insightful experience [1]. Beet pulp, as a by-product of sugar production, is a relatively energizing feed ingredient that is especially rich in plant cell wall and pectin. Pectin, although a fibrous component, is not pragmatically considered an effective fibre since it is easily and rapidly fermented by rumen microbes. Thus, in terms of extent and rate of fermentation, pectin is usually and generally named alongside starch in modern ruminant nutrition and management [2-4]. High rate of beet pulp fermentation has in ways confused dairy managers in categorizing it as either a concentrate or forage item. In other words, beet pulp is a source of both energy and fiber.

Historically, beet pulp popularity goes back to traditional small-scale farming where and when concentrate items were not as diverse and available as they now are. In such scenarios, farmers were eager to feed soaked beet pulp mixed with straw and bran to increase milk production. However, farmers have always raised a question about lowered milk fat content when feeding beet pulp.

In the current ruminant feed market in Iran, beet pulp is even more expensive than corn and barley grains. Its commercial price is almost comparable to the invaluable alfalfa. These mean that per unit of effective fiber and microbial mass-yielding available starch, beet pulp is far more costly than main dietary forage and concentrates, thus questioning its use in fresh and high-producing cow diets where space is a real challenge.

It is contemplated that devoting a considerable space of 5-10% (DM basis) to beet pulp in early lactation dairy diets may not be greatly justifiable where safer ingredients can be included towards healthier rumen conditions and higher quality milk production. Early postpartum and peak lactation are times when rapidly improved nutrient intake and low-risk rumen conditions are highly demanded [5-7]. National and international farm experience suggests that dietary inclusion of beet pulp has rather become a sightless habit than coming from a practical wisdom. Such a malpractice must indeed be reevaluated for correction and clarification.

Reviewing the traditional basis of beet pulp feeding in dairy farming, it must be noted that the popularity of beet pulp in the past was reasonably due to a broad hesitation in feeding much cereal starch. Risks from various forms of rumen acidosis and decreased milk fat and solids production and cow health were an impetus to feed an apparently safer feed (beet pulp) that would provide both energy and cell wall fiber

simultaneously without possibly jeopardizing rumen fermentation and health. Now, the situation is entirely different. Starchy grains are principally and considerably used in commercial dairy rations. This necessitates greater needs for physically and chemically effective cell wall fibers to maintain reasonable rumen health and cow longevity [7,8]. The future use of beet pulp in dairy rations, especially for fresh and early lactation cows, requires a multitude of serious physiological and economical considerations towards sustainable food safety and security.

Implication

Concerns were raised against careless inclusion of beet pulp in commercial dairy rations, particularly for fresh and early lactation cows encountering major challenges in rumen and intermediary metabolism. Costliness, lack of adequately effective cell wall fiber, very high rumen degradability, and milk fat-lowering nature are amongst the critical factors cautioning measurable beet pulp feeding in postmodern dairy production.

Acknowledgments

Thanks to the Ministry of Science Research and Technology, National Elite Foundation, and University of Zanjan for supporting the author's global programs and initiatives of optimizing science edification in the new millennium.

References

1. Nikkhah A (2015) Pragmatic Science Edification: The Evolving Biodiverse Brain of Society. *J Biodivers Biopros Dev* 2: e109.
2. NRC (2001) National Research Council. *Nutrient Requirements of Dairy Cattle*. 7th rev. ed. National Acad Sci Washington, DC.
3. Sniffen CJ, O'connor JD, Van Soest PJ, Fox DG, Russell JB (1992) A net carbohydrate and protein system for evaluating cattle diets: II. Carbohydrate and protein availability. *Journal of Animal science* 70: 3562-3577.
4. Russell J B, O'connor JD, Fox DG, Van Soest PJ, Sniffen CJ (1992) A net carbohydrate and protein system for evaluating cattle diets: I. Ruminal fermentation. *Journal of Animal Science* 70: 3551-3561.

*Corresponding author: Akbar Nikkhah, Chief Highly Distinguished Professor, Foremost Principal Highly Distinguished Elite-Generating Scientist, Department of Animal Sciences, Faculty of Agricultural Sciences, University of Zanjan, National Elite Foundation, Iran, Tel: +98-24-35052801; E-mail: anikkha@yahoo.com

Received July 08, 2015; Accepted July 09, 2015; Published July 16, 2015

Citation: Nikkhah A (2015) Beet Pulp in Dairy Production: Cropping a Commercial Critique. *Adv Crop Sci Tech* 3: e127. doi:10.4172/2329-8863.1000e127

Copyright: © 2015 Nikkhah A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

5. Nikkhah A (2015) Sustainable, Safe and Secure Human Food Production through Circadian Probiotic Optimization of Rumen Fermentation: A Farsighted Realm. J Prob Health 3: e112.
6. Nikkhah A (2014) Dairy Ruminant Nutrient Intake Orchestration: A Novel Chrono physiological Discipline. Journal of Advances in Dairy Research 2:2.
7. Nikkhah A (2015) Diurnal Fibrous Meals for Healthy and Yielding Nocturnal Starch Assimilation: Nature Bioprocesses. J Bioprocess Biotech 5: e130.
8. Nikkhah A (2015) Gut Adaptation to Healthy Starch Assimilation in Dairy Ruminants: A Lifetime Development. Adv. Dairy Res 3: e117.

Citation: Nikkhah A (2015) Beet Pulp in Dairy Production: Cropping a Commercial Critique. Adv Crop Sci Tech 3: e127. doi:[10.4172/2329-8863.1000e127](https://doi.org/10.4172/2329-8863.1000e127)

Submit your next manuscript and get advantages of OMICS Group submissions

Unique features:

- User friendly/feasible website-translation of your paper to 50 world's leading languages
- Audio Version of published paper
- Digital articles to share and explore

Special features:

- 400 Open Access Journals
- 30,000 editorial team
- 21 days rapid review process
- Quality and quick editorial, review and publication processing
- Indexing at PubMed (partial), Scopus, EBSCO, Index Copernicus and Google Scholar etc
- Sharing Option: Social Networking Enabled
- Authors, Reviewers and Editors rewarded with online Scientific Credits
- Better discount for your subsequent articles

Submit your manuscript at: <http://www.omicsonline.org/submission/>

