Bio Vet Innovator Magazine

Volume 1 (Issue 2) AUGUST 2024

OPEN ACCESS

Popular Article

Implementation of Non-Conventional Feed Resources in Livestock Feeding

Dr. Sheetal Choudhary[1*], Dr. Nivedita Khiriya[2]

[1]*Assistant Professor, Dept. of Animal Nutrition,*

[2]*Assistant Professor, Dept. of Veterinary Public Health and Epidemiology*

Sri Ganganagar Veterinary College, Tantia University, Sri Ganganagar, Rajasthan

***Corresponding Author:** sheetal20011996@gmail.com

DOI – https://doi.org/10.5281/zenodo.13382130

Received: August 26, 2024

Published: August 28, 2024

Abstract:

For rural Indian households raising livestock, conventional feed sources are essential. Despite the large and diversified population of livestock in India, the productivity is low. The primary obstacle to livestock production is the lack of consistent, high-quality feed supplies throughout the year. Thus, for sustainable growth of the livestock industry, it is important to consider all options for overcoming feed deficits. The inclusion of non-conventional feed resources (NCFR) could be a better option for bridging the gap between supply and demand for animal feeds, for reducing the competition between human and animals for food and for providing nutritional sufficiency to available feed sources.

Additionally, this would be a successful strategy for biodiversity preservation and traditional agricultural diversification. They are a great source of nutrients that support the activity of the gut microbiota in the digestion of cellulosic biomasses. Some of them, on the other hand, have low nutritional quality and large concentrations of unpleasant substances, which decrease nutrient consumption and cause a number of metabolic processes to stop. The detrimental effects of the antinutrients from NCFR have been mitigated by the development of a variety of processing and feeding techniques. The incorporation of NCFR in cattle feeding is emphasized in this review in order to achieve enhanced production of cattle and the maintenance of rural livelihoods.

Keywords: NCFR, Tree fodder, nutritional composition, anti-nutrients and lack of fodder

Introduction:

India has the largest population of livestock in the world, but their output is comparatively low (Katoch, 2009, Katoch *et al*., 2017). Lack of feed throughout the year, a steady increase in the cost of commercial feeds, an excessive dependence on poor-quality feed ingredients, and low genetic potential are the main reasons for low livestock productivity in the country. By the year 2025, it has been estimated that Indian livestock has an expected deficit of 68% green fodder, about 25% dry fodder and 64% feeds for meeting the mounting feed requirements (Ayyadurai *et al*., 2013; Singh *et al.* 2013). The above circumstances necessitate the identification and exploitation of NCFR for feeding millions of animals and safeguarding their food as well as nutritional security.

Non Conventional Feed Resources:

Non conventional feed resources are generally defined as "Tree fodder, shrub fodder, and agro-industrial by products which have not been utilized traditionally and/or commercially in livestock feeding (Amata, 2014). The nutritional value of feed for livestock varies greatly amongst nations and regions; in addition, it can be challenging to discern between NCFR and traditional feeds. For this reason, identifying the NCFR that are available is essential to fully utilize their potential and implement improvements to livestock.

Some Salient Characteristics of NCFR:

- Cheap resource
- Alternative source to ensure feed insurance during lean periods e.g., Tree foliage
- Decrease competition in terms of human consumption
- Excellent source of fermentable nutrients
- Conservator of biodiversity
- Compatible with existing farming system
- End products of various production processes and consumption e.g., Agro-industrial by products.

Sources of NCFR:

1. NCFR may be extracted from grain crops as stover and husk, from cereal crops as straw and hull, and from beans as straw and pod peel and from tuber crops. NCFR may appear as tips or stems and bushes. These NCFR's accessibility is dependent upon depending on the kind of crop being grown and used agricultural technology.
2. In the estate crop, where trees and shrubs are utilized as climbers and shades NCFR is in the form of leaves, pod peels, and shrubs. Bagasse and sugarcane top can be utilized as NCFR in sugarcane plantations. NCFR is present in plantation crops like coconut and palm in the form of fruit husk and leaf fronds.
3. In agroforestry, tree leaves and shrubs can be used as alternative feed source.
4. Weeds can also be a source of feed.

Problems with Accessing NCFR As Livestock Feed:

There are several reasons behind the restricted utilization of NCFR. The feed resources have low nutritional value, are seasonal, have high handling and transportation costs, provide insufficient information about the nutritive value and how well it can be integrated into livestock feeding, have anti-nutritional factors, are highly prone to bacterial and fungal growth, and have high moisture content.

Deleterious Factors in NCFR:

NCFR has a high nutritional value, it is widely used as a cost-effective feed resource to boost feed intake and nutrient digestibility. However, because of a high concentration of anti-nutritional elements, some animals

Citation: Dr. Sheetal Choudhary, Dr. Nivedita Khiriya. (2024). Implementation of Non-Conventional Feed Resources in Livestock Feeding. In BIO VET INNOVATOR Magazine (Vol. 1, Issue 2, pp. 29–32). BIO VET INNOVATOR Magazine. https://doi.org/10.5281/zenodo.13382130

refuse to eat specific diets. The consumption, digestion, absorption, and use of nutrients are all hampered by these anti-nutritional variables. Two classifications have been established for these NCFR factors:

Antinutrients that are

(i) Non-Proteinaceous and

(ii) Proteinaceous

The primary members of the first class of anti-nutrients include alkaloids, phytic acid, lignins and tannins, polyphenolic compounds, nitrates, oxalates, saponins and cyanogenic glucosides, whereas the later comprises - amylase inhibitors, protease inhibitors, and Lectins. Anti-nutritional elements because of their disagreeable taste, toxicity, indigestibility, and poor palatability animals find it repulsive. It depends on chemical nature and rate of ruminal micro-organisms breakdown.

Future Directions:

Future directions for using NCFR into animal feeding are as follows:

- Evaluation of nutritious value, availability, and use of NCFR around the nation
- Farm-based experiments to evaluate NCFR's potential for use in commercial manufacturing
- NCFR's incorporation into the current farming system
- Utilizing biotechnological methods to create superior NCFR

Conclusions:

To achieve the aim of improved livestock productivity in the country, sufficient quantity of nutritive fodder has to be supplied, therefore, it is desirable that adequate feed resources should build up. Every year large amount of crop residues and other agro-industrial by-products is produced but low nutritive value, uneconomical handling and lack of the knowledge in farmers regarding NCFR are the major constraints in their utilization as a livestock feed. Hence it is necessary to put more efforts for increasing the number of alternative feed sources and improving their nutritive value. Hence, the special attention should be given to the integration of multipurpose fodder trees and shrubs as a fodder bank in existing farming system. The current study greatly emphasizes the inclusion of NCFR in livestock feeding programmes for achieving maximum livestock productivity and that will be reflected in improved socioeconomic status of rural households. The successful implementation of the NCFR in farming system requires facilitation of knowledge intensive practices like farmer to farmer extension activities, different training sessions and field trial demonstrations by local and government extension agencies.

References:

Amata, I. A. (2014). The use of non-conventional feed resources (NCFR) for livestock feeding in the tropics: A Review. *Journal of Global Biosciences*, 3(2): 604-613.

Ayyadurai, P., SathyaPriya, R., Jegathjothi, N. and Gokila, J. (2013). A review on optimizing forage quality through management. *International Journal of Agricultural and Science Reserach*, 3(1):173-180.

Citation: Dr. Sheetal Choudhary, Dr. Nivedita Khiriya. (2024). Implementation of Non-Conventional Feed Resources in Livestock Feeding. In BIO VET INNOVATOR Magazine (Vol. 1, Issue 2, pp. 29–32). BIO VET INNOVATOR Magazine. https://doi.org/10.5281/zenodo.13382130

Katoch, R. (2009). Tree Fodder: An alternative source of quality fodder in Himachal Pradesh. *Range Management and Agroforestry*, 30(1): 16-24.

Katoch, R., Singh, S.K., Tripathi, A. and N. Kumar (2017). Effect of seasonal variation in biochemical composition of leaves of fodder trees prevalent in the mid-hill region of Himachal Pradesh. *Range Management and Agroforestry*, 38(2): 234-240.

Singh, K. M., Singh, R.K.P., Jha, A.K. and Kumar, A. (2013) : Fodder Marketing in Bihar : An Exploratory Study. *Economic Affair*, 58(4): 355-364.

Citation: Dr. Sheetal Choudhary, Dr. Nivedita Khiriya. (2024). Implementation of Non-Conventional Feed Resources in Livestock Feeding. In BIO VET INNOVATOR Magazine (Vol. 1, Issue 2, pp. 29–32). BIO VET INNOVATOR Magazine. https://doi.org/10.5281/zenodo.13382130