

Sugarcane trash:

a valuable dry fodder source for dairy animals

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Sugarcane dry trash, available to the tune of 7 million tonne, is a part of sugarcane tops and is a major byproduct of the sugarcane industry which is left in the field after cane harvest. The dry fodder can be utilized as dry fodder source after chaffing in to small pieces in the place of paddy or any other straw. The dry fodder can be mixed with other seasonal green fodder and concentrate in the total mixed ration. Depending upon level of milk production, not more than 3 to 5 kg dry trash can be mixed with varying amounts of green fodder and concentrate in the form of total mixed ration for feeding cattle.

Key words: Animal, Dairy, Dry fodder, Sugarcane, Trash



AT present country faces a net deficit of 35% green fodder, 11% dry fodder and 44% concentrate feed ingredients. To meet the current level of livestock production and its annual growth in population, the deficit in all components of fodder, dry crop residues and feed has to be met either from increasing productivity of fodder, utilizing untapped feed resources, increasing land area (may not possible due to human pressure for food crops) or through imports. The mixed crop-livestock systems of India contribute to 40 to 60% of the total dry matter intake per livestock unit through straw. There is however, considerable regional variation in the dominant type of crop residue i.e. rice-and

wheat-straw in irrigated regions compared to coarse cereal straws and hay from leguminous crops in the drier, semi-arid regions.

Chronic drought like situations prevailing due to less rainfall, there will be always dearth of dry fodder for feeding of dairy animals. Indian farmers in semi-arid tropics generally perceive that in a block of one decade, drought years would be around 3 to 4 years. In the arid villages of western Rajasthan, pearl millet-straw plays a fundamental role in crop-livestock production systems. It is imperative that during drought years, search for alternate sources of dry-fodder which have potential availability will fill the gap between demand and availability. One of the

potential alternatives is sugarcane dry trash and is a part of sugar cane tops and is a major by-product of the sugarcane industry which is left in the field after cane harvest (Fig. 1). The major states producing sugarcane are Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Bihar, Gujarat, Haryana, Uttarakhand and Punjab. During 2015-16 the annual production of sugarcane was 348.448 million tonne. With cane to dry leaf ratio of 2% around 7 million tonne of sugarcane trash is expected to be available at the harvest. The enormous amount of dry trash can be source of dry fodder during drought conditions. The major constraints in the use of sugarcane dry trash is

seasonal availability, bulkiness and relatively low nutritive value, labour intensive collection and increased transport costs over long distances. To overcome this farmers prefer to mulch the sugarcane dry trash in the field for enriching the soil nutrients. However, this trash can be fed to livestock as a replacement of dry fodders rice-wheat-straw, finger millet, pearl millet or sorghum stover.

Pre-processing of sugarcane trash before feeding

Sugarcane trash is very bulky material and light occupies lot of space. This can be a major drawback during transportation (Fig. 2). The problem can be overcome by chaffing to small pieces with the help of mechanical chaff cutter (10 to 15 cm). This is essential for before feeding to animals. Chaffing is also advantageous for reducing bulkiness and subsequent transportation. Even baling can also be done for reducing the bulkiness. If chaff cutter is not available due to power problems, sugarcane trash can



At the National Institute of Animal Nutrition and Physiology, nutritional evaluation of sugarcane trash was undertaken. For this



be manually cut into pieces with the help of sickle or any other cutting device. Being dry material, can be stored for further feeding for sufficiently longer duration.

Nutritional quality of sugarcane trash

Sugarcane trash is good source of fiber (32.3%), carbohydrates (56 %) and hemi-cellulose (26.9%). However, contains less protein (3.54%), similar to any other cereal straws like rice or wheat. It is also a good source of minerals also like calcium 0.66%; phosphorous 0.10%; magnesium, 0.28%; zinc, 10.15 ppm and copper, 3.98 ppm.

purpose, total mixed ration was formulated using 70% of dry trash, 20% seasonal fodder and 10% concentrate mixture. The concentrate mixture was prepared with the composition of maize grain, 35%; groundnut-cake, 32%; rice bran, 15%; wheat bran, 15%; mineral mixture, 2% and salt 1%).

Dairy cattle consumed around 6.5 kg of sugarcane-based total mixed ration (TMR) which can be sufficient for maintenance of adult cattle weighing 300 to 350 kg. Dry matter and organic matter digestibility of sugarcane trash-based TMR was found to be 52 and 54%. Digestible crude protein (3.49%) and total digestible nutrients (54.45%) of sugarcane trash TMR. Calcium and phosphorus absorption was also adequate (29.74 and 36.20%).



For improving the nutritive value of sugarcane trash for supporting production requirements of cattle, supplementation with nitrogen sources like cotton seed meal, copra meal, rice bran or molasses/urea can be advocated. Alkali treatment or urea treatment of sugarcane trash did not improve the dry matter digestibility. The practical approach recommended is sugarcane trash can be fed to cattle as total mixed ration replacing dry fodder. Not more than 3 to 5 kg of sugarcane trash can be fed with varying amounts of concentrates and green fodder to sustain milk production of dairy cattle.

SUMMARY

Sugarcane trash is only substitute to dry fodder like wheat or rice straw. It needs to be chaffed mechanically under intensive dairy farming situations. The chaffed Sugarcane trash needs to be mixed with green fodder and concentrate as a total mixed ration for maximizing intake.

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