

Potential use of sugarcane trash

as a fodder source

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Over the years, livestock producers meet their fodder requirements through a combination of crop residues, grazing (on common lands, private lands, forests, fallow agricultural lands and harvested agricultural lands) and cultivated forage crops (mostly by large landholders), while some of them purchase fodder. However, it should be noted that, crop residues are used as the most abundant livestock feeds and have a great potential as a feed stuff in India. It is also found that their nutritional value is poor and is well documented. In this context, to improve the value of such low-quality feedstuffs, the urea treatment technology is considered as potential option. A large number of on-station and on-farm trials conducted in several countries under different conditions have shown that feeding urea-treated straw/dry fodder vis-a-vis untreated straw increases feed intake by 10 to 15%, growth rate of calves by 100 to 150 g/day and milk yield by 0.5 to 1.5 litres/day. Urea-treated straw is more palatable and digestible. The dry matter (DM) digestibility increases by approximately 10% units, the total digestible nutrient (TDN) value increases by 10 to 15% units and the CP content increases almost three times. However, this technology or process has its own limitations due to which it is not disseminated effectively to field conditions.

Key words: Dry matter, Feeding, Fodder, Livestock, Sugarcane trash

The initiative

Among various crops cultivated in Bidar district of Karnataka, sugarcane is the most common crop which is mostly harvested in the months of November-December which yields huge quantity of sugarcane trash for the farmers. The farmers in the region lack knowledge about use of trash as fodder for livestock. Although, sugarcane trash is the most common unconventional source of fodder for livestock, it is not effectively utilized

due to various reasons. The farmers have a tradition of spreading this trash in the field and burning it causing environmental pollution and destroying soil micro-flora.

The success story discussed is from the World Bank Funded Karnataka Watershed Development Project - Sujala III project village Mustari in Bidar District, Karnataka implemented by Veterinary College, Bidar which is under the aegis of the Karnataka Veterinary, Animal and

Fisheries Sciences University (KVAFSU), Bidar (Karnataka) during last two years viz. 2015-16 and 2016-17. The study identified the interested farmer Mr Kallappa Jakka based on his involvement in dairying during the study period. He was dairy farmer interested to adopt scientific practices. A brief profile of the farmer is depicted in Table 2.

Practices followed

Urea enrichment method:

Table 1. Year-wise estimation of sugarcane trash yield in comparison to cane yield (per acre) Cv. 87032

Sugarcane	Sugarcane Yield (tonnes)	Trash yield (tonnes)
I year	45-50	1.75 -2.00
II year	45-40	1.5
III year	40-35	1.25
IV year	30-35	1.00

Table 2. Profile of Mr Kallappa Jakka, Mustari

Name & Mobile No.	Mr Kallappa Jakka (7353868180)
Age	61
Total family members	04
Occupation	Agriculture and Animal husbandry (08 buffaloes)
Agricultural land	Irrigation- 10 acres; Dry-18 acres
Agricultural Crops	Sugarcane, pigeon pea, black gram, green gram, soyabean and Bengal gram
Fodder Crops (Before Project)	Maize, sorghum

Table 3. Adoption of trash enrichment practice by Mr. Kallappa Jakka

Year	Weight/ Tonnes	Days Fed
2015-16	1	28
	1.5	46
	2	62
	4	110
2016-17	1.2	34
	2.1	69

Different methods are followed to enrich the dry fodder like sugarcane trash, paddy straw, jowar straw etc. However, the farmer has followed ammoniation method as

Farm literatures and video:

The farm literatures and reading materials were distributed to all the beneficiaries including Mr Kallappa Jakka. Further, a video was produced in vernacular language and exploded on YouTube for the benefit of the



Fig. 1. Demonstration of sugarcane trash.

Table 4. Income expenditure statement of sugarcane trash enrichment (Per tonne)

Expenses (per tonne)	Amount (₹)	Remarks	Income	Amount (₹)	Remarks
Sugarcane trash	Nil	Since it is burnt in the field as a waste, and hence, is available freely with the farmer. Such trash can be used as fodder for enrichment	Income from Trash as feed: ₹ 10 per kg × 1.0 tonne	₹ 10,000	• The farmer has not purchased fodder/trash from other sources • The trash which was burnt in the field has been utilized as fodder. • The soil micronutrients are intact and soil fertility exists. • Improved sugarcane yield in the next sowing. • Increased milk yield of about 0.5 to 1.0 litre per day and improved fat and SNF due to enriched fodder.
Labour charges	₹ 2000	Trash transport from field to shed			
Manual chaffing	₹ 500	For urea enrichment			
Urea 40 kg @ Rs 8/kg	₹ 320	For one tonne trash			
Water	Nil	Available			
Pit/plastic sheet expenses (one time investment)	₹ 5000	Any pit available in house or field can also be used			
Total	₹ 7820				

demonstrated by the project team.

- The demonstration was conducted with fifty kgs sugarcane trash which was chaffed and treated with 2 kg urea in 20 litres of water.
- Urea treated trash was packed air tight container and the animals are fed after 21 days and results were examined accordingly.

Awareness programmes, trainings and demonstrations:

Multi-disciplinary teams conducted awareness programmes and trainings for the beneficiaries on fodder production practices and also importance of crop residues sugarcane trash as important fodder source. Although various fodder sources exist in the region, but this study emphasized on use of trash as fodder for livestock. Mr Kallappa Jakka also participated in these programmes. During the programmes, more emphasis was given the importance of enrichment of dry fodder including sugarcane trash. Further, the advisory services on timely basis have helped the beneficiaries to a great extent.

farmers.

Convergence of multi-stakeholders/actors:

The farmer Mr. Kallappa Jakka is supported by multifarious agencies viz. Veterinary College, Bidar, Livestock Research and Information Centre (Deoni), Bidar, Karnataka Milk Federation, State Department of Agriculture and State Department of Animal Husbandry & Veterinary Services to undertake the practice of dry fodder enrichment.

Benefits and impact

Improved knowledge level of Mr Kallappa Jakka:

Overall knowledge level of the beneficiary about dry fodder enrichment and its importance has increased after participating in demonstrations and various programmes through the project. Further, the knowledge retention level of the farmers also improved over a period of time.

Enriched trash feeding to dairy animals:

Mr. Kallappa Jakka has adopted the practice of urea enrichment for sugarcane trash and

hence, the fodder wastage is avoided by about 65% compared to other farmers. Table 3 depicts the adoption of practice and feeding rate to dairy animals.

Improved economic returns and other benefits:

Enrichment of sugarcane trash with urea helped in supplementing the fodder demand especially in the lean period of the year (summer). Ultimately, this practice also reduced the fodder wastage and increased the milk yield of the dairy animals to the extent of (%) as compared to non-enriched trash or other straw. Major key characteristics were its low cost of practice, relatively short wait for benefits, preference to use of trash as fodder, and observable benefits. Table 4 indicates the economics of urea enriched sugarcane trash feeding to dairy animals in the farm of Mr. Kallappa Jakka.

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