ARECANUT LEAF SHEATH: AN ALTERNATE CATTLE FEED

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Introduction

Arecanut is one of the important commercial plantation crops grown in parts of Karnataka, Kerala, Assam, Meghalaya, West Bengal and Andaman & Nicobar Islands. The cultivation has also been extended to other states like Tamil Nadu, Andhra Pradesh and Maharashtra. Arecanut is the major source of livelihood for more than ten million people in India. India is the largest producer and consumer of arecanut in the world holding 62% of the area and 60% of the production.

Arecanut sector provides large number of employment opportunities both directly and indirectly for lakhs of farmers especially marginal and small farmers. But in the recent past this sector has been facing problems like price fluctuations, pests and diseases, labour shortage etc., because of which there is a need for diversification or value addition. Leaf sheaths are one of the raw materials obtained from arecanut palm which are generally used for making composts or bio-degradable/ eco-friendly plates (Bavappa and Murthy, 1960; Menon *et.al.*, 1982). Constituents of leaf sheath are cellulose (43 %), crude fibre (33 %) and ash (5 %) and leaf sheath manure contains 0.7 % N_2, 0.3 % P_2O_5 and 0.1 K_2O (Biddappa, 1960). Scientists from National Institute of Animal Nutrition and Physiology, Bangalore tried to use arecanut leaf sheath as an alternate feed for cattle. They came out successfully with the finding that small pieces (12 mm size) of arecanut leaf sheath can be fed to the cattle as a supplement feed. This technology is of great help to the farmers who have cattle as they are finding it difficult to get paddy straw or green grass fodder to feed the cattle. Besides, the area under cereals is coming down which lead to shortage of fodder coupled with increased prices. So, farmers are forced to go for alternate sources for fodder which are locally available with minimum cost. Keeping the potential of arecanut leaf sheath for making cattle feed, farmers in Dakshina Kannada district of Karnataka have started using arecanut leaf sheath fodder for feeding the cattle. In this paper, we have attempted to give an idea about arecanut leaf sheath fodder as an alternate cattle feed for reaping profits from dairy. Survey was conducted at Panaje Milk Cooperative society, Puttur taluk, Dakshina Kannda district among arecanut farmers who make arecanut leaf sheath fodder.

Steps involved in preparation of arecanut leaf sheath fodder

i. Collection of arecanut leaf sheaths from different arecanut gardens

The freshly fallen leaf sheath should be collected daily wherever sprinkler irrigation is practiced. Wherever drip or hose irrigation are practiced, the leaf sheath can be collected once in two to three days. Seven leaves can be collected from

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one palm per year. Out of which, three leaves will get spoiled either due to excess rain or over irrigation or fungal infection. We can get four good leaves from each palm in one year. From one hectare holding we can get 5000 leaves (@ 4 leaves from 1250 palms). (Fig.1)

ii. Drying of leaf sheath

The leaf sheaths should be kept inverted and dried for three days under hot sun. After drying, the leaves will be tied and bundled for easy transportation. The leaves have to be kept in dry place. During rainy season care should be taken to cover the leaves with Tarpaulin or store in shed. (Fig.2)

iii. Leaf sheath cutting and preparation of arecanut leaf sheath fodder

The washed leaf sheaths are fed to the leaf sheath cutting machine for making into small pieces. Leaf sheath cutting machine/ leaf sheath shredder can be purchased from Star Associated Industries, Rani Channamma nagar, Industrial area, Belgaum-590008 or Central Institute of Agricultural Engineering, Bhopal, Madhya Pradesh- 462038. The machine has 5 HP capacity which cut the leaf sheath into pieces and which are collected and put into the fodder making machine which make the pieces into small pieces of fodder with a size of 12 mm. One labour can produce 2 tonnes of leaf sheath fodder per day. (Fig. 3, 4, 5 & 6)

iv. Packing

The arecanut leaf sheath fodder is packed in gunny bags and is kept in storage godown for use as cattle feed. Normally 3 kg Urea is added with 100 kg of arecanut leaf sheath fodder for increasing the nitrogen content and to avoid the growth of fungus and other harmful micro organisms. Fodder can be stored for two months.

v. Uses

The arecanut leaf sheath fodder is having following uses.

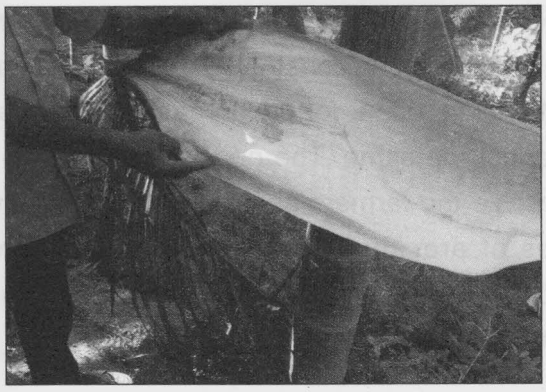
- ¢ This fodder can be fed to all kinds of farm animals including cows, buffaloes, sheep and goats as a substitute. (Normally 40% Arecanut leaf sheath fodder: 60% other items)
- ¢ As a supplement 3.5 kg fodder is recommended for one cow per day
- ¢ Balls can be made by mixing the powder with water and fed to the cattle

Table 1. Investment for establishing arecanut leaf sheath fodder making unit

S. No.	Items	Approximate Amount (Rs.)
1	Cost of the machines	200000
2	Cost of the building	250000

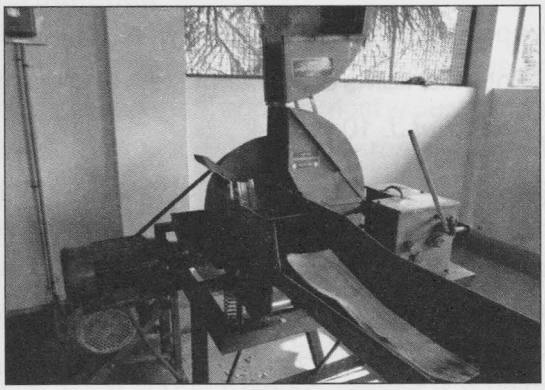
Table 2. Cost of making arecanut leaf sheath fodder

S. No.	Items	Approximate Amount (Rs.)
1	Cost of one kg leaf sheath	4.50
2	Cost of electricity and maintenance for making one kg fodder	0.40
3	Labour charges for one kg fodder	1.00
	Total cost	**5.90**



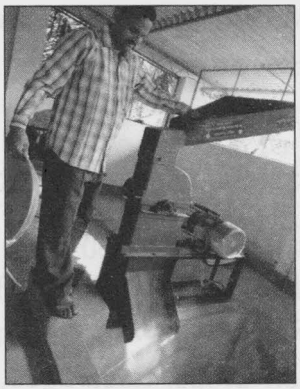
1. Collection of arecanut leaf sheaths

2. Drying of arecanut leaf sheaths

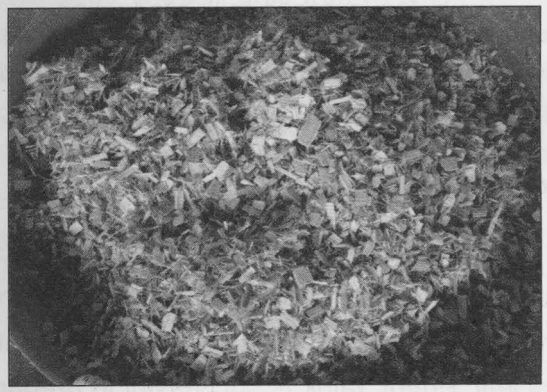


3. Arecaleaf sheath cutting machine

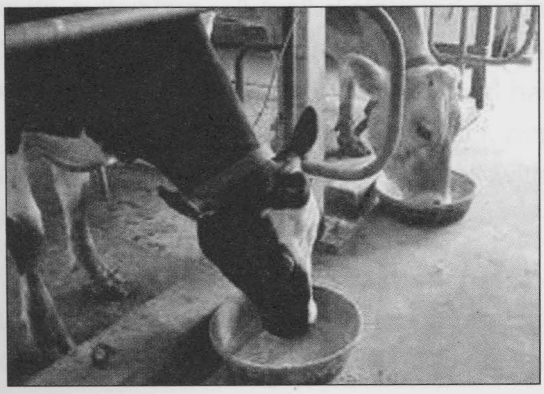
4. Arecaleaf sheath cutting machine in operation



5. Arecaleaf sheath fodder making machine



6. Arecaleaf sheath fodder



7. Cows feeding arecaleaf sheath fodder

8. Milk from cows

Returns from arecanut leaf sheath fodder

Price of one kg leaf sheath fodder ranges from Rs. 7 to 7.5. Leaf sheaths from 2 acres of arecanut garden is sufficient to maintain one milching animal for one year. Leaf sheath fodder increases the milk yield and fat content which fetches more price in the market (Gowda *et.al,* 2011)

Advantages of arecanut leaf sheath fodder

Advantages of leaf sheath fodder are given below. (Gowda et.al, 2011)

- ¢ Arecanut leaf sheath fodder contains nitrogen and fibre content almost equal to paddy straw.
- ¢ Silica and Lignin content are less which is good for cattle.
- ¢ It aids digestion capacity of the animals and also helps increase milk production.
- ¢ Source of income for small and marginal farmers.

Conclusion

Farmers in Dakshina Kannada district of Karnataka are preparing cattle feed from arecanut leaf sheaths. Panaje Milk Cooperative Society, Puttur Taluk is successful in preparing cattle feed using arecanut leaf sheaths. However, more studies have to be conducted for knowing the prospects and constraints of using arecanut leaf sheath fodder for encouraging the farmers to adopt the same. The need of the hour is to sensitize the farmers about various alternative uses of arecanut so that farmers will have enough options to choose the best one which is suitable for them.

References

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