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Opportunities for small and medium entrepreneurship (SME) for green fodder and silage marketing in small holder dairy production system in India

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Abstract

The dairy production in India is increasing in the recent times and has reached the milestone. However when the overall productivity from individual animal is considered, it is still found to be very meager. The main hindrance behind the low productivity of the animal is feed and fodder scarcity. There is a huge scarcity in the availability of green fodder, dry fodder and concentrate in the country. This issue has attracted different private sector people or entrepreneur to have a start up with a feed and fodder business. The present study is aimed to assess the feed and fodder expenditure patterns between different classes of households and to propose solutions to green fodder scarcity particularly in the lean season.

Keywords: Dairy production; green fodder; India; silage marketing; small holder farmers

Introduction

Feed and fodder scarcity are the main limiting factor in India for increasing dairy productivity likely more important than the genetic potential of dairy animals. According to the Indian Grasslands and Fodder Research Institute (IGFRI), the country faces a net deficit of 35.6% green fodder, 11.0 dry fodder and 44.0% concentrate feed ingredients^[1]. Feed and fodder scarcity have attracted the private sector feed industry to invest in feed markets resulting in an 8 percent growth rate per annum of the concentrate feed industry^[2, 3]. This has implications for livestock production costs of which feed accounts on average for 70%. For small scale and marginal farmers, the need to rely on purchased feed substantially lowers the profitability of milk production. Green fodder is important for dairy animal productivity as it helps to keep the animal free from heat stress and provides various nutrients including vitamins and minerals. Green fodder scarcity is increasing steadily due to decreased communal or common property areas from which fodder is traditionally collected. Promotion of high yielding nutritionally improved multi-cut green fodder has the potential to mitigate or even remove green fodder scarcity. Making silage from excess forage in the flush season (during and following rains) could be a solution for fodder scarcity in the lean season (dry season). This study aimed to assess the feed and fodder expenditure patterns between different classes of households and to propose solutions to green fodder scarcity particularly in the lean season.

Materials and methods

The study was conducted in Mulukanoor Women Dairy Cooperative (MWDC) in the Kareem Nagar district in Telangana. Households were surveyed to capture feed and fodder transaction patterns. A total of 316 households were selected randomly. The sample was stratified by socio-economic status, with landholding size being used as a proxy. The sample comprised of 28 households from the landless category (0-acre land), 81 from the small category (0.1 to 2 acres of land), 121 from the medium category (2.1-4 acres of land) and 86 from the large category (>4 acres of land). The study also conducted pilot trials to explore whether silage production and sale could be a viable enterprise model during fodder scarcity periods.

Statistical Analysis

Household survey data were analyzed using analysis of variance (ANOVA) models to find

difference between different households in fodder transaction patterns. A case study analysis followed to capture lessons from pilot trials of silage enterprises involving 6 farmers to assess its economic viability in smallholder dairy production.

Results

Regression analysis of household survey data revealed that there was a significant difference in expenditure for crop residues and concentrate feeds between the households in different socio-economic categories. Landless and small-scale farm households spend INR 16821 and 11617 respectively for crop residues per annum, whereas large farm households spend INR 12841, mainly for concentrate feeds. Milk yield per household was higher among the large farm households (10.34 liters/day) compared to 6.33 to 7.32 liters/day in

landless and small-scale households. Income from dairy was also higher for large farm households namely INR 86412, compared to INR 43040 in landless households which is mentioned in the table 1. Large farms, by virtue of their more extensive land holding, produced more crop residues and green fodder. This reduced their reliance on purchased feed and fodder which in turn reduced the cost of milk production. The results indicated that landless and small farmers were willing to purchase feed and fodder. This suggests that an opportunity exists for medium and larger farmers to practice green fodder and silage production and marketing, targeting landless and small farmers. This could enhance dairy productivity because green fodder increases the milk production due to higher nutrients like energy and crude protein.

Table 1: Expenditure pattern of feed and fodder between different classes of households in Karimnagar district (regression using ANOVA model)

Variable	Landless (0 acre)	Small farm (0.1-2 acres)	Medium farm (2.1- 4 acres)	Large farm (>4 acres)	F value	P value
Number of households	28	81	121	86		
Number of milking animals	1.29	1.41	1.62	1.81	3.323	<0.05
Total adult bovine	2.25	2.01	2.93	3.42	6.585	<0.001
Total milk litre/day	6.33	7.21	8.32	10.34	3.056	<0.05
Expenditure- concentrate feed*	7631	8285	10326	12841	6.621	<0.001
Expenditure- crop residue*	16821	11617	9828	5948	11.530	<0.001
Total dairy income*	43040	49120	60888	86412	3.913	<0.01
Land for green fodder (acre)	0	0.50	0.74	1.27	14.031	<0.001

*The expenditure for feed and dairy income is mentioned in INR for last one year

Pilot trials for small scale silage making (50-100 kg/bag) by 6 farmers showed that large and medium farmers were more interested in silage making as they had access to surplus fodder from their land during the rainy season. Small farmers face challenges in silage making as the process requires investment for labour, mechanization for fodder cutting, chopping and packaging. There is an effective market demand from landless and small-scale farms (as mentioned above). Medium and large-scale farmers are willing to sell green fodder/ silage if there is a market demand. However, there is a lack of institutional set up to initiate the green fodder and silage market entrepreneurship. Mulukanoor women dairy cooperative can become an institutional base to initiate this transaction process through collective action for preparation and process of silage through renting out the machineries and platform for creating demand for green fodder and silage. There is need for further exploration how these initiatives can impact gender relations within households.

Discussion

Globalization has increased the demand of different livestock products like milk, meat and eggs in recent times. Whereas, the production and supply of different animal products is an important challenge faced by entrepreneurs and farmers because of the poor availability of trained labor and quality fodder. During the year 2011-12, the green fodder is accounted for about 21.2 percent of the total dry matter availability of about 600 million tonnes, the share of concentrates and dry fodder being 7.2 and 71.6 respectively [4]. To bridge the gap between demand and supply of fodder, improved inputs with intensive production system is desirable. The main reason for labor scarcity in the rural areas is that people from rural areas are migrating towards cities for ensuring their sustainable livelihood. If women in the rural areas are given proper training and policy support to women

for employment generation and maximizing the quality fodder production at household level. This helps in economic upliftment of the rural population and improving the nutrition status.

Conclusion

The study has provided evidence that landless and small scale farmers whose livelihoods depend on dairy production need to purchase feed and fodder if they wish to increasing dairy productivity. Pilot testing of silage making by farmers with larger land holding suggests that this could be a viable, village level source of fodder that could replace expensive feed concentrates purchased from the wider market. Further study is required to explore how these enterprises could be established and to assess the way local markets would respond to this new commodity. It is also necessary to investigate which socio-economic groups (wealth poor, men women, youth) would benefit from this opportunity and the nature of institutional arrangements that would be needed to ensure that benefits are equitably shared.

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