

# Fodder Distribution Operations As Sustainable Economic Progress In Semi-Urban Areas

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## ABSTRACT

The livestock is a sub-sector of the agricultural sector, which adds almost 32% of agricultural output in India. India assists 20% of the livestock population of the world, covering 2.3% geographical area. Recent population trends of India are not matching with the required trend of livestock growth rate due to various reasons, which signifies that India would have to import milk by 2021 and price negotiation could be a problem, if the milk production does not increase at the rate of 5.5% to 180 million tonnes. For economic and sustainable livestock, it is essential to understand the significance of fodder as sustainable produce in the peri-urban areas because semi urban livestock farming and promising fodder bazaars are pointers of rapidly shifting economic circumstances in the livestock sub-sector. This signifies smooth supply of fodder for sustainable livestock population. The present study is an attempt to integrate fodder with sustainable developmental approaches, which includes examining various fodder related objectives. This objective involved analyzing fodder distribution channels in fodder retailing, price margin between the different points of channels, and women's participation in fodder retailing. In this study, data was collected from primary and secondary sources. For collecting primary data, three peri-urban areas - Kolkata in West Bengal, Guwahati in Assam and Agartala in Tripura were considered for the study. The total sample size was 480 respondents, which included producers, retailers or traders, commission agents, and consumers of fodder. The respondents were interviewed randomly in the study area with the help of a structured interview schedule. Simple statistical analysis like percentage analysis was used to achieve the objectives of the study. The expected outcomes of the study are a pre-requisite for sustainable development of semi urban economy related to improvement of producers' share in consumers' rupee, elimination of the middlemen menace, participation of women in fodder retailing and eliminating credit and the price interlocking system.

Keywords: Semi-Urban Economy, Fodder, Channel, Women's Participation, Sustainable Development

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## INTRODUCTION

In agriculture, fodder or animal feed is any foodstuff that is used specifically to feed domesticated livestock such as Goats, Sheep, Buffaloes, Cows and Bulls. Most animal feed is from plants. "Fodder" particularly refers to the food given to animals (including plants cut and carried to them), rather than that which they forage for themselves. As a specific and non-neutral space, a peri-urban area refers to a transition or interaction zone, where urban and rural activities are juxtaposed, and landscape features are subject to rapid modifications induced by human activities (Douglas, 2006). India has made remarkable strides in the area of dairy development. India has the largest livestock population in the world, and fodder plays an important role in economizing the cost of milk production. Fodder comprises of major protein of dairy ration of milch animals and, therefore, cultivation of nutritious and high-yielding fodder is inevitable. Profitable livestock farming depends mainly on availability of fodder. With an increase in the number of animal population and shrinking land resources, the problem to provide adequate feed and forage is becoming acute. The major part of requirement of feeds by cows and buffaloes were generally through leaves and green grasses in Kolkata, Guwahati and Agartala. Hence, marketing channels and price spread of leaves and green grasses played a crucial role in the animal husbandry system of these areas.

## OUTLINE OF THE CONTEMPORARY INDIAN FODDER OPERATIONS STATUS (FORAGE AND FEED - DEMAND AND SUPPLY SCENARIO IN INDIA)

Fodder based cheaper feeding strategies are required to reduce the cost of quality livestock product as the feed alone constitutes 70% of the milk production cost. There is tremendous pressure of livestock on available total feed and

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fodder, as land available for fodder production has been decreasing. At present, the country faces a net deficit of 61.1% green fodder; 21.9% dry crop residues and 64% feeds. Supply and demand scenario of forage and roughage are presented in the Table 1. 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, utilizing untapped feed resources, increasing land area (not possible due to human pressure).

<b>Table 1 : Supply and Demand Scenario Of Forage And Roughage Till 2030 (In Million Tonnes)</b>						
<b>Year</b>	<b>Supply</b>		<b>Demand</b>		<b>Deficit as % of demand</b>	
	<b>Green</b>	<b>Dry</b>	<b>Green</b>	<b>Dry</b>	<b>Green</b>	<b>Dry</b>
1995	379.3	421	947	526	59.95(568)	19.95 (105)
2000	384.5	428	988	549	61.10(604)	21.93(121)
2005	389.9	443	1025	569	61.96(635)	22.08(126)
2010	395.2	451	1061	589	62.76(666)	23.46(138)
2015	400.6	466	1097	609	63.50(696)	23.56(143)
2020	405.9	473	1134	630	64.21(728)	24.81(157)
2025	411.3	488	1170	650	64.87(759)	24.92(162)
2030	416.7	503.4	1207.1	670.6	65.45(790)	24.90(167)
Figure in parenthesis indicates actual deficit						
Source: Based on the 10th & 11th five year plan document Vision 2030.						
<a href="http://www.igfri.ernet.in/pdf/Vision-2030.pdf">http://www.igfri.ernet.in/pdf/Vision-2030.pdf</a> accessed on November 12, 2010 at 9.30 am						

## REVIEW OF LITERATURE

Kheirandish and Gowda's (2012) study "Marketing Efficiency and Price Spread for Saffron in Iran" revealed that there is a substantial span to enlarge the producer's share in the purchaser's cost if the figure of mediators is abridged, and the government takes a pro-active role in order to systematize and make more efficient the marketing supportive unions so that the farmers use these unions as a gainful channel to sell their produce. There is no effectual manage on mediators in the saffron market. The difficulty of uneven supply can be resolved by onward agreements to be sign flanked by producer and marketing bodies. The prices of saffron face frequent variations (day to day variations) causing anxiety to the farmers. The subsequent channels were recognized as the major marketing channels for saffron:

**Channel 1:** (Direct Marketing) Producer→ Domestic consumer

**Channel 2:** Producer→ Retailer→ Domestic consumer

**Channel 3:** Producer→ Wholesalers in Mashhad→ Retailer→ Domestic consumer

**Channel 4:** Saffron producers' cooperative→ Wholesalers in Mashhad→ Retailer→ Domestic consumer

**Channel 5:** Producer→ Wholesaler and local trader→ Wholesaler in Mashhad→ Retailer→ Domestic consumer

**Channel 6:** Producer→ Wholesaler and local trader→ Wholesalers in Mashhad and Tehran→ Processing and packaging company→ Retailer→ Domestic consumer

**Channel 7:** Producer→ Processing and packaging company→ Foreign consumers

**Channel 8:** Producer→ Wholesaler and local trader→ Wholesalers in Mashhad→ Processing and packaging company→ Foreign consumer

**Channel 9:** Producer→ Middlemen→ Processing and packaging company→ Domestic consumer and foreign consumer

**Channel 10:** Producer→ Wholesaler and local trader→ Wholesalers in Mashhad→ Foreign traders→ Foreign consumer

**Channel 11:** Producer→ Middlemen→ Foreign traders→ Foreign consumer

According to Emam (2010), growing marketing efficiency at the wholesale level in Khartoum North, Sudan's market through plummeting marketing costs (transportation, handling, packing & other cost items) is significant. Likewise, support of investment in this efficiency movement is essential. Barakade et al. (2011) in their study obtained six months preservation cost and returns for various categories of onion cultivation during the year 2010-11. In view of the main cost on labour, there is an instant requirement to develop the labour economy practice such as use of weedicides, enhanced tools for planting, harvesting etc. Conversely, market mediators are accruing elevated margins by acquiring less cost and services. The main split of customers' rupees is pocketed by the middlemen. Consequently, to control the spending on commission, transportation and packing, hard work needs to be done to expand the essential communications for the marketing of onions in the region. The co-operative marketing should be confident to amplify the producers' share in the consumers' rupee. The concerned Government department interference is also essential to maintain the attention of the farmers. Efforts should, therefore, be focused upon increasing the export buy and sell of this appreciated crop by enhancing its production quantity.

Singh et al.'s (2012) study revealed the fodder value chain in Bihar (India). This study observed that paddy straw and wheat *bhusa* (Wheat straw) act as the main source of fodder in Bihar (paddy and wheat straw also comprised of almost 95 per cent of the whole fodder market in Bihar). Prominently, four categories of fodder supply chain were described. It was found that almost 10 per cent fodder is traded directly across the producers and animal rearers. This type of transaction is localized and is often practiced within the same village or nearby villages. Trader-I were identified as the bullock cart owners, vendors or other small assemblers; Trader-II were the wholesalers; and Trader-III were the retailers who sold to the ultimate users. The agents facilitated trading by providing their services in lieu of some commission charges. The study reported that fodder gains up to 240 per cent value in the process of transaction from the farm producers to ultimate consumers. Transportation is the major activity that accounts for about 36 per cent in total cost addition. Lack of storage facilities, policy environment and lack of other institutional support like access to credit were identified as the major constraints.

## **RATIONALE, PRACTICAL UTILITY AND NEED OF THE STUDY**

It has been seen from the review of literature related to marketing channels, price spread and marketing efficiency, that hardly any study on fodder has been conducted in our country covering the three cities (Kolkata, Guwahati and Agartala) in the three states of India. Hence, the present study provides an in- depth analysis of the fodder marketing perspective, which can be useful for the marketers, producers and for the policymakers. The results of this study provide information regarding the marketing channels and producers' share in the consumers' rupee. This study helps to identify problems in fodder markets and provides details about women's participation in fodder marketing. The study could help in giving an idea about the actual prevailing situation of the fodder marketing system in peri-urban areas. Medium term benefits of the study are altered arrangements in the marketing system in the form, reasonable produce price, minimization of middlemen menace, removal of price constraints of marketing etc., would help the farmers in reaping remunerative gains for their produce. Long-term benefits of the study are that results can be useful for Institutes, Government departments, NGOs, State Marketing Boards, Private companies' etc. It will help to formulate ways and means of efficient functioning of the fodder marketing system, which would in turn help the fodder growing farmers in gaining additional income. The research study was conducted between 2010 - 2011.

## **OBJECTIVES OF THE STUDY**

- a) To analyze the marketing channels for green and dry fodders.
- b) To examine the marketing efficiency of fodders of peri-urban market, and
- c) To examine the participation of female labor for selling fodders.

## **MATERIALS AND METHODS**

A sample of 65 farmers, producers or sellers were selected from Agartala, Guwahati and Kolkata semi -urban areas. Similarly, 65 consumers and buyers were selected for this study. A sample size of 15 village traders, retailers and commission agents were considered for the study from the study area. The semi-urban areas which were selected for the study are Gajaria peri- urban village of Agartala, Mithapukur and Digsue villages of semi-urban areas of Kolkata

Mogra block of West Bengal and Bhanga Ghar peri-urban area of Guwahati in Assam. Data from the farmers, wholesalers, village traders, commission agents, retailers was collected with the help of a pre-tested schedule, and the sample composition is presented in the Table 2. After collection of the data, the same were analyzed through the simple percentage analysis method.

<b>Table 2: Category Wise Distribution of The Sample</b>		
<b>Sl. No</b>	<b>Category of Samples</b>	<b>No. Per State</b>
1	Producers/Sellers	65
2	Village Trader/Retailers	15
3	Commission Agent	15
4	Consumers/Buyers	65
	<b>Total</b>	<b>160</b>
	<b>Total from the three districts</b>	<b>480</b>
Source: Author's Research		

## RESULTS AND DISCUSSION

❖ **Marketing Channels of Fodder:** A marketing system is an important means for a rise in the income levels of farmers, which ultimately decides cropping patterns of the area. Efficiency of marketing generally depends on the number of channels of middlemen and functionaries through which a commodity is being marketed. The share of the consumers' rupee received by the producer depends on a number of marketing channels existing between the point of production to the point of consumption, as each middleman needs to pay for their services. Hence, it is necessary to study the marketing channels of each product to optimize the number of middlemen so that the share of producer in consumers' rupee can be maximized to induct more area under a crop. From available data, it appears that in Kolkata semi-urban areas, green fodder markets normally have three channels. The Table 3 reveals that green fodder sold by the producer to the consumer directly is the most profitable channel. However, this channel was not commonly used, and only about 20 percent of the farmers sold directly to the consumers. About 25 percent producers sold the green fodder through village traders. However, most of the producers sold the fodder to the village traders through commission agents, who ultimately sold to the buyers (55 percent). In Kolkata semi-urban markets, about 5 percent of the dry fodder i.e. paddy straw was sold directly to the consumers. Normally, small un-irrigated land owners took great pains to sell straw directly to the consumers. Most of the paddy straw was being sold (45%) through village traders to the consumers. About 30% straw was also being sold by the producers to the village traders, and the village traders sold it to the wholesalers cum retailers, and ultimately, it was purchased by the consumers. Wholesalers-cum-retailers normally advanced credit to the village traders on the condition that the straw will only be sold to them. About 20% owners of small straw cutters also performed retailing functions.

The Table 4 indicates that in Agartala peri-urban areas, about 35% producers sold green fodder directly to the buyers as compared to Kolkata peri-urban area, where only 20% producers sold fodder directly to the buyers. It may be mentioned here that in Agartala peri-urban areas, the sellers were mainly some organizations, including state and central government organizations. About 45% of the sample buyers reported that they were collecting green grass leaves, etc. directly from common property land and without any payment. However, the respondents reported that they collected the green fodder from common land with the help of their attached labourers. 20% consumers reported that some unemployed labourers, in absence of any work, collected green fodder and sold it to the buyers to earn their livelihood. Thus, the un-employed labourers were functioning as village traders in Agartala semi - urban areas. Similarly, for dry fodder (Table 4), only 10 percent producers of Agartala semi urban areas were directly selling paddy straw to the buyers. The remaining 90 percent producers sold the paddy straw through the village traders. Thus, it is clear that village traders played an important role in the dry fodder trading in Agartala dry fodder semi urban market.

From the Table 5, it can be inferred that paddy straw was the only dry fodder used by the dairy owners of Guwahati semi urban areas. They directly fed the dry fodder to their cows, even without even chopping it. Most of the producers (45%) of this area sold dry fodder directly to the buyers as the producers and consumers (both) were located in nearby

<b>Table 3: Marketing Channels of Green and Dry Fodder In Kolkata Semi-Urban Areas</b>	
<b>Green Fodder</b>	
Producer → Consumer-(20%)	
Producer → Village Trader → Consumer-(25%)	
Producer → Village Trader → Commission Agent → Consumer-(55%)	
<b>Dry Fodders</b>	
Producer → Consumer (5%)	
Producer → Commission Agent → Wholesalers Cum Retailers → Consumer (25%)	
Producer → Village Traders → Retailer → Consumer (70%)	
Number in parenthesis indicates percentage of Sample. <span style="float: right;">Source: Field Survey</span>	

<b>Table 4: Marketing Channels of Fodder In Agartala Semi-Urban Areas</b>	
<b>Green Fodder</b>	
I Producer → Consumer (35%)	
II Production in the common property land → Consumer (45%)	
III Production in the common property land → Village Trader → Consumer (20%)	
<b>Dry Fodder</b>	
I Producer → Consumer (10%)	
II Producer → Village Trader → Consumer (90%)	
Number in parenthesis indicates percentage of Sample <span style="float: right;">Source: Field Survey</span>	

<b>Table 5: Marketing Channels of Fodder In Guwahati Semi-Urban Areas</b>	
<b>Green fodder</b>	
I Common property land → Consumers (90%)	
II Common property land → Retailer → Consumers (10%)	
<b>Dry fodder</b>	
I Producer → Consumers (45%)	
II Producer → Village Trader cum Retailer → Consumers (40%)	
III Producer → Retailer → Consumers (15%)	
Number in parenthesis indicates percentage of Sample <span style="float: right;">Source: Field Survey</span>	

areas and regular direct marketing had been practiced in the area since long. In another 40% cases, producers sold their produce to the village traders cum retailers, who sold the paddy straw to the buyers. Selling through producer to retailers and retailers to consumers is not very common in this area, and 15% sample reported it. In Guwahati peri-urban areas, normally, no green fodder was grown by the farmers. However, grass, leaves, etc. were growing in huge quantity in nearby hilly areas, which were normally collected by the consumers through attached labourers. However, data revealed that about in 10% cases, consumers also purchased it from retail sellers. This is may be due to non availability of attached labour, who could obtain the green fodder from the hilly areas, and in these circumstances, consumers need to purchase green fodder from retail sellers.

❖ **Marketing Efficiency and Price Spread:** From the Table 6, it is clear that producers' share is inversely related to the length of the marketing channels, i.e. more were the number of middlemen involved in marketing of fodder, less was the return earned by the farmers in the dry fodder market. It is also clear from the data in the Table 6, that wherever the vertical integration of marketing and production activities were done by the producers themselves, their profit increased substantially as compared to single production activities performed by them. Commission agents' share was normally 2%, while for other functions like transport, storage, etc., about 3-10% of the consumers' price was being

spent in Kolkata and about 15-25 percent in Agartala. Data in the Table 6 also reveals that whenever wholesaling and retailing functions were combined in green fodder markets, middlemen earned quite high profits, and their share of profit was considerably higher than it was for the producers. This was because they stored the fodder and sold it to the consumers directly and earned more. It can also be seen that the number of marketing channels were less in green fodder markets, which can be due to the perishable nature of green fodder. Data in the Table 6 reveals that normally in Kolkata, a large number of producers sold their produce with the help of commission agents. About 25% of the buyers of dry fodder went to the producers and they bought the produce directly with the help of agents. These buyers were normally the owners of big dairies. These wholesalers cum retailers also owned fodder chaff machines and had huge storage capacity. They gave advance to the producers with the condition that the straw would be sold to them at a lesser rate- atleast 5% lower rate than the market rate. Thus, due to this interlocking system, they (wholesalers cum retailers) earned about 40% of the total price paid by the consumers. Another 70% producers sold their crop with the help of village traders cum retailers to the consumers. These groups integrated village trading cum retailing cum transport functions. In this Channel-III, the village traders bought the fodder directly from the producers, carried the straw to some specific places with the help of rickshaw/van and sold it to the consumers. As a result, they earned about 65% of the total price paid by the consumers. Green fodder in Kolkata peri-urban areas (Table 6) was sold to the consumers by about 20 % of the producers, who earned about 90% share of the consumers' rupee. Whereas, 25 % producers sold their green fodder through commission agents and earned 88% share of the consumers' rupee. 55 % producers sold green fodder through village traders cum retailers, and earned about 50% share of the consumers' rupee.

In case of green fodder (Table 7), there were three channels of marketing in Agartala peri-urban areas. When the producers directly sold the green fodder to the consumers, their share in the consumers' rupee was about 85%. The remaining 15% was earned by the transporter /other middlemen (Channel-I). In case of Channel II (Table 7), the green fodder was directly collected by the consumers through the attached labourers from the common property land .Only 20 % of the total cost was spent on transportation, and other miscellaneous costs of the labourers. However, in case of Channel III (for Agartala semi urban areas), it was clearly revealed that the consumers, sometimes, needed to buy green fodder from the village traders cum retailers (due to the unavailability of labourers, who could fetch the green fodder from the nearby hills). In such cases, about 75% of the total price was paid by the producers to the village traders cum retailers and only 25% went to the transporter and other agents. In Agartala peri- urban areas (Table 7), the producers directly sold dry fodder to the consumers and earned 90% share of the consumers' rupee. There were no commission agents. The remaining 10% share of the consumers' price went to the transporters and other middlemen in Channel I. In Channel II, about 50% share of the consumers' rupee went to the producer and 45% went to the village traders. Only 5% share of consumers' rupee went to the transporter and other middlemen. Paddy straw was the only dry fodder used by the dairy owners of Guwahati semi urban areas. Most of the producers (45%) of this area sold dry fodder directly to the buyers as the producers and consumers were located in nearby areas and direct selling had been taking place since long. In another 40% cases, the producers sold their produce to the village traders cum retailers, who sold the paddy straw to the buyers. Selling through producer to retailers and retailers to consumers was not a very common practice in this area, and only 15% of the producers were engaged in this practice. In Guwahati peri-urban areas, normally, no green fodder was grown by the farmers. However, grass, leaves, etc. growing in nearby hilly areas were normally collected by the consumers through attached labourers. However, the data reveals that in about 10% of the cases, consumers also purchased green fodder from retail sellers.

It can be seen from the Table 8 that in the Guwahati dry fodder market, producers themselves were selling the fodder to the buyers and were earning 90% share of the consumers' rupee. However, if the producers did not sell the produce directly, then they received about 40-45% share of the consumers' rupee.

❖ **Constraints Faced By The Producers In Marketing of Fodder In Semi- Urban Areas:** The Table 9 reveals the various problems faced by the producers in Agartala, Guwahati and Kolkata under different parameters with percentage. Non availability of a regular market was a constraint for 63% producers in Kolkata, 100% producers in Agartala and 50% producers in Guwahati. Poor infrastructure facilities was a constraint for 81% producers in Guwahati, 100% producers in Kolkata and Agartala, Middleman menace was a constraint for 75%,56% and 60% producer farmers of Kolkata, Guwahati and Agartala respectively. Seasonal price fluctuation was a constraint for 81% producers in Guwahati, and 100% producers in case of Kolkata and Agartala. Need to sell on the same day was a constraint for 12% producers in

Table 6: Price Spread In Major Marketing Channels of Fodder in Kolkata Semi-Urban Area (Percentage)							
Channels	Producer	Commission Agent	Village Trader cum retailer	Wholesaler-cum-retailer	Retailer	Others	Consumer
<b>Kolkata:Green Fodder</b>							
Channel-I	90	-	-	-	-	10	100
Channel II	88	2	-	-	-	10	100
Channel III	50	-	46	-	-	4	100
<b>Kolkata: Dry Fodder</b>							
Channel-I	95	2	-	-	-	3	100
Channel II	40	2	-	53	-	5	100
Channel III	35	-	65	-	-	-	100
Source: Field Survey							

Table 7: Price Spread In Major Marketing Channels of Fodder In Agartala Semi-Urban Area (Percentage)						
Channels	Producer	Production in the common property land	Village Trader	Local Trader	Others	Consumer
<b>Agartala:Green Fodder</b>						
Channel-I	85	-	-	-	15	100
Channel-II	-	80	-	-	20	100
Channel-III	-	-	75	-	25	100
<b>Agartala: Dry Fodder</b>						
Channel-I	90	-	-	-	10	100
Channel -II	50	-	45	-	5	100
Source: Field Survey						

Table 8: Price Spread In Major Marketing Channels of Fodder In Guwahati Semi -Urban Area (Percentage)							
Channels	Producer	Commission Agent	Village Trader cum retailers	Wholesaler-cum-retailer	Retailer	Others	Consumer
<b>Guwahati: Dry Fodder</b>							
Channel-I	95	-	-	-	-	5	100
Channel II	40	-	50	-	-	10	100
Channel III	45	-	-	50	-	5	100
<b>Guwahati :Green Fodder</b>							
Channel-I	-	-	95	-	-	5	100
Channel II	-	-	-	95	-	5	100
Source: Field Survey							

Table 9: Constraints Faced By The Producers In Marketing of Fodder (Percentage)										
Markets	Non availability of regular markets	Poor infra structure facilities	Middle men menance	Seasonal price fluctuations	Need to sale on the same day	High un - loading charges	Payment at each check post	Non availability of market information	No support price	High transport charges
Kolkata	63	100	75	100	12	100	100	100	100	94
Agartala	100	100	60	100	30	80	50	100	100	70
Guwahati	50	81	56	81	56	88	94	100	100	56
Average opinion of sample farmers					Source: Field Survey					

Kolkata, 56% producers in Guwahati and 30% producers in Agartala, High unloading charges was a constraint for 100%,88% and 80% producers respectively in Kolkata, Guwahati and Agartala. Payment at each check post was a

serious constraint for 100% producers in Kolkata, 94% producers in Guwahati and 50% producers in Agartala. Non availability of market information was a major constraint for 100% producers in all the three places. There was no support price at all the three places. High transport charges acted as a constraint for 94% producer farmers of Kolkata, 56% producers of Guwahati and 70% producers for Agartala semi urban areas.

❖ **Participation of Women In Fodder Marketing :** The Table 10 reveals that about 10% of the female farmers took part in selling activities of green fodder in Kolkata semi urban areas and for dry fodder, only 5% of the female farmers took part in selling activities . Since the selling of green fodder normally took place in the farmer's field or home, hence, commission agents and village traders directly contacted the female head of the family. However, in Kolkata, retail selling of dry fodder was done by about 15% of the female producers. Responsibility of buying fodder sometimes lay with the female head of the family, as the men normally remained absent from the house during retail marketing hours. In Agartala, participation or contribution of women in fodder marketing was very negligible. Sometimes, the women worked as substitutes of the male members in the family for fodder marketing.

Table 10: Participation of Women In Fodder Marketing (Percentage)						
Place	Kolkata		Agartala		Guwahati	
Type	Green Fodder	Dry Fodder	Green Fodder	Dry Fodder	Green Fodder	Dry Fodder
(a) Farmer's Sell	10	5	15	10	10	20
(b) Village Trading	-	-	-	-	-	-
(c) Commission Agent	-	-	-	-	-	-
(d) Wholesaling	5	4	-	-	8	6
(e) Retail Purchase	-	15	10	20	15	18
Source: Field Survey						

## CONCLUDING REMARKS AND RECOMMENDATIONS

This study reveals that in Guwahati, Kolkata and Agartala peri urban areas, rice straw and green grasses were the popular fodders, particularly for the cattle of Agartala and cattle and buffalows of Kolkata and Guwahati . It is also clear that the middlemen dominated in the dry fodder market in the study areas. The marketing efficiency was also the highest in the channel where dry fodder was sold directly to the consumers. A similar trend was found in all the study areas. It is also clear from the results that the participation of women in selling of fodder was very low in the study areas. The constraints for fodder marketing were acute in all the areas. Hence, it is necessary to organize co-operative or regulated markets in these study areas, which will improve the producers' share in the consumers' rupee. At present, there were no regulated markets in these study areas, which need to be created to eliminate the stranglehold of the middlemen over the producers . Women's participation in the marketing process of fodder was limited. Women's self-help groups are to be formed to improve the participation of women in the marketing process of fodder, which will help them to be more financially and socially independent, which is significant for sustainable development. Further, it is necessary to provide institutional credit to eliminate credit and price interlocking system in the study areas among the producers, village traders and wholesalers.

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