

Production and Marketing of Sugarcane *Goor* in Selected Areas of Bangladesh

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ABSTRACT

The present study was undertaken to determine the profitability and marketing of *goor* and identifying the problems of *goor* production in some selected areas of mill zone and non mill zone during the period of 2014-15. The study employed farm level cross sectional data from the selected random farmers. In non mill zone farmers make *goor* from their produced sugarcane. On the other hand the farmers of mill zone supply their sugarcane to the mill, but some farmers of mill zone sale their sugarcane to the *goor* maker for better profit. Farmers got higher BCR (1.70) by selling their sugarcane to the *goor* maker. Consumer price of *goor* was Tk.70,000 ton⁻¹ and farm gate price was Tk. 50,000 ton⁻¹ which shared 71.43% of the consumer's price. There are many problems associated with *goor* farmers and intermediaries viz., *Goor* farmers had lack of knowledge about hygienic *goor* production, preservation of *goor*, storage facility, credit, and transport facility. To promote market facility of *goor* trading by the farmers, there should be an institution in *goor* marketing.

Key Words: Sugarcane *goor*, marketing margin, farm gate price, *goor* makers, *goor* board.

INTRODUCTION

Goor (Jaggery) is the natural sweeteners, mainly used for human consumption in Bangladesh and is used making food palatable. *Goor* is also consumed in raw form. Generally it is made from sugarcane, date palm, palmyra palm, *golpata* tree and beet. *Goor* is in more unrefined form than sugar and it is a brown raw mass of sucrose which gets its color because of other elements found in concentration such as wood ash and bagasse. The process of making *goor* is easier and more convenient than sugar, and has healthier than consuming refined sugar. If pure clarified sugarcane juice is boiled then solid *goor* has been formed. There are strong indications that the *goor* cottage industry would continue to play an important role in processing sugarcane at non mill zone in creating employment opportunities to the rural people. Sugarcane *goor* contains 0.6%-1.0% minerals, iron(11 mg%), calcium (0.4%), magnesium and phosphorous (0.045%). *Goor* also contains reducing sugars including glucose and fructose (10-15%), protein (0.25%), and fat (0.05%) (Rao *et al.*, 2007). Magnesium from *goor* strengthens the nervous system and potassium conserve the acid balance in the cells. The recovery

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of *goor* ranges from 9 to 11 percent. *Goor* is available in the market mainly in the three forms, viz., solid, liquid and granular *goor*.

Goor is not only used as sweeteners, it also used in making alcoholic drinks and Ayurveda medicines. *Goor* is mostly used in the food processing industry for confectionery: toffees, chocolates, chewing gums etc. *Goor* is popular in South East Asia, Latin America, North Africa and Caribbean Islands, though different products (sugar cane, date palm tree, sago palm, coconut palm) are used in making *goor* in this region. India accounts for more than 60% of world jaggery production, but Brazil is the major exporter of jaggery. Brazil, India, Thailand, Australia, Germany, Mexico are the major sugar producer and importer countries are USA, China, Indonesia, Malaysia, Japan etc.

In Bangladesh, *goor* is mainly made from sugarcane. Sugarcane is the second most important cash crop after jute in Bangladesh. It is not only the most important cash crop but also an important food cum industrial crop. Sugarcane is grown in the mill zones, where sugarcane is mostly utilized for sugar production and in non-mill zone, where sugarcane is used for *goor* and juice production (BSRI Anonymous, 2014). In 2013-14, Bangladesh produced 6.21 million tones of sugarcane. On an average, out of that 1.82 million tons (29%) were used by sugar mills to produce 0.128 million tons of sugar; 3.42 million tons (55%) were used to produce 0.36 million tons of *goor* and remaining 0.97 million tons (16%) were used for seed and chewing purposes (Anonymous, 2014). A huge portion of total sugarcane is used for *goor* production in Bangladesh. In non mill zone, 50.90 percent was used for self *goor* production, 37.59 percent sale to the *goor* maker (Alam *et. al.*, 2005). The production of *goor* depends on various factors like sugarcane price obtainable by the sugar mills in crushing season, sugarcane price offered by the *goor* maker, *goor* price and its demand of in the market. To manufacturing *goor* the juice is extracted from fresh sugarcane and then it is filtered and boiled in wide, shallow iron pans with continuous stirring. The consistency of juice becomes thick and then it is poured into the small to medium sized formers and after cooling it is formed as *goor*. *Goor* manufacturing is an important cottage industry in sugarcane growing regions of Bangladesh and generally *goor* is made by the small farmers.

However, being a small scale sector, there is no institutional organization for the *goor* production and marketing in the country. Bangladesh Sugarcrop Research Institute, Ishurdi has arranged some of training programme on hygienic *goor* production technology under different project. A few studies had done during 2005 on *goor* production. Nevertheless, there is no update study on sugarcane *goor* production and their marketing in Bangladesh. Considering this situation the study was taken for the production, marketing on *goor* and identifying the constraints of *goor* production in some selected areas of mill zone and non mill zone during the period 2014-15.

MATERIALS AND METHODS

The study was carried out during 2014-15 cropping season. It was done by cross sectional data. The cross sectional data were obtained from the survey of sample farmers of sugarcane farmers, *goor* farmers, *goor* makers, and different intermediaries involved in *goor* production, and marketing. A total 90 sugarcane farmers randomly selected of which 50 from mill zone and 40 from non mill zone who produced *goor*, 25 *goor* makers and 25 different types of intermediaries. Data were collected on input cost,

price, yields and necessary information through pre-tested questionnaire from Thakurgaon, Natore, Pabna, Sirajgonj and Chapai Nawabganj area. Descriptive statistics were used for the analysis of data. Profitability analysis was examined on the basis of gross return, net returns and benefit cost ratio analysis. Besides, the opportunity cost of family labour was taken into consideration in determining the total cost.

RESULTS AND DISCUSSION

Cost of production

Production cost of sugarcane farmers in mill zone was Tk. 1,15,950 ha⁻¹ and *goor* farmers (sugarcane production and *goor* production) in non mill zone was Tk. 2,19,800 ha⁻¹. Human labour for sugarcane farmers was Tk.60,000 ha⁻¹, which shared the highest cost 52% of the total cost. For *goor* farmers it was Tk.1,23,000 ha⁻¹ and shared 56% of the total cost (Table1). Human labour involved all operational costs which was done by human labour, i.e. from land preparation to harvesting. In case of *goor* farmers' man power for sugarcane crushing, juice boiling and *goor* formation also includes in human labour cost. Sett costs were

Table 1. Per hectare production cost of sugarcane farmers in mill zone and non mill zone in Bangladesh

Particulars	Mill zone			Non mill zone		
	Quantity	Total cost(Tk.)	% of total cost	Quantity	Total cost (Tk.)	% of total cost
Setts (kg)	8500	25,500	22	10,000	30,000	14
Human Labour (mandays)	200	60,000	52	410	1,23,000	56
AL. labour/ Power Tiller		4,500	4		5,000	2
Organic Manure		2,690	2		3,000	1
Urea (kg)	200	3,200	3	180	2,880	1
TSP(kg)	180	3,960	3	150	3,300	2
MP(kg)	180	2,700	2	180	2,700	1
Insecticides	-	2,000	2	-	2,000	1
Irrigation	-	7,500	7	-	8,000	4
Carrying cost	-	3,900	3	-	2920	1
Cost of power crusher hiring & fuel	-	-		-	37,000	17
Total cost		1,15,950	100		2,19,800	100

Tk.25,500 ha⁻¹ and Tk.30,000 ha⁻¹ which shared 22% and 14% of total cost for sugarcane farmers and *goor* farmers, respectively. Animal labour/power tiller cost was Tk.4,500 ha⁻¹ and Tk.5,000 ha⁻¹, Urea, TSP, MP and Insecticide cost were Tk.3,200 ha⁻¹ and Tk.2,880 ha⁻¹, Tk.3,960ha⁻¹ and Tk.3,300 ha⁻¹, Tk.2,700ha⁻¹ and Tk.2,700 ha⁻¹, Tk.2,000ha⁻¹ and Tk.2,000 ha⁻¹, respectively. Cost of power crusher hiring & fuel for the *goor* farmers was in aggregate Tk.37,000 ha⁻¹ (Table 1).

Returns of sugarcane/sugarcane goor

Sugarcane production in mill zone area was 57 ton per hectare. In mill zone farmers usually sold their product to the sugar mills authority and received total return Tk. 1,52,730 ha⁻¹ and net return Tk. 36,793 ha⁻¹. However, to attain higher profit some farmers sold their quality cane to the *goor* maker and achieved higher total return Tk. 1,98,588 ha⁻¹ and higher net return Tk. 82,678 ha⁻¹. Higher BCR (1.70) achieved by sale their sugarcane to the *goor* maker compare to sale to the mill authority (Table 2).

Table 2. Cost and return of sugarcane in mill zone

Parameters	Sugarcane sales to the sugar mills	Sugarcane sales to the <i>goor</i> maker
Yield (tha ⁻¹)	57.00	57.00
Total cost (Tk. ha ⁻¹)	1,15,950	1,15,950
Total return (Tk. ha ⁻¹)	1,52,730	1,98,588
Net Return (Tk. ha ⁻¹)	36,793	82,678
BCR	1.32	1.70

Table 3. Cost and return of sugarcane in non mill zone

Parameters	<i>Goor</i> Farmers	<i>Goor</i> maker
Sugarcane yield (tha ⁻¹)	55.00	-
<i>Goor</i> production (tha ⁻¹)	5.50	5.50
Total production cost (Tk. ha ⁻¹)	2,19,800	2,47,500
Production cost (Tk. ha ⁻¹)	40.00	45.00
Total return (Tk. ha ⁻¹)	2,75,000	2,75,000
Net Return (Tk. ha ⁻¹)	55,200	27,500
BCR	1.25	1.11

In *goor* zone (non mill zone) per hectare yield of sugarcane and *goor* was 55 ton and 5.50 ton, respectively. In *goor* zone, there were two types of *goor* producer-*goor* farmers (produce sugarcane and make *goor* by themselves) and another who purchase sugarcane from others and makes *goor* are called *goor* maker. In *goor* zone per hectare *goor* production was 5.50 ton. Production cost of *goor* was Tk.40/kg and Tk.45/kg by the *goor* farmers and *goor* makers, respectively. Net return of the *goor* farmer and *goor* makers were Tk. 55,200 ha⁻¹, Tk.27,500 ha⁻¹ and the respected BCR were 1.25 and 1.11 respectively (Table 3).

Marketing of sugarcane goor

Before discussing the results on marketing cost and margin, an introduction about marketing channel is necessary. Marketing channel is the media through which agricultural products are carried from farmgate to the consumers. These channels for different commodities are different in Bangladesh. This study is also investigated the marketing channels for sugarcane goor and calculated marketing cost and margin. In

goor zone there are many intermediaries in goor marketing (Figure 1). The marketing channels for goor are given below:

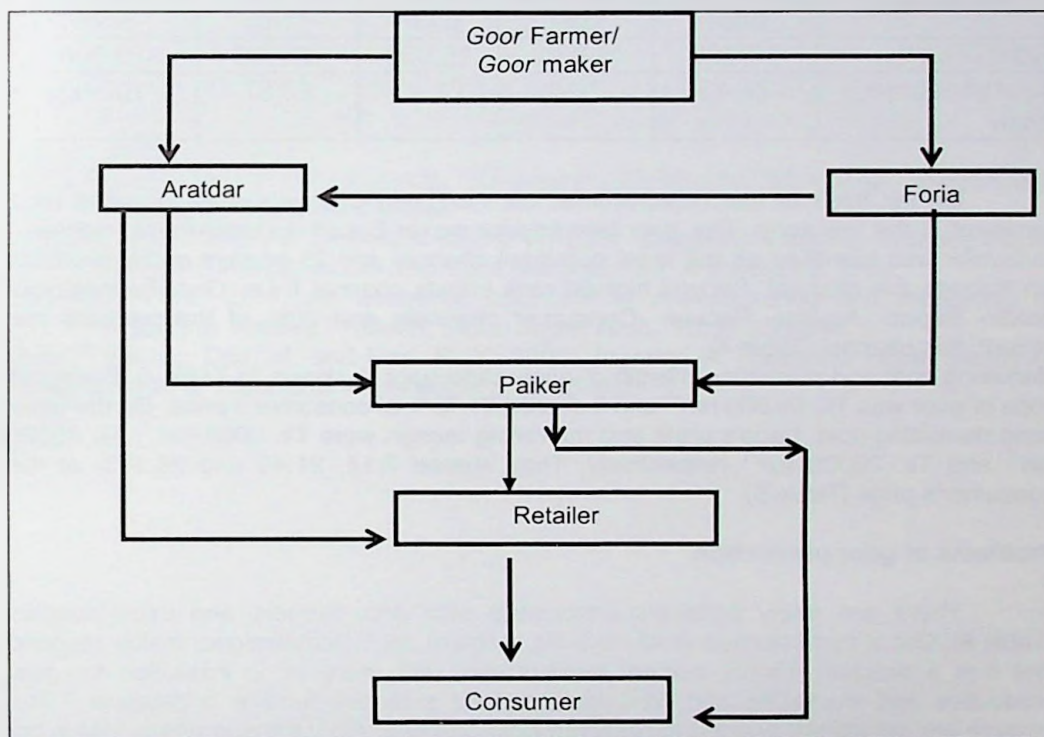


Figure 1. Sugarcane goor marketing channels in non mill zone

Table 4. Sugarcane goor run the major channels in selected areas in non mill zone

Channel	Marketing Channel	Percent of product run	Rank
1	Goor farmer/Goor maker - Aratdar-Paiker- Retailer- Consumer	15	3
2	Goor Farmer/Goor maker- Bepari- Aratdar- Retailer- Consumer	20	2
3	Goor farmer /Goor maker- Bepari-Aratdar-Paiker- Retailer- Consumer	25	1
4	Goor farmer /Goor maker-Bepari- Retailer- Consumer	2	6
5	Goor farmer /Goor maker--Aratdar-Paiker- Retailer- Consumer.	13	4
6	Goor farmer /Goor maker-Paiker- Retailer- Consumer	3	5

Table 5. Marketing cost and margin of sugarcane goor in non mill zone

Particulars	Farm gate price	Marketing cost	Traders' profit	Marketing Margin	Consumer's price
Goor (Tk.t ⁻¹)	50,000	5,000	15,000	20,000	70,000
% of consumer's price	71.43	7.14	21.43	28.57	100.00

On the basis of the intermediaries six marketing channels were identified as a dominant in the mill zone. The *goor* farmer/*goor* maker-Bepari-Arratdar-Paiker-retailer – consumer was identified as the most dominant channel and 25 percent of the products run through this channel. Second highest rank stands channel II i.e. *Goor* Farmer/*Goor* maker- Bepari- Arratdar- Retailer- Consumer channels and 20% of the products run through this channel (Table 4).

Marketing cost and marketing margin of sugarcane goor is shown in Table 5. Farmgate price of goor was Tk. 50,000 ton⁻¹ and it shared 71.43% of consumer's price. On the other hand marketing cost, trade's profit and marketing margin were Tk. 5000 ton⁻¹, Tk. 15000 ton⁻¹ and Tk. 20000 ton⁻¹, respectively. They shared 7.14, 21.43 and 28.57% of the consumer's price (Table 5).

Problems of goor production

There are many problems associated with *goor* farmers and intermediaries (Table 6). Out of them storage facility is a big problem, 92 % farmers/*goor* maker respond that it is a problem. Ninety percent farmers said that there is no institution for *goor* production and marketing and 88% farmers said sufficient fund is a problem. The farmers are not trained enough to preserve *goor* properly. *Goor* transporting is also a big problem, about 90% farmers hired riksha van to carry the *goor* in the market. The study suggested to create facility to storage of *goor* and established the institution or organization of a *Goor* Board to solve the problems of *goor* farmers and promote *goor* marketing in the mill zone of Bangladesh.

Table 6. Marketing problems of the *goor* farmers and intermediaries

Sl. No.	Problems and constraints	Farmers' response(%)
1.	Lack of adequate knowledge to produce hygienic <i>goor</i>	80
2.	Lack of adequate knowledge to preserve <i>goor</i>	77
3.	Lack of storage facility	92
4.	Inadequate transport facility	60
5.	Higher cost of transportation	65
6.	Lack of sufficient fund	88
7.	There is no institution for <i>goor</i> production and marketing	90

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