

DATE PALM CULTIVATION IN BANGLADESH: FARMERS' PRACTICES

By

G. M. Monirul Alam, M. M. Alam, M.A.S. Miah and M.R. Alam
Bangladesh Sugarcane Research Institute

ABSTRACT

Studies were conducted during 2006-07 cropping season at Keshabpur upzilla (Jessore) to investigate the present practices of date palm plant cultivation and juice extraction, marketing of both juice and gur, per plant gross margins, constraints, economic potentiality etc. Studies reveal that farmers' do not apply fertilizer, irrigation and follow no methodical cultivation practices in the study area. It was also found that during last ten years farmers cut 5 plants per year, whereas planted 1.5 plants only. A farmer earned Tk. 750-850 per plant per tapping season (about three months) by selling juice. Cost of date palm gur (molasses locally called 'gur') production was recorded Tk. 330.0 per plant of which 62 per cent was fuel cost. It was also observed that some farmers' used juice for gur production and found that approximately 23.1 kg gur plant⁻¹ was obtained when entire juice was used for gur production. Gross return and gross margin were recorded as Tk. 688.4 and Tk. 358.4 plant⁻¹ respectively. Return per Taka investment (variable cost basis) was found Tk. 2.08. Farmers sold approximately 30 per cent of their gur to direct village consumers. Constraints identified were very low or no juice secretion from some plants, fuel scarcity for gur making, lack of gachee (expert manpower for date palm cutting and juice tapping), increased wages for gachee for juice collection, low price of gur during season, poor marketing and storage facilities for both gur and juice, lack of improved production technologies for date palm cultivation etc. These constraints need to be resolved to increase date palm cultivation and gur production in order to meet increasing demand of sugar and gur in Bangladesh.

Key words: Date palm, farmers' practice, gross margin, gur, juice, marketing.

INTRODUCTION

Date palm is an important food-cum-cottage industrial plant in Bangladesh. It grows in homesteads, road sides, embankment sides, fallow lands, orchard or crop lands in unplanned way. It is mainly grown in greater districts of Jessore, Khulna, Noakhali, Patuakhali and Rajshahi. Demand of sugar and gur are being increased with population increase and urbanization, while sugarcane acreage is being gradually decreased and/or pushed to low lying marginal lands due to higher demand for cereals, vegetables etc and utilization of crop lands for houses, roads, industries etc. Therefore, there is little or no scope to increase both cane yield and sugarcane acreage to meet higher demand of sugar and gur for ever increasing population in Bangladesh. According to FAO recommendation, per capita at least 13 kg sugar is required for human balanced diet, and as such present requirement of sugar for 140 million populations in Bangladesh is about 1.8 million tons. Present production of sugar and gur in the country is about 0.2 million tons and 0.5 million tons respectively, and as such shortfall of sugar/gur is about 1.1 million tons. Present shortfall of sugar/gur can not be met through sugarcane cultivation alone. Date palm gur may be an alternative source of sugar to supplement the increased demand for sugar/gur (Anon, 2003-04).

Idris (1983) stated that 70 million date palm can be grown in road/rail/embankment without reducing the acreage of other crops and 0.7 million 5-6 member rural families can survive from the earning of this plant alone. He also estimated that if date palm is grown in a planned way it is possible to run two new sugar mills and sugarcane field can be released for the cultivation of other crops. Emran (1993) stated that a gachee (labourer who cut date palm plant to trap/extract juice to make gur) might earn Tk. 1500 to Tk. 2000 from juice tapping of date palm. Date palm acts an alternative source of sugarcane gur to supplement increased demand of sugar, and have a positive impact on sugar

industries in Bangladesh. During juice tapping season, 200-250 litres juice is obtained from each plant and gets 25-30 kg gur/molasses (Asaduzzaman *et al.*, 1986). Chowdhury and Satter (1993) reported that last five years total cash income from date palm varied from Tk. 810 to Tk. 5740 per farm with a mean of Tk. 2823 per farm. Miah and Alam (2001) revealed that juice secretion, degree. Brix of juice and gur recovery per cent may be enhanced through application of appropriate agronomic management practices such as irrigation, NPK fertilizer application and trash mulching to date palm plants. According to BBS report date palm and palmyra palm is grown in around 10755 to 10767 hectares of land and total estimated juice production is 3.34 to 3.48 million tons and @ 10 percent gur recovery 0.334 to 0.348 million tons of gur is produced per year in Bangladesh.

Date palm gur is very sweet, popular for its aroma and palatable to eat. It has higher demand in the cities of Bangladesh. It is grown in the country with no inputs and minimum care and this sugar plant has established her to accrue an economic benefit and income generating tools to the rural livelihoods. The study was designed to investigate the present practices of date palm plant cultivation and juice extraction, marketing of both juice and gur, per plant gross return and margins, constraints, economic potentiality etc.

METHODOLOGY

The present study was conducted during 2006-07 cropping season at Keshabpur upzilla (Jessore). Random sampling technique was followed to select growers for data collection from the list of Datepalm growers'. Data were collected from 60 sample growers using both structured and open ended questionnaire. Simple tabular analysis was done for the investigation. Use of juice and gur for home purposes were considered in calculating gross return. To examine profitability of date palm cultivation Gross Margin (GM) analysis was done since growers are more interested to know their return over variable costs rather than profit (through subtracting fixed cost from GM).

$$GR = Ag_1 \times Pg_1 + Ag_2 \times Pg_2 + S_j \times P_j$$

Where,

GR = Gross Return

Ag_1 = Amount of gur prepared from total fresh juice (first night/time collected)

Pg_1 = Price of gur kg^{-1} made from fresh juice

Ag_2 = Amount of gur made from second night/time collected juice

Pg_2 = Price of gur kg^{-1} made from second night/time collected juice

S_j = Sale of juice

P_j = Price of juice (per litre)

RESULTS AND DISCUSSION

The results of the investigation have been shown in tables 1-5.

Agronomic practices of date palm plant

No methodical cultivation of date palm plant was found in the area. Even, they didn't have any technical knowledge regarding date palm cultivation, date palm cutting, juice collection and gur preparation and preservation. Growers' did not apply any fertilizer and irrigation to date palm plant. New plantation of date palm seedling was found to be rare. Date palm gardens are being sold and rice and vegetables are being cultivating in those lands. Results shows that during last ten years growers cut 5 plants whereas planted 1.5 plants per year. They did not get any extension services regarding date palm plant cultivation either from DAE (Departments of Agricultural Extension) or other organizations.

Collection of date palm juice

Growers believe a date palm plant become mature after 6-7 years of plantation. Tapping of juice is seasonal and it is started from the month of November and continues upto mid March until day and night temperature became above 32°C and 25°C respectively. First night collected juice is the sweetest and the best. Good quality both solid gur (locally called 'patali'), semi-solid gur are prepared from this first night collected juice. Juice collected in the second night is relatively poor quality compared to 1st night collected juice and prepared relatively poor quality gur. After these two nights, plants are allowed to remain at rest for 2-3 nights and the same process again begins. During the tapping period (100-120 d), 170 - 220 litres of juice were obtained per plant.

Date palm juice marketing

Date palm juice is sold in villages, market places, hat/bagar etc in the study area. At evening, growers bring fresh juice, pure water and glass/mag to sell it to the mobile consumers at the market. Fresh juice charged for Tk. 2 to 3 depending on the size of mag/glass. By selling fresh juice a farmer could earn Tk 30 to 35 plant⁻¹ day⁻¹. Besides, growers who do not have date palm plant usually bought fresh juice for making pita (solid preparation by rice powder) and paiesh (semi-solid rice preparation using date palm juice/gur) and it is a very old age practice in village level of the study area. Growers stated that Tk. 750-850 per date palm plant could be earned during the tapping season (about three months).

Cost and Return from date palm plant

Table-2 shows that cost of date palm gur production was Tk. 330.0 plant⁻¹ per season of which about 62, 18 and 14 per cent were for fuel, gachee and labour cost respectively. Higher standard deviation indicating variation of cost among respondents. It can be seen from the Table-3 that if growers use juice only for gur production he could get 23.1 kg gur plant⁻¹ of which 13.7 kg from first night collected juice and 10.0 kg from second night collected juice. Per plant gross return was Tk. 688.4, cost of gur production was Tk. 330.0 and gross margin was Tk. 358.4. Return per Taka investment (variable cost basis) was Tk. 2.08 (Table 4).

Marketing of date palm gur

In the study area three types of date palm gur viz semi-liquid, solid and patali were produced. The marketing channels of date palm gur are shown in the Figure 1. Growers sold 30 per cent gur direct to village consumers. They also sold gur to consumers at local/village market or upzilla/central market. Middle man (locally called Bapari) normally purchased gur from growers at local and/or upzilla market. But sometimes they purchased directly from growers' house. Bapari then sold it to stockist (locally called Aratder) then via wholesaler, retailer to consumer.

Constraints

It was also observed from the investigation that growers learnt entire process of juice collection to gur making from their ancestor and/or through trail and error methods and had no technical know-how about date palm plant cutting, juice tapping (collection), gur making and preservation. Fuel scarcity for making gur from date palm plant was one of the main constraints of growers. However, increased wages of gachee for date palm cutting and juice collection, lack of expert manpower for date palm cutting (gachee) and juice tapping, lack of improved production technologies, low price of gur during season, poor marketing and storage facilities of gur and juice were also identified as serious constraints (Table-5). It is seen from the table-5 that all growers reported that plant to plant great variation in juice secretion is the main constraints to increase date palm plant cultivation.

CONCLUSION

In the paradox of decreasing sugarcane land in Bangladesh it is very difficult to meet up increasing demand of sugar and gur through bringing more area under sugarcane cultivation. So, it is important to pay more attention on date palm cultivation in homestead, embankment, ponds, road sides, marginal lands and ail (demarcation mark) of different crop fields that remain fallow. This will reduce pressure on sugarcane cultivation resulting release of sugarcane lands for other crops cultivation and will increase income of rural people and thus contribute to reduce poverty and uplift meant of nutritional status of mass rural people. It is also very important to undertake systematic research to develop modern varieties, production technologies for improved cultivation practices, juice tapping, gur and juice marketing and preservation to mitigate the problems facing by growers. Appropriate steps should be taken to disseminate information regarding benefits of date palm cultivation and to encourage more growers to practice date palm plant plantation through collaborative approaches among themselves and between government departments.

Table-1 Agronomic cultural practices of date palm cultivation and growers practices

Agronomic Cultural Practices	Growers' Practices
Fertilizer application	Not applied
Irrigation application	Not applied
Methodical cultivation	Not followed
New seedlings plantation	Rare
Technical knowledge regarding date palm cultivation	No
Training/ Extension services received	No

Source: Field Survey, 2006-07

Table-2 Average cost of gur production in 2006-07 cropping year per date palm plant

Particulars	Cost (Tk ⁻¹ plant)	Standard deviation	Percent of total cost
Gachee (juice tapping)	60	23	18
Fuel for gur production	205	40	62
Labour	45	23	14
Pot and others	20	15	6
Total	330.0	32	100

Source: Field Survey, 2006-07

Total plants of sample growers = 850

Table-3 Average return from gur production per date palm plant

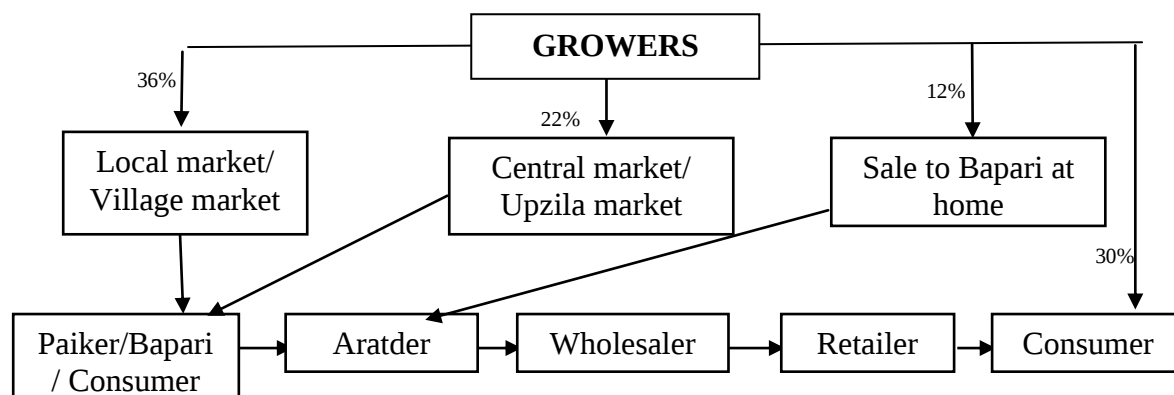
Particulars	Amount (Kg)	Tk. Kg ⁻¹	Gross Return
Gur from first night collected fresh juice	13.7	32.0	438.4
Gur from second night collected juice	10.0	25.0	250.0
Total	23.12		688.4

Source: Field Survey, 2006-07

Table-4 Total return, Variable cost and Gross margin per plant

Items	In Taka
Total return	688.40
Variable cost (producing cost)	330.00
Gross margin	358.40
Return per Taka investment (variable cost basis)	2.08

Source: Field Survey, 2006-07

**Figure-1 Marketing channel of date palm gur****Table-5 Constraints of date palm cultivation and gur making**

Constraints	Respondent	Percentage
Fuel scarcity for making gur	60	100
Increased cost of gachee	60	100
No or very low juice extraction by some plants	60	100
Lack of expert manpower for date palm cutting (Gachee) and juice secretion	52	86
Low price of gur during tapping season	47	78
Lack of improved production technologies	45	75
Poor marketing and storage facilities of gur and juice	30	50

Source: Field Survey, 2006-07

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