STUDY ON HIGH YIELD OF QUALITY JUTE SEED PRODUCTION FOR DIVERSIFIED USES

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ABSTRACT

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The study was conducted at three different villages such as Kamairbag, Panchkitta and Raicho of Comilla to investigate on late jute seed production by the farmers of the villages. Forty farmers of each village were selected and 50% of them were trained by seed production technology and other 50% were not trained. Significant effect found on seed production in three different villages. Trained farmers produced significantly higher yield of quality jute seed. Percent of jute seed yield increase 41.18% to 47.58% and more profit obtained 59.18% to 69.70% by trained farmers compared to non-trained farmers. The ratio of benefit cost was found higher for trained farmer than non-trained. High yield of quality jute seed production will be influenced for diversified uses because, jute seed having percentage of valuable oil 7.9-12.9%.

Keywords: Yield, quality seed, diversified use

INTRODUCTION

Jute is grown mainly in Bangladesh for fibre rather than for seed. In Jute, use of quality seeds of improved variety alone contributes 223.54 kg of extra fibre per hectare i.e. an increase of about 17 percent (Talukdar and Rahman, 1989). Farmers of Bangladesh conventionally grow seed and fibre simultaneously from the same plant of jute. These seed crops due to long stay in the field are affected by hailstorm, diseases and insect pests thus produce lower yield of poor quality seeds. In recent villages, the agro-ecological condition of the country has abruptly changed and jute seed production as a part of fibre crop is no longer remunerative. Farmers are also very reluctant to grow jute seed. So, the country has been facing acute shortage of quality jute seed every village. Quality seeds of an improved variety itself provide 20 percent additional yield of the crop (Hossain *et al.,* 1994). To overcome jute seed problems and to ensure supply of required quality seeds, Bangladesh Jute Research Institute has been advocating late or off season seed production for higher seed yield and economic return, which to be sown in the month of August and September and harvested in December and January (Hossain *et al.,* 1994). In jute production system, water management includes application of irrigation and draining out the excess water is needed from the jute fields. Irrigation is the artificial application of water to the crop field for its proper growth (Rahman *et al.,* 1992). Jute growers are habituated to follow the technology or practice which has been developed through experiences and tradition and they are reluctant to change their practices (Azad, 1984). Farmers will pay due attention to the research findings about which they have some experiences and seem to be more economical.

The seeds of Corchorus capsularis L. and Corchorus olitorius L. have been examined by many persons in the past and conflicting claims have been recorded by them. Kobert (1907) described a product isolated from *Corchorus fascicularis, olitorius, capsularis, bengalensis, acutangulus, argutus* and *triacularis spp*., which had marked physiological activity. Annett (1917) described raffinose obtained from *Corchorus capsularis* Linn., in only 2.25% yield, while Saha and Choudhury(1922) mentioned about the isolation of a glucoside, capsularin. Sen(1928) described the isolation of oil from jute seeds and also a bitter principle, corchorin, which he has classified as a glucoside and corchoritin as a crystalline bitter. Soliman and Saleh (1931) have pointed out that corchorin was actually identical with strophanthidin. Karrer and Banerjee (1949) mentioned about the cardiac aglycone, corchortoxin, from *corchorus capsularis* and again corchogenin has been mentioned as a cardiac active aglycone by Chakravarti and Sen (1954). Mention has also been made of corchsularin as a new bitter by Khalique and Ahmed (1955). The confusion about these bitters and cardiac aglycones appears to have been clarified to some extent in a joint paper by Sen, Chakravarti, Kries, Tamm and Reichstein, but the question does not seem to have been completely settled and some further work appears to be necessary particularly because of its economic importance.

Therefore, the present study was undertaken with a view to evaluate the high yield quality jute seed production practices which will be used as good jute fibre production and excess of seeds may be used for the production of valuable chemical specially seed oil as diversified products.

MATERIALS AND METHODS

To study the program we selected three different village of Comilla during Hatighara village. The three villages named Kamairbag, Panchkitta and Raicho. We selected 40 villagers each of the villages. Among them 50% farmer

of each village were trained about Jute seed production and other 50% are not. The trained farmers used quality jute seed, balanced fertilizer, insect pest control and proper intercultural operations for jute seed production. Non-trained farmers used seed from various source and did not adopt improve management practices, but all the farmers sown their tossa jute seed at mid August and harvested at mid December. Seed yield data were analyzed by Gomez and Gomez (1983) and the mean differences were adjudged by Duncan's Multiple Range Test. Cost and return analysis were also done.

Jute seeds of different varieties on being powdered for chemical analysis by extraction of oil with petroleum ether (60-80^{o}c) in hot condition by Soxlet Apparatus.

RESULTS AND DISCUSSION

The results on high yield of seed production and extraction of jute seed oil for diversified uses were summarized in the following Tables.

Table 1. Location wise performance for jute seed production by trained and non-trained farmers

Location/ Village	Farmers	Seed yield kg/ha	% Yield increase for trained farmer compare to non trained farmer
Kamairbag	Non trained	373 b	
	Trained	688 a	45.78
Panchkitta	Non trained	400 b	
	Trained	680 a	41.18
Raicho	Non trained	368 b	
	Trained	702 a	47.58
CV (%)			12.6

It was observed that highest seed yield obtained by trained farmers 702 kg/ha in Raicho village of Comilla, which is statistically identical to 688 kg/ha for trained farmers jute seed production in Kamairbag village and 680 kg/ha for trained farmers of Panchkitta village of Comilla. Also the result showed that in every village the management practices of non-trained farmers produced lower jute seed productions, which were statistically lower than trained farmers jute seed production result. Trained farmers obtained more jute seed yield 45.78% in Kamairbag, 41.18% in Panchkitta and 47.58% in Raicho compared to non-trained farmers (Table 1). This result agreed with Khan *et a*l. (1997). They reported that the jute crop planted on 16th August provided much better and significant yield and the farmers of the villages planted mid August. The maximum seed yield (1105 kg/ha) was obtained from OM-1 sown on 16 August (khan, *et al.* 1997). Trained farmers used quality seed for jute seed production and quality seeds of an improved variety itself provide 20 percent additional yield (Hossain, *et al.* 1994).

Table 2. Cost and return analysis

Location/ Village	Farmers	Gross return Tk/ha	Total variable cost Tk/ha	Net income Tk/ha	% More profit due to trained	Benefit Cost Ratio
Kamairbag	Non trained	29,840	20,000	9840		1.49
	Trained	55,040	25,000	30040	67.24	2.20
Panchkitta	Non trained	32,000	20,000	12000		1.60
	Trained	54,400	25,000	29400	59.18	2.18
Raicho	Non trained	29,440	20,000	9440		1.47
	Trained	56,160	25,000	31160	69.70	2.25

From Table 2 it was observed that gross return found highest TK. 56,160 by trained farmers of Raicho village and gross return TK. 55,040 obtained by trained farmers by Kamairbag village, which was lowest gross return compared to other trained farmers gross return but these gross returns of trained farmers are higher than that of non trained farmers among the villages. Total variable cost found highest TK. 31,160 for trained farmers of Raicho village and lowest showed TK. 9,440 for same village for non-trained farmers' jute seed production. From cost and return analysis it was also observed that by jute seed production net income found for trained farmers 29400 to 31160 Tk/ha and 9440 to 12000 Tk/ha for non trained farmers. Trained farmers got more profit 59.18% to 69.70% and the benefit cost ratio found highest in all cases for the trained farmers and it was found 2.25 in Raicho village of Comilla.

Table 3. Estimation of oil content for different variety of jute seed samples

No of Observation	Name of different jute seed variety	Percentage of moisture	% of oil content
01	OM-1	9.13	11.80
02	C-2035	9.77	12.05
03	C-2193	9.87	9.73
04	HC-2 (Kenaf)	10.65	11.85
05	CP-1	10.23	10.99
06	HC-95	9.85	12.95
07	HS (Mesta)	9.75	21.47
08	C-2142	9.23	7.905
09	O-9897	10.21	10.94

From Table 3, we found the range of oil content in different variety of jute seed have been showing 7.9%-12.9%. Its chemical value becomes profitable by proper use. It may be used as batching oil for softening of jute fibre by applying as an emulsion. But oil quality is not so enough for emulsion, so it may use as insecticides due to its bitter test. Therefore quality jute seed production with high yield variety will give new area for diversified uses of jute seeds.

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