RESEARCH NOTE

Role of Jute Cultivation in Farmers' Livelihood

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ABSTRACT

The study was conducted to assess impact of the demonstrated jute technologies from 1996 to 2005 on the farmers' livelihood in North 24-Parganas districts of West Bengal. Results revealed that demonstrated technologies increased the fibre yield of jute by 424 kg /ha (16%) in the post-demonstration (2980 kg /ha) compared to the yield obtained in the pre-demonstration period (2557 kg /ha) and provided additional surplus of Rs. 5000 per ha to the farmers. This additional income was utilized by the farmers with 50% more than earlier on food, health of the family members, education of children, attending social and entertainment programmes, and purchase of farm implements or essential items was also recorded. In addition, jute provided several non-price advantages with various uses of plant parts other than fibre, which were equally important to them. Therefore, increasing productivity and benefits of jute through promising input cost-saving technologies is a prime concern.

Key words: *Jute; Frontline demonstration; Farmers' livelihood; Fibre yield; Income utilization pattern;*

In the context of global awareness for environmental concerns, jute [*Corchorus olitorius.* (L.)] and allied fibres, as eco-friendly packaging materials, are again in the centre stage as against synthetic fibres, which are pollutant by nature as claimed by the environmentalists (*Sen et. al., 2008*). Food and Agriculture Organization (FAO) has declared year 2009 as the International Year for Natural Fibres considering, particularly, their environmental significance. Jute is a commercial fibre crop, which plays a significant role in the economy of a number of Asian countries like, India, Bangladesh, Nepal, Thiland, China and Myanmar.

About 60 per cent of the raw jute in the world is produced in India. It is viewed that about 4 million farmers, 0.25 million industrial workers and 0.5 million traders find gainful employment in jute sectors (*Sen et. al., 2006*). It generates about 10 million working man-days annually and around 32 lakh farm families seek their livelihood by cultivating jute in the country. Thus, raw jute (jute + mesta together) farming, industry and trade support livelihood to 14 million people (*Das et. al., 2006*). These apart, the jute industry also contribute to the export earning to the tune of nearly 1200 crore of rupees yearly (*Karmakar et. al., 2008*).

In India, jute is predominantly cultivated by the marginal (65%) and small (25%) farmers of West Bengal contributing about 80 per cent national jute production (*Chapke et. al., 2006b*). Therefore, any positive impact of the adoption of improved production technology and the resulting higher yield will directly benefit these groups of farmers. Several, frontline demonstrations (FLDs) on jute with package technologies were conducted since 1996 by Central Research Institute for Jute and Allied Fibres, Barrackpore in West Bengal. It was felt essential to study the impact of improved jute cultivation on productivity, income gained and ultimately on the farmers' livelihood.

METHODOLOGY

The study was conducted in six different villages of North 24-Parganas district of West Bengal, where the Frontline Demonstrations on jute with package technologies were conducted on the farmers' fields by the CRIJAF during 1996 to 2005. However, the data of the year 2006 were also collected, which was post demonstration period. Materials for the present study comprised of five high yielding jute (*Corchorus olitorius L.*) varieties viz., 'JRO-524', 'JRO-8432', 'JRO-66', 'JRO-128' and 'S-19'. Since 2003, 'JRO-524E' (rice necrosis mosaic virus inoculated seeds of 'JRO-524' with recommendation of N:20, P_2O_5:10, K_2O:10 fertilizer dose without use of plant protection chemicals) with the recommended package of practices was also introduced. Sowing was done in the month of

April-May, while harvesting in the month of August. Fertilizer schedule was N:60, P_2O5:30, K_2O:30 kg /ha for all the varieties except for 'JRO-524E'. The need-based plant protection chemicals were used to control the insect-pests. However, the farmers were changed within the same village after certain intervals for conducting the demonstrations on their lands. Ninety beneficiary farmers, those who were well responsive and kept written records of the previous years, fifteen from each village viz., Kairapore, Devok, Masunda, Iswarigacha, Geedha and Teghoria were selected for this study. They were categorized in three stages, viz., pre-demonstration, during demonstration and post-demonstration (after withdrawal from FLD) for the purpose of evaluating impact of demonstrations in socio-cultural and economical context. The data were collected through personal interviews, group discussion and empirical observations with the help of semi-structured interview schedule and field records of frontline demonstration plots.

RESULTS AND DISCUSSION

Effect of improved jute cultivation : Most of the activities of human being are related with their livelihood (*Adato M. and Meinzen-Dick R., 2002*). Sources of income generation and utilization of resources for monetary gain are the central focus in this process. Farmers' economical condition is much dependable on their agricultural production. High productivity of their crops resulted in to more benefits in terms of cash, which has influence on their livelihood and investment for further income enhancement endeavors. Quantity of jute fibre yield production has a major role in its profitability. It was prime important to analyze the fibre yield production status of the beneficiary farmers. The results are presented in Table 1.

On an average, the fibre yield of jute obtained (Table 1) by the farmers was 2557 kg /ha before adoption for demonstration. The demonstrated yield of jute fibre obtained by the farmers during adoption was 2879 kg /ha, which was maintained by the farmers after withdrawal from the demonstrations (2980 kg /ha). The fibre yield increased during post -demonstration period was by 424 kg /ha (16%). The overall fibre yield increased was found ranged between 12% and 20% across the locations in the post demonstration period. This was possible may be due to adoption of almost balanced fertilizer use and implementation of timely management practices as indicated in the demonstration package. The farmers continued with the variety 'JRO-524'. It was found to be more suitable to cultivate in the jute area and yielding better (*Chapke et. al., 2006a*). Fibre yield and cost of (input cost) were found to be independent of size of farm. The post-demonstration period falls mostly under the year 2005 and 2006 in which the market price of the jute fibre was higher as compared to other years with an average of Rs. 12.50 per kg. The increased fibre yield during the post-demonstration period at *Teghoria* village was quite more (20%) among the clusters. It may be due to heavy textured soil, which retained moisture for longer time and application of limited irrigations to the crop during dry spells. Though, jute is a rain-fed crop, water stress situation occurs at times at critical growth period resulting in lower fibre yield. Therefore, life saving irrigations was essential during the same period, wherever possible.

Generally, farmers were keeping about 10 per cent of the fibre at home for their own use. It was utilized to

Table 1. Fibre yield of jute as influenced by improved technologies during 1996-2006

Village	Fibre yield (Kg /ha)				Additional monetary gain (Rs. /ha)*
	Pre-demonstration 1	Demo-nstration 2	Post-demonstration 3	Yield increase over pre-demonstration 4 (3-2)	5
Koirapur	2478	2637	2799	321 (12.95)	4013
Devok	2461	3000	2952	491 (19.95)	6138
Iswarigachia	2745	2983	3125	380 (13.84)	4750
Teghoria	2541	2934	3058	517 (20.35)	6463
Masunda	2595	2872	3017	422 (16.26)	5275
Geedah	2516	2845	2929	413 (16.41)	5163
Average	2557	2879	2980	424 (16.58)	5300

Figures in parentheses indicate percentage.

* Average market price of jute fibre during 2005 and 2006 was Rs. 12.50 per kg.

prepare hand made diversified products by the women and preparation of thin ropes for different farm and non-farm uses.

Economic surplus: Increased production of jute fibre by about 400 kg /ha provided advantage to the farmers by about Rs. 5000 per ha (Table 1). Marginal size of land holding of the majority farmers was the most important limiting factor in production of jute. Eventually the monetary benefit was not much visible, if it was not estimated on hectare basis. The monetary gain always depends on the market price of the fibres, which was highly fluctuating year to year due to lack of regularized market system. It was recorded that a few farmers were made money by selling excess of jute sticks at very cheap rate that ranged between Rs. 0.50 and Rs. 1.00 per kg, which was part of economic gain but not a regular income source. Some times, trucks of jute sticks are being taken out from this area, which indicates its commercial importance.

Income utilization pattern of jute farmers : Additional profit in terms of cash received by the farmers from jute fibres was spent in different ways by the farmers. Details of the additional income utilization was investigated and reported in the Table 2.

Table 2 Utilization of additional income from jute cultivation (N=90)

Human needs / Item	No.	%
50% more on food	71	79
50% more on health	68	76
50% more on children education	65	72
Purchasing inputs for next crop cultivation	61	68
To attend social functions	49	54
Recreation	44	49
Purchase of sprayer or bicycle	30	33

From the data on utilization of additional income (Table 2), it is revealed that the farmers' could spend more up to 50 per cent than earlier on human needs and purchase of essential items. As per their opinion, they spent 50 per cent more money on essential needs such as, food (79 %), health of the family members (76 %) and education of the children (72 %). They elaborated that they used to spend Rs. 500 on health, the additional income make them to spend Rs. 750, which was 50 % more than earlier. Similarly expenditure was enhanced in case of food and education of the children. No additional expenditure was recorded on purchase of clothes, however, which was being done usually from this money during the time of *pooja* (Goddess worship festivals). Most of the farmers utilized the income to purchase the inputs for next crop i. e. paddy (68 %). A few of them (33 %) purchased at least one essential item either sprayer or bicycle. Fifty four per cent of the farmers could attend social functions better such as, *pooja*, marriage functions and birth ceremony. Similarly, they (49 %) could spend on recreation such as, viewing cinema, participating in fairs / *melas* at town or city places.

It was observed that jute fibre was ready for marketing before *pooja* festival, the sale deeds being utilized by the farmers to purchase cloths and inputs for next crop cultivation. Marketing of the jute fibre was matched with the time of festivals, so this crop has got important to meet their festive and entertainment needs.

*Non-price advantages from jute cultivation :*The people of India know jute as a source of fibre and its use for sacking at least from 16th century. It has become a source of livelihood for million people and is deep rooted socio-culturally. Now-a-days, it is less remunerative neglected commodity in the society. It was, therefore, interesting to identify the motive forces behind the jute cultivation, besides, profit in terms of cash. The matter was probed from the farmers to know the non-price benefits received from this crop.

Data show (Table 3) that major motives for jute cultivation reported by the farmers were; it provided jute sticks as fuel for cooking purpose (77%). It enabled to keep the field clean for the next crop (70%). These were the major motivational forces found behind jute cultivation besides, low economic gain. Jute sticks contribute major portion of biomass out of total produced from jute cultivation, while only 4-6 per cent constitutes by fibre. It is threaten that availability of alternate source for their domestic fuel at affordable cost and lack of diversified efforts for use of jute sticks such as, use in preparation of paper pulp, would reduce jute cultivation.

Table 3. Non-price advantages from jute cultivation (N=90)

Other advantage	No.	%
Provide fuel for cooking purpose	69	77
Enable to keep the field clean for the next crop	63	70
Engagement of family labour and use of their resources	51	57
It helps as saving Bank, which could reimburse money collectively after selling the fibre on investment of their own resources	48	53

Employment generation : More than fifty per cent of the farmers (Table 3) expressed their concern as

engagement of family labour and use of their own resources (57%). It appeared to be a small money saving Bank in the form of available resources, for repaying money collectively after selling the fibre (53%). It was reported that ratio of the family and hired labour used in the jute cultivation was 40:60, which was reverse a decade ago. It may be due young generation are not much interested to do drugerious farm work, who preferred to do work in non-agricultural sectors. Jute is a labour intensive crop, which consumed 77% cost for human labour out of total cost of cultivation (*Chapke et. al., 2006a*). However, jute cultivation provided employment in the form of family labour and saved the labour requirement up to 40 per cent.

Source of bio-fertilizer and nature friendly bi-product: Notably, the farmers experienced that jute crop added an organic manure significantly by shedding leaves, which improve the soil fertility and reduce the use of chemical fertilizers in jute-based cropping systems. In this context, *Sinha (2004)* reported that one tonne of jute fibre comes from 4 tonnes of eco-friendly bio-mass and fixed nearly 6 tonnes of carbon dioxides. Besides, jute added 3 million tones of dry leaves to soil, incorporating 90, 30 and 50 thousand tones of nitrogen, phosphorous and potash, respectively. Moreover, It was also possible to fit jute crop in multiple crop sequences due to availability of short duration jute varieties (110-120 days). These facts makes the natural fibres eco-friendly, which is the need of the hour. Jute is also used as vegetable from 25 to 30 days aged crop by most of the people in the jute area.

It is a fact that huge plant bio-mass is produced while growing this crop for fibre purpose. Fibre constitutes only 4-6 per cent of the total bio-mass, while sticks (generally used as domestic fuel) contribute the most and the rest (except seed) never utilized. Some reports indicated that the plant parts such as, leaf, seed, stem, root and whole plant as well has got great potential for product diversification.

CONCLUSION

The result shows that jute crop plays crucial role in the farmers' livelihood by providing monetary and non-price benefits as well. It was revealed that jute is not only a commercial crop but also socio-culturally important to the farmers. Improved demonstrated jute technologies enabled farmers to produce 16% more fibre yield and about Rs. 5000 per ha monetary gain. It helps them to spend more (by 50%) on food, health, cloths and children's education and to invest for next crop cultivation including non-price advantages such as, generates family employment, source of domestic fuel, facilitate to keep clean field for cultivation of next crop, improve soil fertility.

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