

## Scaling up Livelihood and Remuneration of Jute Farmers in West Bengal

Anita Roy<sup>1</sup>, Bikash Mondal<sup>2</sup>, Joydeep Banerjee<sup>3</sup>

<sup>1</sup>Associate Professor, AINP JAF, Dept of GPB, BCKV, WB, (India)

<sup>2</sup>Associate Professor, Dept of Agronomy, BCKV, WB, (India)

<sup>3</sup>Assistant Professor, Dept of GPB, BCKV, WB, (India)

### ABSTRACT

*JUTE is the oldest cash crop of eastern India. It is a natural coarse fibre, made from the stems of a tropical plant and used for making rope/yard and woven into sacking, hessian, etc. Raw jute, as it is known in trade, comprises jute and mesta fibres. Jute fibre is obtained from two plants species, such as Corchorus Capsularis (white jute) and Corchorus Otitoruus (tossa jute). Jute is a natural fibre and it is bio-degradable and soil-friendly, and used in packaging and in various ways as diversified product. Among the jute producing countries, most important are India, Bangladesh, China, Indonesia, Myanmar, Nepal, Pakistan, Thailand and Vietnam, for this crop needs alternate rain and sunshine, fertile land, adequate water for retting, and manpower. However the major states in India remains West Bengal, Assam, Bihar, Odisha and Tripura. In this regard it has been seen that the jute crop is facing constant threats from the huge labour requirement, retting techniques, unpredictable yield returns and tough competition from other crops leading to its shrinkage in area. An attempt was taken in study in this line where 133 farmers from two blocks of 24 pgs, WB was selected and the improved technology was provided to them including new varieties, improved technology, integrated nutrient management, integrated weed management, integrated pest and disease management, mixed cropping and modern retting technique for a period of two years and the programme was continued for jute and subsequent crop. There was an overwhelming response as the farmers fetched a whopping price of Rs 3600 on jute fibres per quintal and Rs 1200 on jute sticks per hectare. Not only the yield but the quality of the fibre produced using CRIJAF sona a retting consortium produced by CRIJAF had played a good role. As was evident there was a near two fold increase in income from the weed management component which is relevant as the crop faces much problem due to weed. However the same was extended to rice taken after the jute crop where it was studied for varietal replacement, integrated nutrient management, weed management, disease management and package technology. Here it was observed that integrated nutrient management and there was also an two fold increase in the income. The third crop potato was taken and various interventions like varietal promotion, nutrient management and advanced production technology. However since this crop faced market problems at the time of harvest (reduced price) none of the interventions were found to be beneficial. This project was funded by ICAR AINP, Jute and allied fibres for the farmers under the Tribal Sub Plan. The success of the project had a call for extending the plan in the third year.*

**Keywords :** Economic upliftment, ICAR-AINP JAF, Jute farmers, TSP, WestBengal.

## **I. INTRODUCTION**

JUTE is the oldest cash crop of eastern India. It is a natural coarse fibre, made from the stems of a tropical plant and used for making rope/yard and woven into sacking, *hessian*, etc. Raw jute, as it is known in trade, comprises jute and mesta fibres. Jute fibre is obtained from two plants species, such as *Corchorus Capsularis* (white jute) and *Corchorus Otitoruus* (tossa jute). Jute is a natural fibre and it is bio-degradable and soil-friendly, and used in packaging and in various ways as diversified product. Among the jute producing countries, most important are India, Bangladesh, China, Indonesia, Myanmar, Nepal, Pakistan, Thailand and Vietnam, for this crop needs alternate rain and sunshine, fertile land, adequate water for retting, and manpower.

India have been classified in to nine agro-climatic zones comprising the states of West Bengal, Assam, Odisha, Bihar, Uttar Pradesh, Meghalaya and Tripura. West Bengal covers 63% of jute growing area, 67% of the total jute fibre production of the country and 1.4% of total cropped area. Jute requires a warm and humid climate and can be grown within a temperature range of 24 to 37<sup>0</sup>C and a relative humidity of 57 to 97%. Jute crop thrives well with alternate rains and sunshine. The amount of rainfall and its distribution have marked effects on the growth of crop and ultimately yield of fibre. In the ideal situation, 120-150 mm pre monsoon rain followed by a dry period of 30-40 days and 1200 to 1500 mm of precipitation over last 75-80 days is considered to be the most ambient condition for growth of jute crop. As for these reasons it can very well be considered a potential crop for West Bengal. In this regard it has been seen that the jute crop is facing constant threats from the huge labour requirement, retting techniques, unpredictable yield returns and tough competition from other crops leading to its shrinkage in area. To combat this situation in a more profitable manner this recent work was taken up where the cultivation profit margin was improved by replacement of older varieties like JRO 524, demonstration of improved package technology and improved retting technology was incorporated.

## **II. MATERIALS AND METHOD**

Jute faces problems in cultivation due to the set of old cultivars used and the lack in information on modern technologies including weed problem and the disease insects which render inferior quality of fibre or in whole the updated knowledge on modern technologies . Apart from that the retting and seed production part is also affecting the cultivation of the crop so all these were taken into account. An attempt was taken in study in this line where 133 farmers from two blocks of 24 pgs, WB was selected and the improved technology was provided to them including new varieties, improved technology, integrated nutrient management, integrated weed management, integrated pest and disease management, mixed cropping and modern retting technique for a period of two years and the programme was continued for jute and subsequent crop. The study was initiated with them in the first year in 2014-15 on a trial basis with only jute crop . Based on the response it was extended to jute in the second year 2015-16 and in the third year 2016-17 it has been continued with the same components in 2017-18.

### **2.1. Intervention–I: Demonstration with variety**

Considering the fact that replacement of old variety with suitable new one is a better option for getting higher yield, JRO 204 (*Suren*), attaining traits of high yield (36-38 qtl/ha), green stem, good plant height (4.0 m - 4.3 m), non-branching was taken as component of demonstration with JRO 524 as check. Same practice was applied in both the villages along with use of implements like seed drill, nail weeder.

### **2.2. Intervention-II: Demonstration on advance production technology**

Farmers' field demonstration on improved crop production technology on jute was conducted in both the villages during the jute season of the year. Adjacent check plot (with farmer's practice) was maintained for each demonstration plot in order to differentiate the practice of improved technology from the traditional one. Improved production practice viz line sowing, chemical weed control with quizalofop ethyl 5% @ 1.5ml/L at 20 DAS plus one hand weeding after 20 days of herbicide application, plant protection measures against damage by insect pests were taken in practice all together.

### **2.3. Intervention-III: Demonstration on advance retting technology**

Demonstration on improved jute retting technology was conducted in both the villages with the use of microbial consortia '*CRIJAF SONA*' with traditional pond-retting of jute fibre as check. The objective was to convince the farmers about improvement of fibre quality by microbial retting in order to save time of retting and enjoy better market price during sale of fibre.

## **III. TABLES**

(from two years pooled data, each component were supported by data from 10 farmers)

### **3.1 Demonstration with variety**

Mean of two Location- Srikrishnapur and Matiagaccha; Crop: Jute

Treatment	Crop Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Return (Rs/ha)	Net benefit ratio
T <sub>1</sub> = JRO 204	28.85	46760.00	71207.00	1.52
Farmers practice (T <sub>2</sub> = JRO 524)	26.81	46760.00	62966.00	1.34

\* Sale price of fibre for T<sub>1</sub>: Rs 4050.00 per quintal, for jute stick: Rs 1125.00 per hectare.

**in case of jute, the improved variety JRO 204 gave better edge (> 10%) towards economic returns (14% at Srikrishnapur and 11 % at Matiagacha) no extra cost.**

### **3.2 Demonstration on advance production technology**

Location: Srikrishnapur and Matiagaccha ; Crop: Jute

Treatment	Crop Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Return (Rs/ha)	Net benefit ratio
-----------	-------------------	-----------------------------	--------------------	-------------------

T <sub>1</sub>	29.45	47345.00	72951.00	1.54
T <sub>2</sub>	26.93	54078.00	56113.00	1.03

\* T<sub>1</sub> = Line sowing + chemical weed control with quizalofop ethyl 5% @ 1.5ml/L at 20 DAS + one hand weeding after 20 days of herbicide application + Cypermethrin 10% EC against semilooper and hairy caterpillar + traditional retting ,\*\*T<sub>2</sub> = Farmer's practice (broadcasting + two HW + traditional retting)

\*\*\* Sale price of fibre for T<sub>1</sub>: Rs 4050.00 per quintal, for jute stick: Rs 1125.00 per hectare.

In this case , the improved package technology gave better edge ( > 10%) towards economic returns (26% at Srikrishnapur and 33 % at Matiagacha) , where it further reduced the cost of cultivation as by reducing the mandays against the myth.

### 3.3 Demonstration on advance retting technology

Location: Srikrishnapur and Matiagaccha; Crop: Jute

Treatment	Crop Yield (q/ha)	Retting duration (days)	Cost of cultivation (Rs/ha)	Net return (Rs/ Ha)	Net Benefit
T <sub>1</sub>	29.42	12	48345.00	76365.00	1.58
T <sub>2</sub>	29.42	18	47345.00	72951.00	1.54

\* T<sub>1</sub> = Retting by using microbial consortia (*CRIJAF SONA*) ,\*\*T<sub>2</sub> = Farmer's practice (traditional retting), \*\*\* Sale price of fibre for T<sub>1</sub>: Rs 4200.00 per quintal, for T<sub>2</sub>: Rs 4050.00 per quintal and for jute stick: Rs 1125.00 per hectare.

**In this case , the retting technology gave better edge ( > 4%) towards economic returns (4% at Srikrishnapur and 5% at Matiagacha) , where these were at the expense of merely only Rs 1000, also the retting duration was reduced by 6 days with improvement in quality**

## IV. CONCLUSION

Today's environment-conscious industrial world puts much more efforts on eco-friendly projects and concentrates more on production of biodegradable products. Jute is one of those products, which is purely of bio-degradable and eco-friendly in nature and hence, it has found many uses in recent times. Jute is one of the largely cultivated crops in India, and it occupies an important position in Indian agriculture. Jute is popularly known as the 'Golden Fiber' for its numerous uses. Traditionally, jute is mainly used as **packing materials** in the manufacturing industries like sugar, cement, food grain etc., but with time many diversified jute products have come into use and now jute is being increasingly used for manufacturing of **many fashionable household products** of daily use like mat, bag, fabric, carpet, cloth, curtain etc. Indian Jute Industry is the largest producer of raw jute and jute products in the world. India holds the second largest position internationally as regards export of jute goods. Jute plays a very important role in Indian economy. India's textile industry is mainly

dependent on jute. Apart from having huge export potential, the jute companies meet domestic needs as well. In this regard this attempt may prove to have an impact on the jute cultivation in the tribal belt as there was an overwhelming response as the farmers fetched a whopping price of Rs 3600 on jute fibres per quintal and Rs 1200 on jute sticks per hectare. Not only the yield but the quality of the fibre produced using CRIJAF sona a retting consortium produced by CRIJAF had played a good role. As was evident there was a near two fold increase in income from the weed management component which is relevant as the crop faces much problem due to weed.

## **V. ACKNOWLEDGEMENT**

This project was funded by ICAR AINP, Jute and allied fibres for the farmers under the Tribal Sub Plan. The success of the project had a call for extending the plan in the third year. The work was conducted in two nearby villages and the Research Directorate of BCKV extended its full support in this work. Meetings were conducted biennially with specialized persons from different disciplines. This provided a good platform for the dissemination of technologies and information towards the farmers.

## **REFERENCES**

Annual Reoprts of BCKV, AINPJAF Kalyani centre, 2015

Annual Reoprts of BCKV, AINPJAF Kalyani centre, 2016

Annual Reoprts of ICAR- CRIJAF, 2015

Annual Reoprts of ICAR- CRIJAF, 2016