

## An Economic Analysis of Jute in Katihar District of Bihar

S. Nayak<sup>1</sup>, M.K. Wadhvani<sup>2</sup> and S. Susovita<sup>3\*</sup>

<sup>1</sup>Department of Humanities and Social Sciences, IIT Roorkee (Uttarakhand), India.

<sup>2</sup>Department of Agricultural Economics, Bihar Agricultural University, Sabour, Bhagalpur (Bihar), India.

<sup>3</sup>Centre for Post Graduate Studies, Odisha University of Agriculture and Technology, Bhubaneswar (Odisha), India.

(Corresponding author: S. Susovita\*)

(Received: 05 July 2023; Revised: 07 August 2023; Accepted: 08 September 2023; Published: 15 September 2023)

(Published by Research Trend)

**ABSTRACT:** The study analyzed the cost of cultivation, gross returns and net return of jute growers in Katihar district of Bihar. The sample size used in the study was 90 jute growers. The SRSWOR approach with the Multi-stage Sampling Technique was used to collect samples from two clusters in the Katihar District, Kadwa and Mansahi, each comprising three villages in each of the two blocks. Pre-tested schedules assisted in the data collection process, which was conducted using the Survey Method. Twenty-nine small and marginal farmers (32.33%), thirty semi-medium farmers (33.33%), twenty-one medium farmers (23.33%), and ten large farmers (11.11%) made up the study sample. The results showed that average total cost of cultivation of jute was ₹ 57792.70/ha, which was highest on large farmers (₹ 59918.67/ha), followed by small & marginal farmers (₹ 59063.89/ha), semi-medium farmers (₹ 57718.79/ha) and ₹ 55911.38/ha was for medium farmers. On an average gross return obtained by 90 sample farmers was (₹ 85940/ha). The return to cost ratio on an overall basis of 90 sample farmers was estimated as 1.48. The findings will be helpful to jute growers in efficient use of resources to reduce the cost of cultivation of jute.

**Keywords:** Multi-stage Sampling Technique, SRSWOR, Cost of cultivation.

### INTRODUCTION

Jute (*Corchorus* spp.) is India's second most important natural fiber, behind cotton (Annual Report, 2019). According to Kumar *et al.* (2015), it is also known as 'golden fiber' and is utilized in the production of many types of packaging materials for agricultural and industrial products. It is a member of the Tiliaceae family, and the two major commercial species from which the fiber is mostly derived are White jute (*Corchorus capsularis*) and Tossa jute (*Corchorus olitorius*). Jute fibers falls into the category of bast fiber (fiber collected from phloem) and mostly composed of plant materials such as cellulose and lignin. Jute has versatile uses ranging from low value geo-textiles to high value carpet, apparel, composites, decorative, furnishings, sacks, mats, bags, tarpaulins and ropes etc (Mahapatra *et al.* (2012). Jute is a major crop in South East Asia, with the majority of it grown in India and Bangladesh (Rahman *et al.*, (2017).

The global raw jute production was 29.4 lakh tonnes, with 2.2 lakh tonnes exported and 2.8 lakh tonnes imported in 2019 (GoI, 2019). The three main nations

that produce jute are China, Bangladesh, and India. India accounted for the largest proportion of 49.4% of global output, while Bangladesh came in second with a 46% share. However, Bangladesh was the top exporter of raw jute, accounting for 75.5% of all global exports. According to the FAO (2023), the two countries that import the most raw jute globally are Pakistan and India, with respective shares of 26.7% and 22%. India has been growing jute for many years. India accounted for half of the world's production of raw jute and 40% of all jute products, making it the world's largest producer of both raw and processed jute. In India, the Eastern and North Eastern states of West Bengal, Bihar, Assam, Odisha, Meghalaya, Nagaland, and Tripura are the only regions where jute is primarily grown. West Bengal is the top producer of jute, accounting for up to 75% of the country's total production (Sarkar *et al.*, 2018). In 2018, India produced 10.14 million bales of raw jute (1 bale=180 kg jute fiber) (DES, 2018).The state wise area, production and productivity of jute is presented in Table 1.

**Table 1 : Major jute growing states in India (2017-18).**

Sr. No.	State	Area (Million hectares)	Production (MillionTonnes)	Productivity (Kg/ha)
1.	West Bengal	0.53	7.64	2616
2.	Bihar	0.09	1.45	2762
3.	Assam	0.08	0.84	1957
4.	Andhra Pradesh	0.01	0.05	1692
5.	Odisha	0.01	0.04	1103
6.	Others	0.03	0.12	1579
7	<b>India</b>	<b>0.74</b>	<b>10.14</b>	<b>2481</b>

Source- Directorate of Economics & Statistics, DAC&FW, New Delhi.

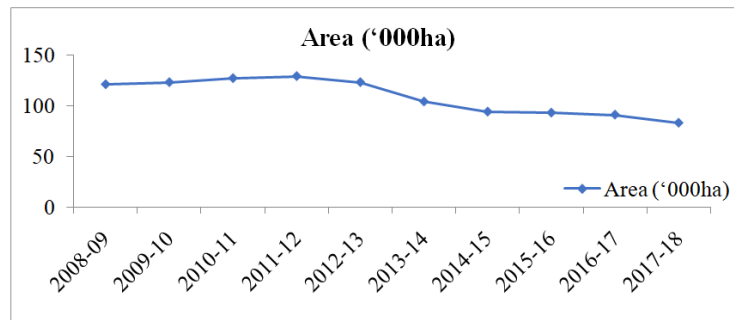
Bihar is the second largest producer of jute of the country after West Bengal. Within 0.835 lakh hectares of area, production of 1.11 million bales (raw jute) and productivity of 2393 bales/hectare (DES, 2018, Bihar, Patna) districts like Katihar, Purnea, Saharsa, Supaul and Madhepura are the major jute producing districts of the state. The state is also among most flood prone state of the country, especially zone II of the state. Flood damages the standing crops and creates a huge loss to

the state's economy. Although flood damages the crops but as compared to other crops the recovery rate of harvesting for jute is high. The cultivated area, production and productivity of jute in Bihar is presented in Table 2. The Fig. 1 and 2 represents the trend in area, production and productivity of jute in Bihar. In the state cultivated area of jute have declined over the years, while the production and productivity have shown a fluctuating trend.

**Table 2: Area, Production and Productivity of Jute in Bihar.**

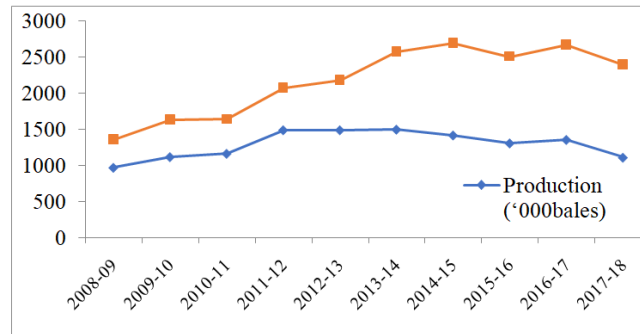
Year	Area ('000ha)	Production ('000bales)	Productivity(kg/ha)
2008-09	121	971	1361
2009-10	123	1118	1637
2010-11	127	1164	1642
2011-12	129	1490	2079
2012-13	123	1490	2180
2013-14	104	1498	2571
2014-15	94	1418	2694
2015-16	93	1308	2508
2016-17	91	1356	2671
2017-18	83	1110	2393

Source-DES, Ministry of Agriculture and Farmer welfare.



Source- DES, Ministry of Agriculture and Farmer welfare.

**Fig. 1.**



Source- DES, Ministry of Agriculture and Farmer welfare.

**Fig. 2.**

**LITERATURE REVIEW**

Das's (1996) analyzed the cost of cultivation of jute in Cooch Behar District of West Bengal. The study revealed that average cost of cultivation of jute was Rs 22275/ha and gross returns generated was Rs 31185/ha with returns to cost ratio as 1.4. Chowdhury *et al.* (2001) conducted research on agro-economic performance of toss a jute at Dhaka, Faridpur and Rangpur Sadar Thanas in Bangladesh and found that per hectare average cost of production on variable cost

and cash cost were Tk16538 and Tk8106, while gross return was Tk 28375. The average yield of Tossa jute was 1720 kg per ha. Islam *et al.* (2002) conducted a field experiment at jute research institute's regional station Kishoregonj Bangladesh to find the comparative merit of yield and return of late jute seed production at normal and puddled soil. The study revealed that the total cost incurred was Tk47660 per ha and gross income obtained was Tk35015 per ha. Sinha *et al.* (2009) conducted a broad study on crop diversification for profitability jute and allied fibers. The economics of

jute based cropping sequences at Coochbehar West Bengal were estimated. It was found that jute-paddy+sun hemp-potato cropping sequence had highest gross returns (RS44129 per ha) and total cost of cultivation was Rs 25455 per ha, whereas jute-paddy+sunhemp-lentil cropping sequence had gross returns (Rs43082 per ha) and total cost (Rs25309 per ha) and jute-paddy+sunhemp-mustard sequence had lowest gross returns (Rs40286 per ha) and cost involved was Rs 24842. Mottalib *et al.* (2019) attempted to study the jute crop productivity and profitability for subtropical climatic condition in south western region of Bangladesh. The study was conducted in the farmers' field at Baratia village of Dumuria Upazila under Khulna District during kharif season of 2017-18. The total cost of cultivation was highest for strip till planter (US\$1116) followed by seed transplanting (US\$1110), power tiller operated seeder (US\$1041) and conventional tillage with broadcasting with US\$ 518.

#### A. Research Gap

The economy of Bihar state is dependent on Agriculture and is facing challenge in enhancing the income of farmers. Jute could be a potential enterprise particularly in flood prone districts of zone-II. Bihar is one of the leading producers of jute in India but there is no

processing industry in the state. The available literature suggests that there is huge potential of jute cultivation production and productivity in the state, still there is dearth of relevant information on this crop. There are very few studies that have dealt with analyzing the economic analysis of jute in Indian context and as far as our knowledge there is no study that have discussed the economic analysis of jute in Bihar. Therefore, addressing the gap in literature, this study has been formulated to estimate the cost and returns of jute production in the study area.

#### MATERIALS AND METHODS

The Multistage Sampling Technique was utilized to choose both the study region and the sample farms. 90 sample jute growers from two clusters of six villages and three villages each chosen from two blocks, Kadwa and Mansahi in the Katihar District of the state of Bihar. The blocks were purposefully chosen based on which ones produced the most and least jute. The Simple Random Sampling without Replacement Method (SRSWOR) was used to choose the sample jute growers. The primary data which were collected from 90 sample jute growers. Table 3 represents the sampling frame.

**Table 3: Sampling Frame.**

STAGE	STUDY (SAMPLE) UNIT	
I	Selection of District	Katihar District was Selected purposively, being major Jute growing district of zone II.
II	Selection of Block	Two blocks Kadua and Mansahi of Katihar district were selected on the basis of area under Jute cultivation.
III	Selection of cluster/ village	One cluster each consisting of three villages was selected from the respective two blocks on the basis of area under the crop.
IV	Selection of Jute growers	Each selected cluster consisted of three villages and from each village 15 sample jute growers were selected randomly by (SRSWOR) Simple Random Sampling Without Replacement method. Thus the sample consisted of 90 sample Jute growers.

**Economics of jute cultivation:** It involves cost and return analysis of jute cultivation. The costs include variable cost that involves expenditure incurred in cultivation of jute on different inputs, like land preparation, manures, seeds, fertilizer, plant protection chemicals, labour charges, ingredients used for retting, interest on variable cost etc. and fixed cost involves depreciation, rental value of land, land revenue, interest on fixed cost etc. Further the returns was estimated in terms of Gross Income, Net Income and Returns to Cost ratio as below;

**a. Gross Income** = Yield (Q) × Price (Rs/Q)

**b. Net Income** = Gross Income – Total Cost

**c. Returns to Cost Ratio** = Gross Income/Total Cost

**Gross Income:** It is evaluated as the value of sum total of main product and by product, calculated at current harvest prices.

**Net Income:** It is estimated as difference between gross income and total cost of cultivation.

**Returns to Cost Ratio:** It is evaluated as the ratio of gross income to the total cost cultivation.

#### RESULTS AND DISCUSSION

##### A. Classification of Sample Jute Growers

The classification of sample jute growers has been presented in Table 4. The table shows that the sample size (90) included 29 Small and Marginal farmers (32.22 per cent), 30 Semi-Medium farmers (33.33 per cent), 21 Medium farmers (23.33 per cent) and 10 Large farmers (11.11 per cent).

**Table 4: Classification of sample Jute Growers**

Category of Jute Growers	Total Land Area (ha)	Number of Farmers	
		No	Percentage
Small and Marginal	Less than 2.00 ha	29	32.22
Semi-Medium	2.00 - 4.00 ha	30	33.33
Medium	4.00 - 10.00ha	21	23.33
Large	More than 10.00ha	10	11.11
Total		90	(100)

### B. Average size of land holding and area under jute

The size of land holding of sample jute growers is presented in Table 5. Which indicates that average total cultivated area of the four categories of sample jute growers was 1.28, 2.82, 5.52 and 11.64 ha, respectively with overall mean of 3.94 ha. The Table 5 also reveals that marginal and small and semi-medium farmers had taken land on lease with an average area of 0.16 and 0.052 ha, respectively, medium and large farmers leased out their land, with an overall mean of 0.057 and 0.4 ha, respectively. The table also shows percentage area under jute cultivation. The marginal & small farmers devoted maximum (49.21 per cent) area under jute cultivation, while semi-medium, medium and large category of farmers devoted 43.97, 40.76 and 35.05 per

cent area under jute respectively, while reverse order is seen in percentage of area under other crop for the following four category of farmers from the study.

### C. Cropping pattern on sample farms

The cropping pattern on sample farms is presented in Table 6. The table indicates that jute and rice were the two most important crops grown in the study area. The area under jute ranged from 0.63 ha on marginal and small farms to 4.08 ha on large farms with overall average as 1.60 ha. The table reveals that the cropping intensity on sample farms was 190 per cent. It was found in order of category of farms, i.e. minimum of 180 per cent on marginal farms followed by 189, 193 and 195 per cent on semi-medium, medium and large farms, respectively.

**Table 5: Average size of Land Holding (ha).**

Particulars	Marginal and Small	Semi-Medium	Medium	Large	Total
	(n1=29)	(n2=30)	(n3=21)	(n4=10)	(n=90)
Owned Land	1.12	2.77	5.47	11.24	3.84
Leased-in Land	0.16	0.052	0	0	0.074
Leased-out Land	0	0	0.057	0.4	0.058
Total Area	1.28 (100)	2.82 (100)	5.52 (100)	11.64 (100)	3.94 (100)
Area under jute	<b>0.63</b> <b>(49.21)</b>	<b>1.24</b> <b>(43.97)</b>	<b>2.25</b> <b>(40.76)</b>	<b>4.08</b> <b>(35.05)</b>	<b>1.6</b> <b>(40.6)</b>
Area under another crop	0.65 (50.78)	1.58 (56.02)	3.27 (59.23)	7.56 (64.94)	2.34 (59.39)

**Table 6: Cropping Pattern on Sample Farms (ha).**

Name of the crop	Category of sample jute growers				Overall (n=90)
	Small and Marginal (n1=29)	Semi-Medium (n2=30)	Medium (n3=21)	Large (n4=10)	
	Net Area Sown	1.28	2.82	5.52	
(A) KHARIF					
Jute	<b>0.63</b>	<b>1.24</b>	<b>2.25</b>	<b>4.08</b>	<b>1.6</b>
Rice	0.65	1.58	3.27	7.56	2.34
Total(A)	1.28	2.82	5.52	11.64	3.94
(B) RABI					
Wheat	0.21	0.53	0.76	2.72	0.58
Maize	0.82	1.4	3.34	4.84	1.67
Tomato	0	0.3	0.48	0.65	0.35
Brinjal	0	0.05	0.13	0.53	0.24
Okra	0	0.17	0.24	1.24	0.41
Cauliflower	0	0	0.07	0.74	0.17
Total(B)	1.03	2.45	5.02	10.72	3.42
(C) Zaid					
Green gram	0	0.06	0.12	0.34	0.13
Total (C)	0	0.06	0.12	0.34	0.13
Gross Cropped Area (A+B+C)	2.31	5.33	10.66	22.7	7.49
Cropping Intensity (%)	180	189	193	195	190

*D. Area under different jute varieties on sample farms*  
Table 7 represents category-wise area (ha) under different jute varieties cultivated by sample farmers. It is being observed that the overall share of Navin (JRO-524) variety was 50.68 per cent while Suren JRO-204 variety was cultivated on 49.31 per cent area. It is also

revealed from the table that marginal and small and semi-medium category of farmers prefer Navin variety (58.06 % & 58.99 %) while medium farmers preferred Suren variety (58.48 %) and the large farmer prefer to grow both varieties equally.

**Table 7: Area under jute varieties (ha) on sample farms.**

Name of the Variety	Marginal & Small	Semi-Medium	Medium	Large	Total
	(n1=29)	(n2=30)	(n3=21)	(n4=10)	(n=90)
JRO-524(Navin)	28.16 (58.06)	56.1 (58.99)	49 (41.52)	50 (50)	183.26 (50.68)
JRO-204(Suren)	20.34 (41.93)	39 (41)	69 (58.48)	50 (50)	178.34 (49.31)
Total area of Jute cultivated	48.5 (100.00)	95.1 (100.00)	118 (100.00)	100 (100.00)	361.6 (100.00)

*E. Cost of cultivation of jute in the study area*

Estimation of cost of cultivation of a crop is the most important aspect of a farm from both individual farmer level to national level point of view. The study shows that different category of farmers (small and marginal, semi-medium, medium and large) differs in terms of availability and use of inputs/resources, some inputs are owned, while other are hired. Therefore, the analysis of the study helps individual farmers to allocate the resources efficiently to obtain better returns. The analysis is also helpful from nation or macro point of view in providing a guideline to policy makers for formulation of various price policy regarding jute. The cost structure of jute has been analyzed per hectare basis for different category of sample jute growers and presented in Table 8. The table reveals that per hectare average total cost of cultivation of jute was estimated as Rs 57792 per ha. Compared to results obtained by Sinha *et al.* (2009) on economics of jute at Cooch Behar District of West Bengal the cost of cultivation was found much lower (Rs 25455 per ha). The cost of cultivation was highest on large farm (Rs 59918 per ha) followed by marginal and small farm (Rs 59063 per ha), on semi-medium farmers (Rs 57718 per ha) and least cost Rs 55911 per ha was on medium farmers. The

average total cost of cultivation included variable cost and fixed cost, while the variable cost includes material cost and labour cost. The material cost per ha was highest for large farmers (Rs 22505 per ha) followed by medium (Rs 22028 per ha), semi-medium (Rs 21105 per ha) and lowest for small and marginal farmers (Rs 20892 per ha).

The material cost involved in purchasing of seed, land preparation, fertilizer, plant protection, irrigation, ingredients used for retting and carrying of jute bundles. The cost of land preparation was highest (Rs 6195 per ha) among different material costs and contributed 28 per cent to total material cost, fertilizer (Rs 4389 per ha) and irrigation cost (Rs 3784 per ha) contributed 20.50 and 16.97 per cent of the average total material cost. Jute is a labour intensive crop which is revealed from Table 8, that labour cost was higher than material cost. The labour cost included wages given to laboures in different operations; viz. broadcasting of seed, fertilizer application, weeding, irrigation, plant protection, harvesting and retting of fiber. On an average basis labour cost was Rs 32957 per ha (57.02 per cent) of total cost of cultivation which means it contribute maximum portion to the cost of cultivation.

**Table 8: Average Cost of Cultivation of jute (Rs /ha).**

Items	Category of Jute Growers				Total
	Marginal and Small	Semi-Medium	Medium	Large	
	(n1=29)	(n2=30)	(n3=21)	(n4=10)	
<b>A. Variable Cost</b>					
<b>1. Material Cost</b>					
Seed	415	440	450	450	435
Land Preparation	6216	6101	6273	6250	6195
Fertilizer	4184	4504	4428	4555	4389
Plant Protection	2443	2526	3059	3062	2683
Irrigation	3784	3454	3500	4025	3634
Ingredients For Retting	196	185	190	225	194
Carrying of Jute Bundles	3654	3895	4128	3938	3876
Total Material Cost	20892 (35.37)	21105 (37.74)	22028 (38.16)	22505 (37.55)	21406 (37.03)
<b>2. Labour Cost</b>					
Broadcasting of seed	309	271	297	300	292
Fertilizer Application	386	356	392	371	376
Weeding	8014	7355	6950	7157	7451

Irrigation	463	427	470	445	451
Plant Protection	386	356	392	371	376
Harvesting	11050	9369	9746	10146	10085
Retting	3014	3000	3284	3526	3129
Extraction, Cleaning & Drying of Fiber	11683	10372	10235	10684	10797
Total Labour Cost	35305 (59.77)	31506 (56.34)	31766 (55.03)	33000 (55.07)	32957 (57.02)
Sub-Total (1+2)	56197	52611	53794	55505	54363
<b>3. Interest on Working Capital</b>	1966.895	1841.385	1882.79	1942.675	1902.705
A. Total Variable Cost (1+2+3)	58163.895 (98.47)	54452.38 (97.39)	55676.79 (96.46)	57447.67 (95.87)	56265.70 (97.35)
<b>Fixed Cost</b>					
Land Revenue	250	250	250	250	250
Depreciation	619	1160	1722	2137	1225
Interest on Fixed Capital	30	49	69	83	51
Total Fixed Cost	899 (1.53)	1459 (2.61)	2041 (3.54)	2470 (4.13)	1526 (2.65)
Total Cost of Cultivation (A+B)	<b>59062.89</b> <b>(100)</b>	<b>55911.38</b> <b>(100)</b>	<b>57717.79</b> <b>(100)</b>	<b>59917.67</b> <b>(100)</b>	<b>57791.70</b> <b>(100)</b>

On category basis marginal and small farmers incurred highest labour cost (Rs 35305 per ha) contributing 59.77 per cent of total cost of cultivation. The contribution of labour cost to total cost of cultivation was lowest 55.07 per cent for large farmers (Rs 33000 per ha). The fixed cost included land revenue, depreciation and interest on fixed cost which was Rs 1526 per ha contributing 2.56 per cent per of total cost of cultivation on overall basis.

#### F. Yield and Gross Income from cultivation of jute

The yield of raw fiber and stick (in terms of q/ha), rate (Rs /q) for both fiber and stick and gross income (Rs/ha) is presented in Table 9. The fiber yield was found ranging from 22 to 27 quintal per hectare and stick yield from 44 to 54 quintal per hectare among sample farmers, with overall average 24.5 quintal and stick yield was 49 quintal per hectare respectively. The average price received by jute growers, was ranged from Rs 2969 per quintal (marginal and small farmers) per to Rs 3340 per quintal (large farmers) with overall average price received was Rs 3108 per quintal. The marginal and small farmers received less price due to lack of financial accessibility, unwillingness to take risk to transport to bigger market and lack of storage facilities. The gross income obtained by jute growers was lowest for marginal and small farmers with Rs 74117 per ha, while semi-medium and medium farmers obtained a slightly higher income of Rs 86583 per ha and Rs 91309 per ha. The large farmers received highest gross income of Rs.100980 per ha, with an

overall average was Rs. 85940 per ha. In comparison with results of results of Sinha *et al.* (2009) on economics of jute at Cooch Behar District of West Bengal, the gross returns are very low (Rs 43082 per ha).

#### G. Net income and return to cost ratio

The gross income, net income against both variable cost and total cost and return to cost ratio were estimated and presented in Table 10. On an average basis the net income obtained against variable cost (Rs 29675 per ha) and total cost (Rs 28149 per ha) have no significant difference as the fixed cost obtained is comparatively lower than variable cost. The marginal and small farmers obtained a lower net income against total cost of Rs 15054 per ha where as large farmers obtained the highest net income against total cost (Rs 41062 per h). The semi-medium and medium farmers obtained net income against total cost as Rs 30672 per ha and Rs 33592 per ha. The return to cost ratio on an overall basis was 1.48, whereas on category basis it followed in ascending order from 1.25 for small and marginal farmers, 1.54 for semi-medium, 1.58 for medium farmers, large farmers obtained highest return to cost ratio of 1.68. The main reason behind higher return to cost ratio and higher net income against total cost of large farmers and smaller for small and marginal farmers was the better prices and higher yield that are obtained by large farmers compared to small and marginal farmers.

**Table 9: Yield and Gross Income.**

Particulars	Marginal and Small	Semi-Medium	Medium	Large	Total
	(n1=29)	(n2=30)	(n3=21)	(n4=10)	(n=90)
Average Yield of Fiber (q/ha)	22	25	25	27	24.5
Average Yield of Stick (q/ha)	44	50	50	54	49
Average Rate of Fiber (Rs/q)	2969	3063	3252	3340	3108
Average Rate of Stick (Rs/q)	200	200	200	200	200
Gross Return in( Rs/ha)	74117	86583	91310	100980	85940

**Table 10: Net Return and Return to Cost ratio.**

Net Returns and Returns to Cost Ratio		Marginal and Small	Semi-Medium	Medium	Large	Total
		(n1=29)	(n2=30)	(n3=21)	(n4=10)	(n=90)
Cost of Cultivation	Variable Cost	58164	54452	55677	57448	56266
	Total Cost	59063	55911	57718	59918	57792
Gross Income		74117	86583	91310	100980	85940
Net Income against	Variable Cost	15953	32131	35633	43523	29674
	Total Cost	15054	30672	33592	41062	28149
Return to Cost Ratio		1.25	1.54	1.58	1.68	1.48

## CONCLUSIONS

The study was based on primary data, collected from a sample of 90 jute growers selected through Multi-stage Sampling Technique through survey method from a cluster of three villages each from two blocks namely Kadwa and Mansahi of Katihar District. The sample consists of 32.33 per cent (29) marginal & small farmers, 33.33 per cent (30) semi-medium farmers, 23.33 per cent (21) medium farmers and 11.11 per cent (10) large farmers. The results showed that average total cost of cultivation of jute was ₹57792.70/ha, which was highest on large farmers (₹ 59918.67/ha), followed by small & marginal farmers (₹ 59063.89/ha), semi-medium farmers (₹ 57718.79/ha) and ₹ 55911.38/ha was for medium farmers. The gross income obtained by jute growers was lowest for marginal & small farmers with (₹ 74117.12/ha), while it was highest for large farmers obtained higher gross income of (₹ 100980/ha), on an average gross return obtained by 90 sample farmers was (₹ 85940/ha). The return to cost ratio on an overall basis of 90 sample farmers was estimated as 1.48.

The findings will be helpful to jute growers in efficient use of resources to reduce the cost of cultivation of jute. They will be able to identify proportion of input and labor used in its cultivation. The jute growers will become more conscious about the various costs, particularly the indirect and imputed costs that are used during the production of jute. The findings can be utilized by economists, scientist and administrators to understand the existing position of jute cultivation in the study area, they will also be aware of the constraints of production and marketing of jute faced by jute growers and will enable them to develop alternate means to overcome these in the study area. The research can be further extended to analyze the resource use efficiency in jute cultivation as well as several frontier-based approach may be used to analyze the trend in efficiency of jute production in the state.

**Acknowledgement.** I express my gratitude to Professor M.K. Wadhvani for his insightful recommendations and remarks that contributed to the enhancement of the paper's quality.

**Conflict of Interest.** None.

## REFERENCES

- Annual Report (2019). Status of Jute Production in India, ICAR – Central Institute of Jute And Allied Fibre, Barrackpore, West Bengal, 1(2), 9-15.
- Chowdhury, M. Z. A., Uddin, M. N., Islam, M. N., & Islam, M. S. (2001). Agro-economic performance of tossa jute at growers level in Bangladesh. *Pakistan J. Biol. Sci.*, 4, 796-798.
- Das, D. K. (1996). *An Economic analysis of Jute Cultivation in Cooch Behar District of West Bengal* (Doctoral dissertation, University of North Bengal).
- DES (2018). Agricultural Statistics at a Glance. India.
- FAO (2023). Jute, kenaf, sisal, abaca, coir and allied fibres Statistical bulletin 2022. Rome.
- Islam, T. M., Salam, M. A., Pervez, Z., Sikdar, M. S. I., & Eunos, M. (2002). A comparative study of yield and return of late jute seed production at normal and puddled soil. *Pakistan Journal of Agronomy (Pakistan)*, 1(4).
- Kumar, M., Mitra, S., Tripathi, M. K., Naik, M. R., Naik, R. K., Jha, A. K., & Majumdar, B. (2015). Energy and economic analysis for jute and allied fibres crops. *Technical Bulletin*, 2, 26.
- Mottalib, M. A., Hossain, M. A., Hossain, M. I., Amin, M. N., Saha, C. K., & Alam, M. M. (2019). Enhancing economically and eco-friendly jute production through appropriate conservation agricultural tillage cum seeding methods in the southwestern coastal region of Bangladesh. *International Journal of Engineering Inventions*, 8(1), 27-46.
- Mahapatra, B. S., Mitra, S., Kumar, M., Ghorai, A. K., Sarkar, S. K., Kar, C. S., & Karmakar, P. G. (2012). An overview of research and development in jute and allied fibre crops in India. *Indian Journal of Agronomy*, 57(3s), 72-82.
- Rahman, S., Kazal, M. M. H., Begum, I. A., & Alam, M. J. (2017). Exploring the future potential of jute in Bangladesh. *Agriculture*, 7(12), 96.
- Sarkar, S., Maity, A., Mondal, T., Jose, S., Sangma, R. C., Khan, A. M., & Jha, S. K. (2018). Participatory Agro-ecological and Socio-economic Analysis of Jute Cultivation in West Bengal.
- Sinha, M. K., Mitra, S., Ramasubramanian, T., & Mahapatra, B. S. (2009). Crop diversification for profitability in jute and allied fibre crops. *Indian Journal of Agronomy*, 54(2), 221-225.
- Status of Raw jute in India 2019. Directorate of Jute Development, *GoI*, 2(27), 12-46.
- Schemes and Measures to Strengthen Jute Sector 2017, Press Information Bureau, *Ministry of Textile, GoI*, 7 (12), 58-62.
- [www.indiastat.com](http://www.indiastat.com).
- <https://eands.dacnet.nic.in/>
- [www.nirjaf/publication/visionwww.asiajute.com/](http://www.nirjaf/publication/visionwww.asiajute.com/)
- [Historywww.jute.com/statistics](http://Historywww.jute.com/statistics)

**How to cite this article:** S. Nayak, M.K. Wadhvani and S. Susovita (2023). An Economic Analysis of Jute in Katihar District of Bihar. *Biological Forum – An International Journal*, 15(9): 1034-1040.