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Jute cultivation and its socio-economic changing impact: A case study of rural Nadia

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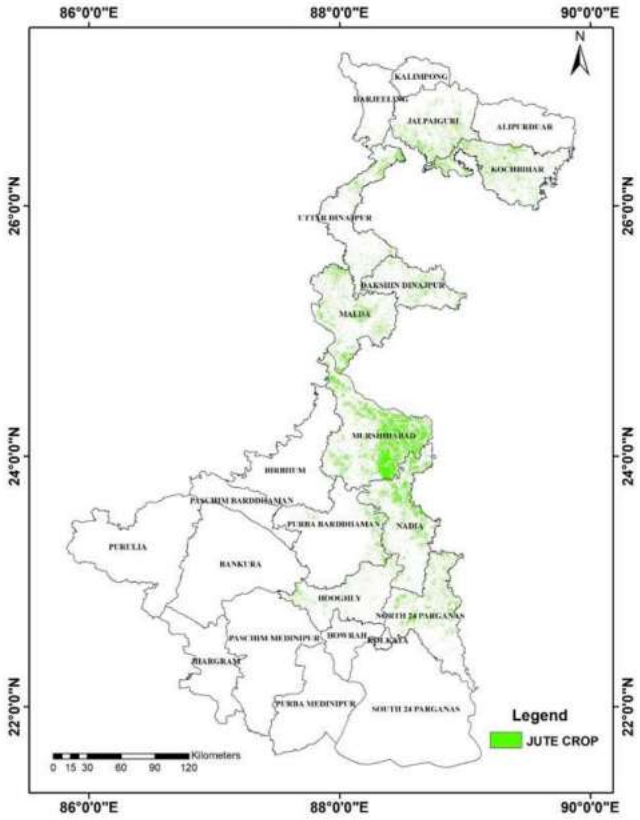
Abstract: Jute is one of an important natural resource, especially a fiber, which is used as a plant, textile, and also for packing. Popularity of jute increases as it is considered as an effective alternative of plastic, which has been banned by the government. India and Bangladesh are accounted as the major jute producing areas. Specific mention can be made of west Bengal, where jute production is the main source of income for many people. The people value jute as "golden fiber" (Sheikh, 2021). Narrowing down the search, the paper concentrates on Rural Nadia, where jute production has witnessed changes, affecting socio-economic environment. Main facets of this affectation are employment, income of the people, communal wellbeing among others. The major drive of this change is due to technological integration, sudden weather fluctuations, pests, among others. Keeping these aspects in mind, the thesis statement of the paper is how socioeconomic changes in jute production has affected communal wellbeing of rural Nadia, West Bengal.

Keywords: Jute production, Socio-economic change, Rural, Nadia, Communal wellbeing, West Bengal.

Jute production in Rural Nadia:

According to the reports published by Icar-crida.res.in (2011), jute is a kharif crop. Rainfall needed for producing jute is 127.5. During 2004-2008, 1818.6 t of jute was produced in Nadia. Productivity measured was 3135 kg/ha. Jutecomm.gov.in, (2025) states that fortnightly average rainfalls in Murshidabad and Nadia districts are the main support to the farmers for jute production.

Jute cultivation is one of the staple agricultural activities conducted by people in rural Nadia during the months of February march. Soil and climate are such, which flourishes jute production. However, Sheikh, (2021) brings out the new packing items and fibers, which has compelled jute to get off the stage. But the farmers are not ready to let go the age-old tradition of jute production, which has helped them gain financial independence. Getting drenched in scorching heat pays no greater rewards but low prices when the farmers go to the markets to sell the produced jute. Still the farmers have not given up. Bearing rains, pests and insects, the farmers are hopeful of preserving the cultural heritage.



Districts	Jute area (ha)
Darjeeling	**896.247**
Alipurduar	**2963.216**
Murshidabad	**104715.6**
Cooch behar	**34803.99**
Dakshin Dinajpur	**27409.88**
HOOGHLY	**8478.216**
Jalpaiguri	**19772.52**
Malda	**32236.43**
North 24 PGS	**27446.09**
Nadia	**89670.76**
Purba Bardhaman	**12550.5**
Uttar Dinajpur	**17986.68**
Grand Total	**378930.129**

Fig: Jute crop Map and area estimate over West Bengal in 2024

(Source: Jutecomm.gov.in, 2025)

According to the map, total jute produced in Nadia district is 89670.76 ha, which is considerably high as compared to Jalpaiguri, Hooghly, Murshidabad, Cooch Behar among others.

Table 2 Jute production and fibre quality estimates of West Bengal, 2024

Name of District	CCE no	Jute area (in ha)	Dry fibre (in q/ha)	Production (in lakh bale)
Alipurduar	14	2963.22	25.71	0.42
Coochbehar	60	34803.99	32.84	6.35
DAKSHIN DINAJPR	18	27409.88	38.60	5.88
Hooghly	33	8478.22	29.16	1.37
Jalpaiguri	13	19772.52	15.46	1.70
MALDA	36	32236.43	28.33	5.07
Murshidabad	153	104715.60	23.92	13.91
Nadia	157	89670.76	26.63	13.27
North 24 Parganas	31	27446.09	23.98	3.66
PURBA BURDWAN	36	12550.50	30.43	2.12
UTTAAR DINAJPUR	27	17986.68	30.11	3.01
Darjeeling	Extrapolated	896.25	15.46	0.08
Total		378930.13		56.84
Jute quality :	**TDN2: 4%, TDN3: 39%, TDN4: 41%, TDN5: 16%**			

(Source: Jutecomm.gov.in, 2025)

From the above table, it can be inferred that dry fiber produced by the jute production in Nadia is 26.63 ha, which contributed to the total production of 13.27 lakh bale. In the year 2024, the data reveals that the total jute produced was 3.79 lakh ha. The dry fiber count among this was 56.84 lakh bale, which is considerably

high. Data collected for overall West Bengal demarcates consistency in dry fiber yield jute production, which is 27-37 q/ha.

Challenges in jute production in Nadia, West Bengal

Challenges have cropped up in the form of improper jute seeds, low irrigational tools and methods, financial instability among others. Farmers also face trouble as their offspring choose other professions for academic development and career progression. Price of jute witnessed consistency in being good until Covid 19 raised. The statistics showed that people could buy a quintal jute for 5000 Rs (Sheikh, 2021). However, with the advent of Covid 19, the prices dropped as the factories were compelled to be shut. After the lockdowns were called off, most of the farmers resumed jute production. Increased demands for jute, as a substitute for plastic products helped the farmers.

Weather is also a challenge sometimes in jute production. Sudden changes in climate obstructs the jute production. Along with weather, pests and disease aggravates the problems. This type of affectation is a loss for the farmers as they cannot sell this jute in the market, as it would be considered as inferior. One of the striking issues is the lack of modern machines for jute production. As a result of this lack, jute production lacks effective contribution towards economic development. Chatterjee *et al.,* (2022) highlights the competition which these farmers face in the form of high demands for synthetic fibers. These demands have reduced the jute popularity, adversely affecting the lives of rural farmers. Lack of proper education, scarcity of resources, resistance to adopt the modern technology in farming demarcates the socioeconomic impact created on the farmers through jute production. Among these, poverty is the main issue, which creates the need for the farmers to involve in the modern practices of jute production.

Socioeconomic impact of jute crop production in Nadia

Jute crop has saved the lives of many rural farmers in rural Nadia. This is in the form of employment. The income earned by the farmers helps in sustaining their daily bread. Jute is considered as a cash crop in the areas of Nadia (Maity *et al.*, 2024). Being a cash crop, jute helps the farmers in keeping a balance in their expenses. Diversified nature of jute in its usage has diversified agricultural industry. As a result of this diversification, more and more employment opportunities have been created for the rural farmers, who are struggling to come above the poverty line. As far as the changes are concerned in the farming methods, it has adversely affected the lives of the farmers. Many new cropping systems have come up with the advent of technology, about which these farmers lack sufficient knowledge (Series, 2024). Therefore, they hesitate to adopt these systems. However, these systems have added a modern touch to the small farms of Nadia district where jute is produced in bulk.

Mention can also be made of the weather fluctuations, pesticides, diseases which the farmers have to bear. Heavy rainfalls destroy the jute production. Moreover, low prices for the inferior quality jute produced compels the farmers in Nadia to face hardships in arranging for their daily bread. As a result of this, there is consistency in the gaps created with the aristocratic people of the society, who get the finished product before them. They have no idea about the struggles, which these farmers have to do for their daily bread (Chatterjee, 2024). Shabby surroundings compel them to suffer from diseases like malaria, cholera, due to

which they cannot produce jute in desirable quantities. The main reasons for this are the irresponsible approach of the government towards bringing social upliftment. However, the story has changed much. Now, the government is taking measures for analyzing the situation and modifying them for bringing development of the rural farmers in the Nadia district of West Bengal.

Earlier, when there was no proper infrastructure for jute cultivation in Nadia, farmers did not feel interested to go to work. Diseases, poverty were the constraints, which aggravated this disinterest. Here, the "change" aspect can be brought in by the arguments of Chatterjee, Acharya, and Mondal, (2022). The change is through innovative jute production technologies. These technologies motivated the farmers to improve their contribution in jute cultivation. Being successful in using these technologies were their achievements in upgrading their social status. On the other hand, some of the farmers relied on traditional farming methods, which somewhat reduces the intensity of change, which technology brought in the jute cultivation methods.

Businesstoday.in, (2024) revealed the discrepancies in employing the farmers for crop production. Private jute mills in West Bengal have succeed in employing 2.5 lakh farmers. This is very less in proportion to the 40 lakh farmers roped in for producing raw materials. Governmental support for the farmers is low, which indicates poor fortune for the political parties. These political influences affect the farmers, especially in their daily sustenance. Evidences are temporary order crisis, which creates confusion among the farmers. Personal visits to the farmers for strengthening the position is just to gain more votes and not assure them of a better future.

Modernized touch in jute production

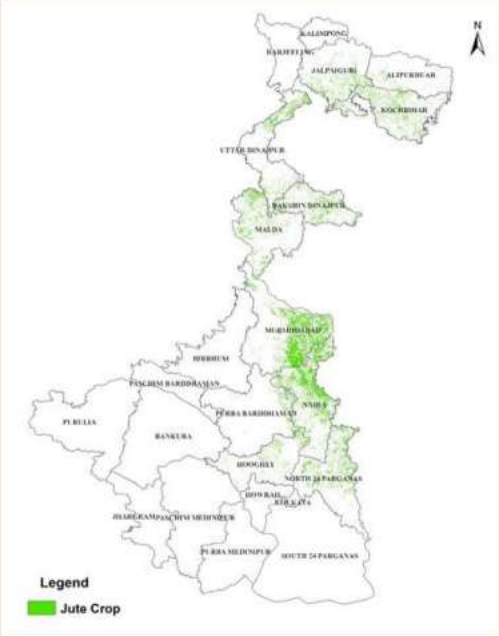
Deep loamy soils in Gangetic alluvial plains are bad for jute production in the areas of Nadia, West Bengal. These soils also affect the rice production. The change that these soils bring, is reflected in ribbon method, which would bifurcate jute fiber (Mondal & Bandyopadhyay, 2014). The immediate result, upon investigation would be the microbial culture, which is created in the production tank. This method, that is retting, if implemented in jute production, could reduce the harmful impact on agriculture and farmers. Along with this, inter-cultivation at optimum soil moisture level could be effective for safeguarding jute from pesticides since the seeding to reproduction stage.

Sheikh, (2021) suggested the reporting of farmers' problems in jute production. One of the solutions prescribed were Grassroot Fellowship Program. The farmers were encouraged to join the program as their voices would be heard. The program included farmers from the Dalit community, migrants, Adivasis and even the forest workers in the threshold of Nadia and surrounding areas. The main aim of this program was to preserve communal wellbeing amidst changing landscape of socioeconomic sphere. Mondal and Bandyopadhyay, (2014), on the other hand, investigated new technologies, which has increased the socioeconomic conditions of the farmers in Nadia district of West Bengal. This is because of the innovation, which the technologies have brought into the lives of the farmers. Willingness to learn and implement the technologies in jute production is praiseworthy among the farmers. Among others, media has helped the farmers get exposure into large platforms. Networking with the surrounding village farmers have been effective in expanding the knowledge horizons of the farmers.

On the other hand, the arguments of Mandal *et al.*, (2012), contradicts this modernization. This is because of lack of awareness about modern technologies for agricultural practices. These farmers are using the traditional equipment for jute production. Modern agricultural equipment does not make worth the personal visit of the farmers to the fields. Therefore, they intend to save the technological expenses by going to the fields and using the traditional tools. Lack of proper infrastructure and governmental support aggravates the disinterest of the farmers for the modern farming means. Most of the farmers also feel that the extraction process after production is very tiresome. Moreover, as the prices of jute in the market are not that attractive, mist of the farmers feel low moral for involving in the production. They are also nor interested in any kinds of improvements. The findings of Mandal *et al*., (2012) also reflected willingness of the farmers to shift to modern retting tanks provided they are provided with the necessary education, training and support.

Mention can also be made of fungal culture, which was planned to be introduced for effective and enhanced jute production. The plan was not that successful as the farmers were not interested to work with this culture. Upon deeper investigation, it was seen that the farmers of Nadia lacked education about this fungal culture and was hesitant to adopt it in jute production.

In the arguments of Jutecomm.gov.in (2025), mobile technology gains importance in terms of jute production. Examples can be cited of objective field data collection in the form of satellite image mapping, jute yield modelling systems. Training programs helped the farmers of Nadia, West Bengal to gain awareness about the mobile apps, which they can use for jute production. Satellite data collected for assessing modern jute production are of two types: optical and microwave. There is an app called BHUVAN JUMP, which has been used for assessing the jute production quality. Data points through the app help the assessors in assessment according to the requirements and gain benefits.



DISTRICT NAME	AREA (ha)
MURSHIDABAD	102267.04
NADIA	89757.02
NORTH 24 PARGANAS	39681.33
COOCHBEHAR	37042.3
MALDAH	32628.97
DAKSHIN DINAJPUR	24836.76
UTTAR DINAJPUR	24133.09
JALPAIGURI	21668.73
HOOGHLY	17543.33
PURBA BARDHHMAN	10529.33
ALIPURDUAR	5166.93
TOTAL	405254.83

Fig: Jute crop map and area estimate over west Bengal in 2023

(Source: Jutecomm.gov.in, 2025)

From the map, it could be understood that jute crop mapping for Nadia is 89757.02 hectares. This is the data of 2023. Along with jute crop mapping, other smart climate farming practices have been used for assisting the farmers in jute production. Willingness of the farmers in using these practices have overall increased their human development index.

Singh, Jha, and Ghorai, (2019) highlighted the benefits which the landholder farmers receive from climate smart practices of jute production. These farmers were trained on integrated crop management, as a part of Climate Smart Jute Farming. The training involved changes in the fiber yields, net returns on selling the produced jute, and the measurement of the overall human development index. On training, the farmers were able to learn about the new crop varieties, which they can harvest for improvement in their livelihoods.

OBSERVATORY THOUGHTS:

Along with other crops, jute occupies an important position across all countries. Especially west Bengal is famous for jute production. Narrowing down the search to Nadia district, jute production has improved the livelihood of farmers living in rural areas of this district. Weather fluctuations in rainfall, pesticides, diseases, low price, improper infrastructure affects the jute production (Sarkar & Modak, 2024). As a result of this affectation, farmers are compelled to face hardships in the form of inadequate produced quantities, improper lifestyle, inability to arrange daily bread among others. Advent of Covid 19 witnessed significant changes in the form of shutting down of the factories as the demands were low. The prices also went down. After the lockdown was called off, demands shifted towards synthetic fibers as new technology came into stage, uplifting the jute production quantity. However, not all of the farmers were willing to shift to these new machines and technology. As a result, implementation of the new technologies, for jute production, got delayed.

Analysis in the form of data crop mapping was integrated for gaining better insight of the situation, especially the problems faced by the farmers. This mapping, in the form of satellite imagery, was something new in the jute crop production (Rahaman & Ansari, 2025). Also, smart climate jute farming methods were introduced for dealing with the weather affectations. In the light of these advancements, farmers in Nadia, west Bengal felt lost as they lacked proper education, awareness, infrastructural exposure, access to resources. Training on the modern agricultural methods came at a much later stage, when the socioeconomic gaps was at heights. This is because the rich got the finished products readily available and the poor farmers in the rural areas were still below the poverty line, struggling for their daily bread.

Inspite of diversified use of jute, improper education and awareness among the farmers somewhat reduce the aura. However, gradually the smart farming means have turned the stone in favor of the farmers (Mandal & Saha, 2024). Now, they are included in every farming method, causing their upliftment in the social constructs. Reference can be cited of the employment opportunities, which has increased for the farmers as a result of smart jute crop production methods. Therefore, jute production has regained its lost glory amidst the demands for synthetic fibers.

If the social impact is paid attention to, then jute cultivation is one of the staple activities, defining the culture of the farmers living in rural Nadia. Through this activity, the farmers gain their daily bread. But

when they get lower prices for the jute produced, while selling in the market, their social position is degraded (Mondal *et al.,* 2024). The rich and aristocratic demand synthetic fiber over jute, which indicates consistency in their "no improvement". Contrary to this, interest to revive the jute products among young entrepreneurs, indicates upliftment in the life of farmers involved in jute production in the threshold of Nadia, West Bengal. Programs like Grassroot fellowship, trainings are evidences of the ways in which upliftment is thought for the farmers. Through these programs, the farmers are included in the mainstream society, who are otherwise secluded and marginalized (Gangarde *et al.,* 2024). A little time earlier, carrying jute bags was considered as a low social status. On the other hand, Gucci handbag indicated sophisticated choice and increased people's position in the society. However, with the advancement of technology, and likings of the people, jute bags have regained their lost glory. People nowadays feel that environment needs to be preserved, for which they need to use natural resources, which dispose of well (Guha, 2024). Moreover, prices of the synthetic fibers are more, which the middle-class consumers cannot afford. Here comes the economic impact of the jute cultivation in Nadia district, West Bengal.

If the attention is turned towards the change aspect, then mention needs to be made of the technology. This is because technology has altered the ways in which crops like jute was and is being produced. On the contrary, it could also be said that technology has refined the methods of jute production in areas like Nadia, West Bengal. Evidence of this refinement are climate smart systems, bicultural tanks, and others (Gangarde *et al.,* 2024). Training about using these technologies has upgraded the lives of farmers. As a result of this training, farmers living in the rural areas of Nadia have been exposed to new ways of leading a smarter life. They could not imagine that life could be this smart, with just a click.

CONCLUSION:

From the discussions, it could be inferred that technology has changed the way jute was produced in Nadia, West Bengal earlier. However, there are debates on the extent to which technology has been successful in bringing the change in the lives of the farmers in the rural areas. The debates are because of resistance towards adopting the modern technologies. However, some studies have revealed motivation and achievement among the farmers on being successfully using the technologies for cultivating jute. This motivation and achievement have come with proper training and demonstrations, convincing the farmers about the benefits, which they will get. Technological change can be contradicted with the political influence, making the farmers' upgradation impossible. This is because the farmers are lured with facilities, which are simply to gain more votes instead of actually assuring them a better future. Need of the hour is to involve the farmers of rural areas in Nadia, West Bengal in training and demonstration sessions. This involvement will lead them to smarter exposure of jute cultivation. Along with this, they will also feel an upgradation in their personal life, which will become more secured and innovative than earlier times. Their approaches are to be evaluated and monitored for assessing the effectiveness of the techniques. Consistency in assessment would be effective in implementing the technologies, which will indicate further improvements in jute production in Nadia, West Bengal.

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