Feasibility of Diversification Strategy for Sustainable Jute Cultivation: A Study in Assam

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Abstract

In the last few decades, use of jute has declined due to wider popularity of polyethylene and other synthetic packaging materials across the world. As a result there has been decline and fluctuations in the demand of raw jute and farmers are the subject of this fluctuation in India. Jute is one of the major cash crops in Assam and the state ranked third in terms of its production. However, presently Jute has become less lucrative crop in the crop portfolio of the farmers of Assam. Due to growing ecological awareness, natural fibers including jute are regaining their importance in the contemporary time. This paper tries to project diversification strategy to ensure economic sustainability of the jute growers in Assam. Constraints of the jute growers are also taken into consideration. The study is based on both primary as well as secondary data. Analysis of growers' constraints and feasibility model are the applied outcome of the paper.

Keywords: Jute farming , Sustainability, Profitability, Diversified Jute Products

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Introduction

Sustainability is the prime focus of the present era and sustainable agricultural practice is one of the crucial steps towards environmental sustainability. In sustainable agriculture, farm products are raised in ecological as well as ethical manners which are having lesser damaging impacts on the environment. It also includes minimum use of chemical pesticides and fertilisers and reliance on the use of organic manure. In the growing environmental concerns, jute and allied fibers, as eco-friendly packaging materials are retrieving their attractiveness against synthetic fibers. Besides, jute occupies a prominent position for its technical, ecological and economic properties. Low cost and abundant availability are the two prime economic attributes of the fiber. Declaration of International Year of Natural Fibers in the year 2009 by Food and Agriculture Organization (FAO) was another major step of popularising these natural fibers. Jute farming enhances soil fertility and also improves the nutrient availability in the soil. The uses as well as availability of jute

products depend on uninterrupted fiber supply and eventually on its cultivation. Marginal and small farmers play a crucial role by meeting the fiber requirement of the other stakeholders of the wider jute industry in India. However, jute farming in Assam is becoming less remunerative in the last two decades. As a result, decline and fluctuation of jute acreage is common phenomenon. Farmers often face constraints in the process of production as well as marketing of the fiber, which is having discouraging impact on them. Diversified Jute Products (DJPs are the decorative merchandise produced by the craftsmen from jute fiber with their artistic skills. Product diversification by considering the growing environmental awareness can be a viable strategy for ensuring economic sustainability of jute cultivation.

Literature Review

Ecological and economic significance of jute farming

Due to increasing environmental deterioration mainly caused by extensive deployment of natural resources for developmental activities which generate greenhouse effects and causes higher emission of carbon dioxide, people are becoming aware of the environmental protection (Abdullah, 2013). Emergence of plastic as a byproduct of the petroleum industry and its wider uses has created several challenges in the contemporary time. This low costly packaging material has inversely effected the growth of the jute industry of India since 1970. With the strategies of lower price, continuous product development and market promotion on larger budgets, plastic industry has captured the entire jute packaging market (Afroj & Islam, 2012). Though uses of traditional jute products have declined, however, the fiber has versatile intrinsic and extrinsic properties and a wide range of diversified products can be made by stressing on these properties. These diversified products are also biodegradable and having the features of easy disposability (Mohiuddin, 2015). Jute is the cash crop of 12 million marginal and small farmers of India and Bangladesh. Jute farming significantly contributes towards their livelihood and overall economic development of these nations. Rahman (2008) stated that jute faming plays a crucial role in reducing poverty and hunger of the South-Asian economies. The cash derived from sales of jute fiber and the wages received by agricultural laborers are important contribution towards food security as stated by the researcher. In Indian perspective, Pratihar (2007) emphasised on the role of jute industry in India's economic development in terms of employment generation and contribution to the national exchequer. Afroz and Islam (2012) stated that jute farming has improved the socio-economic conditions of farmers and creates employment opportunities to other segments including agricultural laborer etc., in Bangladesh.

Regarding the constraints faced by jute growers Ghimire and Thakur (2013) stated that unstable or low price of raw jute, unavailability of quality jute seed, limited irrigation water, diseases, labour shortage, weed problem, lack of retting water were the main constraints in jute production in Nepal. In the Indian context, Sinha et., al (2009) stated that increasing cost of cultivation and the fluctuating market price often affect the jute farmers. Das et al., (2014) stated that different aspects of retting including quality and quantity of retting water, largely determine the fiber quality. According to Sadat and Chakraborty (2015), several factors are responsible for low productivity and loss due to insects and pests is one of the major concerns. Rahman (1987) stated that price instability is very high in case of jute in comparison to the other cash crops. Due to lack of storage facility at farmers' households they are unable to apprehend the opportunities of price rise by storing the fiber. Diversified Jute products (DJPs) are an array of

non-traditional goods produced by transforming jute to numerous value-added products through innovations and application of artistic skills. Rahman (2008). Diversified products include floor covering, technical textile, geo textile home textile like table cloth, cushion covers which are made exclusively from jute or with the blend of other fibers and jute handicraft. Jute handicraft items are attractive products, produced from jute fibre, yarn and fabric. These products vary from cushion covers to lamp-shades, from hats to footwear and from hand bags to fashion accessories. Some other attractive handicrafts items are candle holders, hand bags, jewelry boxes etc., (Jute.org/floor_covering.htm).

Diversified jute Products are emerging as a catalyst for rural economic transformation, poverty reduction and women empowerment in the rural areas of India. There are incredible prospects for the growth of DJP industry due to growing environmental awareness and changing consumer mindset. As stated by Rahman *et al.,* (2012) jute diversified products produced by numbers of small and micro level entrepreneurs and production units in the decentralised sectors including SHGs (Self-help Group), NGOs (Non-Government Organization) and rural area women have found good acceptance in the market. Sinha and Chakraborty (2007), stated that DJP produced by small and micro enterprises and rural area women are getting wider acceptance in the national and international market. Nayak and Roy (2011) stated that future of jute crop will depend upon the value added diversified products from jute. Das *et., al,*(2015) stated that production and commercialization of value added jute products would create additional employment opportunities and assist in alleviating poverty in the jute producing countries. Banik and Shil (2014) stated that commercialisation of these diversified jute products is expected to open up new possibilities of reviving jute economy and helps to improve the economic conditions of the farmers including women worker. Thus growth of DJP will induce the farmers for producing better quality fiber and it will lead towards better income.

Research Gap:

Jute farming is an important source of livelihood for rural communities in the riverine areas of Assam. However, the crop has lost its allure among farmers because of non-remunerative return. Presently jute is the less preferred crop in the crop portfolio of the growers. The growth of petroleum industry and its by-product polyethylene has affected the demand of the fiber in the international market. As a result farmers face the problem of declining demand in the national and regional markets. However, in the contemporary times, there is a rising demand of natural fiber including jute as a part of growing environmental awareness among the consumers. Jute fibers and end products are environment friendly in nature. Rather than the traditional products, diversified jute products i.e. decorative merchandise with utilitarian aspects can be proposed as a measure for reviving the jute economy of the region. By considering the popularity of these diversified products, jute diversification is projected among the growers' households, to make the fiber farming sustainable in the present study.

Objectives

The objectives of this paper are

- to analyse the problems faced by jute farmers in Assam
- to analyse the feasibility of diversification strategy for ensuring economic sustainability of jute farming in Assam.

Methodology

Present study is based on both primary as well as secondary data. Secondary data was compiled from websites of National Jute Board. Primary data were collected through field survey of the researchers. Geographically, the study is carried out in the Brahmaputra Valley of Assam. Primary data were collected through multistage sampling procedure. Three districts were selected from three jute growing agro-climatic zones based on acreage and volume of jute production. In the next stage, 1 ADO circle was selected from each of the district in consultation with the official of Department of Agriculture, Government of Assam. In the next stage, 2 VLEW (Village Level Extension Worker) *elaka* (area) were taken for the study in consultation with the respective ADO (Agricultural Development Officer). At the final stage, 30 jute growers irrespective of their farm size were interviewed from each of the selected VLEW *elaka* through convenience sampling procedure due to absence of complete sampling frame. Thus the total sample size becomes 180. Responses of the farmers are taken on nominal scale and likert scale depending on the objectives of the study. One way anova was used to anlyse the presence of the problem among the farmers. The study is based on cash crops and hence, findings and suggestions are not equally applicable to other food crops.

Analysis and Discussion

Jute is an annual crop and takes about 120 days to complete the process of cultivation. India is the largest producer of jute in the world and thus, enjoys a monopoly in the world jute market.

Scenario of raw Jute production in India

Table1.1: Jute production and acreage in India

Year	Production (in tonnes)	Acreage (in hectare)
2006	1857000	791000
2007	1840000	816000
2008	1734000	785600
2009	2021500	811200
2010	1799100	767630
2011	1960380	800000
2012	1912000	800000
2013	1944000	800000
2014	1968000	741000
2015	1789200	773000
2016	1850510	733714
2017	1877760	706070
2018	1726380	685750
2019	1709460	665300

Sources: FAO, 2021

From the table 1.1 a fluctuating trend is observed in the last decade. These fluctuations arise basically due to the variations in acreage from year to year. Cultivation of jute in India is mainly confined to the eastern region states, West Bengal, Bihar, Assam, Tripura, Meghalaya, Orrissa and Uttar Pradesh.

Scenario of raw Jute production in Assam

Assam is the third largest producer of jute after West-Bengal and Bihar. The economy of the state is agrarian in nature. Commercial cultivation of jute was started by the Brtishers with colonial interest.

Table 1.2: Raw Jute production in Assam

Year	Production
2005-06	603.6
2006-07	583.3
2007-08	683.7
2008-09	674.3
2009-10	638
2010-11	650.7
2011-12	795
2012-13	823
2013-14	823
2014-15	795
2015-16	767
2016-17	824.09
2017-18	861.49

Sources: office of jute commissioner, Ministry of Textile, Government of India

Demographic profile of the sample jute farmers

Table 1.3: Demographic profile

Variables	Frequency	Percentage
Gender		
Male	180	100
Female	0	0
Age		
Below 20	1	0.7
21-40	86	47.7
41-60	79	44.1
Above 60	14	7.5
Education		
Illiterate	44	24.3
Primary Education	63	35
Middle education	38	21
Higher secondary	25	14
Graduate	10	5.56
Land holding/ category		
Marginal	87	48.19
Small	60	33.33
Semi-Medium	24	13.33
Medium	9	5
Large	0	0
Annual Farm income (in Rs)		
30,000-60,000	12	6.7
60,000-90,000	11	6.1
90,000-1,20,000	53	29.2
1,20,000-1,80,000	59	32.8
1,80,000-2,40,000	29	16.2
Above 2,40,000	16	9
District		
Nagaon	60	33.33
Darrang	60	33.33
Dhubri	60	33.33

Sources: Primary data collected filed survey of the researchers

Constraints of the jute farmers

Insufficiency of return in primary market

Regarding the insufficient return of Jute farmers, Islam (2007) stated that farmers are dissatisfied with the non-remunerative return of jute fibre, due to lower selling price in Bangladesh. Afroz (2011) stated that cent per cent of the farmers faced the problem of inadequate return for their produce in Bangladesh. Siddique (2011) stated that the low price of jute is one of the major problems of the jute growers in the Mymansingh district of Bangladesh. To analyse the problem in the study region, following hypothesis are tested:

H_0: there is no difference regarding the return from the primary market among the farmers across the three districts.

Table1.4: ANOVA test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	116.810	2	58.405	4.193	.015
Within Groups	14584.333	1047	13.930		

Sources: Primary data collected through filed survey of the researchers

As the p value (.015) is less than the level of significance (0.05) so we reject the null hypothesis and concluded that there is a difference regarding the return from primary markets received by the framers across the three districts. It was observed that fellow farmers or traders are the main sources of price related information for the farmers (92%). Due to lack of market intelligence, growers rarely came to know about the actual prices prevalent in the market. Sometimes, they rely on the same intermediaries for price related information as well as selling of the fiber. Thus, intermediaries are in an advantageous position to exploit the small and marginal growers.

Quality of available seeds

Quality seeds of an improved variety provide additional yield of the jute crop. Patra et al., (2018) stated that quality seeds are generally unavailable to the jute growers of the West Bengal. To analyse this problem, the following hypothesis is tested in the study region

H_0: there is no difference among farmers regarding quality of available seeds in primary market across the three districts.

As the p value (.000) is less than the level of significance (0.05), so we reject the null hypothesis. It implies that differences exist regarding quality of seeds available in the primary market across the three districts. Nearest primary market or fertiliser shops are the main sources of procuring jute seeds. Besides, a small portion of progressive farmers uses the seeds supplied by the Jute Corporation of India (JCI). The yield of seeds supplied by JCI is much higher than the loose seeds available in the market as reported by the farmers. Due to the presence of a large number of Departmental Procurement Centre (DPC) of JCI in the Nagaon district, and its stronger role in the area, farmers of the Nagaon (CBVZ) are able to avail good quality seeds for jute farming. Again, in the Dhubri district, which shares the national boundary with West-Bengal and hence, seeds from this neighboring state, is available to the growers. Therefore, differences are recorded across the three districts of the three ACZs.

Problem of increasing prices of seeds

Sheheli and Roy (2014), Khatun (2010) stated that the farmers often face the problem of the increasing price of inputs in jute farming in Bangladesh. 55

per cent of the growers faced the problem of increasing prices of seeds as revealed by the author. Kundu (2011) stated that the increasing price of inputs often acts as constraints for the jute growers. Following hypothesis is attempted to test regarding increasing prices of seeds among the growers in the study region

Ho: there is no difference among farmers regarding increasing prices of seeds across the three districts

As the p value (.000) is less than the significance level (0.05) so we reject the null hypothesis and concluded that there is a difference among the farmers regarding increasing prices of seeds across the three districts.

Problem of irrigation

Forman (2011) stated that the absence of irrigation is one of the major issues among the jute growers in the Mymensingh district of Bangladesh. Kundu (2011) stated that the cost of the irrigation act as major restraint in the jute farming in the Madaripur district of Bangladesh. Dutta (2012) stated that the cost of irrigation covers 9.51 per cent of the total cost of production. Chapke (2013) stated that the issue of irrigation is one of the major decisive factors in the process of jute farming in Nepal. Regarding the problem of irrigation the following hypothesis is tested

Ho: there is no difference among farmers regarding problem of irrigation across the three districts

As the p value (.000) is less than the level of significance (0.05) so we reject the null hypothesis and concluded that there is a difference among farmers regarding problem of irrigation across the three districts. Although jute is a rain fed crop but insufficiency of irrigation emerged as major constraints among the farmers as reported by them.

Issues of availability of labour

Jute is a labour intensive crop and a substantial amount of labour is required at all stages of production. However, due to the growing preference of non-farm income among the rural communities, availability of labour becomes a critical issue in the contemporary era. Talukdar (1991) stated the problem of shortage of labour in the *Kharif* season in the Tangail district of Bangladesh. Afroz (2011) stated that, seasonal scarcity of labour is faced by 50 per cent of the farmers in the Naringdi district of Bangladesh. Siddique (2011) stated that the labour shortage is one of the major problems of jute farming in the Mymensingh district of Bangladesh. Forman (2010) stated that the scarcity of labour is faced by 67 per cent of the jute growers in Bangladesh. In the study reason the following hypothesis are tested:

Ho: there is no difference among farmers regarding availability of labour across the three districts

As the p value (.005) is less than level of significance (0.05), so we reject the null hypothesis and concluded that there is a significant difference among farmers regarding the problem of availability of labour across the three districts. Jute is a labour intensive crop and a sizable amount of labour is required at all stage of production. Due to changing socio-economic dynamics, labour forces are migrating towards other parts of India in search of non-farm livelihood which effect the agricultural labour supply

Issues of increasing wages of labour

Afroz (2011) stated that the problem of increasing wages of labour is faced by 50 per cent of the jute

growers in the Naringdi district of Bangladesh. Siddique (2011) stated that increasing labour cost is one of the major problems of jute farming in the Mymensingh district of Bangladesh. Kundu (2011) observed the problem of increasing wages of labour in the Madaripur district of Bangladesh. In order to analyse the problem in the study region the following hypotheses are tested:

Ho: there is no difference among farmers regarding increasing wages of labour across the three districts.

As the p value (.001) is less than significant level (0.05), so we reject the null hypothesis and concluded that there is a difference among farmers regarding problem of increasing wage of labour across the three districts. Due to scarcity of agricultural labour the prevailing wage rates rises, which affect the cost of production.

Problem of pest and disease

Attack of the pests and diseases is one of the common problems among the jute growers of the region. Regarding the issue of pests and insects, Kundu (2011) stated that pests and diseases often affect the jute growers in the Madaripur district of Bangladesh. Ghimire (2006) stated that the attack of pests and diseases in the fibre is one of the major challenges of jute farming in Nepal. Regarding this issue the following hypothesis is tested

H_0: there is no difference among farmers regarding problem of pest and disease across the three districts

As the p value (.000) is less than (0.05), so we reject the null hypothesis and concluded that there is a difference among farmers regarding problem of pest and disease across the three districts.

Problem of retting

Ghimire (2006) stated that the scarcity of the retting water is one of the major problems of jute farming in Nepal. Afroz (2011) stated that insufficient water availability for jute retting is faced by 80 per cent of the growers in the Naringdi district of Bangladesh. Scarcity of retting water due to the decline of open water bodies and the spread of commercial fish farming also affects the retting procedure as stated by the author. In the study region the following hypothesis is tested,

Ho: there is no difference among farmers regarding problem of retting across the three districts

As the p value (.000) is less than significant level (0.05), so we reject the null hypothesis and concluded that there is a difference among farmers regarding the problem of retting across the three districts.

Problem of storage

Khatun (2010) stated that 47 per cent of the jute growers had no storage facilities in the Sirajganj district of Bangladesh. Afroz (2011) stated that 60 per cent of the growers face the problem of storage in Bangladesh. In the study region the following hypothesis is tested,

Ho: there is no difference among farmers regarding problem of storage across the three districts

As the p value (.000) is less than the significant level (0.05), so we reject the null hypothesis and concluded that there is a difference among farmers regarding problem of storage across the three districts.

Lack of price related information

Yadav (2013) stated that word of mouth is the only source of price-related information for the growers of Assam. The two major sources of price-related information for the jute growers in the study region are fellow farmers and the traders. Regarding the issue of lack of price related information, the following hypothesis is tested in the study region.

Ho: there is no difference among farmers regarding the problem of price related information across the three districts

As the p(.000) value less than the level of significance (0.05),, so we reject the null hypothesis and concluded that there is a difference among farmers regarding the problem of price related information across the three districts.

Continuation of Jute farming

92 per cent of the farmers reported that, they are willing to continue jute farming irrespective of the above problems in smaller scale. However, cent percent of the respondents revealed that they do not want to expand jute acreage in the present situation because of its non-remunerative return. Acreage decline was observed by the researchers along with crop shifting in some of the areas under study.

Farmers' perception towards diversification

Cent percent of the surveyed households were unaware of the diversified jute products. However, when photographs are presented and description of diversification (including diversified jute products) was also given by the researchers, they express their willingness to learn the crafts. They are enthusiastic to enhance their income and hence, prepared to learn the crafts (92%). Besides, 90 per cent of the respondents do not consider scarcity of time as possible issues in the process of adoption of diversification. 96 percent of the farmers do not consider finance as a possible hindrance in the process of adoption of jute diversification. However, they reveal that ignorance is the main restraint in their part in the process of involvement in jute diversification. If necessary training is imparted among the households, they will adopt this crafts as revealed by the respondents.

Availability of labour with residual time in the study region is an advantageous factor for the promotion of the DJPs among the agrarian communities. The able members of the growers' household can adopt this DJPs crafts as a secondary income generating activity. Besides, the unemployed youth can adopt this crafts as a means of the primary or the secondary income generation. Production of handicrafts does not require heavy machineries and equipment's. Jute handloom is produced with the traditional loom, which is used for conventional weaving in the region. While analysing the technical viability of the proposed crafts among the growers' household it can be stated that the traditional loom is available among the majority of the households of the study region. This is an advantageous factor as they need not to incur supplementary expenditure for the construction of the loom. While analysing the economic feasibility from the growers' perspective, availability of the fibre is an advantageous factor. They need to procure only the other inputs required for the production of the crafts. Expected profitability of the crafts will induce the growers for greater involvement in the DJPs.

Convenience of the marketing, wider acceptability in the national and international markets, growing demand etc., can be considered under the marketing feasibility of the crafts among the agrarian communities. Thus, after considering the above mentioned aspects of feasibility it can be concluded that, diversification of jute crafts can be

promoted among the jute growers as a means of alternative income generating activity in the region.

Findings and suggestions

Fluctuating trend is observed in jute production in India from 2006 to 2019. These fluctuations occur mainly due to the variations in acreage from year to year. Similar fluctuating trend is observed regarding jute production in Assam. Stable production and steady market demand are prerequisite for the growth of the agrarian economy and farmers' welfare.

Majority of the farmers (47.7%) belongs to the age group of 21-40. 35 per cent of the farmers have their formal education up to the primary level. 48 per cent of the farmers belong to the marginal category in terms of land holding. 32.8 per cent of the farmers have their annual income within the range of Rs. 1, 20,000 to Rs.1, 80,000

In analysing the constraints of the jute farmers in Assam, it is observed that farmers face the problem of non-remunerative return for their produce. This a discouraging factor regarding fiber farming in the region. Fellow farmers and traders are the main sources of price related information for the farmers. Due to lack of market intelligence, growers rarely came to know about the actual prices prevalent in the market.

Lack of quality seeds is another constraints faced by the farmers. Adjacent primary market or fertiliser shops are the main sources of procuring jute seeds. Good quality seeds are not accessible for the farmers and in some instances; farmers are unable to procure right quality seeds from the markets due to their ignorance. However, a small portion of progressive farmers uses the seeds supplied by the Jute Corporation of India, which ensures greater yield in comparison to loose seeds. Farmers also face the problems of increasing prices of seeds in the study area. There are 25 to 50 percent increases in the price of jute seeds as reported by the respondents. Although jute is a rain feed crop, limited irrigation facility during the sowing period also effects the farmers. Growers also face the issue of scarcity of water for retting of the fiber. Availability of labour is one of the major issues, faced by the farmers in the study area. Jute is a labour intensive crop and a substantial quantity of labour is required at all stages of production. Due to changing socio-economic dynamics, labour forces are migrating to other parts of India in search of non-farm livelihood which affect the agricultural labour supply. Farmers also face the issue of increasing wages of labour. Farmers in the study region face the problem of attack of pest and disease of the fiber. Most of the times they are unable to diagnose the cause and hence unable to take counteractive activities. Scarcity of storage space at household is another issue reported by the farmers. Sometimes they are compelled to undertake early disposal of the fiber, before the price rises, to store the subsequent crops. Besides, they rarely get the genuine price related information and become the sufferer of the long channel of intermediaries. It was reported by 92 per cent of the farmers that, they are willing to continue jute farming irrespective of the above constraints in a smaller scale. However, cent percent of the respondents revealed that they do not want to expand jute acreage in the present situation. Cent percent of the surveyed households were unaware of the diversified jute products. However, they are willing to enhance their income and hence willing to learn the crafts (92%). Availability of labour with residual time in the study region is an advantageous factor for the promotion of the DJPs among the agrarian communities. The able members of the growers' households can adopt this DJPs crafts as a secondary economic activity. While analysing the technical viability among the growers' household, it can be stated that the

traditional loom is available among the majority of the households of the study region, which can be capitalize to avail the benefits of diversification. While analysing the economic feasibility from the growers' perspective, availability of fibre is an advantageous factor Expected profitability of the crafts will induce the growers for greater involvement in the DJPs.

Conclusion and Recommendations

DJPs can play a role of catalyst for rural development, if properly promoted in the region by considering the raw material base. The economic benefits of the crafts will also ensure better standard of living of the rural dwellers in the region. Training and other promotional measures should be linked with the availability of raw material for harnessing the competitive advantage. Conversion of this unorganised sector as one of the full-fledged industry will promote the socio-economic development of the agrarian communities. There should be incentive for shifting the disguised unemployment of agriculture to this sector. Besides, promotion of the craft ensures farmers welfare, socio economic development of the craftsmen, and promotion of environmental sustainability. Documentation of growers' constraints is the academic outcome of the work. Analysing the viability of jute diversification at farmers' level is the expected social contribution of present endeavor. Proposed feasibility framework can be considered as applied outcome of the study. The findings will be helpful for the organizations promoting rural development and other stakeholders advocating farmers' welfare including Jute Corporation of India.

Limitations

The study mainly covers economic constraints of the jute farmers. Other social constraints including growing popularity of non-farm income etc. are not considered in the study. Besides, they scope of the study is limited to the jute farmers of Assam, so findings and suggestions cannot be generalised for other food and cash crops. Finally the paper explains the pre Covid-19 pandemic scenario and the devastating impact of covid-19 pandemic is not considered.

Scope for further researcher

Issues that act as constraints in the process of adoption of jute diversification as a full commercialised activity, expansion of jute craft to other areas where the fiber is not grown, ecological attributes of the end products of jute, impact of Covid-19 pandemic among the jute farmers etc. are the areas that can be undertake as a further research of the present work.

References

Abdullah A. B. M. (2013). Ecological and economic attributes of Jute and Natural fiber for sustainable Eco-Management, Dhaka Bangladesh, 1-48

Afroz , Sadia and Islam, M. Serajul (2012) Economics of Aus rice and Jute cultivation in some selected areas of Narsingdi district of Bangladesh *The Agriculturists A Scientific Journal of Krishi Foundation* 10 (2) , 90-98

Afroz, Sadia (2011). Comparative Economic Study on Aus Rice and Jute production in Some Selected areas of Narsingdi District, (Unpublished master's thesis) Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh, Bangladesh.

Banik, S. & Shill, P. (2014) Indian Jute diversified products in the export market 2000-01 to 2012-13 .*International Journal of Economic and Business Review*, 2(11).

Chowdhury, Iftekhar Uddin Ahmed and Rashed, Sharfuddin. (2015). Market Access of Bangladesh's Jute in the Global Market: Present Status and Future Prospects, *Journal of Economics and Sustainable Development.* Vol.6, No.3, 67-72

Das, Biswapriya. , Chakrabarti, K. Tripathi, S. and Chakraborty, A. (2014).Review of Some Factors Influencing

Jute Fiber Quality, *Journal of Natural Fibers*, Taylor & Francis Group , Vol, 11, 268–281

Das , Sujai., L. Ammayappan, Nayak, L.K. and Sen, Utpal (2015) Decision Support System for Jute Diversified Product, *International Research Journal of Engineering and Technology* (IRJET) : 02: 09

Dutta, J. (2012). Comparative economics of production of Jute and Mesta in Dakshin Dinajpur district of West Bengal. *Journal of Crop and Weed,* 8(2), 91-96.

Forman M. S. H. and Rahman M. S. (2013). A Comparative Financial Analysis of Aus Rice and Jute Production in Some Selected Areas of Mymensingh District. *Journal of Science and Technology* 11,12-16.

Goyal, H.D. (1990). *Indian Jute Industry, problems and Prospects*. Delhi: Commonwealth Publishers, 6-7

Ghimire, T. B. and Thakur, N.S. (2013). Constraint and opportunity of raw Jute production: A case study of eastern Terai, Nepal , *Agronomy Journal of Nepal (Agron JN)* Vol. 3, 117-122

Islam, Z. (2007). Attitude of farmers towards modern Jute cultivation in Baliakandi upazilla under Rajbari district (Unpublished master's thesis) Bangladesh Agricultural University, Mymensingh.

Islam, M. S. and Ahmed S. K. (2012). The Impacts of Jute on Environment: An Analytical Review of Bangladesh, *Journal of Environment and Earth Science*, Vol 2, No.5, 24-32

Khan, Azizur Rahman (1961), Problems of Jute Marketing in East Pakistan, *The Pakistan Development Review*, Vol. 1, No.2 78-84 http://www.jstor.org/stable/41258037 Accessed: 16-08-2016 07:28 UTC

Khatun (2000). *A Comparative Economic Analysis of White and Tossa Jute production in a selected area of Sirajganj District* (unpublished master's thesis) , Department of Agricultural Economics, Bangladesh Agricultural University. Mymensingh, Bangladesh.

Kundu, N. L. (2011). A Study on Profitability of Jute Production and Value Addition activities of Jute Products in Some Selected area of Madaripura District, (Unpublished Master's thesis) , Department of Agricultural Economics , Bangladesh Agricultural University, Mymensing

Mohiuddin, M. (2015). Green Marketing Of Jute and Jute Products: A Study on Bangladesh. *IOSR Journal of Business and Management (IOSR-JBM)*, Volume 17, Issue 2, 52-57.

Nayak, Laxmikanta and Roy Ashim (2011) Utilization of Jute By-Products: A Review, *Agri. Review*, 32. 1 : 63 – 69

Patra, B. C., Ghosh, K., Chowdary, K. A. and Sarkar, S. K. (2018). Effect of Dates of Sowing and Topping on Seed Production of Tossa and White Jute in Red and Laterite Zone of West Bengal, *Current Journal of Applied Science and Technology,* 26(3), 1-12.

Pratihar, J.T. (2008). Jute, the golden fiber present status and future of Indian Jute sector, *Vanijya* ; March 1-17

Rahman Rezaur, A. K. M.(2008) "Jute in South Asia" *Proceedings of the Symposium on Natural Fibers* n.p.

Rao, N. K. Muralidhara & Ramaswamy, P. (1974): "Raw Jute Marketing: Problems and Solutions" *Economic and Political* Weekly March 23,497-488

Rahman, Sultan Hafeez, (1987) An Analysis of Seasonal Jute Price Behaviour, *The Bangladesh Development Studies*, Vol. 15, No. 3 43-61 http://www.jstor.org/stable/40795288 Accessed: 16-08-2016 05:36 UTC

Sadat, Abdul. & Chakraborty, Kaushik. (2015). Insect pest constrains of Jute and its control by biological agents under modern Eco-Friendly sustainable production system. *International Journal of Multidisciplinary Research and Development* 2. 3,316-321

S. Sheheli and Roy, B (2014). Constraints and Opportunities of Raw Jute Production: a Household Level Analysis in Bangladesh, *Progressive Agriculture* 25: 38-46,

Siddique (2011). Profitability Analysis of Jute Growing Farmers in some selected areas of Mymensingh District (Unpublished master's thesis). Department of Agriculture Economics, Bangladesh Agricultural University Mymensingh, Bangladesh.

Sikdar, F. S. and Banerjee, B. N. (1990). Jute Cultivation in India and Bangladesh: A Comparative Study. Delhi; Mittal Publications,

Sinha, M. K., S. Mitra, Ramasubramanian, T. and Mahapatra, B. S.(2009) Crop diversification for profitability in Jute and allied fibre crops. *Indian Journal of Agronomy ,* Vol 54 (2), 221-225