

Chapter II

REVIEW OF LITERATURE

The objective of this chapter is to carry out a review of the contemporary literature on different aspects of jute cultivation. The available literature reviewed is divided into several sections covering overall jute economy, nature of intertemporal variation in the production, area and yield of jute, cost and returns of jute cultivation and problems of jute marketing.

2.1 Jute Economy

FAO (1957)¹ in its study on the markets, manufacturing and production of jute observed that the production of jute was largely concentrated in Pakistan and India. Three-fifths of jute manufacturing was concentrated in these main jute growing regions. India accounted for 57 per cent and Pakistan for a further 3 per cent of all jute mill manufactured goods the other main manufacturing region being Western Europe with the United Kingdom accounting for 8 per cent and other west continental European countries for 22 per cent. These accounted for about 90 per cent of the total world market arrival

1. FAO (1957): Jute : A Survey of Markets, Manufacturing and Production, Rome, FAO, United Nations, pp. 2-3.

of jute goods. During the post-war years, however, European industries increased competition particularly in better quality (hessian) cloths in which they specialized. Pakistan's and Japanese industries entered world markets more recently.

FAO further observed that although the volume of demand for jute goods in mid-1950's, was somewhat smaller than in later pre-war years, it rose during the years close to the study period. However, FAO's study concluded regarding the long term world demand for jute that it was governed by a number of conflicting trends whose net effect was difficult to gauge with any precision.

Rabbani (1964)² analysed statistically the various aspects of world jute economy. His study was related in details to world jute production, jute industries, world market for jute products, world jute consumption and its determinants. He discussed the prospects of jute in the world economy with some policy considerations.

Haque (1966)³ presented valuable information of price mechanism of raw jute in the then East Pakistan through which

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2. Rabbani, A.K.M.G. (1964) "Jute in the World Economy — A Statistical Study", Unpublished Ph.D. Thesis, University of London.
 3. Haque, S. (1966) "A Price Stabilization Model for Pakistan Jute", Unpublished Ph.D. Thesis, University of London.

movement of year to year jute production could be regulated. His study advocated a model of acreage response of jute that could be regulated with considerable precision through the regulation of prices to be paid to the growers due to higher responsiveness of growers to price of jute and aus. But this price stabilization scheme subjected to disturbances by climate and unforeseen variable of getting projected level of actual production on the one hand and highly fluctuating demand for jute in the internal and international market on the other. Again, on account of the forces of demand and supply of jute, the price stabilization policy might have failed in the absence of the adoption of any Governmental policy. Besides, Haque's price stabilizing scheme also explored a new venture in the field of jute marketing.

Singh and Chowdhury (1969)⁴ discussed Indian jute industries' performance from 1951 to 1967. They found a decline in Indian jute exports in the past decade due to competition and technological displacement of jute by synthetics. Their suggestions for the development of Indian jute industries included : (i) price reductions by abolishing export duty, (ii) adequate credit at concessional rates

4. Singh, I. J. and Chowdhury, T.K. (1969) "The Indian Jute Industry 1951-67 : An Analysis of Its Performance", AICC Economic Review, New Delhi, Vol. 20, No. 446, pp. 27-30.

of interest to jute producers and mill-owners for modernizing plant and machinery, (iii) product diversification and analysis of consumer preference, (iv) minimum support prices for different qualities of fibre and (v) developing quality seed and technological improvements to increase productivity.

UNDP Jute Fact Finding Mission (1971)⁵ examined the current problems of jute in the major producing countries specially Bangladesh. They recommended some courses of action which might help to overcome the existing problems and in particular to consider whether the establishment of an international jute centre might contribute to overcome them and, if so, to define the functions of such a centre and to investigate its feasibility.

Wiemann (1975)⁶ analysed the jute policy of the European Community and its impacts on export of jute from India and Bangladesh (formerly East Pakistan). This study identified end or final uses of jute, development of jute substitute, competition from substitute in major final use markets, packaging materials, carpet backing and above all

5. UNDP (1971) Jute Fact-Finding Mission 1970-74, Report to the Administrator, Vol. I.

6. Wiemann, J. (1975) The Jute Policy of the European commodity and Its Impact on the Jute Exporting Countries India and Bangladesh, German Development Institute, Berlin, p. 20.

regional shift of jute market .

Dey (1976)⁷ analysing the data on various aspects of raw jute and jute manufactures with reference to the period of 1960 to 1975 visualized broadly that the world demand for raw jute and jute manufactures did not show any sign of decline, rather it displayed an improvement. But India failed to retain its relative position in exporting raw jute and jute manufactures. The same of Pakistan showed a remarkable rise. This was due to Pakistan's dumping price policy implemented in the name of Bonus Voucher Scheme. Besides, he also pointed out that the decline of India's position relating to export of jute manufactures in the world market was due to lack of attention of India's jute industry towards product diversification and development of new products such as, jute decorative fabrics and other speciality goods for which there was potential demand primarily in the USA and Europe. Considering all these he advocated that it was necessary to formulate a rational price policy particularly for various jute goods on the one hand and to implement a long term programme of rationalization of the production marketing structures on the other with a view to reviving India's competitive strength in the world market.

7. Dey, P.B. (1976) "Importance of the Jute Industry to the National Economy of India- Problems and Prospects of Export Trade", Economic Affairs, Calcutta, Vol. 21, Nos. 9 & 10, pp. 367-384.

Bennathan and Rahman (1977)⁸ carried out an important study regarding jute policy after devaluation in Bangladesh and pointed out that the effective exchange rate of the late 1960's subsidized the export of jute manufactures to the tune of 60 per cent but this was nowhere near the value added in jute manufacturing and contrasted violently with the internal prices for raw jute. The devaluation of 1975 in Bangladesh removed the subsidy and should leave a gap which would allow for a reappraisal as to whether certain parts of the industry should be maintained in operation.

Rahim (1977)⁹ discussed the nature of the problem of the terms of trade between developed and developing countries in general and in particular the problem of jute price stabilization. He emphasized the need for an international jute cartel in the lines of the OPEC and the creation as well as operation of buffer stocks of jute.

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8. Bennathan, E. and Rahman, S.H. (1977) Jute Policy after Devaluation, The New International Economic order and UNCTAD-IV, Proceedings of the Bangladesh National Seminar, The Bangladesh Institute of Development Studies, Dacca, pp. 11-42.
 9. Rahim, A.M.A. (1977) Stabilization of Commodity Prices: The longterm Policy Objectives of Jute Price Stabilization, The New International Economic Order and UNCTAD-IV, The Bangladesh Institute of Development Studies, pp. 60-81.

UNCTAD (1977)¹⁰ found that raw jute constituted between 45 and 60 per cent of the cost of jute goods. A significant correlation between raw jute prices and some jute goods prices were observed for India and Bangladesh. However, it was concluded that stable raw jute prices might stabilize the cost of production of such goods as hessian and carpet backing. The import prices of these goods depend to a considerable extent on factors such as the state of demand and supply, prices of competitive synthetic products, supply bottlenecks etc. It was suggested that buffer stocks of jute might be an effective price stabilization measure for these jute products.

Ahmed (1978)¹¹ studied about the participation of Bangladesh in an international buffer stocking arrangement for raw jute. He viewed that price fluctuations were wide, export earnings were thus affected severely. Supply was the dominant factor in price and value fluctuations. The conclusion of his study was that it would be advantageous for Bangladesh to participate in buffer stocking arrangements.

10. UNCTAD (1977) Factors Influencing the Prices and Supplies of Raw Jute and Jute Goods, Integrated Programme on Commodities, Intergovernmental Working Group on Jute and Jute Products, Geneva, Switzerland, pp. 1-28.

11. Ahmed, S. (1978) "Should Bangladesh Participate in an International Buffer Stocking Arrangement for Raw Jute", The Bangladesh Development Studies, Dacca, Vol. 6, No. 1, pp. 71-72.

Additional policy measures such as the removal of trade barriers and domestic policies to improve productivity and stabilize production which would in turn help price competitiveness with synthetic substitutes were all necessary if jute continued to be a successful source of foreign exchange earning. Buffer stocks were not considered to be alternatives to compensatory finance schemes as policies for stabilizing export.

Hajra (1978)¹² studied the problems and prospects of jute industry in India. According to his study the industry though exhibited considerable dynamism during the period covering mid-fifties and mid-sixties in terms of its volume of production and especially export, it was dislodged from its pre-eminent position due to the competition from synthetics and the Bangladesh jute industry. He viewed that according to the criterion fixed for sick units by the Reserve Bank of India, the jute industry as a whole since the seventies might be termed as sick. In consideration of such a situation of jute industry in India he was of the opinion that the survival of the jute industry was dependent on the steady supply of raw jute and expansion of the domestic

12. Hajra, S. (1978) Jute Industry — Problems and Prospects Published by T. Govindan Nair for Vidya Vahini on behalf of Economic and Scientific Research Foundation, New Delhi, pp. IX-XIII.

market. For this, he gave importance on the adoption of the following measures : provision of remunerative price to the farmers, formation of reasonable price to the consumers and adequate return to the industry. In fine, he commented that a successful harmonisation of these three measures would urgently need either complete abolition or drastic reduction of the heavy excise duty which was Rs. 600 per tonne at the time of his study.

Ahmed et al. (1979)¹³ provided a brief historical perspective of development in the use and trade of jute, analysis of the structures of decision making and control in relation to various aspects of production as well as trade in jute. In the purview of the study the structure of jute technology, demand and supply were also analysed. His study found that the main problems confronted by the jute growing region of the world in international transactions were the ominous trend of eroding market share resulted from the competition of synthetics, adverse movement in terms of trade arising particularly since seventies. They suggested to implement two measures — one was the formation of an international buffer stock for jute and the other was negotiations for elimination trade barriers in the developed countries.

13. Ahmed, Q.K., Osmani, Azam A.H.M.G., Roy, D.K. and Rahman, M.M. (1979) World Trade in a Primary Commodity: The Case of Jute (A Study Prepared for Third World Forum), The Bangladesh Institute of Development Studies, Dacca, pp. 1-163.

Ray et al. (1983)¹⁴ studied the time series figures on jute export of India and other related issues for the period from 1963-64 to 1981-82. Their study exposed that the quantity of jute trade of India in the world market showed a declining trend. The introduction of various kinds of substitute goods for jute products contributed towards the reduction in demand for jute and jute products in the world market. In this context of the depressing state of affairs of jute trade of India they were of the opinion that all quantitative and qualitative restrictions on export of raw jute should be removed. Export duty, etc. on all special jute items like weblings and tarpaulins should be abolished. The cess on jute manufactures should be reduced. Financial help on the part of Government should be extended to the jute mills.

Sarkar (1986)^{15(a,b,c)} carried out a noteworthy study about the raw jute and its manufacturing sector scenarios of

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14. Ray, A.K., Vasisht, A.K. and Ved Prakash (1983)
 "Comparative Study of Jute and Rice Cultivation in India", Agricultural Situation in India, New Delhi, Vol. 38, No. 7, p. 474.
15. (a) Sarkar, G.K. (1986) "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, pp. 2140-2146.
- (b) Sarkar, G.K. (1986) "The Fading Fabric-II : Jute Manufacturing Sector", Economic and Political Weekly, Bombay, Vol. 21, No. 50, pp. 2188-2197.
- (c) Sarkar, G.K. (1986) "The Fading Fabric-III : Prospects and Policy Options", Economic and Political Weekly, Bombay, Vol. 21, No. 51, pp. 2231-2240.

India and identified the broad policy options for rehabilitation of the jute industry as a whole. He found that the export of raw jute and jute goods from India declined due to intense competition from Bangladesh both in terms of price and quality of the raw jute as well as to some extent competition from Thailand. The decline of world imports demand were due to (i) technological developments (e.g., emergence of paper-sacks, and bulk-handling of commodities) and changes in consumer preference (e.g., retail packaging of groceries), (ii) the development of jute processing industries in several importing countries, (iii) the challenge from synthetic substitutes, and (iv) recessionary conditions in the industrialised world. High freight costs and inadequate shipping facility according to his study also impeded the exports of raw jute and jute goods from India.

In consideration with depressing state of affairs of export of raw jute and jute manufactures he prescribed a number of policy options. Among them standardisation of jute products according to him was a vital issue which the Indian jute industry and Government needed to resolve urgently. Apart from this, in connection with the plight of raw jute he vouchsafed the suggestion that newly innovated agronomic practices for improving jute yields should in no time be adopted in the areas like northern Bengal. Again, he recommended

that technology should be low cost and location specific as well as helpful for a better exploitation of the existing technology. Finally, he prescribed direct supervision of selected jute growers (following Bangladesh's successful IJCS programme) and reorientation of IJDP which had so far met with very limited success.

Sarkar (1989)¹⁶ observed that exports of jute goods were affected adversely due to the emergence of synthetic substitutes, competition with Bangladesh, fall in bagging requirements because of adoption of bulk handling techniques, setting up of jute mills in several importing countries and pressure of domestic demand. For export expansion he suggested some policy options : the State Trading Corporation should take more active role and share the losses, export price should be stabilized or minimum export price schemes should be undertaken for exporters, bilateral co-operation between India and Bangladesh in the world market either in the form of minimum export prices or sharing of market should be set up.

16. Sarkar, Goutam K. (1989) Jute in India : An Economic Analysis, Oxford University Press, Bombay-39, (Book Review) Indian Journal of Agricultural Economics, Bombay, Vol. 24, No. 4, pp. 460-461.

2.2. Intertemporal Variation in the Production of Jute.

A notable number of studies were performed relating to the intertemporal aspect of jute.

Kundu (1948)¹⁷ in his study found the possibility of increased production of jute without decreasing the acreage under its competing crops through increasing yields by manuring and increasing the acreage by utilization of waste lands.

Kundu (1953)¹⁸ also observed that the extension of area under jute cultivation in different districts of different jute growing States raised the level of raw jute production in India. He recommended intensive method of cultivation to increase yield per unit of area through improved cultivation, judicious manuring, adoption of proper inter-culture etc. but not the expansion of area under jute for increasing the level of its production.

17. Kundu, B.C. (1948) "Possibility of Increased Production of Jute in the Indian Union", Jute Bulletin, Calcutta, Vol. 10, No. 10, pp. 276-295.

18. Kundu, B.C. (1953) "Increasing Jute Production", Jute and Gunny Review, Calcutta, Vol. 5, No. 3, pp. 261-269.

Singh and Chowdhury (1969)¹⁹ like Kundu also advocated to undertake the measures for raising production of jute through the increase of productivity by improving the quality of seed and technology of jute cultivation.

Chakrabarti and Sarma (1972)²⁰ with the help of linear regression fitting on the basis of data on area, production and productivity of jute in India with reference to the period from 1947-48 to 1971-72 and from 1956-57 to 1961-62 observed that increase of production throughout the period in general could be attributed to the expansion in the area harvested and in particular the same for the period from 1956-57 to 1961-62 was due to a combined effect of increase in area and productivity.

Miah and Ahmed (1977)²¹ analysing the constraints of jute production in Bangladesh observed that share of Bangladesh in the world jute production retarded during 1947-48

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19. Singh, L.J. and Chowdhury, T.K. (1969) "The Indian Jute Industry 1951-67 : An Analysis of Its Performance", AICC Economic Review, New Delhi, Vol. 20, No. 446, pp. 27-30.
 20. Chakrabarti, S.K. and Sarma, M.S. (1972) "Agro-Economic Factors Influencing Raw Jute Production in West Bengal", Agricultural Situation in India, New Delhi, Vol. 27, No. 7, pp. 457-462.
 21. Miah, A.B.M.A. and Ahmed, T. (1977) "Some Constraints of Jute Production in Bangladesh", Bangladesh Journal of Jute and Fibre Research, Dacca, Vol. 2, No. 2, pp. 109-123.

to 1976-77. This was due to the decrease of the level of production in Bangladesh. The significant decline of acreage under jute and yield during the same period was responsible for the retardation of production. The decline of yield rate according to them was due to various constraints such as physical condition and natural constraints and constraints of subsistence farming, changing agrarian pattern, varietal deterioration etc. They also suggested in their study that existing situation in Bangladesh called for formulating a long-term policy and an appropriate price policy. Evaluation of HYV seeds and an innovation of improved technique of cultivation through potential research and promotion of measures were of great importance.

In applying various statistical techniques Sikder (1982)²² carried out a study to examine the time series data of area, production and yield of jute in Bangladesh and West Bengal in order to identify the nature and magnitude of variation along with the factors responsible for the same of the referred variables. He observed no definite trend but

22. Sikder, M.F.S. (1982) "An Economic Analysis of Jute Cultivation in West Bengal and Bangladesh — A Comparative Study", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, pp. 84-109.

pronounced fluctuations in case of production in both the regions. His study also showed that the pronounced fluctuations in the production of jute were significantly explained by the fluctuations in the area under jute in Bangladesh and also in West Bengal.

Ray et al. (1983)²³ examined the time series data of area, production and productivity of jute in all important jute growing states in India during the period from 1963-64 to 1981-82. In this context they calculated compound growth rates for these variables. Their study revealed that the production of jute showed a declining tendency in all the states excepting West Bengal. Further, on the basis of data on production of jute relating to the beginning year and the terminal year of the series they observed that the overall production was raised by 1.0 per cent which was due to growth in productivity.

In considering significant year to year variations in jute production Sarkar (1986)²⁴ fitted the exponential equation on the basis of data on production, acreage and yield of

23. Ray, A.K., Vasishth, A.K. and Ved Prakash (1983), "Comparative Study of Jute and Rice Cultivation in India", Agricultural Situation in India, New Delhi, Vol. 38, No. 7, pp. 471-477.

24. Sarkar, G.K. (1986), "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, p. 2140.

jute for different jute growing regions of India and India as a whole to analyse the trends in jute production, acreage and productivity. He considered the data for the analysis on production, acreage and productivity with reference to the period from 1968-69 to 1984-85, that is, the period following the ushering in of the so called technological revolution in Indian agriculture. His findings relating to production were that for the country as a whole and over the period considered the trend in jute production was not statistically significant. For West Bengal, there was an uptrend in production with growth rate being 2.0, significant at one per cent level. Other jute growing states, namely, Bihar, Orissa and Uttar Pradesh relating to jute production showed insignificant or even negative trend rates which offset the positive growth rate of production in the case of West Bengal. Besides, his study noted that jute growing districts of Jalpaiguri, Cooch Behar and Darjeeling in northern Bengal showed no trend while the districts 24-Parganas, Nadia, Malda, Midnapore and Burdwan of southern Bengal showed positive growth rates in regard to jute production. Altogether he observed for the country as a whole that jute production was marked by a striking sluggishness during the period under review.

Saha and Swaminathan (1994)²⁵ in analysing cropwise growth in production in West Bengal observed that the production of jute was stagnant between the years 1980-81 and 1988-89. They opined that in a situation of decreasing demand, due to a recession in the jute industry only the regular increases in the Government-backed support price have kept production at a constant level.

Saha (1995)²⁶ calculated implicit growth rate of production of jute in Cooch Behar district for the periods 1950-51 to 1980-81 and 1980-81 to 1987-88 which were chosen arbitrarily. He observed that the rate of growth of output of jute retarded from period to period successively and this retardation of output of jute was due to the retardation of the rate of growth of area under its cultivation.

25. Saha, A. and Swaminathan, M. (1994), "Agricultural Growth in West Bengal in the 1980s — A Disaggregation by Districts and Crops", Economic and Political Weekly, Bombay, Vol. 29, No. 13, pp. A9-A10.

26. Saha, B.K. (1995), "Growth Performance of Agriculture in Cooch Behar District of West Bengal, Novum Organum, Cooch Behar, Vol. 7, No. 2, pp. 1-12.

2.3. Intertemporal Variation in the Area under Jute

This part of the present chapter presents a review of the literature studying the intertemporal variation in the area under jute and finding out its explanatory factor(s).

FAO (1957)²⁷ studied the markets of jute manufacturing and production on the basis of secondary information available to FAO upto mid-1956. This study revealed that in the main jute growing areas of Pakistan and India, the cultivation of jute formed part of a traditional rotation. The extent of jute plantings was dependent on the relative advantages of growing jute as against growing rice, the staple food of the population. This was reflected in the study in a marked correlation of the ratio of jute to rice prices with the area in jute, which suggested that, before the second world war, about one-half of the variations in jute acreage in Bengal was attributable to variations in the price ratio. Moreover, variation in acreage was extremely wide, while variation in yields per acre was relatively narrow and provided little counteraction; with a resulting wide variation in jute production.

27. FAO (1957), Jute : A Survey of Markets, Manufacturing and Production, Rome, FAO, United Nations, p. 3.

Jakhade and Majumdar (1964)²⁸ analysed the data on the acreage under jute during 1950 to 1964 in West Bengal, Bihar and Assam and found that the acreage under jute increased and this increase was due to the increase in the jute paddy relative price. Their finding was true for 9 out of 14 years. During the period, again with a few exceptions acreage under paddy declined whenever acreage under jute increased. They suggested in this context that jute paddy price ratio could be used, within certain limits as an instrument for regulating the shift in acreage from one crop to another in a desired direction.

Majumdar and Bhattacharyya (1965)²⁹ analysed the effects of farmers' decision and behaviour in substituting areas under jute and aus paddy. According to their analysis the variation in area sown to jute or the extent of jute cultivation in any particular season, is determined broadly

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28. Jakhade, V.M. and Majumdar, N.A. (1964), "Response of Agricultural Producers to Prices -- the Case of Jute and Rice in India", Indian Journal of Agricultural Economics, Bombay, Vol. 19, Nos. 3 & 4, pp. 204-209.
29. Majumdar, A. and Bhattacharyya, D.K. (1965), "Effect of Farmer's Decision and Behaviour in Substituting Areas under Jute and Paddy in West Bengal", Indian Journal of Agricultural Economics, Bombay, Vol. 20, No. 1, pp. 25-31.

by two factors, namely, economic decision and the tradition and other extraneous variables jointly. They emphasized only on economic decisions but their analysis did not completely explain the variations in area under jute.

Narain (1965)³⁰ studied the time series data on the area under jute in Bengal and in some selected districts of Bengal, Bihar, Orissa, Assam and in British India as a whole with reference to the period 1900-01 to 1940-41. He also attempted to find out the explanatory factor(s) behind the nature of the said time series data. His study revealed that the time series data on area under jute was fluctuating with an expansionary tendency over the years during the period under study. And this fluctuation was the consequence of the similar fluctuation of the jute-rice price ratio. The other variables, namely, yield rate, jute price etc. did not show the fluctuations similar to that of area under jute. Thus he concluded that the fluctuations in the area under jute were influenced by the jute-rice price ratio.

Rabbani (1965)³¹ observed large variation in jute acreage annually in India for the pre-partitioned period.

30. Narain, D. (1965), Impact of Price Movement on Areas under Selected Crops in India : 1900-1939, Cambridge University Press, pp. 59-68.

31. Rabbani, A.K.M.G. (1965) "Economic Determinants of Jute Production in India and Pakistan", The Development Review, Karachi, Vol. 5, No. 2, pp. 191-228.

He showed that the trends of jute acreage in pre-partition India followed closely the trend of jute-rice price ratio. In the same way, the long-run decline in jute acreage, as observed from the study in the case of East Pakistan after partition was found largely due to the long-run fall in the price of jute in East Pakistan relative to the price of rice.

✓Roy (1968)³² examined the variations in area, price ratio and area ratio of jute and autumn rice (aus) during 1952-53 to 1962-63 in West Bengal. He observed an inverse relationship between area under autumn rice and area under jute. He observed that the variations in area under aus, however, did not completely offset the variations in the area under jute. Also, the total cropped area in West Bengal has been showing an inverse relationship over time and reflected by both rice and jute. The price-area relationship was by and large found to be positive, but the coefficient of correlation was not observed to be very high because all the area under jute did not compete with autumn rice, and price was not the impulse behind shift in acreage, particularly if individual districts were taken separately. He opined that risk in acreage substitution and availability of fertilizers and

32. Roy, S. (1968), "Supply Response to Changes in Prices of Jute in West Bengal", Agricultural Situation in India, New Delhi, Vol. 23, No. 6, pp. 591-595.

irrigation facilities were also important influencing factors. The prices of raw jute and growing instability in prices were also responsible.

Ahmed and Hussain (1972)³³ analysed graphically the price and acreage data of farmers from 1965 to 1970. Their study indicated that the long-run declining trend of the aus-jute land ratio was roughly associated with the declining trend of their price ratio. The price ratio of one year had no significant relationship with the changes of land ratio of the next year.

Chakrabarti and Sarma (1972)³⁴ analysed the data on area under jute in India for the periods 1947-48 to 1971-72 and 1956-57 to 1961-62. On fitting linear regression they observed increasing trends in the area under jute for both the periods. The one-season-lagged primary market prices of jute, autumn paddy and winter paddy influenced the jute area. The role of the same in the secondary market was not pronounced as that of the primary market prices.

33. Ahmed J.U. and Hussain, A.M.M. (1972), Farm Influencing Factors Affecting Growers Prices of White Jute in Selected Areas of Mymensingh, Bangladesh Agricultural University, Mymensingh, Bangladesh Research Report No. 4.

34. Chakrabarti, S.K. and Sarma, M.S. (1972), "Agro-Economic Factors Influencing Raw Jute Production in West Bengal", Agricultural Situation in India, New Delhi, Vol. 27, No. 7, pp. 457-462.

Oury (1972)³⁵ examined the price responsiveness of jute acreage, separately for nine major jute-producing districts of Bangladesh using a time series data for seventeen years covering the period from 1951 to 1967 and showed that price elasticities of jute acreage ranged from 0.39 to 0.88 and R^2 ranged from 0.219 to 0.440 in the nine districts.

Hossain and Quddus (1973)³⁶ examined acreage, yield and production of jute in 15 jute growing districts of Bangladesh during 1947-48 to 1969-70 and estimated returns per acre of marginal land in jute and its competing crop, namely, aus rice. They observed that as some cost reducing technological changes took place in the cultivation of rice, the competing crop of jute, poor lands were put on jute cultivation with less care.

IBRD (1973)³⁷ viewed that jute farmers in Bangladesh, like most other farmers are responsive to price. Their response to a price is usually spread out over time with the

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35. Oury, B. (1972) The Price Responsiveness of Jute Producers in Bangladesh, Appendix 1, Bangladesh Land and Water Resources Sector Study, Vol. IV, Technical Report 8, IBRD Report No. PS-13, pp. 1-2.
36. Hossain, M. and Quddus, M.A. (1973), "Some Economic Aspects of Jute Production in Bangladesh — An Inter-District Study", Bangladesh Economic Review, Vol. 1, No. 3, pp. 269-296.
37. IBRD (1973) The World Jute Economy, Vol. 11, Annex-3.

long-run response greater than the short-run response. Over the years the elasticity of jute, acreage with respect to the jute-rice price ratio appeared to have declined somewhat. Almost all estimates indicated that jute acreage is relatively price-inelastic so that a one per cent change in jute price ratio yields a less than one per cent change in jute acreage.

Garg and Singh (1974)³⁸ carried out a study on the area under jute in Kheri district of Uttar Pradesh on the basis of secondary data. His study revealed that the hectareage under jute declined in the district and was replaced by paddy due to less remunerativeness of jute price as compared to that of paddy.

Singh and Mishra (1978)³⁹ found in a study made on the basis of primary level data collected from Forbesganj market and the villages of the surrounding area of Purnea district of Bihar that the area allocated to jute crop was largely dependent upon the price variation of raw jute in the market. The acreage under jute substantially increased if the price of raw jute was more in the market and vice versa.

38. Garg, J.S. and Singh, R.K. (1974) "Cost Structure of Jute in Kheri District, U.P. (A Case Study)", (Summary Paper), Indian Journal of Agricultural Economics, Bombay, Vol. 29, No. 3, p. 169.

39. Singh, D.K. and Mishra, B.K. (1978) "Measures for Increasing Marketing Efficiency of Jute : A Study of Purnea District of North Bihar", Economic Affairs, Calcutta, Vol. 23, Nos. 8 & 9, p. 353.

Sikder (1982)⁴⁰ analysed the time series data on area under jute in Bangladesh and West Bengal with reference to the period 1960-61 to 1978-79. His analysis unveiled that the value of r^2 obtained from the trend was significantly poor for the series indicating pronounced fluctuations of area over time in both the regions. In his analysis he viewed that the one-year-lagged price of jute, current year jute-aus price ratio and one-year-lagged jute-aus price ratio significantly influence the fluctuation in the area under jute in these two regions.

Ray et al. (1983)⁴¹ performed a study to examine the time series data on area, production and productivity of jute in different jute growing states in India over years during 1963-64 to 1981-82. They observed that the area under the crop over the period under study at all-India level showed a declining trend. The area under jute decreased in all the states under consideration excepting the state of

40. Sikder, M.F.S. (1982) "An Economic Analysis of Jute Cultivation in West Bengal and Bangladesh — A Comparative Study", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, pp. 84-109.

41. Ray, A.K., Vasishṭ, A.K. & Ved Prakash (1983), "Comparative Study of Jute and Rice Cultivation in India", Agricultural Situation in India, New Delhi, Vol. 38, No. 7, pp. 471-477.

West Bengal where the area has recorded a slight increase. According to their study the observed decrease in the area under jute was due to the increase in the area under rice, the substitute crop of jute.

Sarkar (1986)⁴² studied the trends in area, production and productivity of jute for different jute growing regions of India with reference to the period 1968-69 to 1984-85. He used exponential equation in his study. His enquiry discerned that in West Bengal there was an uptrend in area with growth rate 1.4 per cent significant at one per cent level. The other jute-growing states of Bihar, Orissa, Assam, Uttar Pradesh were associated with insignificant or even negative trend in the area under jute. His study unveiling the situation of different jute growing districts of West Bengal told that the jute-growing districts of Japaiguri, Cooch Behar and Darjeeling in northern Bengal showed no trend in respect of area while the districts of 24-Parganas, Nadia, Malda, Midnapore and Burdwan of southern Bengal showed positive growth rate in the stated respect. Altogether, jute area in the country according to his study was marked by a striking sluggishness during the period under review.

42. Sarkar, G.K. (1986), "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, p. 2140.

Banerjee and Islam (1989)⁴³ examined the time series data on area under jute in Bangladesh for the period 1960-61 to 1976-77 with fitting a linear regression equation. Their study demonstrated that time series observations of area under jute in Bangladesh for the study period indicated no definite trend but fluctuations. They viewed that one-year-lagged jute-aus price ratio and one-year-lagged percentage of foreign exchange earnings from jute in the total foreign exchange earnings adequately explained the inter-year variation in the area under jute. They were of the opinion that an increase in foreign exchange earnings might cause an increase in domestic price of raw jute and jute manufacture and hence might affect the farmer's decision in area location.

Saha and Swaminathan (1994)⁴⁴ observed a steady decline in area sown to jute in the jute-growing districts of West Bengal and West Bengal as a whole for the period 1980-81 to 1988-89. In this context they viewed that with the steady decline in the area sown to jute, the importance of jute crop in the cropping pattern of West Bengal declined in the 1980s.

43. Banerjee, B.N. and Islam, M.M. (1989), "Analysis of Trends on Area, Yield and Price of Jute in Bangladesh", Economic Affairs, Calcutta, Vol. 34, No. 3, pp. 175-181.

44. Saha, A. and Swaminathan, M. (1994) "Agricultural Growth in West Bengal in the 1980s — A Disaggregation by Districts and Crops", Economic and Political Weekly, Bombay, Vol. 29, No. 13, p. A9.

2.4. Intertemporal Variation in the Yield Rate of Jute

Chakrabarti and Sarma (1972)⁴⁵ observed for the periods 1947-48 to 1971-72 and 1956-57 to 1961-62 that the normal and subnormal monsoon rainfall resulted in high productivity of jute in India.

Miah and Ahmed (1977)⁴⁶ studied the constraints of jute production in Bangladesh. They observed that the yield rate of jute in Bangladesh decreased significantly, during 1947-48 to 1976-77. The decline of yield rate according to them was due to various constraints such as physical condition and natural constraints, constraints of subsistence farming, changing agrarian pattern, varietal deterioration etc. They suggested the evaluation of HYV seeds and an innovation of improved technique of cultivation through potential research and promotion of measures as well as the formulation of some other long term policy along with an appropriate price policy.

45. Chakrabarti, S.K. and Sarma, M.S. (1972) "Agro-Economic Factors Influencing Raw Jute Production in West Bengal", Agricultural Situation in India, New Delhi, Vol. 27, No. 7, pp. 457-458.

46. Miah, A.B.M.A. and Ahmed, T. (1977) "Some Constraints of Jute Production in Bangladesh", Bangladesh Journal of Jute and Fibre Research, Dacca, Vol. 2, No. 2, pp. 109-123.

Sikder (1982)⁴⁷ observed with the help of various statistical techniques that there existed wide inter-year fluctuations in productivity of jute for the years 1960-61 to 1978-79 in Bangladesh and West Bengal.

Ray et al. (1983)⁴⁸ examined the productivity series of jute for different jute growing states/regions of India and India as a whole concerning the period 1963-64 to 1981-82. They found that at all-India level the yield rate recorded a positive but non-significant growth rate during this period. The growth rate in productivity of jute went up in all the states excepting Bihar and Uttar Pradesh, where it registered an annual decrease of 0.02 and 0.56 per cent respectively. In the remaining states, the growth rate in productivity of jute was not observed significant.

Sarkar (1986)⁴⁹ analysed the time series data on productivity of jute in different jute growing regions/states

47. Sikder, M.F.S. (1982) "An Economic Analysis of Jute Cultivation in West Bengal and Bangladesh — A Comparative Study", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, pp. 85-86.

48. Ray, A.K., Vasishth, A.K. and Ved Prakash (1983), "Comparative Study of Jute and Rice Cultivation in India", Agricultural Situation in India, New Delhi, Vol. 38, No. 7, pp. 471-473.

49. Sarkar, G.K. (1986) "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, p. 2140.

of India for the period 1968-69 to 1984-85. He applied the exponential form of equation to find out the trend rates of growth of productivity. His study disclosed that for West Bengal there was uptrend in productivity of jute — its growth rate was 0.8 significant at five per cent level. The same for other jute-growing states of Bihar, Orissa, Assam and Uttar Pradesh was observed to be insignificant and even negative. The jute-growing districts of Jalpaiguri, Cooch Behar and Darjeeling in northern Bengal showed no trend in respect of productivity of jute while the districts of 24 Parganas, Nadia, Malda, Midnapore and Burdwan in southern Bengal showed positive growth rates. He viewed that the stagnant techniques and the scarcity of good land led the poor yield response to acreage reflecting decreasing returns.

Banerjee and Islam (1989)⁵⁰ examined the time series data of area, yield and price of jute in Bangladesh and tried to identify the nature and magnitude of the variation. The study was restricted to the period 1960-61 to 1976-77. For carrying out the study they fitted linear and non-linear trend equations and found relatively better results with linear equation. In relation to yield the result of their

50. Banerjee, B.N. and Islam, M.M. (1989) "Analysis of Trends in Area, Yield and Price of Jute in Bangladesh", Economic Affairs, Calcutta, Vol. 34, No. 3, pp. 175-177.

study was that the yield of jute showed a significantly decreasing trend.

Saha (1995)⁵¹ calculated implicit growth rate of productivity of jute in Cooch Behar district for the periods 1950-51 to 1980-81 and 1980-81 to 1987-88. He observed that growth rates of productivity of jute in this district failed to show any significant increase over the periods successively.

2.5. Cost and Returns of Jute Cultivation

Basak and Ganguli (1960)⁵² studied jute and paddy cultivation practices, cost of production, net returns of jute and paddy and also economic position of the jute and paddy growers. They observed that the cost per maund of jute in 1956-57 was more than 2½ times the cost of paddy. Again, as the cost ratio between jute and paddy increased from 2.08 in 1955-56 to 2.29 in 1956-57, the parity ratio of their prices declined. According to their findings the opposite

51. Saha, B.K. (1995), "Growth Performance of Agriculture in Cooch Behar District of West Bengal, Novum Organum, Cooch Behar, Vol. 7, No. 2, pp. 1-12.

52. Basak, K.C. and Ganguli, S.M. (1960), Report on Investigation into the Economics of Jute Growing (Season 1956-57), Economics Research Section, Indian Central Jute Committee, Calcutta.

movement in the cost price ratios caused disadvantage to jute. The position of the jute growers as purchasers of paddy somewhat deteriorated in 1956-57. The unit cost of production declined for the average farms as its size became larger. The profit and net income per farm for both jute and paddy increased with the holding size.

Jute Enquiry Commission (1960)⁵³ performed a pioneering report on some aspects of jute cultivation covering costs and returns. Though this study is much outdated, still it referred to one of the basic enquiries into the condition of jute as a farm business.

Chowdhury and Ali (1962)⁵⁴ made a comprehensive study on the cost of production of jute. They suggested that Rs. 280.00 might be taken as cost of production per acre and Rs. 16.00 per maund of jute. In case of leased-in land cost is likely to go up by an amount of Rs. 10.00 per maund. They have recorded 17.5 maunds as an average per acre yield of jute.

53. Jute Enquiry Commission (1960) Report of the Jute Enquiry Commission, Govt. of Pakistan, Dacca.

54. Chowdhury, S.D. and Ali, M.A. (1962), Report on Survey of Cost of Production of Jute in East Pakistan (1958 and 1959), Pakistan Central Jute Committee, Tech. Bull. No. 3, Govt. of Pakistan Press, Dacca.

Rao (1965)⁵⁵ on the basis of study on the net returns of jute and its competing crop, i.e., paddy (aus) per acre pointed out that farmers (studied in 1956-57) allocated relatively narrower areas under paddy (aus) as compared to that under jute because of the lower net income per acre from paddy relative to that of jute.

Chowdhury et al. (1969)⁵⁶ carried out an input-output analysis of jute production in Tarai region of Nainital district in 1966-67. Their analysis revealed that among different cost components the human labour cost in case of jute grown for fibre was highest (74.95%) as compared to seed and seed plus fibre production. Bullock labour constituted 14 per cent of the total cost of production. Weeding cost accounted for 25.5 per cent of the total cost. In the case of fibre production, harvesting, carrying, steeping, stripping, drying, packing together accounted for 44.37 per cent of total cost. While dealing with the profitability of jute cultivation they found that the per acre average total cost was highest in case of farms producing jute for fibre

55. Rao, C.H.H.(1965), Agricultural Production Functions, Costs and Returns in India, Asia Publishing House, Bombay.

56. Chowdhury, T.K., Prasad, B., Bhatia, K.K. and Arora, J.R. (1969) "Input-Output Analysis of Jute Growing in Tarai Region, Nainital District", Agricultural Situation in India, New Delhi, Vol. 23, No. 11, pp. 1137-1141.

purposes which was Rs. 192.27, gross income per acre was highest in case of jute grown for fibre purposes (Rs. 472.70) and lowest (Rs. 130.95) in case of seed plus fibre. Average net income per acre was highest in the case of jute grown for fibre (Rs. 280.43) than for seed production (Rs. 178.30) or seed plus fibre production (Rs. 40.05). This was due to comparatively higher production of jute fibre and better price. They observed that the large farms grew jute mainly for seed because of limited availability of hired labour and lack of water tanks for retting jute for fibre.

Maji and Pal (1970)⁵⁷ undertook a study with the objectives to estimate the unit cost and per acre cost of jute production and the structure of cost per acre, to estimate the bulk-line cost as a basis for fixing jute prices, to derive the average cost functions relative to total and per acre output and to study the profitability of jute cultivation in a village in Nadia district of West Bengal. They collected data for the year 1967-68 from a stratified random sample of 40 farms. The study revealed that cost per acre on farms below one acre was Rs. 407.79 and on the other Rs. 393.50. Costs per quintal of jute were

57. Maji, C.C. and Pal, P.K. (1970) "Cost of Production of Jute in Nadia (West Bengal)", Agricultural Situation in India, New Delhi, Vol. 25, No. 6, pp. 585-590.

Rs. 59.86 and Rs. 52.49 respectively. Costs were less in the larger farms as observed by them because of more efficient utilization of inputs. The estimated bulk-line costs suggests that the floor price of jute should not be fixed below Rs. 58.00 considering all the sample farms covered in the study. Human labour was found to account for about 53 per cent of the total costs and the study, therefore, opined that the introduction of labour-saving devices wherever feasible would be justified in reducing cost. The average cost of jute per quintal could also be reduced by increasing output per acre.

Goswami and Gogoi (1971)⁵⁸ on the basis of a case study of 150 families selected from 15 different villages in Nowgong district of Assam found for the years 1968-69 to 1970-71 that cost return ratio was relatively lower in case of jute than that in case of autumn (aus) paddy. The small farmers failed to take advantage of the favourable cost-return ratio for jute relative to autumn (aus) paddy.

58. Goswami, P.C. and Gogoi, J. (1971) "Effect of Price on Cultivation and Disposal of Paddy and Jute (A Case Study of Nowgong District in Assam)", Indian Journal of Agricultural Economics, Bombay, Vol. 26, No. 4, pp. 435-442.

Garg and Singh (1974)⁵⁹ made a study of the economic aspect of jute based on an intensive survey conducted in 1973-74 of 50 jute growers, selected randomly from five villages in Kheri district of Uttar Pradesh. Their study on the comparative cost of jute and paddy per hectare revealed that the investment on jute was Rs. 1647.00 against Rs. 1413.60 on paddy per hectare in 1973-74. The net return was Rs. 567.00 and Rs. 1053.93 per hectare for jute and paddy respectively, being higher for paddy by Rs. 486.93. The return per rupee investment on jute was Rs. 1.34 and that on paddy was Rs. 1.75.

Goswami and Bora (1974)⁶⁰ from a study on the input-output (in value terms) relationship found that the gross value of output exceeded the inputs in jute and autumn paddy (aus) crops. The input-output ratio over direct charges was the return to family labour. On the basis of both direct charges and value of total input, the output-input ratio from jute was found to be much higher which indicated greater

59. Garg, J.S. and Singh, R.K. (1974) "Cost Structure of Jute in Kheri District, U.P. (A Case Study)", (Summary Paper), Indian Journal of Agricultural Economics, Bombay, Vol. 29, No. 3, p. 169.

60. Goswami, P.C. and Bora, C.K. (1974) "Cultivation of Jute vis-a-vis Autumn Paddy in Assam : A Case Study in Nowgong District", Indian Journal of Agricultural Economics, Bombay, Vol. 29, No. 3, pp. 147-154.

profitability of jute cultivation in comparison to autumn paddy. Because of the higher return of jute they were progressively increasing the acreage under jute. They argued that acreage under autumn paddy was dependent on family requirement of paddy, cash need and the relationship between price of jute and price of autumn paddy. Jute, as a competing crop of aus was encroached greatly on aus land, although the total displacement of aus paddy by jute was not possible on account of other considerations.

Chatterjee (1975)⁶¹ observed from the grass-root survey of twenty growers each in three randomly selected mouzas in Malda district, a jute growing belt of North Bengal, that cost of cultivation of jute per unit of land was slightly more than double the cost of cultivation of aus paddy. The larger outlay made for jute cultivation was mostly due to human labour, as jute required double the amount of human labour employed on paddy cultivation. The input of cattle labour was according to his study only a little more for jute than for paddy.

Sen gupta (1975-76)⁶² in his preliminary estimate of

51. Chatterjee, A.K. (1975) "A Note on Jute Growers' Price Response", Economic Affairs, Calcutta, Vol. 20, No. 11, pp. 438-440, pp. 473-474.

62. Sengupta, A.K. (1975, 1976) "Marketing of Jute in West Bengal", Arthaniti, Deptt. of Economics, Calcutta University, West Bengal, Vol. 17, pp. 84-85.

the cost of production of jute per bigha (1975-76) in West Bengal found that in North Bengal and South Bengal it was Rs. 180 and Rs. 260 respectively. The cost of production of jute per maund was Rs. 55.21 in North Bengal and Rs. 46.35 in South Bengal. The average sale price of jute was Rs. 56.43 per maund in North Bengal and Rs. 59.60 per maund in South Bengal. On an average the gross profit to farmers per maund of jute production in 1975-76 was Rs. 1.19 and Rs. 13.25 in North Bengal and South Bengal respectively. The average net profit was Rs. 0.69 and Rs. 12.81 per maund for North Bengal and South Bengal respectively. The wide difference of profit between North and South Bengal was due to wide variations in productivity. Obviously many farmers, particularly in North Bengal did not get any net gain from jute cultivation.

Singh (1976)⁶³ carried out a study for estimating variety-wise and size-wise cost of cultivation and yield rate of jute in some selected areas of Purnea district, namely, Gulab Bagh, Kishanganj and Forbesganj. He collected first-hand information carrying out a farm-level survey. His study revealed that there exists variety-wise variation in the cost of cultivation of jute per acre. Variety remaining the same per acre, cost of cultivation also varied size-wise and area-

63. Singh, R.P. (1976) "Economics of Jute Cultivation in Selected Areas of Purnea District", Economic Affairs, Calcutta, Vol. 21, Nos. 9 and 10, pp. 360-366.

wise. From his study it was exposed that the cost on hired human labour occupied the highest share followed by bullock labour, fertilizer, seed etc. on a descending order of importance in the total cost of cultivation of jute per acre. This is more or less for all the varieties. But the magnitudes of shares varied over different varieties, different sizes and different areas. About yield rate his study exposed that yield rate varied over different varieties, different sizes and different areas.

Agro-Economic Research Section, Govt. of Bangladesh (1977)⁶⁴ studied the cost and return structure based on sample survey of 286 jute farmers in the intensive cultivation area in 1975. Per acre cost of production for jute was worked out to be about TK 1182.00 with an average yield of 20 maunds of fibre amounting to a net return of TK 935.00 including returns from sticks. The benefit-cost ratio was calculated 1.37. At the same time it observed benefit-cost ratio for aus to be 2.58. According to the findings, rice farmers were better off than jute farmers. Under similar conditions returns of aus rice were much higher than that of

64. Agro-Economic Research Section (1977) Economics of Jute Cultivation in Bangladesh, Ministry of Agriculture, Govt. of Bangladesh, Report No. 1-SS/75.

jute. The study revealed that a small reduction in the rice acreage made a big addition to jute acreage, whereas a 50 per cent curtailment in the jute acreage could add only 4 per cent to the total rice acreage.

Agro-Economic Research Section, Govt. of Bangladesh, (1979)⁶⁵, undertook a study of jute cultivation practices, costs and returns in Bangladesh for the year 1978-79. Data were collected from 225 growers in selected villages of Dacca, Mymensingh, Faridpur and Rangpur according to farm size and tenure group. The study revealed that average jute yield varied between jute types and among districts. Average per acre yield of capsularies was 15.3 maunds ranging between 5 and 40.3 maunds. The average per acre yield of olitorius was 14.8 maunds ranging between 0 and 30 maunds. Per acre full cost for capsularies was found to be TK 1338.00 and for olitorius TK 1405.00. The highest cost recorded (TK 1549.00 per acre) was in Dacca due to higher cost incurred on human labour and fertilizers. The lowest cost (TK 1101.00) per acre was observed in Mymensingh. Cash cost as a share of total costs was 40 per cent in the case of Capsularies and 38 per cent in the Olitorius. The per acre gross income

65. Agro-Economic Research Section (1979) Costs and Returns Survey for Bangladesh 1978-79 Crops-Jute, Ministry of Agriculture and Forests, Govt. of Bangladesh.

reported to be TK 2142.00 for Capsularies and TK 2256.00 for Olitorius. For owner cultivators, net income from jute cultivation was positive for both varieties on full cost and cash cost basis. Share-croppers' returns on a full cost basis were negative for both varieties and only moderately remunerative on cash cost basis.

Basu (1979)⁶⁶ in his study found that the estimates of Gaighata peasants about the production cost of standard variety of jute per acre was Rs. 2323.50 excluding the cost of family labour and charges for the retting pool i.e., the production cost per maund of jute was around Rs. 117.

Sikder and Banerjee (1983)⁶⁷ undertook a study on cost and returns of jute cultivation and its competing crop, autumn paddy in West Bengal to explore the possibilities of reduction in the purchase price of raw jute. They collected relevant data from the farmers of various sizes selecting them through multi-stage random sampling method from the districts 24 Parganas, Nadia and Murshidabad. These districts were also selected randomly. The data were collected through survey

66. Basu, T. (1979) "Jute : Plight of the Growers", Economic and Political Weekly, Bombay, Vol. 14, No. 36, p. 1535.

67. Sikder, M.F.S. and Banerjee, B.N. (1983) "An Economic Analysis of Jute Cultivation in West Bengal", Economic Affairs, Calcutta, Vol. 28, No. 1, pp. 592-604.

method covering the crop season 1979-80. Different cost concepts such as operational cost, fixed cost, cost A_1 , cost A_2 , cost B, cost C and cash expenditure and different income measures associated with different cost concepts such as surplus over cost A_1 , cost A_2 , cost B, cost C and cash expenditure were calculated to determine the cost and return structure of jute as well as autumn paddy. Bulk-line cost was also considered for Governmental price fixation in their study.

From the cost profitability analysis they concluded that the cost of production of jute was higher relative to that of autumn paddy but it was more profitable than autumn paddy. Again, observing cost price relationship the authors concluded that Government intervention in the form of price fixation on the basis of bulk-line cost might protect the interest of the growers. But price fixation on this line might also affect adversely the competitive position of jute goods in the world jute market. For this they were of the opinion that a rational policy measure in the form of productivity, quality improvement, market promotion and development of new end-uses as well as cost reducing technologies were essential to protect the interests of the jute growers.

sarkar (1986)⁶⁸ observed that reasonably elaborate and recent data on cost of production of jute was difficult to come by. However, the author referred to some available data on the relative structure of costs of jute cultivation which were not devoid of significance. For India, estimates of 1974 indicated costs of about Rs. 1,600 per hectare. Another estimate reported production costs of Rs. 3,330 per hectare in west Bengal and Rs. 1,700 in Assam for the period 1978-81 of which about 47 and 21 per cent respectively were accounted for by (cash) wage costs.

Barbhuiya (1987)⁶⁹ carried out a study relating to the different aspect of jute cultivation and marketing on the basis of primary and secondary data. For collecting primary data relevant for his study he selected 180 sample farmers from 18 villages under nine police stations of Nadia district taking two villages from each police station and 81 jute traders of different categories operating in secondary markets and villages. He also surveyed nine police station level cooperative societies under the selected police stations for

68. Sarkar, G.K. (1986) "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, p. 2143.

69. Barbhuiya, N.H. (1987) "An Economic Study on Production, Price and Marketing of Jute for the Nadia District", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswa-vidyalaya, Nadia, West Bengal, pp. 271-277.

the purpose. Besides, relevant secondary data were collected from different official sources, published materials and reports available in this field. Primary data were collected by him for two years 1983-84 and 1984-85.

Analysing the structure of the cost of cultivation of raw jute his study showed the preponderance of human labour in the total cost of cultivation, along with the higher intensity of the use of human labour, bullock labour, material inputs in the case of higher size of holdings. It was indicated in his study with the magnitudes of cash expenditure incurred by the size of the farms that the large farmers were relatively more dependent on the markets for inputs than the marginal, small and medium farmers. Study of the different categories of aggregate costs per hectare i.e., cost A_1 , cost A_2 , cost B, cost C and cost D revealed that all these costs were positively and significantly related to the size of the farm and there was a wide inter-farm variations of the cost of production per quintal of raw jute. But there was observed no definite relation between cost of production per quintal and yield per hectare of jute. However, studying the bulk-line costs on the basis of cost A_2 and cost C he concluded in this context that if production was to be maximised through bringing under cultivation more and more marginal land, price of raw jute should cover cost of production of the 85 per cent of the area under jute cultivation.

In carrying out a linear regression analysis in respect of inter-farm variation in physical and monetary returns he observed non-significant positive relationship between physical yield and farm size for the year 1984-85 and significant positive relationship for the year 1983-84. Though the gross value of the total output of jute per hectare for both the years and net returns per hectare of land for the year 1984-85 were found positively related with the size of holding, the latter was observed inversely related with the size of holding during the year 1983-84. The positive relationship between net return and size of holding was due to the sharply rising cost of cultivation per hectare with the increase in the farm size while the inverse relationship between the stated variables was attributed to the considerably higher price received by the larger farmers coupled with relatively higher yield in comparison to small farmers.

His study further revealed direct relationship between the net return per hectare and the cost of cultivation per hectare in the year 1984-85 but inverse relationship between these two during the year 1983-84. It was noted lastly in this respect in his study that there prevailed inverse relationship between benefit cost ratio and the size of holding for all the cost measures considered during the year 1983-84 and for cost A_1 , cost A_2 and cost B during the year 1984-85.

Sarkar (1989)⁷⁰ studying various aspects of jute production in India pointed out that cost of production of raw jute in India is relatively higher than that in Bangladesh.

Baig et al. (1992)⁷¹ made an economic analysis of the performance of different popular jute cultivators under different agro-climatic conditions in Cuttack district of Orissa. Three-stage stratified random sampling technique was used to select 96 respondents from irrigated and rainfed regions of Marsaghai block of the district. Their study revealed the existence of a wide gap in cost structure, gross and net returns; returns to fixed farm resources (FBI) and returns to labour and management (FLI) for both JRC 212 and JRO 524 varieties of jute grown under irrigated and rainfed conditions. In all the cases, gross returns had maintained almost a positive relationship with farm sizes on cost A_1 .

70. Sarkar, G.K. (1989) Jute in India : An Economic Analysis, Oxford University Press, Bombay-39 (Book Review), Indian Journal of Agricultural Economics, Bombay, Vol. 24, No. 4, p. 460.

71. Baig, M.A.A., Chakravarty, M.L. and Mallick, S.C. (1992) "An Inter-Varietal Comparison of Resource, Productivity and Efficiency in Production of Jute — A Study in Cuttack District (Orissa)", (Summary Paper), Indian Journal of Agricultural Economics, Bombay, Vol. 47, No. 3, p. 510.

cost B and cost C basis, barring large farms. The other indicators like FBI and FLI showed an inverse relationship with farm sizes under irrigated condition. The net income derived in different size-groups of farms too showed this inverse relationship, with the highest net income on small farms (Rs. 2,019) cultivating JRC 212 and on medium farms (Rs. 4,390) growing JRO 524, both under irrigated conditions. The returns per rupee of investment at cost A_1 and cost B basis were higher on marginal farms growing both the varieties of jute. But on the basis of cost C, the returns per rupee of investment were higher on small and medium farms growing JRC 212 and JRO 524 respectively.

Estimates of factor efficiency for important inputs used in the production of both the species under irrigated and rainfed conditions supported the efficiency of marginal farmers in most cases except in the use of manures and fertilizers in the production of JRC 212 under irrigated condition and seeds under rainfed condition. The elasticities of production obtained from Cobb-Douglas production function supported the significant contribution of manures and fertilizers, irrigation, land and human labour with irrigation, and manures and fertilizers and seeds without irrigation. The magnitudes of MVP-MC ratio revealed efficient use of most of the resources except bullock labour and other working capital.

Sain (1992)⁷² attempted to evaluate the relative efficiency in the use of two key contributory inputs, viz., fertilizer and irrigation, inter alia, in the cultivation of jute on the basis of primary data collected from 100 jute growers and 60 non-jute growers selected by the method of simple random sample without replacement from among the farmers residing in eight villages chosen purposively out of four blocks, Domkal and Nawda of Murshidabad district and Ranaghat and Chakdaha blocks of Nadia district of West Bengal during the crop year 1990-91. He using various relevant statistical tools observed that the farmers growing jute in different blocks in West Bengal and belonging to different size categories demonstrated substantially positive response of yield and net revenue from jute cultivation to the use of inputs. Such responses were specially marked when modern and more productive agents of production were applied. Production responses in jute cultivation were observed to be superior to such responses in the cultivation of other principal crops grown by the farmers in the same area. Of the major farm inputs, irrigation and chemical fertiliser proved to be more worthwhile in terms of their much higher elasticities of

72. Sain, D.K. (1992) "Input Use Efficiency in Jute Cultivation — A Case Study in West Bengal", (Summary Paper), Indian Journal of Agricultural Economics, Bombay, Vol. 47, No. 3, p. 513.

production. Use of more inputs in jute cultivation was also warranted by the fact of much lower per hectare yield of jute in the area under investigation. It was suggested that the higher potentialities in jute cultivation should be harnessed through more investment in chemical fertiliser, irrigation and other more productive inputs in jute cultivation and by improving the infrastructure for enhancing the quality of jute and jute products and for increasing their competitiveness in the international markets.

2.6. Problems of Marketing of Jute

In the context of jute marketing systems, the Bengal Jute Enquiry Committee (1939)⁷³, in addition to other problems of jute marketing, mentioned the absence of competitive behaviour in the market structure. It recommended establishment of regulated markets for the entire jute growing areas and various measures at each stage of marketing. However, the report gave more emphasis in favour of regulation than solving the marketing problems of jute.

Indian Central Jute Committee (1940)⁷⁴ made an extensive study on the marketing and transportation of jute which

73. Government of Bengal (1939) Report of the Bengal Jute Enquiry Committee, Vol. 1.

74. Indian Central Jute Committee (1940) Report on the Marketing and Transportation of Jute in India.

for the first time provided a rough estimate of handling cost and marketing margin of the growers and traders in undivided Bengal.

Cordage, Canvas and Jute World (1962)⁷⁵ surveyed jute marketing in the then East Pakistan. Their survey revealed that jute marketing system in East Pakistan was conditioned by the existence of a notable number of intermediaries between the growers and final users, the scattered small-scale system of cultivation, poor transport and also limited business knowledge and experience of the persons and institutions engaged in jute trade.

Majumder (1965)⁷⁶ studied the price spread of jute in four states of India, namely, West Bengal, Assam, Bihar and Orissa. He observed that margins earned by the intermediaries were highest at the secondary level in Bihar and Orissa and at the terminal level in West Bengal and Assam.

75. Cordage, Canvas and Jute World (1962) Jute Marketing in East Pakistan Surveyed.

76. Majumder, A. (1965) "Study on Price Spread of Jute", Jute Bulletin, Calcutta, Vol. 28, No. 1, pp. 24-48.

Ahmed and Hussain (1972)⁷⁷ provided valuable information about the price responsiveness of farmers. It described the various marketing practices followed by farmers, the price received for jute, marketing cost and other functions carried out by growers and buyers. The study revealed that the bigger farmers had higher propensity to hold jute for higher prices. There were three types of marketing cost of farmers viz. storage, processing and transportation costs. They observed that price differentials of jute arose mainly from four dimensions namely quality, time, place and buyer. The degree of market integration in the study area was relatively poor. Substantial differences in prices of jute paid by different buyers for the same grade were found in the primary jute markets.

Hussain and Momen (1974)⁷⁸ studied jute marketing system in Bangladesh and encompassed the intermediary level which link the jute growers from the primary market to the shipping or export point. Their findings provided evidence that the existing marketing institutions and functions did not appear to be superfluous but were essential for smooth

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77. Ahmed, J.U. and Hussain, A.M.M. (1972) Farm Influencing Factors Affecting Growers Prices of White Jute in Selected Areas of Mymensingh, Bangladesh Agricultural University, Mymensingh, Bangladesh, Research Report No. 4.
78. Hussain, A.M.M. and Momen, M.A. (1974) The Jute Marketing System in Bangladesh — An Analysis of Selected Areas, Bureau of Agricultural Economics, Statistical and Sociological Research, Bangladesh Agricultural University, Mymensingh, Research Report No.7.

operation of marketing process. Although it appeared that there were too many components involved in the total costs of marketing, they seemed to be unavoidable. Price formation at different stages of marketing was found to be significantly correlated. Inter-market and intra-market price differentials appeared not to be statistically significant. Price movements were more or less stable at the secondary market whereas at both the primary and terminal stages of marketing those were more pronounced. The analysis of price increase in relation to storage cost showed that only at the primary stage of marketing, the seasonal price increased at the peak period was more than that of added storage cost of jute.

Rao and Ramaswamy (1974)⁷⁹ studied the problems of raw jute marketing and its solution in India. They observed that marketing of raw jute continued to suffer various handicaps. Domestic supplies continued to fluctuate from year to year, jute growers did not feel secure about getting a remunerative return for their investment and the marketing system was beset with several imperfections. They suggested

79. Rao, N.K.M. and Ramaswamy, P. (1974) "Raw Jute Marketing: Problems and Solutions", Economic and Political Weekly, Bombay, Vol. 9, No. 12, pp. 479-489.

that a remunerative support price, and regulated market can solve the problems. The demand for jute goods for internal consumption should be increased. A credit flow should be channelised through cooperatives for purchase operations.

Sengupta (1975-76)⁸⁰ presented a broad picture of the prevailing situation in the marketing of jute in different districts of West Bengal and the working of cooperative marketing societies and Jute Corporation of India. The findings of the survey revealed that considering the pyramidal structure of intermediaries in the jute trade and the monopolistic and other imperfections in jute marketing, a strong case existed to further the development of state trading in raw jute. Expansion in the operation of JCI units in all important jute markets in the state being recommended. He pointed out that it would be difficult for the JCI to eliminate various intermediaries in jute marketing unless cooperative credit and marketing societies were developed sufficiently to perform more efficiently the functions being carried out by these intermediaries in different areas.

80. Sengupta, A.K. (1975, 1976) "Marketing of Jute in West Bengal", Arthaniti, Deptt. of Economics, Calcutta University, West Bengal, Vol. 17, pp. 81-128.

Singh and Mishra (1978)⁸¹ studied the problems of jute growers and marketing aspect of jute of Forbesganj area in Purnea district of Bihar. They identified a number of problems and made some suggestions for removing the shortcomings of jute marketing in this area. Their study revealed that jute growers in this area did not reap the benefit of optimum price on account of certain marketing deficiencies arising out of the nature of the means of communication and transportation, grading, processing and storing. Apart from this, they also found that the Jute Corporation of India failed in performing the duties to the desired extent due to difficulty in directly purchasing from the producers. In considering all these and other related issues the authors in their study placed justification for the Government to establish a jute mill in this area.

Basu (1979)⁸² in his study carried out on the basis of secondary information found that the Jute Corporation of India did not operate in the primary market but in the secondary areas and its procurement performance was not mentionable.

81. Singh, D.K. and Mishra, B.K. (1978) "Measures for Increasing Marketing Efficiency of Jute : A Study of Purnea District of North Bihar", Economic Affairs, Calcutta, Vol. 23, Nos. 8 and 9, pp. 353-357.

82. Basu, T. (1979) "Jute : Plight of the Growers", Economic and Political Weekly, Bombay, Vol. 14, No. 36, pp. 1535-1536.

He opined that this institution actually helped the jute magnates to depress the market instead of making it steady. Besides, he also found that there were many ingenious methods of cheating the growers at the time of sale. Growers had no say over fixation of grades and whatever the traders said about quality was final. The jute growers as evinced in his study were further pauperised with the prevalence of the system of 'dadan'. Farias (agents) engaged by traders advance 'dadan' to prospecting growers in the lean months or at the time of sowing and thereby ensure that they would be able to purchase jute at a price dictated by them. Sometimes standing crops were sold to the farias — in other words distress sales even before sowing. Along with these he viewed that the Governmental organisations like banks, co-operatives etc. set up in order to render financial help to jute growers could not be distinguished from the traditional money lenders for their endless corruption. In connection with all these, he expressed that only a powerful peasant movement — more precisely 'stop jute cultivation' slogan — could bring some pressure on vested interests.

Chatterjee and Mukherjee (1979)⁸³ examined the behaviour of inventory demand and extent of price spread of

83. Chatterjee, P.K. and Mukherjee, D.R. (1979) "Price Spreads and Inventory Demand — A Study of Jute Crop", Indian Journal of Agricultural Economics, Bombay, Vol. 34, No. 4, pp. 190-194.

jute relating to various marketing channels in India. The authors found that the price affected the demand for raw jute inversely and also the higher price paid by mills benefited neither the mills nor the growers but middlemen and traders. In relation to these findings they suggested the reorganisation of the marketing agencies.

Rehman (1982)⁸⁴ conducted a study on the jute marketing in Assam investigating 200 sample farmers selected in the districts of Nowgong, Darrang, Kamrup and Goalpara. He broadly observed that the percentage of marketed jute to total output possessed a direct relationship with the size of holding. The percentage of retention of jute by farmers was found more or less fixed for all the size groups. Farmers upto small size of holding were found to sell the major portion of their output in the peak marketing season, i.e., immediately after harvest, while the big farmers possessing holdings above 7.50 acres sold a sizeable portion (89%) of their marketed jute in the medium and lean months when prices prevail at a higher level. His study also revealed that private agencies were playing a dominant role in jute marketing of Assam. On the basis of all these he suggested that procurement operations of jute could be fruitful if it was

84. Rehman, M.A.R. (1982) "Jute Marketing in Assam", Economic Affairs, Calcutta, Vol. 27, No.s. 4-6, pp. 410-412.

intensified during the peak season. Again, he commented that time was ripe for formulating a result-oriented jute policy by the Government of India, besides examining the working of the Jute Corporation of India in this sphere.

Sikder (1982)⁸⁵ broadly observed that the private traders, namely, Faria/Beparies were the dominant jute marketing institutions in Bangladesh and West Bengal. In the absence of cooperative societies and due to the inadequacy of Government purchasing centres larger number of farmers especially farmers of lower size of holding sold the major portion of their output to them at lower prices immediately after the harvest in both the regions. The immediate post-harvest sale was according to them due to the debt repayment, purchase for farm inputs for the next crop and social ceremonies.

Sarker (1986)⁸⁶ in dealing with the marketing problems of jute broadly found on the basis of empirical studies on

85. Sikder, M.F.S. (1982) "An Economic Analysis of Jute Cultivation in West Bengal and Bangladesh — A Comparative Study", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, pp. 158-171.

86. Sarkar, G.K. (1986) "The Fading Fabric-I : Raw Jute Scenario", Economic and Political Weekly, Bombay, Vol. 21, No. 49, pp. 2144-2145.

price spreads and structure of jute markets that the case of jute with the different sub-systems of the markets were characterised by various shades of imperfect competition, and the multiple classes of intermediaries (ranging from the small, poor rural farias to the prosperous arhatdars and Commission agents) with divergent class interest. His study on price spread showed low producer share in the final value of the produce. This, according to him provided some idea of the collusiveness and the anti-grower bias of the jute markets. Besides, in this connection his study also referred, on the basis of the pronounced year-to-year fluctuations in output and supply, that speculation entered into the price formation of jute in a big way, and private traders counted upon a high trading margin to meet the risk of sharp, speculative price variations and maintained their desired 'normal' profits on the average over time.

The state of market information as revealed in his study was also poor. Price intelligence according to him was limited by various factors, namely, the slow progress of regulated markets and of grading, poor production statistics and its delayed reports, above all the misplay in the official circles. Jute prices at the farm gate and the village level did not truly reflect the interplay of demand and supply owing to extensive distress sales and forced marketing

due to debt bondage. But JCI on the other hand, was bedevilled by numerous important constraints. These constraints as identified in his study were the inability of JCI to make commercial purchases freely, the inadequate number of the Corporation's departmental purchase centres and sub-centres, relative to jute's geographical coverage and volume of marketed surplus, opposition, disguised and overt, from middlemen against the Corporation's penetration into remote villages and primary markets, corruption arising out of the scheme of identifying the jute growers through the provision of cards, smuggling of jute from the neighbouring countries, lack of adequate support from cooperatives and above all, the lack of storage and rural communication facilities. In connection with these he made the comment that with low procurement efficiency JCI was unable to provide a viable alternative to the existing marketing options in jute available through the degenerate private channels, and its cherished goal of reaching 'commanding heights' in raw jute trade was a distressingly far cry.

Barbhuiya (1987)⁸⁷ on the basis of primary as well as secondary level data collecting through the procedure as

87. Barbhuiya, N.H. (1987) "An Economic Study on Production, Price and Marketing of Jute for the Nadia District of West Bengal", Unpublished Ph.D. Thesis, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal, pp. 279-284.

mentioned earlier studied the marketing of raw jute in a comprehensive manner. Among the findings of his study it is relevant to mention in this context that there was inter-farm variation in the prices of raw jute received by the farmers. This was explained by the agency and size of holding, time of sale and place of sale. However, he referred that the dominant portion of output especially of the farmers belonging to lower size of holding was sold at farm gate to the itinerant village markets, namely, faria in the peak marketing season i.e., immediately after harvest at lower price. Inconvenience involved in transporting produce, lack of necessary time and energy to visit secondary market for bargaining and harassment by jute traders according to his study were observed forbidding farmers to carry produce to the secondary market and forcing them to forgo higher prices. Producers of raw jute were found in his study to be exploited frequently by traders due to their inability to identify the actual grade of their produce. Multiplicity of grades of raw jute specified by the government also according to him accelerated the exploitation. At last, from his study it is found that the role played by the Government institutions, namely, the Jute Corporation of India, co-operative societies etc. was far from satisfactory.

Singh and Pandey (1995)⁸⁸ studied the trend in raw jute production, market arrivals and price behaviour to know the problems of jute growers of Bihar, especially the problems related to marketing. Their study was based on both primary and secondary data. The authors themselves collected primary data relevant for this problem from the jute growers and different kinds of jute traders selected randomly in Purnea, Katihar, Araria, Kishanganj, Saharsa, Supaul, Madhepura and East Champaran districts of Bihar. Secondary data were also collected from the Jute Manufacturers Development Council and Economic Survey, 1993-94.

The most striking findings of their study were that despite the sharp increase in the demand for jute manufacturers like A-Twills and B-Twills of jute bags for packaging various kinds of commodities the response of the jute growers was not favourable to the market sentiments in view of undesirable speculation and gambling over a wide range rendering price risk to the traders and therefore it left no impact

88. Singh, B.N.P. and Pandey, A. (1995) "Problems of Marketing of Raw Jute in Bihar", Economic Affairs, Calcutta, Vol. 40, No. 4, pp. 236-242, p. 248.

on the growers to cultivate more raw jute for the demand hike of the market. Besides, the Bihari jute growers were not obtaining the best price of their golden fibre from the local aratdars and the mill agents because they had to sell out their yields before the peak season of its demand for want of storage facility. Further, the raw jute dealers created an atmosphere of over-supply of raw jute in the local market by keeping it in the local godowns to use the future market to hedge their outstanding sale commitments to mills. This was according to the authors a game of exploitation of profit margin of the growers usually done by the local dealers of the raw jute.

In connection with these problems they suggested the implementation of price-risk insurance or crop insurance scheme to check price fluctuations of raw jute, the provision of storage facility to jute farmers to enable the store of the commodity over a period of time without affecting its qualities and the imposition of restriction on the monopolistic forces. Finally, they opined that the market for this commodity should have at its disposal an adequate number of operators or jobbers who would be prepared to buy or sell with every small variations in price thereby providing an element of stability, liquidity and continuity.

The literature reviewed is mostly related to the macro level study on different economic aspects of jute cultivation. Although a few of them are observed to study the problem at the micro level as well, there exists no such work for the districts composing the northern part of West Bengal. The present work endeavours to bridge this gap providing an intensive study on the different economic aspects of jute cultivation in Cooch Behar district situated in the northern part of West Bengal.