

AN ECONOMIC ANALYSIS OF JUTE  
CULTIVATION IN COOCH BEHAR  
DISTRICT OF WEST BENGAL

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## Chapter I

### INTRODUCTION

In the highly agriculture-based economy of any region of a country the cultivation of commercial crops possesses an important role in uplifting the economic condition of the people of the region concerned. It makes inflow of funds, the key to development on the one hand and makes non-monetised sector into the monetised sector on the other.

Jute stands on a unique position as an important commercial crop of Cooch Behar district of West Bengal. It is reported that about fifteen per cent of the cultivable area is under this crop in this district. It earns a notable amount of funds in the hands of the farmers of Cooch Behar district. A remarkable percentage of rural population of the district is associated with jute cultivation. Besides, another notable proportion of population in both rural and urban areas of this district is engaged in marketing and ancillary activities relating to jute. Local transport industry earns a considerable amount of revenue from the transportation of jute within and outside the district.

But the area under jute cultivation in this district is reported to be highly fluctuating over the years during 1970-71 to 1990-91. This may mainly be due to the variation

of the farmers' incentive to cultivate jute. As jute is an important commercial crop of the district, the fluctuation of area under its cultivation affects the volume of earnings of the local transport industry as well as the inflow of funds in the hands of the people engaged in jute cultivation, jute marketing and other ancillary activities relating to jute. All these effects, arising from the fluctuation of the area under jute cultivation are affecting economic stability of the district concerned. In this context it is worthwhile, therefore, to frame a research work for finding out the factors at the growers' level responsible for the variation of their incentive to its cultivation. If the factors responsible for the fluctuation of the area under jute cultivation at the growers' level be detected and the respective remedial policy measures be taken, a stable economic situation, free from the effects arising from the fluctuation of the area under jute cultivation, can certainly be possible.

#### 1.1. Research Questions and Objectives of the Study

Keeping the views stated above in mind in this study the following set of research questions are to be answered;

- (i) What is the nature of the trend of the area under jute cultivation, production and productivity in Cooch Behar district?

- (ii) What are the responsible factors for which area, production and productivity of jute are varying over the years in Cooch Behar district?
- (iii) What is the estimate of the cost of production of jute in relation to its competing crops in Cooch Behar district?
- (iv) What is the composition of the cost of production of jute in Cooch Behar district?
- (v) What factors account for the difference in the cost of production and yield of jute in different areas of the Cooch Behar district?
- (vi) Where does jute stand in relation to its competing crops with respect to profitability in Cooch Behar district?
- (vii) Is there any correspondence between relative area shares and relative profitability of jute and its competing crops at the farm level?
- (viii) Is the price-cost relation favourable to the jute growers?
- (ix) What are the problems of jute marketing at the grower's level in Cooch Behar district?

All these along with other related questions still remain unanswered as no comprehensive study on jute cultivation in Cooch Behar district has yet been made. In view of this the present study has been framed with the following objectives:

1. to analyse the trend in area, production and yield of jute in Cooch Behar district,
2. to identify the factors responsible for the changes in area, production and yield of jute in Cooch Behar district,
3. to make an overview of the magnitudes of cost of production of jute and its competing crops in Cooch Behar district,
4. to examine the structural composition of cost of production of jute in the selected parts of the Cooch Behar district,
5. to assess the comparative view of cost of production of jute and yield rate in Cooch Behar district,
6. to work out the net return per bigha of jute and its competing crops and to examine whether there is any correspondence between relative area allocation and relative profitability of these crops,

7. to examine the price-cost prospect of jute,
8. to study the problems of jute marketing at the grower's level in Cooch Behar district.

#### 1.2. Scheme of the Chapters

The present study is spread over twelve chapters. The present chapter is followed by chapter II which reviews the existing literature related to the economic analysis of jute cultivation.

Chapter III presents the brief profile of Cooch Behar district.

Chapter IV purports some important agro-economic characteristics of the selected farms.

Chapter V analyses the trends in area, production and yield of jute in Cooch Behar district and furnishes the factors behind the variation of area, production and yield of jute over the years.

Chapter VI furnishes the cost of production of jute and its competing crops per bigha in the selected blocks of Cooch Behar district.

Chapter VII presents structural composition of cost of production of jute in the selected blocks of Cooch Behar district.

Chapter VIII exposes a comparative view of the cost of production of jute per bigha and yield rate in the selected blocks of Cooch Behar district.

Chapter IX purports to examine the relative profitabilities of jute and its competing crops and to see the correspondence of relative area shares with their relative profitabilities along with the prospect of size of holding wise absolute profitability of jute cultivation in Cooch Behar district.

Chapter X conveys price-cost prospect of jute cultivation in Cooch Behar district.

Chapter XI is designed to study the problems of jute marketing at the grower's level in Cooch Behar district.

Chapter XII presents a summary of the entire work and tries to draw conclusion on the basis of results and discussions of the present study.

### 1.3. Data Base and Sampling Design

In order to satisfy the objectives of the study, data and other necessary information on area, production, yield, price etc. are culled from secondary sources, namely, different official sources, published materials and reports available for the period 1970-71 to 1990-91. Moreover,

relevant primary data have been collected from the sample farmers in Cooch Behar district for the year 1992-93 through survey method with the use of typed schedule and questionnaire. For this purpose four blocks, namely, Haldibari, Cooch Behar II, Dinhata I and Tufanganj II are selected on the basis of simple random sampling without replacement. Four villages are chosen from each block on the basis of simple random sampling without replacement. The name of the villages are Madhya Baksiganj, Chhoto Haldibari, Madhya Hudumdanga, Gayendoba at Haldibari block; Sonari, Chandan Chowra, Hoglabari, Gopalpur at Cooch Behar block II; Jamadar Bosh, Chhat Barobangla, Chhoto Saulmari, Batrigachi at Dinhata block I and Jaldhoa, Garbhanga, Falimari and Madhurbhasa at Tufanganj block II.

After the selection of villages the jute growers in each village are identified and arranged in ascending order in terms of their operational holding for stratifying them into three sizes-marginal (upto 7.50 bighas), small (above 7.50 bighas to 15.0 bighas) and large (above 15.0 bighas). Considering the time and resource constraints, fifteen samples of jute cultivators in each villages are proportionately allocated among different strata. The sample farmers in each stratum are drawn on the basis of simple random sampling without replacement. Thus, multistage stratified random sampling without replacement method has

been applied for carrying out the study. And following this method 240 jute growing farms are selected out of which 164 farms are observed to cultivate aus paddy.

#### 1.4. Definitions, Cost Concepts and Income Measures Used

##### **Definitions:**

**Bigha:** The 'bigha' indicates a farm size which stands to be equal to 0.33 acre.

**Operational holding:** Operational holding is all the land which is operated by a single person, alone or with the assistance of others irrespective of title or possession and situated within the selected village.

**Attached hired labour:** Attached hired labour is one who is engaged to work on the operational holding on a permanent basis relative to a casual hired labour.

**Casual hired labour:** Casual hired labour is a person who works on other's land on a temporary basis without exercising any supervisory power for wage paid either in cash or in kind or in both.

**Family labour :** A person who has worked not less than 50 per cent of his total labour days (in a year) in his own farm is considered as working wholetime on the farm and

treated as one worker. One working less than 50 per cent of his time in his own farm is treated as half worker. For calculation of return per family worker, a male family member working wholetime on the farm is taken as one unit. Female and child labour are converted into male equivalent units.

#### **Concepts of Costs:**

A number of cost concepts such as cost A<sub>1</sub>, cost B, cost C, cash expenditure are followed in carrying out the study. The inputs included under each category of costs are:

**Cost A<sub>1</sub>** : It is composed of the following items:

- i) Value of hired human labour
- ii) Value of attached labour
- iii) Value of hired bullock labour
- iv) Value of owned bullock labour
- v) Value of owned machinery
- vi) Hired machinery charges
- vii) Value of seed (both farm-produced and purchased)
- viii) Value of fertilizers
- ix) Value of manures (owned and purchased)
- x) Value of insecticides and pesticides
- xi) Irrigation charges (both owned and hired)
- xii) Land revenue, cesses and other taxes
- xiii) Depreciation on farm implements and tools, farm buildings, farm machineries and irrigation structure.

xiv) Interest on working capital

xv) Miscellaneous expenses (artisans, ropes and repair to small farm implements).

Cost B : Cost A<sub>1</sub> + Imputed rental value of owned land (less land revenue paid thereupon) + Imputed interest on fixed capital (excluding land).

Cost C : Cost B + Imputed value of family labour.

Cash expenditure specific to the crop is calculated by the inclusion of the following items:

Cash expenditure = Hired human labour  
+ Attached human labour  
+ Hired bullock labour  
+ Hired machinery charges  
+ Value of seeds  
+ Value of fertilizers  
+ Value of manures  
+ Value of insecticides and pesticides  
+ Irrigation charges.

#### Income Measures:

The following income measures associated with different cost concepts considered here are calculated for the present study:

i) Surplus Over Cost A<sub>1</sub> i.e., farm business income =  
Gross income — Cost A<sub>1</sub>

ii) Surplus Over Cost B i.e., family labour income =  
Gross income — Cost B.

iii) Surplus Over Cost C i.e., net income or profit =  
Gross income — Cost C.

iv) Surplus Over Cash Expenditure = Gross income — cash  
expenditure.

1.5. Procedure for Imputation of Values of Farm Inventory  
and Inputs

Manday : Eight hours work of one adult man.

Attached human labour : The wages of permanent or attached  
human labour include payments made in cash as well as kind.  
Value of perquisites has also been taken into account.

Hired human labour: It is taken at the prevailing wage rates  
in the area under study both in cash and kind.

Family labour: Wage rate per manday of attached human  
labour is taken for imputing value of family labour.

Woman and child labour: Woman labour is taken as equivalent  
to 2/3 of male labour. One child labour is taken as equivalent  
to half of one adult male labour.

**Bullock labour:** Hired bullock labour cost is calculated at the prevailing market rate for the services of a pair of bullocks in the study area . Owned bullock labour is evaluated at the same rate with hired bullock labour. One bullock labour day means 8 hours of services rendered by one pair of bullocks.

**Owned machinery charges :** The rate of expenditure per hour of machinery utilization is estimated by relating total maintenance expenditure (including depreciation) to the number of hours used. This rate is applied for the calculation of owned machinery charges for an individual crop.

**Implements:** Depreciation and charges on account of minor repairs are considered.

**Seeds:** Purchased seeds are valued at actual price paid. Farm-produced seeds are evaluated at the prevailing market rate at the time of sowing.

**Fertilizers and manures:** They are valued at their cost price. Farm-produced manures are also evaluated at the rate prevalent in the villages.

**Land revenue, cess and other taxes:** These include land revenue and all other charges paid to the Government for each crop.

**Irrigation charges:** This includes repair charges, working expenses such as oil, lubricants etc. and hire charges paid for using water from other sources. Irrigation charges paid to the concerned Governmental department for each crop are also included.

**Rental value of owned land:** As reported by the cultivators subject to maximum of 25 per cent of the gross produce (i.e. main product and by-product taken together) of each crop is considered.

**Interest on fixed capital:** Interest is charged at 12 per cent on the present value of implements, machineries (including irrigation implements) and farm buildings (excluding cattle shed but including irrigation structures) and live-stock (only draught animals) for each crop. Interest is not calculated for investment made on land, since rental value is imputed for owned land.

**Interest on working capital:** Interest on working capital is charged at the rate of 12 per cent per annum for a period of three months for individual crop. The following are the items included under working capital:

- i) Attached human labour
- ii) Hired human labour
- iii) Hired bullock labour

- iv) Machine labour (owned and hired)
- v) Seeds (owned and purchased)
- vi) Manures and fertilizers
- vii) Insecticides and pesticides
- viii) Irrigation charges

**Depreciation:** Straight line method is adopted for calculating depreciation i.e.,

$$\text{Depreciation} = \frac{\text{Original cost} - \text{Junk value}}{\text{Life span}}$$

**Kind payment and perquisites:** The kind payments are evaluated at prices prevalent in the villages at the time of payment.

Perquisites only in kind payments are included and evaluated at market prices.

**Value of main product and by-product:** The value of the main product and by-product are evaluated on the basis of the sale price as reported by the selected farmers.

#### 1.6. Statistical Tools Used

Various statistical tools, namely, statistical tables, correlation, linear and non-linear trend equations, etc. have been used in the present study. The form of linear and non-linear equations are  $Y = a + bt$  and  $Y = ab^t$  respectively.

Here  $Y$  = area/production/yield/price,  $a$  and  $b$  are the parameters of the equations and  $t$  is the time

variable. These equations are fitted using the least square method.

The Student's 't' test is used to test the significance of these equations:

$$t = \frac{b}{S.E. (b)} \text{ with } (n-2) \text{ degrees of freedom.}$$

Again, for conducting the test of significance of correlation coefficient (r) 't' test is applied.

$$\text{where } t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \text{ with } (n-2) \text{ degrees of freedom.}$$

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## 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)<sup>1</sup> 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

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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)<sup>2</sup> 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)<sup>3</sup> presented valuable information of price mechanism of raw jute in the then East Pakistan through which

- 
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)<sup>4</sup> 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)<sup>5</sup> 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)<sup>6</sup> 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)<sup>7</sup> 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.

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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)<sup>8</sup> 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)<sup>9</sup> 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)<sup>10</sup> 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)<sup>11</sup> 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)<sup>12</sup> 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

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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)<sup>13</sup> 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)<sup>14</sup> 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)<sup>15(a,b,c)</sup> carried out a noteworthy study about the raw jute and its manufacturing sector scenarios of

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)<sup>16</sup> 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)<sup>17</sup> 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)<sup>18</sup> 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.

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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)<sup>19</sup> 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)<sup>20</sup> 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)<sup>21</sup> analysing the constraints of jute production in Bangladesh observed that share of Bangladesh in the world jute production retarded during 1947-48

19. 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.
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)<sup>22</sup> 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

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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)<sup>23</sup> 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)<sup>24</sup> fitted the exponential equation on the basis of data on production, acreage and yield of

23. Ray, A.K., Vasishtha, 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)<sup>25</sup> 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)<sup>26</sup> 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)<sup>27</sup> 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.

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

Jakhade and Majumdar (1964)<sup>28</sup> 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)<sup>29</sup> 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

28. Jakhade, V.M. and Majumder, 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. Majumder, 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)<sup>30</sup> 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)<sup>31</sup> 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)<sup>32</sup> 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

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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)<sup>33</sup> analysed graphically the price and acreage data of farmers from 1965 to 1970. Their study indicated that the long-run declining trend of the average 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)<sup>34</sup> 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)<sup>35</sup> 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<sup>2</sup> ranged from 0.219 to 0.440 in the nine districts.

Hossain and Quddus (1973)<sup>36</sup> 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)<sup>37</sup> 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)<sup>38</sup> 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)<sup>39</sup> 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.

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- 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)<sup>40</sup> 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)<sup>41</sup> 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., Vasishtha, 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)<sup>42</sup> 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.

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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)<sup>43</sup> 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 llocation.

Saha and Swaminathan (1994)<sup>44</sup> 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.

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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)<sup>45</sup> 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)<sup>46</sup> 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)<sup>47</sup> 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)<sup>48</sup> 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)<sup>49</sup> analysed the time series data on productivity of jute in different jute growing regions/states

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- 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., Vasishtha, 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)<sup>50</sup> 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)<sup>51</sup> 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)<sup>52</sup> 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  $2\frac{1}{4}$  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)<sup>53</sup> 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)<sup>54</sup> 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)<sup>55</sup> 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)<sup>56</sup> 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)<sup>57</sup> 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)<sup>58</sup> 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)<sup>59</sup> 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)<sup>60</sup> 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)<sup>61</sup> 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)<sup>62</sup> in his preliminary estimate of

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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)<sup>63</sup> 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)<sup>64</sup> 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

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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)<sup>65</sup>, 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)<sup>66</sup> 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)<sup>67</sup> 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)<sup>68</sup> 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)<sup>69</sup> 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 Viswavidyalaya, 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)<sup>70</sup> 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)<sup>71</sup> 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<sub>1</sub> 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)<sup>72</sup> 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)<sup>73</sup>, 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)<sup>74</sup> 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)<sup>75</sup> 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)<sup>76</sup> 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)<sup>77</sup> 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)<sup>78</sup> 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 superflous but were essential for smooth

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 Socio-logical 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)<sup>79</sup> 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

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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)<sup>80</sup> 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)<sup>81</sup> 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)<sup>82</sup> 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 'dadans'. Farias (agents) engaged by traders advance 'dadans' 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 otherwords 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)<sup>83</sup> 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)<sup>84</sup> 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)<sup>85</sup> broadly observed that the private traders, namely, Faris/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)<sup>86</sup> 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. Sarker, 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)<sup>87</sup> 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)<sup>88</sup> 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

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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.

### Chapter III

#### A BRIEF SKETCH OF COOCH BEHAR DISTRICT OF WEST BENGAL

##### 3.1 Area, Location, Boundary and General Characteristics of Population

Cooch Behar is the north-eastern district of the Jalpaiguri Division as well as of the State of West Bengal. The name of Cooch Behar is a compound of two words: Cooch and Behar. The term "Cooch" is a corrupt form of Coch or Koch, being the name of a race of people, inhabiting a large tract of the north-east of West Bengal. "Behar" or more properly Vihara denotes abode or sport. So, "Cooch Behar" means the land of the Koches<sup>1</sup>. The present area of the district is 3387.0 sq. kms.<sup>2</sup>

The district of Cooch Behar geographically forming a part of the Himalayan Terai of West Bengal lies between the parallels  $25^{\circ}27'40''$  and  $26^{\circ}32'20''$  north latitude in the northern hemisphere. The eastern-most extremity of the district is marked by  $89^{\circ}54'35''$  east longitude and its western-most extremity by  $88^{\circ}47'40''$  east longitude.

1. Mitra, A. (1953) District Handbook - Census 1951, Cooch Behar District, West Bengal (Published by S.N. Guha Ray, Saraswati Press Ltd., Cal-9), p. v.
2. Ghosh, S.N., District Census Handbook-Census of 1981, Cooch Behar District, Series 23, Part - XIII-B, West Bengal (Published by Government Printing Press, West Bengal), p. XIII.

The district is bounded on the north by the Duars of the Jalpaiguri district. Its northern frontier is about 20 miles south of the Bhutan ranges of the Himalayas. On the east, it is bounded by the Guma Duars and Pargana Ghurla of the Goalpara district of Assam and Parganas Gaibari and Bhitarband of Rangpur district in Bangladesh. The Brahmaputra at the point where it turns out from its west-ward course, a short way below Dhubri, is about 20 miles from the eastern border of the district. The rivers Gadadhar, Sankos, Bagmuni and Marudukumar formed one time or other the eastern line for a considerable distance. The southern limit of the district's territory is determined by the international boundary between India and Bangladesh. The district is bounded on the south by Chakla Purbabhaag and Parganas Kakina and Kazirghat in the district of Rangpur of Bangladesh and Pargana Patgram in the district of Jalpaiguri. The western boundary is marked by the Pargana Kazirghat in Rangpur and Chakla Boda in Bangladesh.<sup>3</sup>.

The general characteristics of population i.e., the number of total population, total male and female population, rural and urban population, density of population etc. are manifested in Table 3.1 for this district.

3. Ray, B., District Census Handbook — Census of 1961, Cooch Behar District, West Bengal (Published by the Superintendent, Government Printing, West Bengal), p. 11.

### 3.2 Geographical Features

#### 3.2.1. Topography

Cooch Behar is essentially a flat country with a slight south-eastern slope along which the main rivers of the district flow. There are slight ups and downs and while some areas may be so low as to be inundated by the rivers during the monsoon, others are slightly higher and remain always above water even when the rivers are in spate. Most of the high lands appertain to Pargana Lalbazar and most of the low lands lie in Pargana Dinhata, presently a sub-division. There are no mountain peaks or any hills within the district. The greater part of the district is cultivated and is composed of green fields studded with timber trees and an inferior variety of orange trees. There is no forest worth the name, but tracts of land consisting mostly of heavy grass and reed are seen at places mostly in the oscillation areas of the rivers<sup>4</sup>.

#### 3.2.2. Soil

The soil of Cooch Behar district is alluvial of rather recent formation and has a large admixture of sand

4. Majumdar, D. (1977) West Bengal District Gazetteers, Koch Bihar (Printed by the Superintendent, West Bengal Government Press), p. 7.

and what in common parlance is known as sandy loam. It is mostly sandy and loose. The greater portion of it is light loam. There is hardly any good stiff clay found in the district. The surface soil is loamy in most parts to a depth of about three feet and in some places even less than that and below is all bare sand. For the most part the soil of the district is of ash colour. Black loam is found only in the eastern part of the district bordering on Assam to the east of Kaljani. Some black loam is also found in the region between the Jaldhaka and the Tista in the old valley of the Dharla<sup>5</sup>.

### 3.2.3. Climate

The climate of Cooch Behar district is damp and not so hot as in other parts of West Bengal. The climate in this district is characterised by a highly humid atmosphere and abundant rains, with the temperature being seldom excessive. The wind sets much from the east. Fogs are common in the early morning during the cold weather, but the days are clear, cool and pleasant. Winter sets in mid-November and summer in April. The period from June to about the beginning of October is the south-west monsoon season. October to mid-November constitutes the post-monsoon season. Of the twelve

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5. Ibid., p. 15.

months of the year, four mark the cold weather and six the hot weather, the remaining two indicating a mild form. The climate of Cooch Behar district cannot be said to be mild and is certainly of a severe form than that of the greater portion of lower Bengal<sup>6</sup>.

#### 3.2.4. Rainfall

The rains of Cooch Behar district are long and persistent though most recently some changes are taking place in this regard. In June and July and sometimes even in August it rains almost continuously day and night for days and sometimes for weeks together. The average rainfall in the district is 3201.3 mm (126'.03"). Monthly normal rainfall in the district varies from 3 milimetres in the month of December to 741 milimetres in the month of June. The rainfall generally increases during the south-west monsoon season. The variation in the rainfall from year to year is not large. On an average there are about 102 rainy days (i.e., days with rainfall of 2.5 mm or more) in a year. The number varies from 96 at Dinhata to 107 at Cooch Behar and Tufanganj<sup>7</sup>.

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- 6. Ray, B. District Census Handbook — Census of 1961, Cooch Behar District, West Bengal (Published by the Superintendent, Government Printing, West Bengal), pp. 31-32.
  - 7. Majumdar, D. (1977) West Bengal District Gazetteers, Koch Bihar, (Printed by the Superintendent, West Bengal Government Press), p. 19.

### 3.2.5. Temperature

The meteorological condition in the district as a whole shows that the temperature here is not excessive. It generally reaches a maximum in June or July and minimum in the month of January. Although the temperature by itself is not excessive, the dampness of the air makes the weather rather unpleasant. Even in the south-west monsoon period the day temperatures are not appreciably below those in summer, while the night temperatures are higher than those during summer. So even in this season, the weather is a little trying in between spells of rain. In the post-monsoon season temperatures decrease progressively<sup>8</sup>.

### 3.2.6. Humidity

The atmosphere is highly humid throughout the year. During the months of February to May the relative humidities are less, being only between 50 and 70 per cent. During the period October to April the sky is generally clear or lightly clouded. In May, cloudiness increases. In the south-west monsoon season, the sky is heavily clouded or overcast<sup>9</sup>.

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8. Ibid., pp. 19-20.

9. Ibid., p. 20.

For having an idea about the most recent state of rainfall, temperature and humidity of Cooch Behar district Table 3.2 is presented.

### 3.2.7. The River System

Cooch Behar district is a network of rivers and small streams. The principal river systems of this district to begin from the north-west are the Tista, Dharla, Jaldhaka, Torsa, Kaljani, Raidak or Sankos and the Gadadhar.

The rivers of Cooch Behar district flow from a north-westerly to a south-easterly direction. The majority of them take their rise in the Himalayas and enter the district from the western Duars, and after passing through it, flow into the district of Rangpur of Bangladesh on their way to join the Brahmaputra, sometimes branching out in different channels, but often flowing into each other in their downward course.

The banks of the rivers of Cooch Behar district are generally abrupt, giving proof of the wily nature of the stream, and the beds sandy, mostly with a beach on one side of the stream. Boulders, rock and gravel are common in the beds of rivers, as they are washed down from the hills. Generally tame and shallow in the dry season, the rivers become very turbulent and fierce during the monsoon.

The rivers are subject to floods of sudden rushes of water due to heavy rain in the hill-slopes. A little more than ordinary rainfall in the hills is followed by a sudden rise of the waters, which overflow the banks and drown the lands for miles around. Crops and cattle are often destroyed. Changes in the course of the rivers occur during heavy floods, when the loose sandy soil easily gives way to the force of the current.

Generally, however, the banks being steep and the beds deep, the stream keeps within the banks and swifts along with great velocity. It has been estimated that during high floods the velocity of a stream often becomes more than double the mean velocity. The water level falls as suddenly as it rises. In the monsoon navigation becomes risky owing to the treacherous sands that lie concealed under the water level. The soil being loose, alluvion and diluvion, land-making and land destroying go on constantly on a large-scale and sand-banks are numerous near big rivers. Towards the end of October the rivers begin to dwindle and by March, even the mightiest of them, except the Tista, are nothing but tame, narrow, shallow, and limpid streams, meandering through innumerable sand-banks. The water, sweet and refreshing in summer, becomes muddy and unwholesome during the monsoon. Large market villages are

situated on the river banks<sup>10</sup>.

### 3.3. Agro-Economic Features

#### 3.3.1. Land Use Pattern

One of the important aspects of agriculture concerned with any area is the pattern of land utilisation. It actually means the use and distribution of available land for different purposes. The present land use pattern of Cooch Behar district is shown in Table 3.3.

#### 3.3.2. Distribution of Land Holding

The present size-wise distribution of land holding is shown in Table 3.4. From this table it is observed that the distribution of land holding over different sizes is still more or less uneven.

#### 3.3.3. The Crops

The majority of the people of Cooch Behar district depend on agriculture as their principal source of livelihood. The names of the principal crops of the district are:

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10. Ray, B. District Census Handbook — Census of 1961, Cooch Behar District, West Bengal (Published by the Superintendent, Government Printing, West Bengal), pp. 12-13.

- (i) Paddy of two kinds, the aus and the aman. Boro paddy is hardly cultivated.
- (ii) Jute of two varieties, the capsularis and the oliotaris.
- (iii) Tobacco.
- (iv) Rape and mustard seeds
- (v) Pulses - mug, masur, khesari, thakri, kulti, arahar.
- (vi) Wheat and barley.
- (vii) Millets, china and kaon.
- (viii) Indian corn (makai)
- (ix) Roots and bulbs - mainly arum and potato, but also onion, garlic, ginger and turmeric.
- (x) Other fibre plants, hemp or san, and Reah or Kunkura.
- (xi) Sugar-cane
- (xii) Mutha or matting grass<sup>11</sup>.

11. Majumdar, D. (1977) West Bengal District Gazetteers, Koch Bihar (Printed by the Superintendent, West Bengal Government Press), p. 67.

### 3.3.4. Acreage Allocation under Principal Crops.

The acreage allocation under principal crops is manifested in Table 3.5. This table shows that the major share of total area under principal crops is devoted to the cultivation of paddy followed by jute and wheat.

### 3.3.5. Production and Yield Rate of Principal Crops

The present statistics about production and yield rate of principal crops in this district are presented in Table 3.6.

### 3.3.6. Gross Cropped Area and Cropping Intensity

In the face of growing population the cultivators of this district has been at present very much aware of the growing need of agricultural commodities. For this, they are observed to practice intensive cultivation of land. The degree of this intensive cultivation may be understood clearly from the statistics related to the net cropped area, gross cropped area and cropping intensity shown in Table 3.7.

### 3.3.7. Irrigation Facilities

Irrigation facilities in Cooch Behar district till to-day is very much poor. The percentage of area under irrigation in net cropped and gross cropped areas are

observed respectively as 21.97 and 12.79 in the year 1990-91. The names of the major sources of irrigation, net irrigated area and gross irrigated area along with other related information for the year 1990-91 are displayed in Table 3.8. From this table it is observed that the sources of irrigation in this district are at present the following: deep tube wells, river lift irrigation, shallow tube wells, dug wells, tanks and some types of small irrigation schemes. Moreover, among these sources dug wells contribute the highest share in the net irrigated area followed by shallow tube wells while shallow tube wells contribute the highest share in the gross irrigated area followed by dug wells.

### 3.3.8. Fertilizer Use

Fertilizer consumption in this district is not very much remarkable in relation to its cultivable area. But at present intensity to use fertilizers among the farmers of Cooch Behar district is going on increasing. Table 3.9 is presented here to make the fact explicit.

## Tables of Chapter III

Table 3.1 General Characteristics of Population of Cooch Behar District According to the Census 1991

Items	Numbers
Total population	2158169 (100.00)
Males	1115997 (51.71)
Females	1042172 (48.29)
Rural	2016809 (93.45)
Urban	141360 ( 6.55)
Rural male population	1043582 (48.35)
Rural female population	973227 (45.10)
Urban male population	72415 ( 3.36)
Urban female population	68945 ( 3.19)
Scheduled Caste	1123719 (52.07)
Scheduled Tribe	13275 ( 0.62)
Sex ratio *	934
Density of population **	637
Literate population	811456 (37.60)
Males	522619 (24.22)
Females	288837 (13.38)

Note : \* Females per 1000 males

\*\* Persons per sq. km.

Figures in the parentheses are the respective percentages to total population.

Compiled from the sources:

- i) Bose, A., Demographic Diversity of India 1991 Census, State and District Level Data : A Reference Book, B.R. Publishing Corporation, Delhi-7.
- ii) Annual Plan on Agriculture, 1991-92, Cooch Behar.
- iii) District Credit Plan 1993-94, Cooch Behar District, Central Bank of India (Lead Bank).

**Table 3.2 Monthly Average Rainfall, Temperature and Humidity of Cooch Behar District in the Year 1990.**

Months	Rainfall in mm.	Temperature, °C		Humidity %	
		Mean of Daily Max.	Daily Min.	07.00 IMT	14.00 IMT
January	00.0	24.0	11.5	96	51
February	104.8	34.5	13.3	91	52
March	40.2	30.0	18.6	89	58
April	175.6	28.0	19.0	90	62
May	395.8	32.5	23.5	93	73
June	555.0	30.9	22.3	95	78
July	562.8	31.2	25.5	95	74
August	868.8	31.4	22.2	91	76
September	438.2	30.7	21.7	90	76
October	221.6	29.0	20.5	88	68
November	00.0	29.2	15.7	82	46
December	00.0	25.7	11.0	92	38

**Source : Annual Review of Cooch Behar District on Agricultural Marketing, 1990-91, Cooch Behar.**

**Table 3.3 Land Use Pattern in Cooch Behar District  
for the Year 1991-92.**

Items	Area (in ha)
Area under non-agricultural use	69137 (20.67)
Forests	5268 ( 1.58)
Barren and unculturable land	14277 ( 4.27)
Permanent pastures and other grazing land	181 ( 0.05)
Area under orchards, plantation and miscellaneous trees	10340 ( 3.09)
Culturable waste land	3332 ( 1.00)
Fallow land other than current fallow	1587 ( 0.47)
Current fallow	-
Net area available for cultivation	230391 (68.87)
Gross area in ha.	334513 (100.00)

**Note :** Figures in the parentheses are the respective percentages of gross area.

**Source :** Annual Plan on Agriculture, 1991-92, Cooch Behar.

**Table 3.4 Ownership Distribution of Land Holdings of  
Cooch Behar District for the Year 1990-91.**

Size of holdings	Number of holdings ('000 Nos.)	% to total holdings	Area in ha.	% to total area
Upto 1 ha	138.5	51.99	95386	41.40
Above 1 to 2 ha	70.3	26.39	73036	31.70
Above 2 to 4 ha	32.5	12.20	49536	21.50
Above 4 ha	25.1	9.42	12442	5.40
Total	266.4	100.00	230400	100.00

**Source:** Report on Evaluation Study of Special Jute Development Programme (SJDP) in the Districts of Nadia, Jalpaiguri and Cooch Behar, West Bengal, Year 1990-91 (Sponsored by Ministry of Agriculture, Government of India), Directorate of Jute Development, Department of Agricultural Extension, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal.

Table 3.5 Area under Principal Crops in Cooch Behar District for the Year 1990-91

Name of the crop	Area (in '000 ha)
Aus paddy	89.14 (20.80)
Aman paddy	208.83 (48.73)
Boro paddy	9.50 ( 2.22)
Total paddy	307.47 (71.75)
Wheat	35.00 ( 8.17)
Jute	61.80 (14.42)
Potato	8.50 ( 1.98)
Tobacco	8.80 ( 2.05)
Mustard	7.00 ( 1.63)
<b>Total</b>	<b>428.57 (100.00)</b>

Note : Figures in the parentheses are the percentages of total area.

Source : Annual Review of Cooch Behar District on Agricultural Marketing, 1990-91, Cooch Behar.

Table 3.6 Production and Yield Rate of Principal Crops in Cooch Behar District for the Year 1990-91

Name of the crop	Production (in '000 M.T)	Yield rate (1000 kg/ha)
Aus paddy	105.42	1.183
Aman paddy	277.95	1.331
Boro paddy	22.56	2.40
Wheat	59.05	1.70
Jute	478.71	7.74*
Potato	89.25	10.50
Tobacco	9.85	1.12
Mustard	3.50	0.50

\* Jute yield rate shown in bales of 180 kg

Source : Annual Review of Cooch Behar District on Agricultural Marketing, 1990-91, Cooch Behar.

Table 3.7 Net Cropped Area, Gross Cropped Area and  
Cropping Intensity in Cooch Behar District  
in the Year 1991-92

Name of the items	Magnitudes
Net cropped area (in ha.)	230391
Gross cropped area (in ha.)	459184
Cropping intensity	199.3%

Note : Cropping intensity =  $\frac{\text{Gross cropped area}}{\text{Net cropped area}} \times 100$

Source : Annual Plan on Agriculture, 1991-92,  
Cooch Behar.

**Table 3.8 Sourcewise Net and Gross Area Irrigated  
in Cooch Behar District in the Year 1990-91**

Sl. No.	Source	No. of installations	Net irrigated area(ha.)	Gross irrigated area (ha.)
1.	Deep tube well			
a)	State owned	26	109 (0.22)	132 (0.23)
b)	M. I.C.	33	324 (0.64)	373 (0.64)
c)	Others	-	-	-
2.	River lift irrigation			
a)	State owned	88	987 (1.95)	1226 (2.11)
b)	M. I.C.	8	48 (0.09)	60 (0.10)
c)	Others	2	-	-
3.	Shallow tube wells			
a)	State owned	90	39 (0.08)	42 (0.07)
b)	Private	5500	16500 (32.60)	24000 (41.23)
c)	Others	1500	4650 (9.19)	6000 (10.31)
4.	Dug wells	-	17600 (34.77)	16020 (27.52)
5.	Tanks	-	1200 (2.37)	1200 (2.06)
6.	S. I. schemes	-	2500 (4.94)	2500 (4.30)
7.	Others	-	6655 (13.15)	6655 (11.43)
<b>Total</b>			<b>50612 (100.00)</b>	<b>58208 (100.00)</b>

**Note :** Figures in the parentheses are the percentages of the respective totals.

**Source :** Report on Evaluation Study of Special Jute Development Programme (SJDP) in the Districts of Nadia, Jalpaiguri and Cooch Behar, West Bengal, Year 1990-91 (Sponsored by Ministry of Agriculture, Government of India), Directorate of Jute Development, Department of Agricultural Extension, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal.

**Table 3.9 Consumption of Fertilizers in Cooch Behar  
District during 1985-86 to 1990-91**

(in tonnes)

<b>years</b>	<b>Name of the fertilizer</b>			<b>Total (N+P+K)</b>
	<b>N</b>	<b>P</b>	<b>K</b>	
1985-86	7770	3772	2863	14405
1986-87	9567	5037	3583	18187
1987-88	12755	5519	3893	22167
1988-89	14335	7714	5535	27584
1989-90	15500	8500	5400	29400
1990-91	17400	9600	6000	33000

Compiled from the sources:

- i) Key Statistics of Cooch Behar, Bureau of Applied Economics and Statistics, Government of West Bengal.
- ii) Economic Review (different years), Government of West Bengal.

## Chapter IV

### SOME IMPORTANT AGRO-ECONOMIC CHARACTERISTICS OF THE SELECTED FARMS

The use of various factors such as land, labour, capital and other resources accounts for the agro-economic character of farms<sup>1</sup>. The important agro-economic characteristics of the sample farms selected for the present work are studied in this chapter.

#### 4.1. Average Size and Distribution of Holding

Average size and distribution of operational holding of the selected farms over the four selected blocks of Cooch Behar district and in the district as a whole are presented in Table 4.1. From this table it is manifested that distribution of operational holding is more or less egalitarian over the four selected blocks except Linhata block I and in the district as a whole. Average size of holding corresponding to each size group is almost the same over the selected blocks. On an average in the district as a whole the average size of holding ranges from 6.15 bighas in the marginal size group to 25.86 bighas in the large size group.

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1. Pal, A. (1990) Wheat Revolution in India (Constraints and Prospects), Mittal Publications, New Delhi-59, p. 18.

#### 4.2. Farm Inventory Account

Farming operation requires the use of livestock animal along with various kinds of implements. Farm inventory account means the monetary account of the livestock animal and farm implements. More specifically, this is constituted of the value of draught animals and milch animals, buffaloes, goats, poultry birds and agricultural implements like plough, hoe, sickle, bullock cart, power pumps and other minor implements. Table 4.2 presents this account over the selected blocks of Cooch Behar district and in the district as a whole. From this table it is observed that value of livestock, value of agricultural implements and total value of farm inventory are increasing with the increase of the size of holdings over the selected blocks and in the district as a whole.

#### 4.3. Bullock Labour

A study about the bullock labour use, still important in the cultivation of land in Cooch Behar district is shown in Table 4.3. From this table it is observed that almost all the farms in different sizes of holding (in a few cases cent per cent of farms) over the selected blocks of Cooch Behar district except marginal size of holding in Dinhata block I and Tufanganj block II and in the district as a whole occupy bullock labours. The table also shows that the

number and value of bullock labour per farm is increasing with the increase in the size of holding, while those per bigha is decreasing with the increase of the size of holding in all the selected blocks of Cooch Behar district and in the district as a whole.

Again, Table 4.4 shows another additional information relating to draught animal ownership. This table shows that a unremarkable percentage of farms operate their lands with a single pair of bullocks in the selected blocks except Haldibari block and Cooch Behar block II, and in the district as a whole. Notable inter-block difference in the source of bullock labour utilised is also recorded in Table 4.4. Bullock hiring activity is noticed to be more prominent in Tufanganj block II and Dinhata block I and negligible in Cooch Behar block II.

Area commanded by a single pair of bullock labour is presented in Table 4.5. Though there remains no inter-block variation in the area commanded by a pair of bullock labour, inter-size variation is highly pronounced in all the selected blocks of Cooch Behar district and in the district as a whole. Moreover, in relation to the conventional command area per pair of bullock labour in this district i.e., ten bighas, the same table shows the under-utilisation and

over- or excessive utilisation of bullock labour resource in the case of marginal as well as small and large-size holdings respectively. This is true for all the selected blocks of Cooch Behar district, except small size of holding in Cooch Behar block II and in the district as a whole.

#### 4.4. Attached Farm Servant

The role of attached farm servant in the farming operation is still in vogue in this district. Table 4.6 shows that the employment of attached farm servant is a common practice in this district. This table also shows that the number of attached farm servants per farm as well as per bigha is increasing with the increase of the size of holding in every case.

Table 4.7 shows the form of wages paid to the attached farm servants. These servants are paid wages both in cash and in kind but the value of wages in kind is relatively higher than the cash form of wages in the case of all sizes of holding everywhere.

#### 4.5. Cropping Pattern

Season-wise acreage allocation in absolute and percentage term or in other words cropping pattern is dependent upon a number of factors like climate, soil suitability,

water availability and access to market etc.<sup>2</sup> The cropping pattern followed by the selected cultivators under different sizes of holding over different blocks and in the district as a whole is displayed in Table 4.8. From this table it is noticed that there remains no size-wise variation in a particular season in a particular block. But there remains block-wise variation in the same in all the seasons except Khariff season.

#### 4.6. Cropping Intensity

Land being a very scarce resource, multiple cropping is the major alternative to increasing the effective area under crop production<sup>3</sup>. The extent of multiple cropping as reflected in the intensity of cropping is set out in Table 4.9 for the selected farms under different size groups over different blocks and in the district as a whole. This table manifests that there remains inter-block variation in the cropping intensity. It is also further evident from this table that cropping intensity is decreasing with the increase of the size of holding in all the selected blocks and in the district as a whole.

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2. Ibid., p. 31

3. Ibid., p. 31

#### 4.7. Irrigation Facilities

The extent of irrigation facilities over different sizes of holding in the selected blocks of Cooch Behar district is manifested in Table 4.10. From this table it is observed that the irrigation facilities in terms of percentage of irrigated area to the total area under operation is very poor and varied over different blocks. The percentage of area under irrigation is the highest in Dinhata block I and lowest in Tufanganj block II.

There remains positive relationship between percentage of area under irrigation and size of holding in Cooch Behar block II and Tufanganj block II and negative relationship in Dinhata block I while Haldibari block shows no such relation. However, the prospect in this regard relating to the district as a whole shows positive relationship between percentage of area under irrigation and size of holding.

## Tables of Chapter IV

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**Table 4.1 Distribution of Holdings, Cultivated Area and Average Size of Selected Farms in Various Size Groups in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

Name of the block	Size of holding (bighas)	Farm group	No. of selected holdings	Cultivated area of the selected farms (bighas)	Average size of the selected farms (bighas)
Haldibari	Upto 7.50	Marginal	31 (51.67)	197.0 (27.73)	6.35
	Above 7.50 to 15.00	Small	19 (31.67)	247.5 (34.83)	13.03
	Above 15.00	Large	10 (16.66)	266.0 (37.44)	26.60
	Total	All farms	60 (100.00)	710.5 (100.00)	11.84
Cooch Behar II	Upto 7.50	Marginal	33 (55.00)	202.75 (30.92)	6.14
	Above 7.50 to 15.00	Small	17 (28.33)	217.00 (33.09)	12.76
	Above 15.00	Large	10 (16.67)	236.00 (35.99)	23.60
	Total	All farms	60 (100.00)	655.75 (100.00)	10.93
Linhata I	Upto 7.50	Marginal	31 (51.67)	178.00 (25.59)	5.74
	Above 7.50 to 15.00	Small	18 (30.00)	226.50 (32.57)	12.58
	Above 15.00	Large	11 (18.33)	291.00 (41.84)	26.45
	Total	All Farms	60 (100.00)	695.50 (100.00)	11.59

Contd..

Table 4.1 (Contd..)

Name of the block	Size of holding (bighas)	Farm group	No. of selected holdings	Cultivated area of the selected farms (bighas)	Average size of the selected farms (bighas)
Tufanganj II	Upto 7.50	Marginal	37 (61.67)	233.50 (39.18)	6.31
	Above 7.50 to 15.00	Small	17 (28.33)	198.50 (33.30)	11.68
	Above 15.00	Large	6 (10.00)	164.00 (27.52)	27.33
	Total	All farms	60 (100.00)	596.00 (100.00)	9.93
Cooch Behar district	Upto 7.50	Marginal	132 (55.00)	811.25 (30.52)	6.15
	Above 7.50 to 15.00	Small	71 (29.58)	889.50 (33.47)	12.53
	Above 15.00	Large	37 (15.42)	957.00 (36.01)	25.86
	Total	All farms	240 (100.00)	2657.75 (100.00)	11.07

Note : Figures in the parentheses indicate the percentages of the respective totals.

Table 4.2 Value of Farm Inventory under Different Sizes of Farms in the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93

(in Rs)

Name of the block	Farm size	Value of live stock	Value of agricultural implements	Total value of farm inventory
Haldibari	Marginal	6949.19	1059.68	8008.87
	Small	13526.32	3759.47	17285.79
	Large	21160.00	9000.00	30160.00
	All farms	11400.42	3238.00	14638.42
Cooch Behar II	Marginal	8754.85	1101.51	9856.36
	Small	13320.59	2259.41	15580.00
	Large	23035.00	18448.50	41483.50
	All farms	12428.50	4320.75	16749.25
Dinhata I	Marginal	7364.52	780.65	8145.17
	Small	15684.44	2890.55	18574.99
	Large	27054.54	6979.54	34034.08
	All farms	13470.33	2550.08	16020.41
Tufanganj II	Marginal	6178.38	547.30	6725.68
	Small	12488.23	1870.59	14358.82
	Large	21908.33	6358.53	28266.66
	All farms	9539.17	1503.33	11042.50
Cooch Behar district	Marginal	7282.08	860.98	8143.06
	Small	13775.63	2727.75	16503.38
	Large	23540.54	10524.59	34065.13
	All farms	11709.60	2903.04	14612.64

Table 4.3 Distribution of Number and Value of Bullocks per Holding and per Bigha in Various Size Groups of Farms Owning Bullocks in the Selected Blocks of Cooch Behar District and in the District as a whole during the year 1992-93

Description	Haldibari				Cooch Behar II				All farms
	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms	
Number of farms owning bullock labour	28 (90.32)	19 (100.00)	10 (100.00)	57 (95.00)	30 (90.91)	16 (94.12)	9 (90.00)	55 (91.67)	
Number of bullock labour	1 Per farm	1.68	2.89	4.20	2.48	1.82	2.53	3.20	2.25
	1 Per bigha	0.26	0.22	0.16	0.21	0.30	0.20	0.14	0.21
Value of bullock labour (Rs)	1 Per farm	4177.42	7563.16	10850.00	6361.67	5127.27	6841.18	9100.00	6275.00
	1 Per bigha	657.36	580.61	407.89	537.23	834.52	535.94	385.59	574.15

Note : Figures in the parentheses are the percentages of total number of selected farms under each category.

Dinhata I				Tufanganj II				Cooch Behar district			
Marginal	Small	Large	All farms	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms
22 (70.97)	17 (94.44)	11 (100.00)	50 (83.33)	29 (78.38)	17 (100.00)	6 (100.00)	52 (86.67)	109 (82.58)	69 (97.18)	36 (97.30)	214 (89.17)
1.42	3.00	4.82	2.52	1.35	2.35	4.17	1.92	1.56	2.70	4.11	2.29
0.25	0.24	0.18	0.22	0.21	0.20	0.15	0.19	0.25	0.22	0.16	0.21
3572.58	7777.78	13936.36	6734.17	3356.76	6058.82	10716.67	4858.33	4042.80	7084.51	11272.97	6057.2
622.19	618.10	526.80	580.95	531.91	518.89	392.07	489.09	657.81	565.49	435.84	546.98

Table 4.4 Frequency Distribution of Holding with Reference to Number of Bullocks Owned in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Number of bullocks	Haldibari	Number of holding				Cooch Behar district
		Cooch Behar II	Dinhata I	Tufangaj II		
0	3 (5.00)	5 (8.33)	10 (16.67)	8 (13.33)	26 (10.83)	
1	5 (8.33)	2 (3.33)	8 (13.33)	14 (23.33)	29 (12.08)	
2	37 (61.67)	41 (68.33)	15 (25.00)	22 (36.67)	115 (47.92)	
3	2 (3.33)	1 (1.67)	7 (11.67)	11 (18.33)	21 (8.75)	
4	9 (15.00)	9 (15.00)	13 (21.67)	2 (3.33)	33 (13.75)	
5	1 (1.67)	-	2 (3.33)	2 (3.33)	5 (2.08)	
6	1 (1.67)	2 (3.33)	5 (8.33)	1 (1.67)	9 (3.75)	
Above 6	2 (3.33)	-	-	-	2 (0.83)	
Total	60 (100.00)	60 (100.00)	60 (100.00)	60 (100.00)	240 (100.00)	

Note : Figures in the parentheses indicate the percentages of the respective totals.

Table 4.5 Area Commanded by a pair of Bullock Under Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93

Size group	(in bighas)					
	Haldibari	Cooch Behar II	Cultivated area per pair of bullock	Dinhata I	Tufanganj II	Cooch Behar district
Marginal	7.58	6.76	8.09	9.34	7.88	
Small	9.00	10.09	8.39	9.93	9.27	
Large	12.67	14.75	10.98	13.12	12.59	
All farms	9.54	9.71	9.21	10.37	9.66	

Table 4.6 Number of Attached Farm Servants per Farm and per Bigha under Different Size Groups in the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93

Size group	<u>Number of attached farm servants in crop production</u>									
	Haldibari		Cooch Behar II		Dinhata I		Tufanganj II		Cooch Behar district	
	Per farm	Per bigha	Per farm	Per bigha	Per farm	Per bigha	Per farm	Per bigha	Per farm	Per bigha
Marginal	0.06	0.01	-	-	0.06	0.01	0.05	0.01	0.05	0.01
Small	0.26	0.02	0.18	0.01	0.67	0.05	0.24	0.02	0.34	0.03
Large	1.00	0.04	0.60	0.03	1.73	0.07	0.83	0.03	1.08	0.04
All farms	0.28	0.02	0.15	0.01	0.55	0.05	0.18	0.02	0.29	0.03

**Table 4.7 Annual Cash and Kind Wages Paid to Attached Farm Servants Engaged in Crop Production by Various Size Groups of Farms in the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93 (in Rs.)**

Name of the block	Size group	Cash wages paid	kind wages paid	Total wages paid
Haldibari	Marginal	3075.00	3800.00	6875.00
	Small	2520.00	3920.00	6440.00
	Large	2092.00	4098.00	6190.00
	All farms	2333.53	4010.59	6344.12
Cooch Behar II	Marginal	-	-	-
	Small	2233.33	3900.00	6133.33
	Large	2266.67	4025.00	6291.67
	All farms	2255.56	3983.33	6238.89
Dinhata I	Marginal	1950.00	4025.00	5975.00
	Small	1950.00	3979.17	5929.17
	Large	1936.84	3992.11	5928.95
	All farms	1942.42	3989.39	5931.81
Tufanganj II	Marginal	2200.00	3750.00	5950.00
	Small	2250.00	3712.50	5962.50
	Large	2260.00	3680.00	5940.00
	All farms	2245.45	3704.55	5950.00
Cooch Behar district	Marginal	2408.33	3858.33	6266.66
	Small	2154.17	3912.50	6066.67
	Large	2065.50	3984.50	6050.00
	All farms	2125.28	3949.00	6074.28

Table 4.8 Seasonwise Allocation of Area under Different Crops in Various Size Groups of Selected Farms over the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93

(in bighas)

Name of the crop	Haldibari				Cooch Behar II			
	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms
<u>Pre-Khariff Season</u>								
Aus paddy	2.50 (1.73)	4.00 (2.56)	1.00 (0.61)	7.50 (1.61)	52.25 (38.21)	52.00 (35.86)	57.00 (40.71)	161.25 (38.23)
HYV (Boro) paddy	-	-	-	-	2.00 (1.46)	-	-	2.00 (0.47)
Jute	116.50 (80.62)	124.50 (79.55)	135.00 (81.82)	376.00 (80.69)	76.50 (55.94)	89.50 (61.73)	77.00 (55.00)	243.00 (57.62)
Vegetables	20.50 (14.19)	26.00 (16.61)	27.00 (16.36)	73.50 (15.77)	6.00 (4.39)	3.50 (2.41)	6.00 (4.29)	15.50 (3.68)
Other cereal	5.00 (3.46)	2.00 (1.28)	2.00 (1.21)	9.00 (1.93)	-	-	-	-
Total	144.50 (100.00)	156.50 (100.00)	165.00 (100.00)	466.00 (100.00)	136.75 (100.00)	145.00 (100.00)	140.00 (100.00)	421.75 (100.00)
<u>Khariff season</u>								
Aman paddy (local)	133.50 (81.16)	158.00 (71.49)	167.00 (77.67)	458.50 (76.35)	170.50 (87.66)	160.00 (82.90)	167.00 (80.68)	497.50 (83.68)
HYV paddy	29.00 (17.63)	60.00 (27.15)	43.00 (20.00)	132.00 (21.98)	24.00 (12.34)	33.00 (17.10)	36.00 (17.39)	93.00 (15.64)
Vegetables	2.00 (1.21)	3.00 (1.36)	5.00 (2.33)	10.00 (1.67)	-	-	4.00 (1.93)	4.00 (0.67)
Total	164.50 (100.00)	221.00 (100.00)	215.00 (100.00)	600.50 (100.00)	194.50 (100.00)	193.00 (100.00)	207.00 (100.00)	594.50 (100.00)

Dinhata I				Tufanganj II				Cooch Behar district			
Marginal	Small	Large	All farms	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms
67.50 (43.69)	59.50 (45.07)	54.00 (41.38)	181.00 (43.41)	91.00 (45.84)	74.50 (51.92)	49.00 (49.50)	214.50 (48.64)	213.25 (33.62)	190.00 (32.93)	161.00 (30.12)	564.25 (32.32)
6.00 (3.88)	7.50 (5.69)	9.50 (7.28)	23.00 (5.51)	2.00 (1.01)	2.50 (1.74)	-	4.50 (1.02)	10.00 (1.58)	10.00 (1.73)	9.50 (1.78)	29.50 (1.69)
65.50 (42.40)	55.00 (41.67)	48.00 (36.78)	168.50 (40.41)	72.50 (36.52)	50.50 (35.19)	33.00 (33.33)	156.00 (35.37)	331.00 (52.19)	319.50 (55.37)	293.00 (54.82)	943.50 (54.05)
1.50 (0.97)	1.00 (0.76)	5.00 (3.83)	7.50 (1.80)	10.00 (5.04)	3.00 (2.09)	4.00 (4.04)	17.00 (3.86)	38.00 (5.99)	33.50 (5.81)	42.00 (7.86)	113.50 (6.50)
14.00 (9.06)	9.00 (6.82)	14.00 (10.73)	37.00 (8.87)	23.00 (11.59)	13.00 (9.06)	13.00 (13.13)	49.00 (11.11)	42.00 (6.62)	24.00 (4.16)	29.00 (5.42)	95.00 (5.44)
154.50 (100.00)	132.00 (100.00)	130.50 (100.00)	417.00 (100.00)	198.50 (100.00)	143.50 (100.00)	99.00 (100.00)	441.00 (100.00)	634.25 (100.00)	577.00 (100.00)	534.50 (100.00)	1745.75 (100.00)
144.00 (84.46)	171.00 (80.47)	209.00 (80.38)	524.00 (81.49)	166.00 (79.05)	142.00 (86.59)	105.00 (86.78)	413.00 (83.43)	614.00 (83.03)	631.00 (79.82)	648.00 (80.70)	1893.00 (81.14)
26.00 (15.25)	41.50 (19.53)	50.00 (19.23)	117.50 (18.27)	42.50 (20.24)	20.50 (12.50)	16.00 (13.22)	79.00 (15.96)	121.50 (16.43)	155.00 (19.61)	145.00 (18.06)	421.50 (18.07)
0.50 (0.29)	- (0.39)	1.00 (0.23)	1.50 (0.71)	1.50 (0.91)	1.50 (0.61)	- (0.61)	3.00 (0.61)	4.00 (0.54)	4.50 (0.57)	10.00 (1.24)	18.50 (0.79)
170.50 (100.00)	212.50 (100.00)	260.00 (100.00)	643.00 (100.00)	210.00 (100.00)	164.00 (100.00)	121.00 (100.00)	495.00 (100.00)	739.50 (100.00)	790.50 (100.00)	803.00 (100.00)	2333.00 (100.00)

Contd..

Table 4.8 (Contd..)

Name of the crop	Haldibari				Cooch Behar II			
	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms
<u>Rabi season</u>								
Wheat	7.00 (7.04)	2.50 (2.65)	5.50 (7.72)	15.00 (5.66)	25.00 (29.59)	22.50 (29.70)	24.00 (29.63)	71.50 (29.64)
Pulses	0.50 (0.50)	-	-	0.50 (0.19)	6.00 (7.10)	7.00 (9.24)	6.00 (7.41)	19.00 (7.87)
Oilseed	-	-	-	-	9.00 (10.65)	20.00 (26.40)	9.00 (11.11)	38.00 (15.75)
Potato	10.75 (10.80)	17.50 (18.52)	10.75 (15.09)	39.00 (14.70)	19.00 (22.48)	14.00 (18.48)	23.50 (29.01)	56.50 (23.42)
Tomato	23.00 (23.12)	22.50 (23.81)	17.50 (24.56)	63.00 (23.75)	1.50 (1.78)	-	2.50 (3.09)	4.00 (1.66)
Chilli	39.50 (39.70)	35.50 (37.56)	25.25 (35.44)	100.25 (37.79)	3.50 (4.14)	2.75 (3.63)	2.00 (2.47)	8.25 (3.42)
Vegetables	14.75 (14.82)	16.50 (17.46)	12.25 (17.19)	43.50 (16.40)	17.50 (20.71)	6.50 (8.58)	14.00 (17.28)	38.00 (15.75)
Tobacco	4.00 (4.02)	-	-	4.00 (1.51)	3.00 (3.55)	3.00 (3.96)	-	6.00 (2.49)
Total	99.50 (100.00)	94.50 (100.00)	71.25 (100.00)	265.25 (100.00)	84.50 (100.00)	75.75 (100.00)	81.00 (100.00)	241.25 (100.00)

Note: Figures in the parentheses indicate the percentages of respective totals.

Dinhata I				Tufanganj II				Cooch Behar district			
Marginal	Small	Large	All farms	Marginal	Small	Large	All farms	Marginal	Small	Large	All farms
16.50 (14.47)	26.00 (20.04)	16.50 (12.67)	59.00 (15.78)	10.50 (13.12)	16.00 (22.38)	8.50 (19.76)	35.00 (17.99)	59.00 (15.61)	67.00 (18.03)	54.50 (16.74)	180.50 (16.79)
- (1.54)	2.00 (0.38)	0.50 (0.67)	2.50 (0.67)	13.50 (16.88)	10.00 (13.98)	7.00 (16.28)	30.50 (15.68)	20.00 (5.29)	19.00 (5.11)	13.50 (4.15)	52.50 (4.88)
8.00 (7.02)	9.50 (7.32)	13.00 (9.98)	30.50 (8.15)	32.50 (40.63)	31.00 (43.36)	17.50 (40.70)	81.00 (41.65)	49.50 (13.09)	60.50 (16.29)	39.50 (12.14)	149.50 (13.91)
4.00 (3.51)	11.00 (8.48)	7.25 (5.57)	22.25 (5.95)	8.00 (10.00)	6.00 (8.39)	5.00 (11.63)	19.00 (9.77)	41.75 (11.05)	48.50 (13.06)	46.50 (14.29)	136.75 (12.72)
- -	- -	- -	- -	- -	- -	- -	- -	24.50 (6.48)	22.50 (6.06)	20.00 (6.14)	67.00 (6.23)
- -	- -	- -	- -	- -	- -	- -	- -	43.00 (11.38)	38.25 (10.50)	27.25 (8.37)	108.50 (10.09)
13.50 (11.84)	11.50 (8.86)	5.50 (4.22)	30.50 (8.15)	15.50 (19.37)	8.50 (11.89)	5.00 (11.63)	29.00 (14.91)	61.25 (16.20)	43.00 (11.57)	36.75 (11.29)	141.00 (13.12)
72.00 (63.16)	69.75 (53.76)	87.50 (67.18)	229.25 (61.30)	- -	- -	- -	- -	79.00 (20.90)	72.75 (19.58)	87.50 (26.88)	239.25 (22.26)
114.00 (100.00)	129.75 (100.00)	130.25 (100.00)	374.00 (100.00)	80.00 (100.00)	71.50 (100.00)	43.00 (100.00)	194.50 (100.00)	378.00 (100.00)	371.50 (100.00)	325.50 (100.00)	1075.00 (100.00)

Table 4.9 Size-wise Cropping Intensity in the Selected Blocks of Cooch Behar District and in the District as a Whole during the Year 1992-93

Name of the block	Size group	Net cropped area (in bighas)	Grossed cropped area (in bighas)	Intensity of cropping
Haldibari	Marginal	197.0	408.50	207.36
	Small	247.5	472.00	190.71
	Large	266.0	451.25	169.64
	All farms	710.5	1331.75	187.44
Cooch Behar II	Marginal	202.75	415.75	205.06
	Small	217.00	413.75	190.67
	Large	236.00	428.00	181.36
	All farms	655.75	1257.50	191.77
Dinhata I	Marginal	178.00	439.00	246.63
	Small	226.50	474.25	209.38
	Large	291.00	520.75	178.95
	All farms	695.50	1434.00	206.18
Tufanganj II	Marginal	233.50	488.50	209.21
	Small	198.50	379.00	190.93
	Large	164.00	263.00	160.37
	All farms	596.00	1130.50	189.68
Cooch Behar district	Marginal	811.25	1751.75	215.93
	Small	889.50	1739.00	195.50
	Large	957.00	1663.00	173.77
	All farms	2657.75	5153.75	193.91

**Table 4.10 Extent of Irrigated Areas under Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

Name of the block	Farm size	Irrigated area under operational holding (in bighas)	Percentage of irrigated area to the total area under operation
Haldibari	Marginal	24.75	12.56
	Small	57.50	23.23
	Large	58.75	22.09
	All farms	141.00	19.85
Cooch Behar II	Marginal	27.50	13.56
	Small	41.75	19.24
	Large	52.00	22.03
	All farms	121.25	18.49
Dinhata I	Marginal	46.00	25.84
	Small	50.25	22.19
	Large	61.75	21.22
	All farms	158.00	22.72
Tufanganj II	Marginal	18.50	7.92
	Small	22.00	11.08
	Large	18.50	11.28
	All farms	59.00	9.90
Cooch Behar district	Marginal	116.75	14.39
	Small	171.50	19.28
	Large	191.00	19.96
	All farms	479.25	18.03

## Chapter V

### INTER-TEMPORAL PROSPECT OF AREA, PRODUCTION AND YIELD OF JUTE IN COOCH BEHAR DISTRICT

#### 5.1. Introduction

The rainfed fibre crop jute is the most dominant cash crop in the agricultural economy of Cooch Behar district. The inflow of money in the hands of the farmers mainly takes place in this district through the production and sale of this important agricultural commodity. In other words, jute production sets up the link between the non-monetised and monetised sectors of the economy of Cooch Behar district. To this effect the fluctuations of area, production and yield of jute over years assume special significance for this district. In view of this, the present chapter proposes to examine the time series of area, production and yield of jute and to identify the nature and magnitude of the variation along with finding out the probable contributory factors associated with the variation of production and area under jute.

In order to carry out this study time series data from 1970-71 to 1990-91 on area, production and yield of jute concerned with Cooch Behar district are considered. The year 1990-91 is treated as the terminal year of the period relating to the time series as data required for

the study have not been available in published form after this year. The year 1970-71 is taken as the beginning year of the period related with these time series data because of the following facts : (i) since 1970-71 there has been no gap in the time series of the magnitude of other factors relating to this study (viz., price of jute, price of aus paddy), (ii) the time series data on area, production and yield of jute before and after 1970-71 are perhaps non comparable as since the year 1971 the Government of India has started to intervene in the jute economy of India through the establishment of Jute Corporation of India. This governmental organization manages export, import and, above all, internal marketing of raw jute<sup>1</sup>.

#### 5.2. Nature and Magnitude of Fluctuations in Area, Production and Yield

Table 5.1 showing the magnitudes of area, production and yield of jute in Cooch Behar district for the years 1970-71 to 1990-91 is presented for a visual estimation of the nature and magnitude of fluctuations. A perusal of this table reveals no definite trend either in area, production or yield.

1. Dewett, K.K. and Verma J.D. (1988), Refresher Course in Indian Economics, Shyamal Charitable Trust, Ramnagar, New Delhi-55, p. 235.

The data on area, production and yield of jute show fluctuations around a more or less constant level.

In order to understand the nature of the trend in these statistics a linear equation of the form  $y = a + bt$  and a non-linear equation of the form  $y = ab^t$  are fitted separately for each of the three time series data. The results of these fittings are displayed in Table 5.2. It is found from this table that both types of equations show good fit with five per cent level of significance in all the cases of three types of time series data.

But the same table shows that the values of  $r^2$  are significantly poor for all the three time series of observations for this district in the case of either types of equations. This simply implies that the fluctuations in area, production and yield of jute are more pronounced than the growth in respective magnitudes. The presence of these significant fluctuations in these time series may be manifested in a more suitable way through the graphical presentation of these time series observations. These have been done in Figures 5.1, 5.2 and 5.3. These figures very much clearly disclose the persistence of wide inter-year fluctuations in area, production and yield of jute in Cooch Behar district. Therefore, the identification of the factors responsible for the presence of these inter-year fluctuations in area, production and yield of jute is an important task in this context.

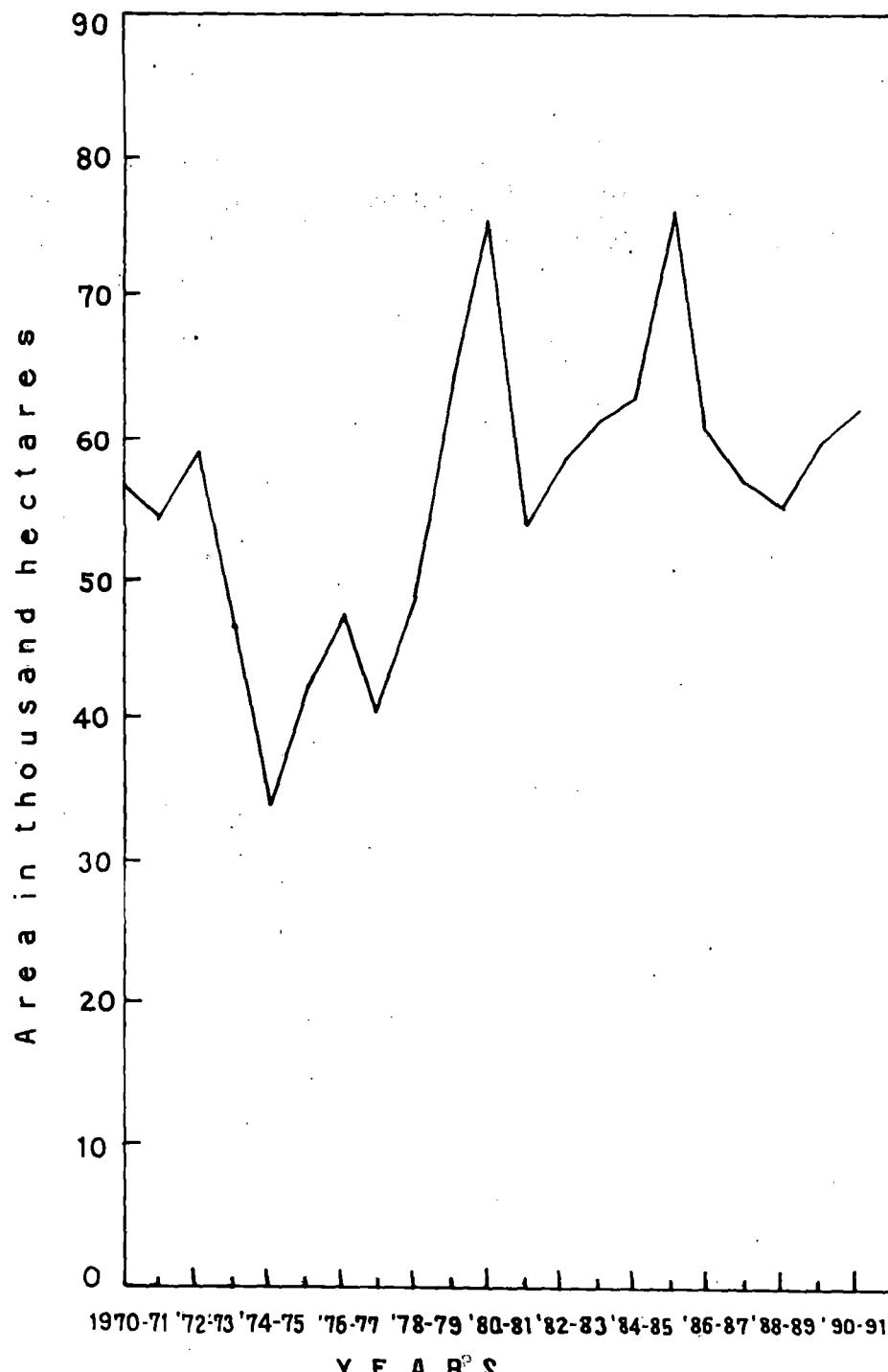


Figure-5.1. Area of Jute in Cooch Behar district  
during 1970-71 to 1990-91.

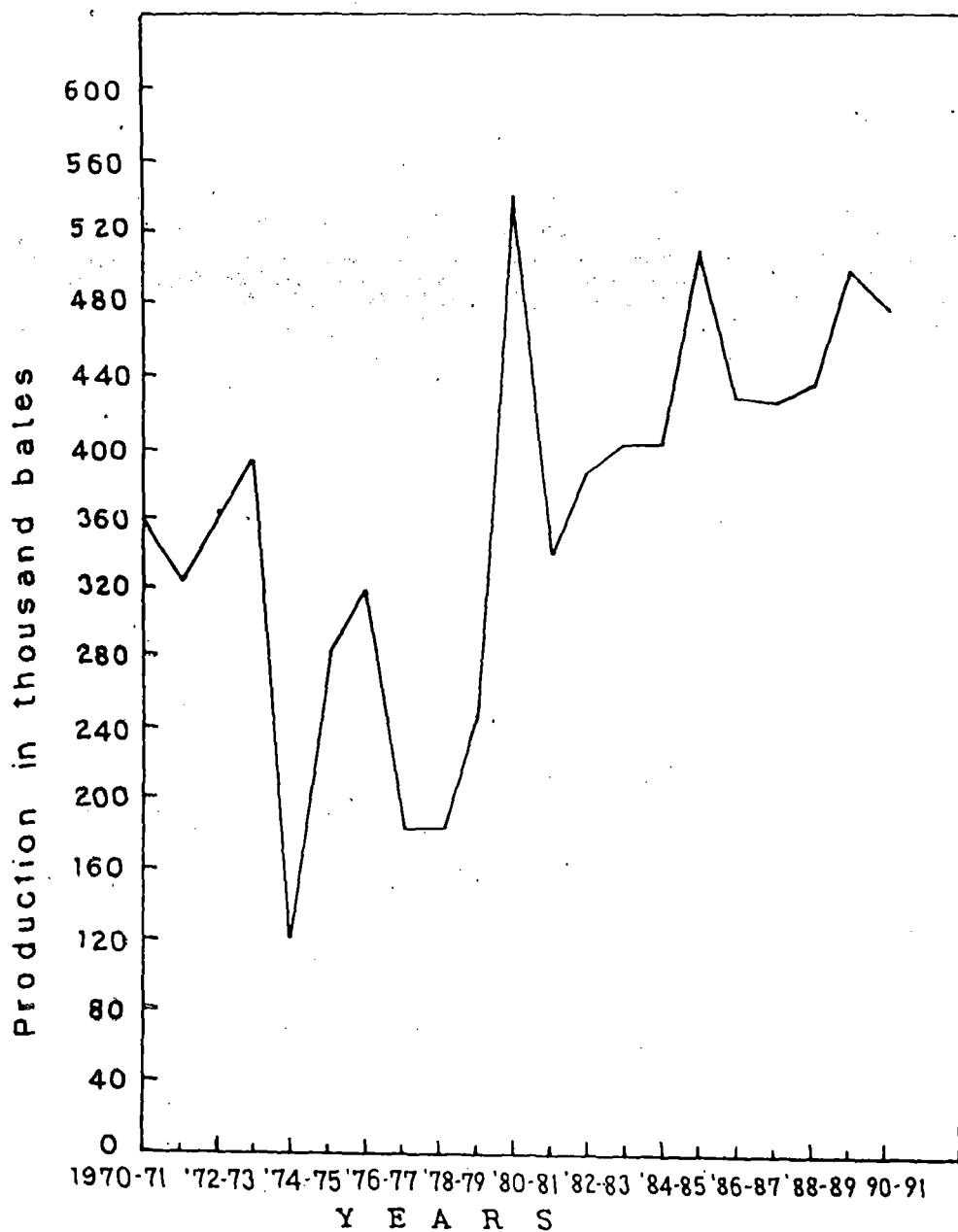


Figure-5·2. Production of Jute in Cooch Behar  
district during 1970-71 to 1990-91.

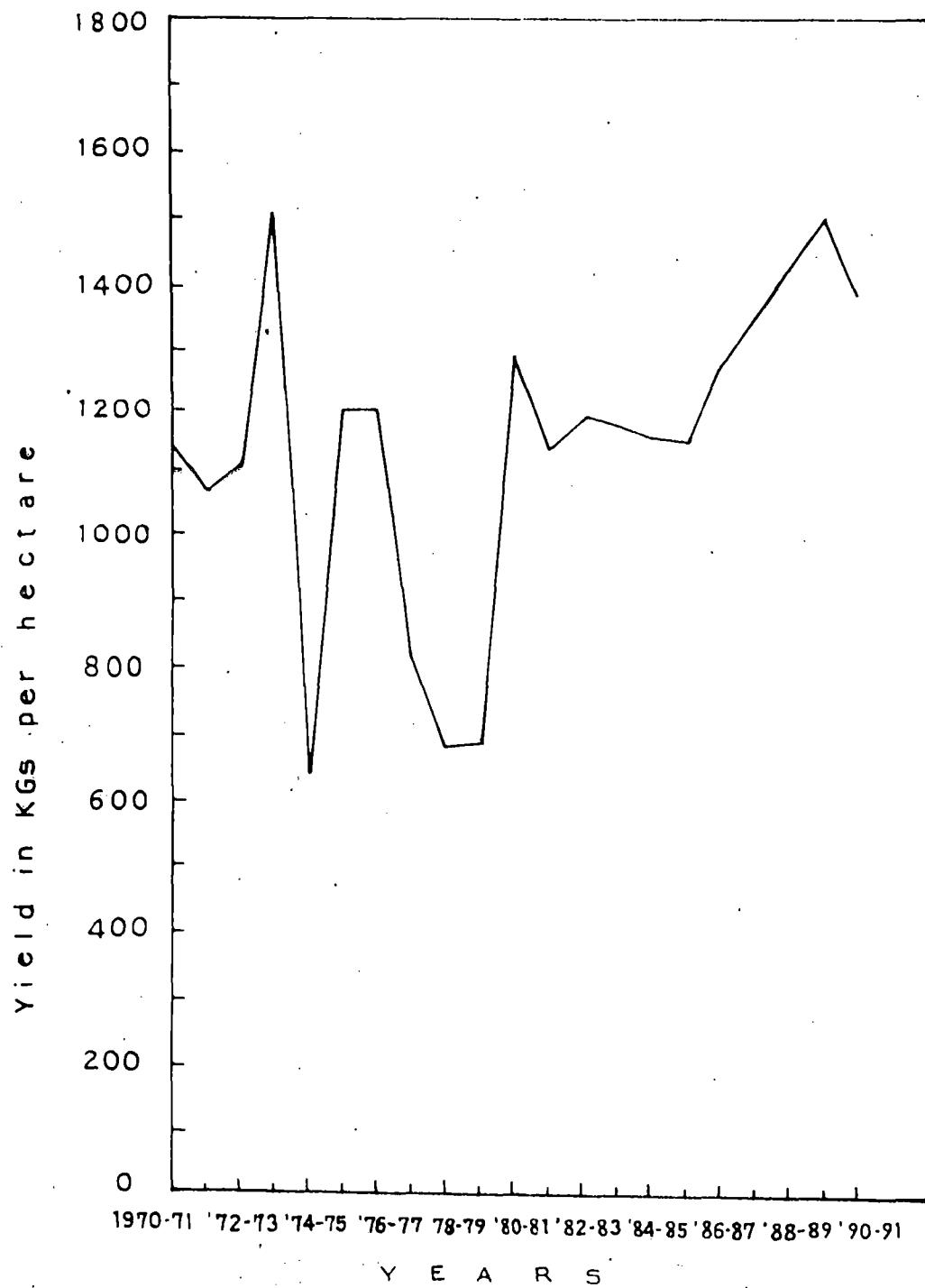


Figure- 5.3. Yield of Jute per hectare in Cooch Behar district during 1970-71 to 1990-91 ..

### 5.3. Explanatory Factors behind Fluctuations

At the outset, it will not be irrelevant to state that production of jute and any other agricultural commodity depends primarily upon area under cultivation and yield. Therefore, the inter-year fluctuation in the production of jute in Cooch Behar district as evident previously may be expected to be explained significantly by the inter-year fluctuations of area and yield of jute in this district. The magnitudes, 0.79 and 0.84 of the correlation coefficients (significant at one per cent level) between jute production - jute area and jute production-yield rate justify the stated probe. The inter-year fluctuations in the yield rate of jute may be on the one hand associated with non-economic factors viz., climatic condition and on the other with some economic factors, namely, use of fertilizers, manures, irrigation, clean water facilities and so on. But the time series data on these economic factors are not available. For this, it has not become possible in the periphery of the study to search out the economic factors contributing to inter-year fluctuations in the production of jute through their impacts on the yield rate.

However, the most important factor which is expected to affect the growers' decision regarding area to be allocated

under a particular crop is its actual price<sup>2</sup>. Therefore it may not be an exaggeration to state that the area as well as production of jute basically depends upon the actual price of jute. So it is necessary to examine the time series data on prices of jute. These data on prices are shown in Table 5.3 and through graphical method in Figure 5.4. These presentations of the time series data on prices of jute in Cooch Behar district demonstrates more or less a rising trend in prices.

To have a support for correctness about the preceding statement, i.e., about the rising trend in prices linear and non linear regression equations of the former types are fitted to the time series prices of jute in Cooch Behar district. Results of these fittings are presented in Table 5.4. The table shows that both the linear and non-linear forms of equation do possess good fit and the coefficients of regression are highly significant at one per cent level for this district in both the cases of equations. These, specially, with the noticeable better fit of exponential type of equation imply that fluctuations in price over years

2. 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, p. 178.

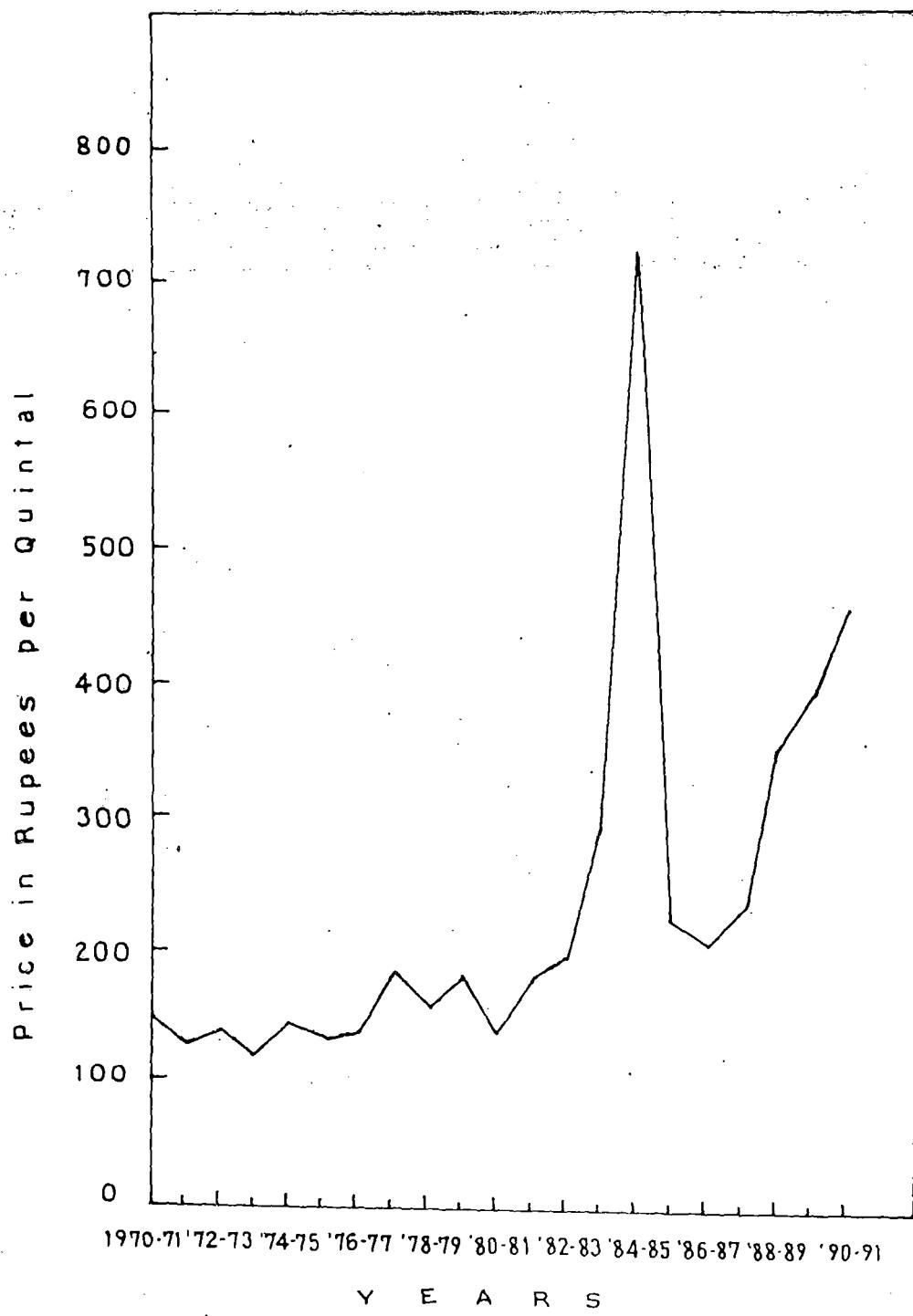


Figure - 5·4. Price of Jute in Cooch Behar district  
during 1970-71 to 1990-91 .

is not significant<sup>3</sup>. Therefore, the actual/present prices of jute fail to explain either the acreage or production of jute in this district. The same may further be confirmed with the highly low and insignificant magnitude of correlation coefficient between jute area and jute present price or actual price evinced from Table 5.5.

It is believed that instead of the price of the same year, previous year's price affects the decision of the growers regarding acreage allocation and thereby production<sup>4</sup>. In this study such belief has been confirmed. Table 5.5. shows that the correlation coefficient between jute area and one-year lagged price of jute is of the order of 0.59, significant at one per cent level. The same further exhibits that the correlation coefficient between production and one-year lagged price is of the order of 0.56 and also significant at one per cent level. All these establish directly that in Cooch Behar district inter-year fluctuations of time series data of area and production of jute are amply explained by the lagged price of jute. Apart from lagged price of jute there are some other important factors affecting area under jute and thereby production. These factors are (i) jute area

3. Ibid., p. 178.

4. Ibid., p. 178.

to one-year lagged yield of jute (ii) jute area to aus paddy area (iii) jute area to jute-aus paddy area ratio (iv) jute area to jute-aus price ratio (v) jute area to jute-aus one-year lagged price ratio<sup>5</sup>.

In order to have an idea about the efficiency of these factors to explain the inter-year fluctuations of jute area and production in this district correlation coefficients between jute area and each of these factors have been calculated and also presented in Table 5.5. From this table it is noticed that correlation coefficient between jute area and jute-aus paddy area ratio on the one hand and jute area and jute-aus one-year lagged price ratio on the other are significant at one per cent level. Therefore, it may not be an over-expectation to claim from this result that jute-aus paddy area ratio and jute-aus one year lagged price ratio have also a strong bearing upon the inter-year fluctuations in the time series of jute area and production besides one-year lagged jute price in Cooch Behar district. Again, a comparison among the magnitudes of the correlation coefficients of (i) jute area and one-year lagged price of jute (ii) jute area and jute-aus paddy area ratio (iii) jute area and jute-aus one-year lagged price ratio exhibits that the magnitude of correlation coefficient between jute area

5. Ibid., p. 179

and jute-aus paddy area ratio is the highest followed by the magnitudes of jute area and jute-aus one-year lagged price ratio as well as jute area and one-year lagged price of jute. Thus it is revealed that relative area of jute that is, jute-aus paddy area ratio is the most dominant factor explaining the inter year fluctuations in the time series of area vis-a-vis production of jute in Cooch Behar district.

#### 5.4. Findings

The work done so far broadly manifests that there remains significant inter-year fluctuations of area, production and yield of jute in Cooch Behar district. The inter-year fluctuation of production is amply explained by the inter-year fluctuations in yield rate and area. The factors, namely, (i) jute area and one-year lagged price of jute, (ii) jute area and jute-aus paddy area ratio and (iii) jute area and jute-aus one-year lagged price ratio collectively explained the inter-year fluctuations in the area as well as production of jute. The most dominant factor explaining the inter-year fluctuation of the area of jute and its production is the jute-aus paddy area ratio.

Table 5.1 Area, Production and Yield of Jute in Cooch Behar District during 1970-71 to 1990-91

Year	Area ('000 ha)	Production ('000 bales of 180 kgs each)	Yield (Kgs/ha)
1970-71	56.5	358.8	1143
1971-72	54.5	323.2	1067
1972-73	58.7	362.5	1111
1973-74	47.3	395.2	1504
1974-75	33.7	120.9	646
1975-76	42.3	281.9	1201
1976-77	47.4	317.2	1204
1977-78	40.6	184.8	819
1978-79	48.7	185.7	686
1979-80	64.3	248.8	697
1980-81	75.4	541.8	1293
1981-82	54.0	337.8	1134
1982-83	58.5	388.0	1194
1983-84	61.4	403.9	1184
1984-85	62.9	404.5	1158
1985-86	76.1	510.6	1152
1986-87	60.4	428.2	1276
1987-88	56.8	427.2	1355
1988-89	55.2	437.4	1426
1989-90	59.6	498.2	1505
1990-91	61.8	478.7	1394

Compiled from the sources:

- i) Statistical Abstract of West Bengal, 1976 and 1977 (Combined), Bureau of Applied Economics and Statistics, New Series Nos. 2 and 3, Govt. of West Bengal.
- ii) District Statistical Handbook, Cooch Behar, Bureau of Applied Economics and Statistics, Govt. of West Bengal.
- iii) Economic Review, different years, Govt. of West Bengal.

Table 5.2 Trend Equations (Linear and Non-linear Types) of Area, Production and Yield of Jute in Cooch Behar District during 1970-71 to 1990-91

Types of equation	Variables	Observed form of equation	S.E. of b	Observed 't' value	$r^2$ value
Linear ( $Y=a+bt$ )	Area	$47.43+0.78t^*$	0.34	2.31	0.22
	Production	$248.09+10.50t^*$	3.36	3.12	0.34
	Yield	$952.41+17.96t^*$	8.34	2.15	0.20
Non-linear ( $Y=ab^t$ )	Area	$46.71(1.02)^t *$	0.43	2.36	0.23
	Production	$241.71(1.03)^t *$	0.39	2.66	0.27
	Yield	$932.67(1.02)^t *$	0.52	1.98	0.17

Note : \* Significant at 5 per cent level of significance.

**Table 5.3 Time Series Data on the Price of Jute in Cooch Behar District during 1970-71 to 1990-91**

Year	Price (Rs./Q)
1970-71	148.16
1971-72	126.37
1972-73	140.24
1973-74	121.77
1974-75	144.59
1975-76	135.34
1976-77	140.19
1977-78	183.75
1978-79	160.00
1979-80	181.01
1980-81	140.15
1981-82	179.72
1982-83	196.87
1983-84	293.05
1984-85	723.98
1985-86	227.12
1986-87	209.18
1987-88	235.27
1988-89	352.50
1989-90	393.83
1990-91	457.75

Compiled from the sources:

- i) Socio-Economic and Evaluation Branch (Official Record), Directorate of Agriculture, Govt. of West Bengal.
- ii) Office of the Superintendent of Agricultural Marketing (Official Record), Cooch Behar, Govt. of West Bengal.

Table 5.4 Trend Equations (Linear and Non-linear Types) of Price of Jute in Cooch Behar District during 1970-71 to 1990-91.

Types of equation	Observed form of equation	S.E. of b	observed 't' value	$r^2$ value
Linear ( $Y = a+bt$ )	$67.50 + 15.04t$ *	4.14	3.63	0.41
Non-linear ( $Y = ab^t$ )	$105.19 (1.06)^t$ *	0.19	5.57	0.62

\* Significant at 1 per cent level of significance

**Table 5.5 Magnitudes of Correlation Coefficients between Jute Area and other Related Variables along with Production and One-Year Lagged Price of Jute in Cooch Behar District during 1970-71 to 1990-91.**

Variables	r value	't' value
Jute area and present price of jute	0.31	1.49
Jute area and one-year lagged price of jute	0.59*	3.94
Jute production and one-year lagged price of jute	0.56*	3.53
Jute area and one-year lagged yield of jute	-0.18	-0.80
Jute area and aus paddy area	-0.49	-2.84
Jute area and jute-aus paddy area ratio	0.93*	28.15
Jute area and jute-aus price ratio	0.35	1.72
Jute area and jute-aus one-year lagged price ratio	0.61*	4.19

Note : \* Significant at 1 per cent level of significance.

**Table 5.6 Area, Production, Yield and Price of Aus Paddy in Cooch Behar District during 1970-71 to 1990-91**

Year	Area ('000 ha)	Production ('000 tonnes)	Yield (Kgs/ha)	Price (Rs./Q)
1970-71	89.3	79.4	889	135.80
1971-72	88.5	74.3	840	145.00
1972-73	81.9	64.2	784	147.20
1973-74	89.1	50.4	566	265.56
1974-75	107.4	64.2	598	232.35
1975-76	116.1	73.2	630	204.29
1976-77	111.7	71.6	641	189.09
1977-78	100.2	65.6	655	202.50
1978-79	82.8	82.0	990	180.00
1979-80	106.7	56.9	533	189.01
1980-81	86.9	69.2	796	226.86
1981-82	100.7	62.2	618	238.62
1982-83	97.1	63.7	656	272.21
1983-84	90.7	72.0	794	341.41
1984-85	96.5	71.0	735	328.18
1985-86	83.4	61.2	733	178.33
1986-87	97.1	64.8	668	226.67
1987-88	77.1	61.4	790	209.37
1988-89	100.0	96.1	961	240.12
1989-90	88.3	86.9	984	265.83
1990-91	89.1	105.4	1183	290.83

**Sources:** Compiled from

- i) Statistical Abstract of West Bengal 1976 and 1977  
(Combined) Bureau of Applied Economics and Statistics,  
New Series Nos. 2 and 3, Govt. of West Bengal.
- ii) District Statistical Handbook, Cooch Behar, Bureau  
of Applied Economics and Statistics, Govt. of West Bengal.
- iii) Economic Review, different years, Govt. of West Bengal.
- iv) Socio-Economic and Evaluation Branch (Official Record),  
Directorate of Agriculture, Govt. of West Bengal.
- v) Office of the Superintendent of Agricultural Marketing  
(Official Record), Cooch Behar, Govt. of West Bengal.

## Chapter VI

### COST OF PRODUCTION OF JUTE AND ITS COMPETING CROPS PER BIGHA IN THE SELECTED BLOCKS OF COOCH BEHAR DISTRICT

#### 6.1. Introduction

In this chapter the aim is to present a discussion on the quantitative aspect of the cost of production of jute and its competing crops in the selected blocks of Cooch Behar district. From the survey on the sample farms over the selected blocks in this district it is found that apart from aus paddy there is no other dominant competing crop of jute. For this, the discussion in this chapter concerned with the above noted objective reduces to the quantitative aspect of the cost of production of jute and its competing crop, namely, aus paddy. Categorically, the objectives are: (i) whether there remains any difference between the cost of production of jute and aus paddy per bigha, (ii) if there be any difference between these two, then what is the extent of the difference, and (iii) to identify the factor(s) responsible for the disparity between the cost of production of jute and aus paddy per bigha.

#### 6.2. Some Conceptual Issues

The discussion furnishing the content of the objectives set in the above paragraph has been carried out on the basis

of the cost concepts, namely, cost A<sub>1</sub>, cost B, cost C and cash expenditure. Cost A<sub>1</sub> includes value of hired human labour, attached labour, hired bullock labour, owned bullock labour, hired machinery charges, owned machine labour, seed (both farm-produced and purchased), fertilizers, manures (owned and purchased), insecticides and pesticides, irrigation charges (both owned and hired), land revenue, cess and other taxes, depreciation on farm implements and tools, farm buildings, farm machineries and irrigation structure, interest on working capital, miscellaneous expenses (artisans, ropes and repair to small farm implements). Cost B here includes the value of the items constituting cost A<sub>1</sub> and imputed rental value of owned land (less land revenue paid thereupon) added with the imputed interest on fixed capital (excluding land). Cost C incorporates here the value of items included in the cost B and imputed value of family labour. Cash expenditure consists of all cash payments relating to hired human labour, attached human labour, hired bullock labour, hired machinery charges, seed (both farm-produced and purchased), fertilizers, manures (owned and purchased), insecticides and pesticides and irrigation charges (both owned and hired).

The other concept of cost B is : cost A<sub>2</sub> plus imputed value of owned land (less land revenue paid thereupon) added

with imputed interest on fixed capital (excluding land), while cost  $A_2$  is defined as : cost  $A_1$  consisting of the items mentioned above combined with the rent paid for leased-in land. This concept has not been considered here as there has not been found any incident of leasing-in land in cultivating either jute or aus paddy in the selected blocks of Cooch Behar district.

#### 6.3. Magnitudes of Cost of Production of Jute and Aus Paddy per Bigha

Table 6.1 shows the cost of production of jute and aus paddy per bigha on the basis of cost concepts stated above for the three sizes of holding, namely, marginal, small and large over the selected blocks and in the district as a whole. From this table it is observed that cost of production of jute per bigha is higher than the cost of production of aus paddy per bigha over the selected blocks and in the district as a whole in the cases of all sizes of holding and all the cost concepts used.

The extent of the height of the cost of production of jute per bigha in relation to that of aus paddy per bigha is observed from Table 6.2. It is discerned from this table that the cost of production per bigha of jute expressed as the percentage of the cost of production of aus paddy per

bigha irrespective of cost basis is higher than 141.65 in the cases of all sizes of holding in all the selected blocks except Dinhata block I and in the district as a whole.

Tables 6.3 and 6.4 may add in this context more specifications about the analysis relating to the first two objectives set in this chapter. From Table 6.3 the absolute difference between the cost of production of jute and aus paddy per bigha respective to cost concepts considered is observed for all sizes of holding over all the selected blocks and in the district as a whole. From this table it is observed that the absolute difference between the cost of production of jute and aus paddy per bigha irrespective of cost basis is higher than Rs. 200 in the cases of all sizes of holding over all the selected blocks and in the district as a whole except Dinhata block I and Tufanganj block II. Among these two places in Dinhata block I with respect to cost A<sub>1</sub> and cash expenditure the said difference is less than Rs. 200 in the cases of all sizes of holding and in the block as a whole, while with respect to cost C that is greater than Rs. 200 in the cases of all sizes of holding and in the block as a whole but with respect to cost B the figure is higher than Rs. 200 in cases of small and large sizes of holding. In Tufanganj block II the absolute difference between the cost of production of jute and that of aus paddy per bigha

is higher than Rs. 200 relating to all cost basis, in cases of all sizes of holding and in the block as a whole except marginal sizes of holding in which case the same figure is less than Rs. 200 with respect to cost  $A_1$  and cash expenditure.

Whatever be the picture of the absolute difference between the cost of production of jute and that of aus paddy per bigha Table 6.4 presenting the difference between the cost of production of jute and aus paddy per bigha as the percentage of the cost of production of aus paddy per bigha shows that the said percentages relating to all cost concepts are higher than 41.65 in all blocks except Dinhata block I and in the district as a whole.

#### 6.4. Factors Explaining the Disparity between the Cost of Production of Jute and Aus Paddy per Bigha

The underlined factors behind the extent of disparity between the cost of production of jute and aus paddy per bigha discussed so far in the following manner may be identified in the cases of cost  $A_1$ , cost B, cost C and cash expenditure from Tables 6.5, 6.6, 6.7 and 6.8 respectively.

On excluding the results obtained for all the cases relating to Dinhata block I along with the case of marginal

size of holding of Cooch Behar block II, accrued from the aggregation relating to this issue, it is observed from Table 6.5 that largely above 90 per cent of the absolute difference between the cost of production of jute and aus paddy per bigha calculated on the basis of cost  $A_1$  is occupied by the absolute difference between the value of human labour uses in producing both these crops in the cases of all sizes of holding in all the selected blocks except Haldibari block and Tufanganj block II and in the district as a whole. In the Haldibari block the corresponding percentages are observed to lie below 90 but more than 80 in cases of all sizes of holding and in the block as a whole. In Tufanganj block II the said percentages are observed to be extended between 80 and 90 everywhere except marginal size of holding in the case of which the same is above 90.

The rest of the percentage shares in the absolute difference between the cost of production of jute and aus paddy per bigha on the basis of cost  $A_1$  are occupied by the input items namely, manures, fertilizers, interest on working capital, insecticides and pesticides, depreciation on implements and machineries, bullock labour etc. in a descending order of importance. As these items do not occupy notable shares in the above-mentioned difference, so an elaborate analysis similar to human labour has not been made here. And

the similar practice has been made in the successive analysis relating to cost basis namely, cost B, cost C and cash expenditure.

Table 6.6 exhibits that the absolute value of the difference between the value of human labour uses in the production of jute and aus paddy per bigha occupies more than 70 per cent of the share of the absolute value of the difference between the cost of production of jute and aus paddy per bigha calculated on the basis of cost concept namely, cost B in all sizes of holding relating to Cooch Behar block II, Dinhata block I and in the district as a whole except large size of holding in Cooch Behar block II in the case of which the same is below 70. In the Haldibari block, the corresponding percentages are marginally above 60 relating to the marginal and large sizes of holding and in other cases these are marginally below 60. In Tufanganj block II the corresponding percentages are observed to lie between 60 and 70 in all cases. The absolute value of the difference between the inputs namely, imputed value of owned land, manures, fertilizers, interest on fixed capital, interest on working capital, insecticides and pesticides etc. are observed to occupy the percentage share in the remaining part of the difference between the cost of production of jute and aus paddy per bigha in a descending order of importance.

Table 6.7 furnishes that the percentage share of the absolute value of the difference between uses of human labour in producing jute and aus paddy per bigha in the absolute value of the difference between the cost of production of these two crops per bigha calculated on the basis of the measure, cost C, is higher than 70 but below 80 in cases of all sizes of holding relating to Cooch Behar block II, Tufanganj block II and in the district as a whole except marginal size of holding in Cooch Behar block II and in the district as a whole and also small size of holding relating to Cooch Behar block II. In these cases the corresponding percentages are marginally above 80. In the Haldibari block the corresponding percentages are observed to lie between 60 and 70 in all cases and in fine, the same relating to the Dinhata block I are marginally above 90 in every case except the case of large size of holding where the percentage is slightly above 98. The percentage shares of the difference between the values relating to the factors namely, imputed value of owned land, manures, fertilizers, etc. utilised in the production of jute and aus paddy per bigha in the absolute value of the difference between the cost of production of jute and aus paddy per bigha measured in terms of cost C are observed to be negligible and be existed in a descending order of importance.

In keeping outside the results obtained for Dinhata block I, Cooch Behar block II except small size of holding and the results for the district as a whole except the cases of small and large sizes of holding it is evident from Table 6.8 that 84 per cent to 90 per cent share of the difference between the cash expenditure required for producing jute and aus paddy per bigha goes to the difference between the value of the factor namely, human labour used for producing jute and aus paddy per bigha in all the selected blocks and in the district as a whole in cases of all sizes of holding except small size of holding in Haldibari block and Cooch Behar block II, Tufanganj block II as a whole inclusive of marginal size of holding, combined results respective to small and large sizes of holding for the district as a whole. Almost in all these cases the said share is marginally above 95 per cent except small size of holding in Cooch Behar block II and marginal size of holding in Tufanganj block II where the corresponding percentages are 98.51 and 98.15 respectively and the result for the Tufanganj block II as a whole is 92.33.

Besides, the rest of the difference of the cost of production of jute and aus paddy per bigha calculated on the basis of cash expenditure concept goes to the difference of the absolute values relating to the factors, namely,

manures, fertilizers, insecticides and pesticides etc. in a descending order of importance. But from the light of the description relating to the share of human labour it may easily be conceived that the shares in the difference between the cost of production of jute and aus paddy per bigha measured in terms of cash expenditure, of the differences between the absolute value relating to the factors namely, manures, fertilizers, insecticides and pesticides etc. used in the production of jute and aus paddy per bigha are very much negligible. Therefore, a detailed discussion relating to the aspect other than that of human labour has not been made here.

In leaving aside fourteen cases with erratic results originated due to aggregation, it may be perceived from the above discussion and from further investigation over the Tables 6.5 to 6.8 that irrespective of cost basis out of 66 results in the cases of all sizes of holding in the selected blocks and in the district as a whole in 37 events, that is, marginally above 56 per cent of the total events are associated with 80 per cent to 100 per cent share occupied by the difference between the value of human labour utilised in the production of jute and aus paddy per bigha in the difference between the cost of production of jute and aus paddy per bigha.

This may be clearly understood from the Table 6.9. However, this may help one to possess the view that almost in all the cases of sizes of holding in the selected blocks and in the district as a whole more than 80 per cent of the difference between the cost of production of jute and aus paddy per bigha measured in terms of whichever cost concepts considered in this study is occupied by the difference between the values of human labour used in producing jute and aus paddy per bigha. This probably means that more than 80 per cent of the difference between the cost of production of jute and aus paddy per bigha originated from the difference between the values of human labour utilised for producing jute and aus paddy per bigha in the selected blocks and in the district as a whole. Therefore, it may not be a serious error to ascribe the sole responsibility on the difference between the value of human labour used in both the crops in causing the difference between the cost of production of these two crops. More specifically, this may be said that remarkably higher use of human labour in the case of jute production per bigha almost solely explains the difference between the cost of production of jute and aus paddy per bigha. The implication of this is that labour intensity along with labour market involvement of the farmers in case of jute production is very much higher than aus paddy production.

### 6.5. Findings

The discussion so far made relating to the objectives framed in this chapter shows broadly:

The cost of production of jute per bigha measured in terms of whichever cost concept is higher than that of aus paddy per bigha in cases of all sizes of holding in all the selected blocks and in the district as a whole.

The cost of production of jute per bigha is higher than that of aus paddy to the extent of 141.65 per cent in most of the cases in the selected blocks and in the district as a whole.

Irrespective of cost basis the absolute difference between the cost of production of jute and aus paddy per bigha is above Rs. 200 in most of the cases in the selected blocks and in the district as a whole.

The absolute difference expressed as the percentage of cost of production of aus paddy per bigha is higher than 41.65 in most of the cases over the selected blocks and in the district as a whole, irrespective of cost basis.

The absolute difference between the cost of production of jute and aus paddy per bigha measured in terms of whichever cost concept is here solely explained by the difference between the absolute value of human labour utilised in the production of these two crops per bigha implying higher labour intensity of jute relative to aus paddy along with the relatively higher labour market involvement of the farmers in the production of jute.

## Tables of Chapter VI

**Table 6.1 Cost of Production of Jute and Aus Paddy per Bigha in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

(in Rs.)

Name of the block	Farm size	Jute				Aus			
		Cost/bigha on the basis of				Cost/bigha on the basis of			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure	Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	Marginal	717.35	993.62	1295.51	609.59	388.99	540.26	737.87	291.85
	Small	842.66	1190.92	1425.90	723.69	507.81	689.22	867.36	412.60
	Large	1008.92	1353.84	1517.73	867.99	622.21	809.59	949.67	483.14
	All farms	806.24	1130.76	1388.68	688.89	477.21	648.96	827.10	370.02
Cooch Behar II	Marginal	696.78	972.57	1277.11	581.10	433.12	633.57	841.90	329.23
	Small	760.28	1028.55	1306.43	637.77	457.91	653.84	849.18	344.10
	Large	918.42	1231.45	1415.34	777.76	648.38	854.79	986.55	524.13
	All farms	747.86	1033.61	1310.81	623.69	481.60	683.40	873.27	370.88
Dinhata I	Marginal	509.59	751.39	1065.83	439.79	414.10	607.76	806.82	346.16
	Small	682.14	945.86	1130.30	582.93	501.98	713.30	842.00	415.30
	Large	778.32	1032.82	1138.93	667.18	585.72	807.05	874.81	475.66
	All farms	611.28	864.67	1101.92	524.35	474.27	679.64	831.90	392.42

Contd..

Table 6.1 (Contd..)

Name of the Farm block	size	Jute					Aus				
		Cost/bigha on the basis of			Cash expenditure	Cost/bigha on the basis of			Cash expenditure		
		Cost A <sub>1</sub>	Cost B	Cost C		Cost A <sub>1</sub>	Cost B	Cost C	Cost A <sub>1</sub>		
Tufanganj II	Marginal	543.52	781.83	1120.71	443.78	360.46	529.33	754.11	267.93		
	Small	721.60	976.75	1252.38	596.93	448.02	629.38	818.30	334.12		
	Large	864.43	1128.67	1313.35	725.92	525.37	713.21	832.69	403.97		
	All farms	627.63	877.14	1182.76	515.43	404.82	580.84	784.26	303.16		
Cooch Behar district	Marginal	614.69	872.10	1187.97	516.12	397.57	582.36	794.00	309.61		
	Small	753.26	1038.64	1280.81	637.09	470.14	665.74	836.23	365.73		
	Large	892.46	1188.80	1344.29	760.86	594.54	802.20	905.46	476.16		
	All farms	698.25	976.54	1246.04	588.08	451.88	645.03	826.79	354.14		

Table 6.2 Cost of Production per Bigha of Jute Expressed as the Percentage of the Cost of Production of Aus Paddy per Bigha in the Selected Blocks of Cooch Behar District and in the District as a whole for the Year 1992-93

Name of the block	Farm size	Cost of production per bigha of jute as the percentage of the cost of production of aus paddy per bigha over the cost concepts			Cash expenditure
		Cost A <sub>1</sub>	Cost B	Cost C	
Haldibari	Marginal	184.41	183.92	175.57	208.87
	Small	165.94	172.79	164.40	175.40
	Large	162.15	167.23	159.82	179.66
	All farms	168.95	174.24	167.90	186.18
Cooch Behar II	Marginal	160.87	153.51	151.69	176.50
	Small	166.03	157.31	153.85	185.34
	Large	141.65	144.06	143.46	148.39
	All farms	155.29	151.25	150.10	168.16
Dinhata I	Marginal	123.06	123.63	132.10	127.05
	Small	135.89	132.60	134.24	140.36
	Large	132.88	127.97	130.19	140.26
	All farms	128.89	127.22	132.46	133.62

Contd..

Table 6.2 (Contd..)

Name of the block	Farm size	Cost of production per bigha of jute as the percentage of the cost of production of aus paddy per bigha over the cost concepts			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Tufanganj	Marginal	150.79	147.70	148.61	165.63
	Small	161.06	155.19	153.05	178.66
	Large	164.54	158.25	157.72	179.70
	All farms	155.04	151.01	150.81	170.02
Cooch Behar district	Marginal	154.61	149.75	149.62	166.70
	Small	160.22	156.01	153.16	174.20
	Large	150.11	148.19	148.46	159.79
	All farms	154.52	151.39	150.71	166.06

Table 6.3 Difference between Cost of Production of Jute and Aus Paddy per Bigha in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

(in Rs.)

Name of the block	Farm size	Difference between cost of production of jute and aus paddy per bigha over the cost concepts			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	Marginal	328.36	453.36	557.64	317.74
	Small	334.85	501.70	558.54	311.09
	Large	386.71	544.25	568.06	384.85
	All farms	329.03	481.80	561.58	318.87
Cooch Behar II	Marginal	263.66	339.00	435.21	251.87
	Small	302.37	374.71	457.25	293.67
	Large	270.04	376.66	428.79	253.63
	All farms	266.26	350.21	437.54	252.81
Dinhata I	Marginal	95.49	143.63	259.01	93.63
	Small	180.16	232.56	288.30	167.63
	Large	192.60	225.77	264.12	191.52
	All farms	137.01	185.03	270.02	131.93

Contd..

Table 6.3 (Contd..)

Name of the block	Farm size	Difference between cost of production of jute and aus paddy per bigha over the cost concepts			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Tufanganj II	Marginal	183.06	252.50	366.60	175.85
	Small	273.58	347.37	434.08	262.81
	Large	339.06	415.46	480.66	321.95
	All farms	222.81	296.30	398.50	212.27
Cooch Behar district	Marginal	217.12	289.74	393.97	206.51
	Small	283.12	372.90	444.58	271.36
	Large	297.92	386.60	438.83	284.70
	All farms	246.37	331.51	419.25	233.94

Table 6.4 The Absolute Difference between cost of Production of Jute and Aus Paddy per Bigha Expressed as the Percentage of Cost of Production of Aus Paddy per Bigha Measured in Terms of Cost Basis, Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Difference between cost of production of jute and aus paddy per bigha as the percentage of cost of production of aus paddy per bigha over the cost concepts			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	Marginal	84.41	83.92	75.57	108.87
	Small	65.94	72.79	64.40	75.40
	Large	62.15	67.23	59.82	79.66
	All farms	68.95	74.24	67.90	86.18
Cooch Behar II	Marginal	60.87	53.51	51.69	76.50
	Small	66.03	57.31	53.85	85.34
	Large	41.65	44.06	43.46	48.39
	All farms	55.29	51.25	50.10	68.16
Dinhata I	Marginal	23.06	23.63	32.10	27.05
	Small	35.89	32.60	34.24	40.36
	Large	32.88	27.97	30.19	40.26
	All farms	28.89	27.22	32.46	33.62

Contd..

Table 6.4 (Contd..)

Name of the block	Farm size	Difference between cost of production of jute and aus paddy per bigha as the percentage of cost of production of aus paddy per bigha over the cost concepts			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Tufanganj II	Marginal	50.79	47.70	48.61	65.63
	Small	61.06	55.19	53.05	78.66
	Large	64.54	58.25	57.72	79.70
	All farms	55.04	51.01	50.81	70.02
Cooch Behar district	Marginal	54.61	49.75	49.62	66.70
	Small	60.22	56.01	53.16	74.20
	Large	50.11	48.19	48.46	59.79
	All farms	54.52	51.39	50.71	66.06

Table 6.5 Percentage Share of the Difference between the Value of Each Input to the Total Absolute Value of the Difference between the Cost of Production of Jute and Aus Paddy per Bigha Calculated on the Basis of Cost A<sub>1</sub> over the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Items of Cost A <sub>1</sub>								
		Value of hired human labour	Value of attached labour	Total	Hired bullock	Owned bullock	Total	Machinery charges	Seed	Manures
Haldibari	Marginal	77.87	5.19	83.06	3.73	-1.26	2.47	-	-5.76	5.31
	Small	89.99	-1.66	88.33	-0.96	2.59	1.63	-	-3.83	4.68
	Large	61.97	22.96	84.93	1.12	3.22	4.34	3.36	-4.11	0.39
	All farms	79.55	6.13	85.68	2.18	0.52	2.70	0.66	-5.11	4.14
Cooch Behar II	Marginal	100.75	-	100.75	1.75	0.07	1.82	1.38	-9.17	2.04
	Small	91.16	4.52	95.68	0.73	0.55	1.28	2.33	-7.49	3.67
	Large	82.98	12.53	95.51	0.07	-0.61	-0.54	-4.17	-9.22	5.31
	All farms	97.57	0.53	98.10	1.24	-	1.24	0.55	-8.95	3.08
Dinhata I.	Marginal	131.49	4.42	135.91	6.33	-1.23	5.10	-	-22.92	9.25
	Small	90.92	23.36	114.28	-1.19	4.33	3.14	-	-11.37	4.97
	Large	80.29	34.84	115.13	-0.40	-2.43	-2.83	-	-12.70	-8.97
	All farms	103.32	18.86	122.18	1.85	0.29	2.14	-	-16.00	2.77

Fertilisers	Insecticides and pesticides	Irrigation charges	Land revenue, cess and other taxes	Depreciation on implements and machineries	Interest on working capital	Total
7.43	3.00	-	0.13	1.46	2.90	100.00
6.38	-1.70	-	0.24	1.48	2.79	100.00
11.86	-0.62	2.59	-0.06	-5.67	2.99	100.00
8.23	0.62	0.51	0.17	-0.51	2.91	100.00
2.87	0.66	-4.74	0.04	1.49	2.86	100.00
2.54	0.47	-0.80	0.01	-0.60	2.91	100.00
8.25	-0.19	-1.64	0.02	3.85	2.82	100.00
3.61	0.34	-3.02	0.06	2.14	2.85	100.00
10.85	-0.77	-40.60	0.03	0.21	2.94	100.00
-0.49	3.95	-17.11	-0.06	-0.10	2.79	100.00
4.53	6.66	-4.81	-	-	2.99	100.00
4.73	3.01	-22.25	0.17	0.36	2.89	100.00

Contd..

Table 6.5 (Contd..)

Name of the block	Farm size	Items of Cost A <sub>1</sub>							
		Value of hired human labour	Value of attached labour	Total	Hired bullock	Owned bullock	Total	Machinery charges	Seed Manures
Tufanganj II	Marginal	91.34	2.94	94.28	2.00	0.84	2.84	-	-12.27 7.29
	Small	77.62	3.46	81.08	0.63	1.06	1.69	-	-8.13 13.97
	Large	70.86	10.77	81.63	-0.74	2.16	1.42	-	-6.39 9.14
	All farms	83.79	4.17	87.96	1.30	1.03	2.33	-	-10.06 9.96
Cooch Behar district	Marginal	96.79	2.65	99.44	1.64	0.36	2.00	0.42	-10.68 5.52
	Small	86.26	6.10	92.36	0.57	0.78	1.35	0.60	-7.75 7.42
	Large	74.46	16.73	91.19	-0.03	0.46	0.43	-0.41	-7.78 1.90
	All farms	89.84	5.55	95.39	1.05	0.46	1.51	0.29	-9.26 5.50

Fertilisers	Insecticides and pesticides	Irrigation charges	Land revenue, cess and other taxes	Depreciation on implements and machineries	Interest on working capital	Total
3.14	1.62	-	0.01	0.21	2.88	100.00
8.83	2.26	-2.58	-	-	2.88	100.00
9.10	2.21	-	-	-	2.89	100.00
5.11	1.93	-0.93	0.16	0.68	2.86	100.00
4.87	1.31	-7.40	0.09	1.58	2.85	100.00
5.24	2.40	-5.00	0.07	0.43	2.88	100.00
8.35	3.27	-0.93	0.08	1.02	2.88	100.00
5.36	2.04	-5.41	0.19	1.54	2.85	100.00

Table 6.6 Percentage Share of the Difference between the Value of Each Input to the Total Absolute Value of the Difference between the Cost of Production of Jute and Aus Paddy per Bigha Calculated on the Basis of Cost B over the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Items of cost B							
		Value of hired human labour	Value of attached labour	Total	Hired bullock	Owned bullock	Total	Machinery charges	Seed
Haldibari	Marginal	56.40	3.76	60.16	2.70	-0.91	1.79	-	-4.16
	Small	60.06	-1.11	58.95	-0.64	1.73	1.09	-	-2.56
	Large	44.03	16.32	60.35	0.80	2.29	3.09	2.39	-2.92
	All farms	54.33	4.18	58.51	1.49	0.35	1.84	0.45	-3.49
Cooch Behar II	Marginal	78.36	-	78.36	1.36	0.05	1.41	1.07	-7.14
	Small	73.56	3.65	77.21	0.59	0.44	1.03	1.88	-6.04
	Large	59.49	8.98	68.47	0.05	-0.44	-0.39	-2.99	-6.61
	All farms	74.18	0.40	74.58	0.95	-	0.95	0.42	-6.81
Dinhata I	Marginal	87.42	2.94	90.36	4.21	-0.82	3.39	-	-15.24
	Small	70.44	18.09	88.53	-0.92	3.35	2.43	-	-8.80
	Large	68.50	29.72	98.22	-0.35	-2.07	-2.42	-	-10.83
	All farms	76.51	13.97	90.48	1.37	0.22	1.59	-	-11.84

Manures	Fertilizers	Insecti- cides and pesticides	Irriga- tion charges	Land revenue cess and other taxes	Deprecia- tion on implements and machineries	Interest on work- ing capital	Imputed value of owned land	Interest on fixed capital	Total
3.84	5.38	2.17	-	0.09	1.06	2.10	26.77	0.80	100.0
3.13	4.26	-1.13	-	0.16	0.98	1.86	30.60	2.66	100.0
0.27	8.42	-0.44	1.84	-0.04	-4.03	2.12	26.80	2.15	100.0
2.83	5.62	0.43	0.35	0.12	-0.35	1.98	29.26	2.45	100.0
1.59	2.23	0.51	-3.69	0.04	1.16	2.23	21.73	0.50	100.0
2.96	2.05	0.38	-0.65	0.01	-0.48	2.35	19.39	-0.09	100.0
3.80	5.92	-0.13	-1.18	0.02	2.76	2.02	22.32	5.99	100.0
2.34	2.74	0.26	-2.29	0.05	1.63	2.16	21.86	2.11	100.0
6.15	7.21	-0.52	-26.99	0.02	0.14	1.96	32.25	1.27	100.0
3.85	-0.38	3.06	-13.26	-0.05	-0.08	2.16	21.77	0.77	100.0
-7.65	3.86	5.68	-4.10	-	-	2.55	14.69	-	100.0
2.05	3.50	2.23	-16.48	0.12	0.26	2.14	23.42	2.53	100.0

Contd..

Table 6.6 (Contd..)

Name of the block	Farm size	Items of cost B						Machinery charges	Seed
		Value of hired human labour	Value of attached labour	Total	Hired bullock	Owned bullock	Total		
Tufanganj II	Marginal	66.22	2.13	68.35	1.45	0.61	2.06	-	-8.90
	Small	61.13	2.72	63.85	0.50	0.83	1.33	-	-6.40
	Large	57.83	8.79	66.62	-0.60	1.76	1.16	-	-5.22
	All farms	63.01	3.13	66.14	0.98	0.78	1.76	-	-7.56
Cooch Behar district	Marginal	72.53	1.98	74.51	1.23	0.27	1.50	0.31	-8.00
	Small	65.49	4.63	70.12	0.44	0.59	1.03	0.45	-5.88
	Large	57.38	12.89	70.27	-0.03	0.35	0.32	-0.31	-5.99
	All farms	66.76	4.13	70.89	0.78	0.34	1.12	0.21	-6.88

Manures	Fertilizers	Insecti- cides and pesticides	Irriga- tion charges	Land revenue	Deprecia- tion on cess and other implements and machineris taxes	Interest on work- ing capital	Imputed value of owned land	Interest on fixed capital	Total
5.28	2.28	1.18	-	0.01	0.15	2.09	27.87	-0.37	100.00
11.01	6.95	1.78	-2.03	-	-	2.27	21.24	-	100.00
7.46	7.42	1.81	-	-	-	2.36	18.39	-	100.00
7.49	3.84	1.45	-0.70	0.12	0.51	2.15	24.40	0.40	100.00
4.13	3.65	0.98	-5.55	0.07	1.19	2.14	23.99	1.08	100.00
5.64	3.98	1.82	-3.80	0.05	0.33	2.18	22.59	1.49	100.00
1.46	6.43	2.52	-0.71	0.06	0.79	2.22	20.07	2.87	100.00
4.09	3.98	1.52	-4.02	0.14	1.15	2.12	23.26	2.42	100.00

Table 6.7 Percentage Share of the Difference between the Value of Each Input to the Total Absolute Value of the Difference between the Cost of Production of Jute and Aus Paddy per Bigha Calculated on the basis of Cost C over the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Items of cost C									
		Value of hired human labour	Value of attached human labour	Value of family labour	Total	Hired bullock	Owned bullock	Total	Machinery	Seed charges	
Haldibari	Marginal	45.85	3.05	18.70	67.60	2.20	-0.74	1.46	-	-3.38	
	Small	53.95	-1.00	10.18	63.13	-0.57	1.55	0.98	-	-2.30	
	Large	42.19	15.63	4.19	62.01	0.78	2.19	2.97	2.29	-2.80	
	All farms	46.61	3.59	14.21	64.41	1.28	0.30	1.58	0.39	-3.00	
Cooch Behar II	Marginal	61.03	-	22.11	83.14	1.06	0.04	1.10	0.83	-5.56	
	Small	60.28	2.99	18.05	81.32	0.48	0.36	0.84	1.54	-4.95	
	Large	52.26	7.89	12.16	72.31	0.04	-0.39	-0.35	-2.62	-5.80	
	All farms	59.38	0.32	19.96	79.66	0.76	-	0.76	0.33	-5.45	
Dinhata I	Marginal	48.48	1.63	44.54	94.65	2.34	-0.45	1.89	-	-8.45	
	Small	56.82	14.60	19.33	90.75	-0.75	2.71	1.96	-	-7.10	
	Large	58.55	25.41	14.52	98.48	-0.29	-1.77	-2.06	-	-9.26	
	All farms	52.42	9.57	31.47	93.46	0.94	0.15	1.09	-	-8.12	

Manures	Fertilizers	Insecticides and pesticides	Irrigation charges	Land revenue	Depreciation on cess and other taxes	Interest on working capital	Imputed value of owned land	Interest on fixed capital	Total
3.12	4.37	1.77	-	0.08	0.86	1.71	21.76	0.65	100.00
2.81	3.83	-1.02	-	0.15	0.88	1.67	27.48	2.39	100.00
0.26	8.07	-0.42	1.76	-0.04	-3.86	2.03	25.67	2.06	100.00
2.43	4.82	0.37	0.30	0.10	-0.30	1.70	25.10	2.10	100.00
1.24	1.74	0.40	-2.87	0.03	0.90	1.73	16.93	0.39	100.00
2.42	1.68	0.51	-0.53	0.01	-0.39	1.93	15.89	-0.07	100.00
3.34	5.20	-0.12	-1.04	0.02	2.42	1.77	19.61	5.26	100.00
1.88	2.19	0.21	-1.84	0.04	1.30	1.73	17.50	1.69	100.00
3.41	4.00	-0.28	-14.97	0.01	0.08	1.08	17.88	0.70	100.00
3.11	-0.31	2.47	-10.69	-0.04	-0.07	1.74	17.56	0.62	100.00
-6.54	3.30	4.85	-3.51	-	-	2.18	12.56	-	100.00
1.41	2.40	1.53	-11.29	0.08	0.18	1.47	16.05	1.74	100.00

Contd..

Table 6.7 (Contd..)

Name of the block	Farm size	Items of cost C								
		Value of hired human labour	Value of attached labour	Value of family labour	Total	Hired bullock	Owned bullock	Total machinery	Machinery charges	Seed
Tufanganj II	Marginal	45.61	1.47	31.12	78.20	1.00	0.42	1.42	-	-6.13
	Small	48.92	2.18	19.97	71.07	0.40	0.67	1.07	-	-5.12
	Large	49.99	7.60	13.56	71.15	-0.52	1.52	1.00	-	-4.51
	All farms	46.85	2.33	25.65	74.83	0.72	0.58	1.30	-	-5.62
Cooch Behar district	Marginal	53.34	1.46	26.46	81.26	0.91	0.20	1.11	0.23	-5.88
	Small	54.93	3.89	16.12	74.94	0.36	0.50	0.86	0.38	-4.93
	Large	50.55	11.36	11.90	73.81	-0.02	0.31	0.29	-0.28	-5.28
	All farms	52.79	3.26	20.93	76.98	0.62	0.27	0.89	0.17	-5.44

Manures	Fertilizers	Insecticides and pesticides	Irrigation charges	Land revenue other taxes	Depreciation on implements and machineries	Interest on working capital	Imputed value of owned land	Interest on fixed capital	Total
3.64	1.57	0.81	-	0.01	0.10	1.44	19.19	-0.25	100.00
8.81	5.56	1.42	-1.63	-	-	1.82	17.00	-	100.00
6.45	6.42	1.56	-	-	-	2.04	15.89	-	100.00
5.57	2.85	1.08	-0.52	0.09	0.38	1.60	18.14	0.30	100.00
3.04	2.68	0.72	-4.08	0.05	0.87	1.57	17.64	0.79	100.00
4.73	3.34	1.53	-3.18	0.04	0.27	1.83	18.94	1.25	100.00
1.29	5.67	2.22	-0.63	0.06	0.69	1.95	17.68	2.53	100.00
3.23	3.15	1.20	-3.18	0.11	0.91	1.67	18.39	1.92	100.00

Table 6.8 Percentage Share of the Difference between the Value of Each Input to the Absolute Value of the Difference between the cost of Production of Jute and Aus paddy per Bigha Calculated on the Basis of Measure, Cash Expenditure over the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Items of cash expenditure										Total
		Value of hired human labour	Value of attached labour	Total	Hired bullock charges	Hired machinery charges	Seed	Manures	Ferti- lisers	Insec- tici- des & pesti- cides	Irriga- tion charges	
Haldibari	Marginal	80.47	5.36	85.83	3.86	-	-5.95	5.48	7.68	3.10	-	100.00
	Small	96.87	-1.79	95.08	-1.03	-	-4.13	5.04	6.87	-1.83	-	100.00
	Large	62.27	23.08	85.35	1.12	3.38	-4.13	0.39	11.91	-0.62	2.60	100.00
	All farms	82.09	6.32	88.41	2.25	0.68	-5.27	4.28	8.49	0.64	0.52	100.00
Coobh Behar II	Marginal	105.46	-	105.46	1.83	1.44	-9.60	2.14	3.00	0.69	-4.96	100.00
	Small	93.86	4.65	98.51	0.75	2.40	-7.71	3.78	2.61	0.48	-0.82	100.00
	Large	88.35	13.34	101.69	0.07	-4.43	-9.81	5.65	8.78	-0.20	-1.75	100.00
	All farms	102.76	0.55	103.31	1.31	0.58	-9.43	3.25	3.80	0.36	-3.18	100.00
Dinhata I	Marginal	134.10	4.51	138.61	6.46	-	-23.38	9.44	11.07	-0.79	-41.41	100.00
	Small	97.72	25.10	122.82	-1.28	-	-12.22	5.34	-0.52	4.25	-18.39	100.00
	Large	80.75	35.04	115.79	-0.41	-	-12.27	-9.01	4.55	6.69	-4.84	100.00
	All farms	107.30	19.59	126.89	1.92	-	-16.62	2.88	4.91	3.13	-23.11	100.00

Contd.,

Table 6.8 (Contd..)

Name of the block	Farm size	Items of cash expenditure									Total	
		Value of hired human labour	Value of attached labour	Total	Hired bullock	Hired machin- ery charges	Seed Manures	Ferti- lisers	Insec- tici- des & pestici- des	Irriga- tion charges		
Tufangaj II	Marginal	95.09	3.06	98.15	2.08	-	-12.77	7.58	3.27	1.69	-	100.00
	Small	80.80	3.60	84.40	0.66	-	-8.46	14.55	9.19	2.35	-2.69	100.00
	Large	74.63	11.34	85.97	-0.78	-	-6.73	9.63	9.58	2.33	-	100.00
	All farms	87.95	4.38	92.33	1.36	-	-10.56	10.46	5.36	2.02	-0.97	100.00
Cooch Behar												
District	Marginal	101.76	2.78	104.54	1.73	0.44	-11.23	5.80	5.12	1.38	-7.78	100.00
	Small	89.99	6.37	96.36	0.60	0.62	-8.08	7.75	5.47	2.50	-5.22	100.00
	Large	77.91	17.51	95.42	-0.04	-0.42	-8.14	1.99	8.74	3.42	-0.97	100.00
	All farms	94.61	5.85	100.46	1.10	0.30	-9.76	5.80	5.65	2.15	-5.70	100.00

Table 6.9 Number of Cases Falling Within Different Ranges of Percentage Shares Occupied by the Difference in the Value of Human Labour in the Difference of Cost of Production of Jute and Aus Paddy per Bigha Measured in Terms of Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Ranges of percentage shares occupied by the difference in the value of human labour in the difference of cost of production of jute and aus paddy per bigha	Number of cases falling within specified ranges irrespective of size of holdings etc. over all the areas respective to cost bases:				
	Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure	Overall costs
Less than 70%	-	9	4	-	13
70% - 80%	-	7	9	-	16
80% - 90%	7	1	3	5	16
90% - 100%	8	3	4	6	21
Overall Total	15	20	20	11	66

## Chapter VII

### STRUCTURAL COMPOSITION OF COST OF PRODUCTION OF JUTE IN THE SELECTED BLOCKS OF COOCH BEHAR DISTRICT

#### 7.1. Introduction

The aim of this chapter is broadly to exhibit the structural composition of cost of production of jute per bigha in the selected blocks of Cooch Behar district. Specifically, the objectives to be studied in this chapter are:

(i) to identify the cost items occupying the major shares in the cost of production of jute per bigha in the selected blocks of Cooch Behar district, (ii) to search out whether there remains inter-block and intra-block or in other words inter-size variation in the composition of cost of production of jute per bigha and any relation between the shares of the major cost items with the size of holding along with its explanatory factor(s).

The study relating to the objectives as set out in this chapter has been carried out on the basis of the cost concepts, namely, cost A<sub>1</sub>, cost B and cost C.

#### 7.2. Block-wise Aggregative View

From Table 7.1 it is noticed that collective share of the cost items, human labour, bullock labour and manures constitute the major share in the cost of production of jute

per bigha measured in terms of cost  $A_1$  in all the selected blocks and in the district as a whole. Among these three cost items, the dominant share is occupied by human labour followed by the items, namely, bullock labour and manures in a descending order of importance in all the selected blocks and in the district as a whole. However, there remains negligible variation among the shares of these cost items over the selected blocks.

Tables 7.2 and 7.3 simultaneously depict that the major part of the cost of production of jute per bigha measured in terms of cost B and cost C is constituted by the shares of human labour, imputed value of owned land, bullock labour and manures in all the selected blocks and in the district as a whole. Among these cost items the share of human labour is observed to occupy the highest rank followed by imputed value of owned land, bullock labour and manures in a descending order of importance irrespective of places. Analogous to the case of cost  $A_1$  in the cases of cost B and cost C there exists unremarkable variation among the shares of these cost items over the selected blocks of Cooch Behar district.

The examination of Table 7.4 reveals that the share of cash expenditure is highly dominant in the cost of production of jute per bigha measured in terms of cost  $A_1$  and cost B but its share is relatively lower in comparison to cost  $A_1$

and cost B while cost of production of jute per bigha is measured in terms of cost C. Yet its share in this case is not unremarkable. Again, similar to the previous cases the share of cash expenditure in the cost of production of jute per bigha measured in terms of cost  $A_1$ , cost B and cost C has negligible variation over all the selected blocks of Cooch Behar district.

### 7.3. Intra-Block Size-wise View

Table 7.5 presents the structural composition of cost of production of jute per bigha respective to the size of holding in the selected blocks of Cooch Behar district and in the district as a whole measured in terms of cost  $A_1$ . From this table it is evident that the shares of the cost items human labour, bullock labour and manures constitute the major portion of the cost of production of jute per bigha in all the size categories over all the selected blocks of Cooch Behar district and in the district as a whole. Among these cost items the highest share is occupied by human labour followed by bullock labour and manures in all the sizes of holding among all the selected blocks and in the district as a whole except small size of holding in Haldibari block, Tufanganj block II and in the district as a whole and large size of holding in Cooch Behar block II where the share of the cost on human labour is followed by manures and bullock labour in

a descending order of importance. Again, there remains negligible variation among the shares of these cost items over the size of holding in all the selected blocks and in the district as a whole. In spite of this it may be worthwhile to mention here that there remains positive relationship between the share of the cost items, namely, human labour and the size of holding in all the selected blocks except Cooch Behar block II where the said relationship is negative. The relation between bullock labour and the size of holding is negative in all the selected blocks. The relationship between the share of manures and the size of holding is negative everywhere except Cooch Behar block II where no such precise relationship is noticed.

From this it may be said that respective to cost  $A_1$  in almost in all the selected blocks there remains positive relationship between the percentage share of cost on human labour and size of holding, negative relationship between the share of bullock labour cost and size of holding and negative relationship between the share of cost on manures and size of holding. And these facts are observed to be substantiated with the general view of the district as a whole. This shows that the relationship between the share of the human labour and the size of holding is positive, the relationship between the bullock labour and the size of holding is

negative and that between the share of manures and the size of holding is negative.

The relationships which are exposed for the district as a whole in the preceding paragraph may be explained from the same table. The positive relationship between the share of the cost of human labour and the size of holding may be due to the higher shares of fertilizer and insecticides and pesticides over the size of holding. The negative relationship between the share of bullock labour and the size of holding may be attributed to the higher share of the machine labour over the size of holding. And the negative relationship between the share of the cost of manures and the size of holding is probably due to the higher share of the cost of fertilizer over the size of holding.

Table 7.6 reveals that the collective share of the cost on human labour, imputed value of owned land, bullock labour and manures consist of the dominant position of the cost of production of jute per bigha measured in terms of cost B, in case of all sizes of holding over all the selected blocks except large size of holding in Dinhata block I and in the district as a whole. The share of the cost on human labour is noticed to be the highest followed by the shares of imputed value of owned land, cost on bullock labour and manures in a descending order of importance in case of all sizes of

holding over all the selected blocks and in the district as a whole with a few exceptions regarding small size of holding in Haldibari block, Tufanganj block II and in the district as a whole and large size of holding in Cooch Behar block II and Dinhata block I. In these cases (except large size of holding in Dinhata block I) the share of the human labour cost is followed by the shares of imputed value of owned land, cost on manures and cost on bullock labour in a descending order of importance.

The examination of the magnitudes of the shares of these cost items over all the sizes of holding in all the selected blocks and in the district as a whole shows that the magnitudes of the shares of the said cost items are negligibly varied over the size of holding in all the selected blocks and in the district as a whole.

An exercise on searching about whether there remains any relation between the shares of the said cost items and the size of holding presents that a positive relation exists between the share of the human labour cost and size of holding in Dinhata block I and Tufanganj block II. In Haldibari and Cooch Behar block II no such precise relationship is observed. The relationship between the share of cost of bullock labour and size of holding is negative in all the selected blocks. Share of the cost on manures and size of holding are observed to be negatively related in Haldibari

block and Dinhata block I, whereas no such precise relationship is found between these two in Cooch Behar block II and Tufanganj block II. The share of imputed value of owned land and size of holding are negatively related in all the selected blocks except Haldibari block where no kind of relationship exists. However, the generalised state of the district as a whole regarding the said relations shows that there remains positive relationship between the share of the cost on human labour and size of holding and the negative relationship between the share of the cost on bullock labour and size of holding, the share of the cost on manures and size of holding and the share of the imputed value of owned land and the size of holding respectively. Although the explanatory factor(s) behind the negative relationship between the share of imputed value of owned land and size of holding may not be identified from the table presented relating to the present context, the stated relationships between the share of the cost on human labour and size of holding, the share of the cost on bullock labour and size of holding and the share of the cost on manures and size of holding are explained from Table 7.6 with the similar factors mentioned in the analysis relating to cost  $A_1$ .

From Table 7.7 structural composition of the cost of production of jute per bigha measured in terms of cost C is

observed. Alike the case of cost B in this case the joint shares of the cost on human labour, imputed value of owned land, bullock labour and manures compose the major portion of the cost of production of jute per bigha over all the sizes of holding in all the selected blocks except large size of holding in Dinhata block I and in the district as a whole. The share of the cost of human labour is observed to stand on the topmost position followed by the shares of imputed value of owned land, bullock labour and manures over all the sizes of holding in all the selected blocks and in the district as a whole except small size of holding in Haldibari block, Tufanganj block II and in the district as a whole and large size of holding in Cooch Behar block II and Dinhata block I. In these cases (except large size of holding in Dinhata block I) the highest share of the cost on human labour is followed by the shares on the imputed value of owned land, manures and bullock labour in a descending order of importance. The variation among the magnitudes of the shares of all these cost items here is unremarkable over all the sizes of holding in all the selected blocks and in the district as a whole.

The view about the character of the relationship of the shares of the cost items and size of holding exhibits the existence of negative relationship between the share of cost

on human labour and the size of holding in Haldibari block and Cooch Behar block II. But no kind of relationship between these is observed in Dinhata block I and Tufanganj block II. Share of bullock labour cost and size of holding are negatively related in all the selected blocks except Haldibari block and Dinhata block I where no relation between these is observed to exist. There exists no kind of relation between the share of cost of manures and the size of holding in all the selected blocks except Cooch Behar block II where these two are positively related. The share of the imputed value of owned land and size of holding are negatively related in all the selected blocks only except Haldibari block where there exists no relation between these two.

The generalised view of the district as a whole substantiates the negative relationship between the share of cost of human labour and size of holding and again between the share of the cost on bullock labour and size of holding. But the same establishes the non-existence of any kind of relationship between the share of cost on manures and the size of holding and between the share of imputed value of owned land and the size of holding. However, the explanatory factor(s) behind the said relationships may be searched out from the table in the context. The negative relationship between the share of the bullock labour cost and size of holding may be attributed to the share of the machine labour

cost. Besides, the negative relationship between the share of the human labour cost and size of holding may be due to the aggregation of the insignificant share of the imputed value of family labour with the share of the hired human labour. This may be viewed in the following manner. The relationship between the joint shares of hired human labour, farm attached human labour and size of holding is positive but the same takes an inverse form when the share of the imputed value of family labour is added with the joint share of the aforesaid of two factors. Therefore, it may be stated that the positive relationship between the joint shares of hired human labour and farm attached human labour is obviated due to the addition of the share of the imputed value of family labour cost. So, leaving the share of the family labour cost aside, in this case also a positive relationship between the joint shares of the costs on other two categories of human labour and the size of holding is observed to exist.

Table 7.8 manifests simultaneously the shares of cash expenditure in the cost of production of jute per bigha measured in terms of cost  $A_1$ , cost B and cost C. The cash expenditure occupy the notably higher share in the cost  $A_1$  and cost B over all the sizes of holding in all the selected blocks and in the district as a whole. Though its share in cost C

is relatively lower than those in cost A<sub>1</sub> and cost B, it may be considered as the most important constituent of cost C over all the sizes of holding in all the selected blocks and in the district as a whole. Besides, the magnitudes of the shares of cash expenditure in the case of all cost measures are observed to have marginal variation over the sizes of holding in all the selected blocks and in the district as a whole. Yet there remains positive relationship between the share of cash expenditure and the size of holding in case of all cost measures in all the selected blocks and in the district as a whole except Dinhata block I and Haldibari block where no kind of relationship is observed to exist behind the said factors in case of cost A<sub>1</sub> and cost B respectively.

#### 7.4. Findings

The discussion so far made in this chapter broadly reveals:

- (a) In case of A<sub>1</sub> the cost on human labour, bullock labour and manures occupy the largest share and in case of cost B and cost C the cost on human labour, imputed value of owned land, bullock labour and manures constitute the highest share in all the selected blocks and in the district as a whole.

(b) The cost on human labour occupies the highest share followed by the shares of the cost on bullock labour and manures in case of cost  $A_1$  and the cost on human labour stands on the topmost position followed by the shares of imputed value of owned land and the cost on bullock labour and manures in case of cost B and cost C in all the sizes of holding in all the selected blocks and in the district as a whole with a few size-level and block-level exceptions.

(c) The share of cash expenditure in the case of all the cost measures included in the discussion is remarkably high over all the sizes of holding in all the selected blocks and in the district as a whole.

(d) There remains size-wise and block-wise marginal variation among the magnitudes of the shares of the major cost items mentioned previously in the case of all the cost measures in this district. The magnitudes of the share of cash expenditure in the case of all the cost measures considered here have also size-wise and block-wise marginal variation in this district.

(e) In the case of cost  $A_1$  the share of the cost on human labour is positively related with the size of holding and the shares of the cost on bullock labour, manures are inversely related with the size of holding in this district

although there remain diversified views in this regard over the selected blocks.

(f) The share of the cost on human labour in the case of cost B and that exclusive of the insignificant share of imputed value of family labour in case of cost C are observed to be positively related with the size of holding in all the selected blocks and in the district as a whole. Again, the share of the cost on bullock labour and manures are negatively related with the size of holding in the case of cost B in this district, apart from the existence of some varied pictures over the selected blocks regarding this aspect. Although in the district as a whole the share of the cost on bullock labour is negatively related with the size of holding in the case of cost C, the share of the cost on manures is observed to be unrelated with the size of holding in this case with a few block-level exceptions.

(g) The share of the imputed value of owned land is negatively related with the size of holding in this district in the case of cost B whereas there remains no relationship between these two in the case of cost C. However, in the case of cost B and cost C regarding this there exist some diversified views over the selected blocks.

(h) Size-wise higher shares of fertilizer and insecticides and pesticides explain the positive relationship between the share of cost on human labour and size of holding in the case of all the cost measures in this district. Size-wise higher share of the cost on machine labour accounts for the inverse relationship between the share of the cost on bullock labour and size of holding in this district irrespective of the cost basis. Besides, the higher shares of the cost of fertilizer probably interprets the negative relationship between the share of the cost on manures and size of holding found in the cases of cost A<sub>1</sub> and cost B in this district.

(i) The share of the cash expenditure is positively related with the size of holding in all the selected blocks with a few exceptions and in the district as a whole.

Among these broad findings, the findings (a), (b) and (c) imply that in this district there exists size of holding-wise and block-wise insignificant degree of heterogeneity in the structural composition of cost of production of jute per bigha measured in terms of whatever cost basis. And the highest share of the cost on human labour among the shares of all other cost items in the cost of production of jute measured in terms of whatever cost basis implies that the intensity of human labour use in jute production is the highest in all other factor intensities. Moreover, the finding (c) indicates that

the degree of input market involvement in the production of jute is remarkably high in this district.

The implication of the finding (d) is that in this district size-wise and block-wise input intensity along with the degree of input market involvement of the jute growers is also insignificantly heterogeneous. In spite of this fact, the positive relationship between the share of human labour cost and the size of holding, the size-wise higher shares of cost on fertilizers and insecticides and pesticides and specially the same relationship between the share of cash expenditure and the size of holding as explored in the successive findings excluding the finding (g), left out of consideration due to its irrelevance in this context, imply that in this district the larger the size of holding the higher is the dependence on the market-supplied inputs. This, on the other hand, indicates the higher degree of input-market involvement of the jute growers with larger size of holding. Besides, from the nature of the explanatory factors behind the relationships stated in the findings (e) and (f) and its size-wise share as explored in finding (h) one may assume that in this district intensity of the use of modern technological inputs is higher among the larger size of jute growing farms.

In fine, it may be concluded that respective to cost measures considered in this district there exists size-wise and block-wise insignificant heterogeneity in the structural composition of cost of production of jute per bigha. The input-market involvement is remarkably high over all the sizes in all the selected blocks and in the district as a whole. Besides, block-wise input intensity and the degree of input-market involvement are also insignificantly heterogeneous. Although, the same is true in respect of different sizes of holding in this district, the size-wise higher degree of input market involvement and the size-wise higher intensity of the use of modern technological inputs may not be ignored.

**Table 7.1 Percentage Share of Different Cost Items in the Cost of Production of Jute per Bigha  
Measured on the Basis of Cost A<sub>1</sub> in the Selected Blocks of Cooch Behar District and  
in the District as a Whole for the Year 1992-93**

Cost items	Haldibari	Cooch Behar II	Dinhata I	Tufanganj II	Cooch Behar district
Value of hired human labour	57.97	61.33	52.70	52.53	56.49
Value of attached labour	5.48	2.75	10.18	4.70	5.60
Total	63.45	64.08	62.88	57.23	62.09
Hired bullock	1.68	1.06	2.93	2.55	1.98
Owned bullock	8.26	9.85	8.01	12.32	9.55
Total	9.94	10.91	10.94	14.87	11.53
Machinery charges	0.27	0.88	-	-	0.31
Seed	2.72	2.58	3.81	3.93	3.20
Manures	9.91	10.59	8.89	13.43	10.66
Fertilizers	5.25	2.99	5.24	3.68	4.29
Insecticides and pesticides	1.96	1.05	1.17	1.31	1.40
Irrigation charges	0.21	0.18	0.86	-	0.29
Land revenue, cess and other taxes	0.31	0.27	0.32	0.19	0.27
Depreciation on implements and machineries	3.42	3.97	3.32	2.90	3.43
Interest on working capital	2.56	2.50	2.57	2.46	2.53
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Table 7.2 Percentage Share of Different Cost Items in the cost of Production of Jute per Bigha  
 Measured on the Basis of Cost B in the Selected Blocks of Cooch Behar District and in  
 the District as a Whole for the Year 1992-93

Cost items	Haldibari	Cooch Behar II	Dinhata I	Tufanganj II	Cooch Behar district
Value of hired human labour	41.33	44.37	37.25	37.59	40.39
Value of attached labour	3.90	1.99	7.20	3.36	4.00
Total	45.23	46.36	44.45	40.95	44.39
Hired bullock	1.20	0.77	2.08	1.82	1.42
Owned bullock	5.89	7.13	5.66	8.82	6.83
Total	7.09	7.90	7.74	10.64	8.25
Machinery charges	0.19	0.64	-	-	0.22
Seed	1.94	1.87	2.70	2.81	2.28
Manures	7.07	7.66	6.29	9.61	7.62
Fertilizers	3.74	2.16	3.70	2.63	3.07
Insecticides and pesticides	1.40	0.76	0.82	0.94	1.00
Irrigation charges	0.15	0.13	0.61	-	0.21
Land revenue, cess and other taxes	0.22	0.19	0.22	0.14	0.20
Depreciation on implements and machineries	2.44	2.88	2.34	2.07	2.45
Interest on working capital	1.83	1.81	1.82	1.76	1.81
Imputed value of owned land	23.14	21.68	23.77	23.83	23.05
Interest on fixed capital	5.56	5.96	5.54	4.62	5.45
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Table 7.3 Percentage Share of Different Cost Items in the Cost of Production of Jute per Bigha Measured on the Basis of Cost C in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Cost items	Haldibari	Cooch Behar II	Dinhata I	Tufanganj II	Cooch Behar district
Value of hired human labour	33.66	34.99	29.23	27.87	31.66
Value of attached labour	3.18	1.57	5.65	2.49	3.14
Value of family labour	18.57	21.15	21.53	25.84	21.63
Total	55.41	57.71	56.41	56.20	56.43
Hired bullock	0.98	0.60	1.63	1.35	1.11
Owned bullock	4.80	5.62	4.44	6.54	5.35
Total	5.78	6.22	6.07	7.89	6.46
Machinery charges	0.15	0.50	-	-	0.18
Seed	1.58	1.47	2.12	2.09	1.79
Manures	5.75	6.04	4.93	7.12	5.97
Fertilizers	3.05	1.71	2.91	1.95	2.40
Insecticides and pesticides	1.14	0.60	0.64	0.70	0.78
Irrigation charges	0.12	0.10	0.48	-	0.17
Land revenue, cess and other taxes	0.18	0.15	0.18	0.10	0.15
Depreciation on implements and machineries	1.98	2.27	1.84	1.54	1.92
Interest on working capital	1.49	1.43	1.43	1.31	1.42
Imputed value of owned land	18.84	17.09	18.65	17.67	18.06
Interest on fixed capital	4.53	4.71	4.34	3.43	4.27
Total	100.00	100.00	100.00	100.00	100.00

Table 7.4 Percentage Share of Cash Expenditure in the Cost A<sub>1</sub>, Cost B and Cost C per Bigha of Jute in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Percentage share of cash expenditure in		
	Cost A <sub>1</sub>	Cost B	Cost C
Haldibari	85.44	60.92	49.61
Cooch Behar II	83.40	60.34	47.58
Dinhata I	85.78	60.64	47.59
Tufanganj II	82.12	58.76	43.58
Cooch Behar district	84.22	60.22	47.20

Table 7.5 Size-wise Percentage Share of Different Cost Items in the Cost of Production of Jute per Bigha Measured in Terms of Cost A<sub>1</sub> in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93



Table 7.6 Size-wise Percentage Share of Different Cost Items in the Cost of Production of Jute per Bigha Measured in Terms of Cost B in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93



Table 7.7 Size-wise Percentage Share of Different Cost Items in the Cost of Production of Jute per Bigha Measured in Terms of Cost C in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93



Table 7.8 Size-wise Percentage Share of Cash Expenditure in the Cost A<sub>1</sub>, Cost B and Cost C per Bigha of Jute in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Percentage share of cash expenditure in		
		Cost A <sub>1</sub>	Cost B	Cost C
Haldibari	Marginal	84.98	61.35	47.05
	Small	85.88	60.77	50.75
	Large	86.03	64.11	57.19
Cooch Behar II	Marginal	83.40	59.75	45.50
	Small	83.89	62.01	48.82
	Large	84.68	63.16	54.95
Dinhata I	Marginal	86.30	58.53	41.26
	Small	85.46	61.63	51.57
	Large	85.72	64.60	58.58
Tufanganj II	Marginal	81.65	56.76	39.60
	Small	82.72	61.11	47.66
	Large	83.98	64.32	55.27
Cooch Behar district	Marginal	83.96	59.18	43.45
	Small	84.58	61.34	49.74
	Large	85.25	64.00	56.60

## Chapter VIII

### A COMPARATIVE VIEW OF THE COST OF PRODUCTION OF JUTE PER BIGHA AND YIELD RATE OVER DIFFERENT SIZES OF HOLDING IN THE SELECTED BLOCKS OF COOCH BEHAR DISTRICT

#### 8.1. Introduction

In this chapter an attempt has been made to perform block-wise and size-wise comparative study of the cost of production of jute per bigha in Cooch Behar district. The specific objectives to be studied here are to find out:

- (i) Whether there remains any inter-block variation in the cost of production of jute per bigha and if so, what are its major explanatory factors.
- (ii) Whether there remains any variation as well as any relation between the size of holding and cost of production of jute per bigha and, if so, what are the factors responsible for it.

The study covers all the cost concepts namely, cost  $A_1$ , cost B, cost C and cash expenditure considered.

However, the examinations of inter-block and inter-size variation in the cost of production of jute per bigha, if any, may remain incomplete if the implication of the inter-block and inter-size variation of the cost of production of jute per bigha has not become searched out in relation to its output. For this, the present chapter also examines:

- (i) whether there remains any inter-block and inter-size

variation in the output of jute per bigha or not (ii) whether there exists any relation between yield rate of jute and the cost of production of jute vis-a-vis input intensity of jute per bigha.

#### 8.2. Inter-Block Study on the Cost of Production of Jute per Bigha

Table 8.1 furnishes the block-wise magnitudes of the cost of production of jute per bigha in terms of all the cost concepts considered. From this table it is more or less understood that there remains inter-block variation in the cost of production of jute per bigha respective to each cost basis. The differences in the costs of production of jute per bigha relating to the cost concepts, cost  $A_1$ , cost B, cost C and cash expenditure between the blocks confronting the highest and lowest magnitudes displayed in Table 8.2, clearly manifests the inter-block variation in the cost of production of jute per bigha. Table 8.3 visualizes the major factors bringing forth this variation. From this table it is noticed that the major shares in the difference between the highest and lowest cost of production of jute per bigha on the basis of cost  $A_1$  are occupied by human labour, manures, bullock labour and fertilizers in a descending order of importance. In case of cost B and cost C the same are occupied by human labour, imputed value of owned land, manures, interest on

fixed capital and bullock labour in the said order of importance. The case of cash expenditure shows that the major shares in the difference between the highest and lowest cost of production of jute per bigha are occupied by human labour, fertilizers and insecticides and pesticides in a descending order of importance. Thus, it is evident that in case of all the cost concepts the difference on the human labour cost is the predominant factor which causes the inter-block variation in the cost of production of jute per bigha in this district. This difference in the human labour cost over the selected blocks of Cooch Behar district may be due to the existence of inter-block heterogeneity in the labour intensity as indicated in the previous chapter.

#### 8.3. Inter-Size Study on the cost of Production of Jute per Bigha

Table 8.4 depicts the size-wise magnitudes of cost of production of jute per bigha measured in terms of the cost concepts considered in this chapter over the selected blocks of Cooch Behar district and in the district as a whole. A notable inter-size variation in the cost of production of jute per bigha may be assumed from this table in respect of cost  $A_1$ , cost B, cost C and cash expenditure over the selected blocks of Cooch Behar district and in the district as a whole.

Besides this variation, it is noticeable that there remains positive relationship between the magnitudes of the cost of production of jute and the size of holding. In leaving some block-wise exceptions out of consideration, the overall view of all the selected blocks and in the district as a whole furnishes that this positive relationship is due to the size-wise higher cost on all the cost items except bullock labour, seed and manures in case of all the cost concepts considered. Again, the size-wise higher cost on all the cost items except bullock labour, seed and manures may be attributed to the size-wise higher input intensity implied by the size-wise higher degree of input market involvement and the size-wise higher intensity of the use of modern technological inputs as visualized from the previous chapter.

#### 8.4. Block-wise and Size-wise Study on Yield Rate

Tables 8.5 and 8.6 exhibit inter-block and inter-size comparative magnitudes of output of jute per bigha in Cooch Behar district. From Table 8.5 it is observed that Cooch Behar block II registers the highest magnitude of yield rate to the extent of 1.96 quintals while Tufanganj block II exhibits the lowest magnitude of yield rate amounting to 1.75 quintals per bigha. Such disparate figures of highest and lowest yield rate confronted by Cooch Behar block II and Tufanganj block II

respectively do more or less imply that there remains inter-block variation in the yield rate of jute in Cooch Behar district.

From Table 8.6 it is clearly noticed that the magnitudes of yield rate over different sizes of holding are marginally varied in all the selected blocks of Cooch Behar district and in the district as a whole except Haldibari block where this variation extend from 1.74 quintals to 2.01 quintals per bigha.

#### 8.5. Study on Yield Rate and Cost of Production of Jute

Table 8.7 demonstrates yield rate and cost of production of jute on the basis of cost  $A_1$ , cost B, cost C and cash expenditure over the selected blocks of Cooch Behar district. From this table no relationship between the magnitude of the cost of production of jute measured in either term and that of yield rate is observed. Table 8.8 exhibiting the ranks of blocks in terms of yield rate and in terms of cost of production measured in terms of the cost bases considered confirms the stated fact. As positive relationship is observed previously between the cost of production and factor intensity, from this probe it may be stated that there remains no relationship between yield rate and factor intensity in the district of Cooch Behar.

Table 8.6 again demonstrates that there exists positive relationship between yield rate and size of holding in Cooch Behar II and Tufanganj II blocks and negative relationship between these two in Dinhata block I, while Haldibari block and in the district as a whole shows no kind of relationship. Therefore, in this context the block-wise view is admixed. And considering the view of the district as a whole as the generalised state about the relationship between yield rate and size of holding it may be discerned that there exists no relationship between yield rate and size of holding. As there remains positive relationship between cost of production and size of holding vis-a-vis input intensity explored previously, so in this case also it may be said that there remains no relationship between the yield rate and cost of production of jute as well as input intensity.

#### **8.6. Findings**

From the foregoing analysis in the purview of the chapter it is broadly observed that there remains not only inter-block and inter-size variation in the cost of production of jute per bigha irrespective of cost basis but also positive relationship between cost of production of jute irrespective of measures and the size of holding. Inter-block variation in the magnitudes of the cost of production of jute largely hinges upon the inter-block variation in the cost on human

labour which is partly due to the existence of inter-block heterogeneity in the labour intensity of jute.

Inter-size variation in the cost of production of jute along with the positive relationship between the cost of production of jute and the size of holding is caused by the size-wise higher cost on all the cost items except bullock labour, seed and manures. Size-wise higher input intensity may be regarded as the explanatory factor behind the size-wise higher costs on all the inputs in the production of jute except bullock labour, seed and manures.

Thus it is revealed that the inter-block and inter-size variation in the cost of production of jute per bigha are due to the existence of inter-block and inter-size heterogeneity in the input intensity. The positive relationship between the cost of production of jute and size of holding originates due to size-wise higher degree of input intensity. Therefore, the heterogeneity of the input intensity is not only found to explain inter-block and inter-size variation in the cost of production of jute but also the positive relationship between the cost of production of jute and the size of holding.

However, the yield rate of jute in this district shows inter-block and inter-size variation. But no kind of relationship between yield rate and size of holding is observed. Above

all, the magnitudes of yield rate and that of the cost of production of jute vis-a-vis input intensity are noticed unrelated. The existence of no kind of relationship between yield rate and cost of production vis-a-vis factor intensity helps one to conclude that in Cooch Behar district the variation of yield rate originates due to the variation of rainfall, fertility of soil, time of sowing, time of harvesting etc., rather than the variation in the cost of production.

Table 8.1 Absolute Magnitudes of the Cost of Production of Jute per Bigha in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Cost per bigha (in Rs.) on the basis of			
	Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	806.24	1130.76	1388.68	688.89
Cooch Behar II	747.86	1033.61	1310.81	623.69
Dinhata I	611.28	864.67	1101.92	524.35
Tufanganj II	627.63	877.14	1182.76	515.43
Cooch Behar district	698.25	976.54	1246.04	588.08

**Table 8.2 Magnitudes of Differences of the Cost of Production of Jute per Bigha between the Blocks Associated with the Highest and Lowest Costs Measured in Terms of Cost  $A_1$ , Cost B, Cost C and Cash Expenditure in the District of Cooch Behar for the Year 1992-93**

<b>Cost concepts</b>	<b>Name of the blocks exhibiting the highest and lowest cost of production of jute per bigha</b>		<b>Differences between the highest and lowest cost (in Rs.)</b>
	<b>Highest cost</b>	<b>Lowest cost</b>	
<b>Cost <math>A_1</math></b>	Haldibari	Dinhata I	<b>194.96</b>
<b>Cost B</b>	Haldibari	Dinhata I	<b>266.09</b>
<b>Cost C</b>	Haldibari	Dinhata I	<b>286.76</b>
<b>Cash expenditure</b>	Haldibari	Tufanganj II	<b>173.46</b>

Table 8.3 Absolute and Percentage Shares of Different Cost Items in the Difference between the Highest and Lowest Cost of Production of Jute per Bigha Measured in Terms of Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the District of Cooch Behar for the year 1992-93.

Cost concepts	Differences between the highest cost and lowest cost (in Rs.)	Item-wise absolute (in Rs.) and percentage share in the difference					
		Human labour	Bullock labour	Machinery charges	Seed	Manures	Fertilizers
Cost A <sub>1</sub>	194.96 (100.00)	127.17 (65.23)	13.30 (6.82)	2.17 (1.11)	-1.38 (-0.71)	25.53 (13.10)	10.32 (5.29)
Cost B	266.09 (100.00)	127.17 (47.79)	13.30 (5.00)	2.17 (0.82)	-1.38 (-0.52)	25.53 (9.59)	10.32 (3.88)
Cost C	286.76 (100.00)	147.84 (51.56)	13.30 (4.64)	2.17 (0.76)	-1.38 (-0.48)	25.53 (8.90)	10.32 (3.60)
Cash expenditure	173.46 (100.00)	152.36 (87.84)	-2.39 (-1.38)	2.17 (1.25)	-2.74 (-1.58)	-4.39 (-2.53)	19.23 (11.09)

between the highest and lowest cost of production of jute per bigha						
Insecticides and pesticides	Irrigation charges	Land revenue, cess and other taxes on machineries	Depreciation on machineries	Interest on working capital	Imputed value of owned land	Interest on fixed capital
8.67 (4.45)	-3.58 (-1.83)	0.56 (0.29)	7.26 (3.72)	4.94 (2.53)	-	-
8.67 (3.26)	-3.58 (-1.35)	0.56 (0.21)	7.26 (2.73)	4.94 (1.86)	56.14 (21.10)	14.99 (5.63)
8.67 (3.02)	-3.58 (-1.25)	0.56 (0.19)	7.26 (2.53)	4.94 (1.72)	56.14 (19.58)	14.99 (5.23)
7.55 (4.35)	1.67 (0.96)	-	-	-	-	-

Note : Figures in the parentheses are the respective percentages

Table 8.4 Size-wise Absolute Magnitudes of the Cost of Production of Jute per Bigha in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Cost per bigha (in Rs.) on the basis of			Cash expenditure
		Cost A <sub>1</sub>	Cost B	Cost C	
Haldibari	Marginal	717.35	993.62	1295.51	609.59
	Small	842.66	1190.92	1425.90	723.69
	Large	1008.92	1353.84	1517.73	867.99
Cooch Behar II	Marginal	696.78	972.57	1277.11	581.10
	Small	760.28	1028.55	1306.43	637.77
	Large	918.42	1231.45	1415.34	777.76
Dinhata I	Marginal	509.59	751.39	1065.83	439.79
	Small	682.14	945.86	1130.30	582.93
	Large	778.32	1032.82	1138.93	667.18
Tufanganj II	Marginal	543.52	781.83	1120.71	443.78
	Small	721.60	976.75	1252.38	596.93
	Large	864.43	1128.67	1313.35	725.92
Cooch Behar district	Marginal	614.69	872.10	1187.97	516.12
	Small	753.26	1038.64	1280.81	637.09
	Large	892.46	1188.80	1344.29	760.86

**Table 8.5 Output of Jute per Bigha in the Selected Blocks  
of Cooch Behar District and in the District as  
a Whole for the Year 1992-93**

Name of the block	Output per bigha of jute (in quintals)
Haldibari	1.91
Cooch Behar II	1.96
Dinhata I	1.79
Tufanganj II	1.75
Cooch Behar district	1.88

**Table 8.6 Output per Bigha of Jute over the Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

Name of the block	Farm size	Output per bigha of jute (in quintals)
Haldibari	Marginal	1.74
	Small	2.01
	Large	1.97
Cooch Behar II	Marginal	1.94
	Small	1.95
	Large	1.99
Dinhata I	Marginal	1.83
	Small	1.82
	Large	1.71
Tufanganj II	Marginal	1.70
	Small	1.78
	Large	1.81
Cooch Behar district	Marginal	1.80
	Small	1.92
	Large	1.91

Table 8.7 Magnitudes of Output and Cost of Production of Jute per Bigha on the Basis of Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the Selected Blocks of Cooch Behar District for the Year 1992-93

Name of the block	Yield rate (in quintals)	Cost on the basis of (in Rs.)				Cash expenditure
		Cost A <sub>1</sub>	Cost B	Cost C		
Haldibari	1.91	806.24	1130.76	1388.68	688.89	
Cooch Behar II	1.96	747.86	1033.61	1310.81	623.69	
Dinhata I	1.79	611.28	864.67	1101.92	524.35	
Tufanganj II	1.75	627.63	877.14	1182.76	515.43	

Table 8.8 Ranks of the Blocks in Terms of Yield Rate and Cost of Production of Jute per Bigha Measured in Terms of Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the Selected Blocks of Cooch Behar District for the Year 1992-93

Name of the block	Ranks given in terms of yield rate	Ranks given in terms of cost of production			
		Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	2	1	1	1	1
Cooch Behar II	1	2	2	2	2
Dinhata I	3	4	4	4	3
Tufanganj II	4	3	3	3	4

## Chapter IX

### AN ACCOUNT OF RELATIVE PROFITABILITY ALONG WITH THE PROSPECT OF SIZE-WISE ABSOLUTE PROFITABILITY OF JUTE CULTIVATION IN COOCH BEHAR DISTRICT

#### 9.1. Introduction

Economic rationality dictates that acreage allocation under different crops in an agricultural season should be according to the relative profitabilities of the crops. Therefore, in the context of this chapter categorically the questions are : (i) whether jute cultivation is relatively profitable to aus paddy cultivation or not, (ii) if jute is found to yield higher profit relative to aus paddy then what is the factor originating higher profitability of jute, and (iii) if jute is found to be relatively profitable to aus paddy then whether acreage allocation under jute is made according to its profitability or not.

Hence, profitability is measured in terms of surpluses over cost  $A_1$  that is, farm business income; cost B that is, family labour income, cost C that is, net income, and cash expenditure.

#### 9.2. Relative Profitabilities of Jute and Aus Paddy Crops

Table 9.1 furnishes all the surpluses mentioned above. From the magnitudes of the surpluses over different cost concepts presented in this table it is observed that surpluses

over cost B and cost C in the cases of both jute and aus paddy crops in all the selected blocks of Cooch Behar district and in the district as a whole are negative. As these surpluses are negative so the forthcoming analysis relating to the questions set above considers only surpluses over cost  $A_1$  and cash expenditure which are positive. A comparative study of the surpluses over cost  $A_1$  and cash expenditure regarding both jute and aus paddy crops explicits that the surpluses over cost  $A_1$  and cash expenditure respective to the cultivation of jute per bigha are higher than those of aus paddy in all the selected blocks of Cooch Behar district and in the district as a whole. This helps one to hold the view that the profitability of jute is relatively higher than that of aus paddy in this district.

### 9.3. Factors Explaining Higher Profitability of Jute

The factors explaining the higher profitability of jute may be assumed from Table 9.2. From this table it is observed that the ratio between per bigha jute - aus income difference and jute-aus cost difference respective to cost  $A_1$  and cash expenditure are remarkably higher than one in all the selected blocks of Cooch Behar district and in the district as a whole. Such high magnitudes of these ratios imply that the margin of cost in addition to the cost of production of aus paddy per bigha, incurred on producing

jute adds remarkably higher margin of income than the additional margin of cost required in producing jute. It means that although the cost of production of jute per bigha is higher than that of aus paddy crop, it yields remarkably higher level of income per bigha compared with its cost of production. This relatively higher income-generating capacity of jute against its higher cost of production, relative to that of aus paddy per bigha causes relatively higher profitability of this crop enterprise.

Now coming across the same table one may identify the factors responsible behind the said state of income-generating capacity of jute production. With the exception of Dinhata block I regarding yield rate, yield rate and price per quintal of jute are everywhere remarkably higher than those of aus paddy in this district. Such higher position of jute in terms of its yield rate and price per quintal relative to that of aus paddy is the cause of relatively higher profitability of jute in comparison to aus paddy. In a different manner it may be stated that higher price per quintal and yield rate of jute compared to aus paddy generate remarkably higher level of income per bigha of jute than that of aus paddy against higher cost of production of jute per bigha relative to that of aus paddy and thereby causes relatively higher profitability of it compared to aus paddy.

#### 9.4. Relative Profitabilities and Acreage Allocations of Jute and Aus Paddy Crops

Table 9.3 exhibits the acreage allocation under jute and aus paddy crops along with its profitabilities measured in terms of surpluses over cost  $A_1$  and cash expenditure. From this table it is noticed that the share of area under jute in the combined area of jute and aus paddy crops is remarkably higher relative to that of aus paddy in all the selected blocks except Dinhata block I and Tufanganj block II where the share of aus paddy crop in the combined area of jute and aus paddy is higher than that of jute in spite of higher relative profitability of jute confronted by these two blocks. Thus the disaggregated view over the selected blocks shows no unique relationship between acreage allocation under jute and aus paddy crops and their relative profitabilities. However, through an aggregative manner one may observe the existence of the conformity between the acreage allocation of jute and aus paddy crops and its relative profitabilities in the district as a whole.

#### 9.5. Prospect of Size-wise Absolute Profitability of Jute Cultivation

The advantageous position of jute cultivation in terms of profitability relative to that of aus paddy as visualized earlier in this chapter initiates us to enquire about who

benefits how much from the jute cultivation. More categorically, what size of holding gets how much benefit in terms of profit from the cultivation of jute in this district. Therefore, the relevant objectives to be studied here are : (i) to show the prospect of profitability (absolute profitability) of jute cultivation over different sizes of holding in the selected blocks of Cooch Behar district; (ii) to identify the reasons behind the observed situation of profitability over the size of holding; and (iii) to search out the implication of the observed situation relating to profitability of jute over the size of holding.

Table 9.4 shows the profitability of jute per bigha measured in terms of surpluses over cost  $A_1$  and cash expenditure in the cases of marginal, small and large sizes of holding over the selected blocks and in the district as a whole. Although this table shows no kind of relationship between the profitability of jute and size of holding in case of Haldibari block, it presents inverse relationship between the profitability of jute irrespective of measures and size of holding over other selected blocks and in the district as a whole. This helps us to hold the view that in the district of Cooch Behar profitability of jute per bigha is inversely related with the size of holding.

The inverse relationship between the profitability of jute cultivation and the size of holding as appears in Table 9.4 may be explained from Table 9.5. From the latter table it is observed that gross return per bigha of jute relative to the cost of production of jute measured on the basis of cost  $A_1$  and cash expenditure is declining as the size of holding increases in the three selected blocks namely, Cooch Behar II, Dinhata I and Tufanganj II and in the district as a whole showing the inverse relationship between the profitability of jute and size of holding. Therefore, it may be stated that the declining benefit-cost ratio over marginal, small and large size of holding is responsible for inverse relationship between profitability of jute and the size of holding as observed in Table 9.4 in the cases of most of the selected blocks and in the district as a whole.

The inverse relationship between the profitability of jute and size of holding and the same relationship between the gross return relative to the cost of production of jute per bigha, that is, the benefit-cost ratio, or in other words, the rate of return and the size of holding examined in the previous paragraph are seen to decline in Cooch Behar II, Dinhata I and Tufanganj II blocks and in the district as a whole as the size of holding increases. That is, in this district, the lower is the size of holding, the higher is

the efficiency in the cultivation of jute and the higher is the benefit accruing in the form of profit.

#### 9.6. Findings

The foregoing discussion broadly shows that in the district of Cooch Behar jute cultivation is relatively profitable to aus paddy cultivation and this relative profitability of jute arises due to its higher income-generating capacity caused by higher yield rate and higher level of price per quintal relative to those of aus paddy. The acreage allocation of jute and aus paddy is made in accordance with the relative profitabilities of both these crops in this district.

Therefore, from all these it may be said that in this district jute production is comparatively advantageous in terms of its profitability relative to that of aus paddy. The farmers are here observed to reap the relative benefit of jute production. And hence the farmers in this district are observed to behave according to economic rationality.

Besides, in this district, the profitability of jute per bigha declines over the marginal, small and large size of holding due to the declining benefit-cost ratio over the sizes. This indicates that the efficiency in the cultivation of jute in this district decreases as the size of holding

becomes higher and higher. This may help one to state that in the cultivation of jute marginal size of holding is the most efficient and reaps the highest level of benefit.

**Table 9.1 Surpluses per Bigha of Jute and Aus Crops over Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

Name of the block	Surplus (in Rs.) of jute per bigha over				Surplus (in Rs.) of aus per bigha over			
	Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure	Cost A <sub>1</sub>	Cost B	Cost C	Cash expenditure
Haldibari	250.44	-74.08	-332.00	367.79	13.45	-158.30	-336.44	120.64
Cooch Behar II	156.49	-129.26	-406.46	280.66	115.82	-85.98	-275.85	226.54
Dinhata I	218.55	-34.84	-272.09	305.48	181.34	-24.03	-176.29	263.19
Tufanganj II	213.23	-36.28	-341.90	325.43	145.48	-30.54	-233.96	247.14
Cooch Behar district	244.93	-33.36	-302.86	355.10	145.06	-48.09	-229.85	242.80

**Table 9.2 Surpluses per Bigha of Jute and Aus Crops over Cost A<sub>1</sub> and Cash Expenditure, Yield Rate and Price per Quintal of Both These Crops and Other Related Information in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

Name of the block	Surplus (in Rs.) of jute per bigha over Cost A <sub>1</sub>	Cash expenditure	Surplus (in Rs.) of aus per bigha over Cost A <sub>1</sub>	Cash expenditure	Yield rate of jute (in quintals)	Price per quintal of jute (in Rs.)	Yield rate of aus (in quintals)	Price per quintal of aus (in Rs. )
Haldibari	250.44	367.79	13.45	120.64	1.91	500.16	1.51	299.33
Cooch Behar II	156.49	280.66	115.82	226.54	1.96	406.05	1.85	303.12
Dinhata I	218.55	305.48	181.34	263.19	1.79	411.62	2.04	299.59
Tufanganj II	213.23	325.43	145.48	247.14	1.75	419.88	1.70	301.74
Cooch Behar district	244.93	355.10	145.06	242.80	1.88	447.31	1.85	301.35

Gross income per bigha of jute (in Rs.)	Gross income per bigha of aus (in Rs.)	Jute-aus cost difference (in Rs.) on the basis of Cost A <sub>1</sub>	Jute-aus income difference (in Rs.)	Ratios of income and cost difference on the basis of Cost A <sub>1</sub>	Cash expenditure
1056.68	490.66	329.03	318.87	1.72	1.78
904.35	597.42	266.26	252.81	1.15	1.21
829.83	655.61	137.01	131.93	1.27	1.32
840.86	550.30	222.81	212.27	1.30	1.37
943.18	596.94	246.37	233.94	1.41	1.48

Table 9.3 Surpluses per Bigha of Jute and Aus Crops over Cost A<sub>1</sub> and Cash Expenditure and Absolute and Percentage Shares of Jute and Aus Crops in the Combined Area of These Two Crops in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Surplus (in Rs.) of jute per bigha over		Surplus (in Rs.) of aus per bigha over		Area under jute in absolute (in bighas) and percentage term	Area under aus in absolute (in bighas) and percentage term	Combined area of jute and aus (in bighas)
	Cost A <sub>1</sub>	Cash expenditure	Cost A <sub>1</sub>	Cash expenditure			
Haldibari	250.44	367.79	13.45	120.64	376.00 (98.04)	7.50 (1.96)	383.50 (100.00)
Cooch Behar II	156.49	280.66	115.82	226.54	243.00 (60.11)	161.25 (39.89)	404.25 (100.00)
Dinhata I	218.55	305.48	181.34	263.19	168.50 (48.21)	181.00 (51.79)	349.50 (100.00)
Tufanganj II	213.23	325.43	145.48	247.15	156.00 (42.11)	214.50 (57.89)	370.50 (100.00)
Cooch Behar district	244.93	355.10	145.06	242.80	943.50 (62.58)	564.25 (37.42)	1507.75 (100.00)

Note : Figures in the parentheses are the respective percentages

Table 9.4 Size-wise Surpluses per Bigha of Jute over Cost A<sub>1</sub> and Cash Expenditure in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Gross income per bigha of jute (in Rs.)	Surplus (in Rs.) of jute per bigha over Cost A <sub>1</sub>	Cash expenditure
Haldibari	Marginal	914.16	196.81	304.57
	Small	1137.22	294.56	413.53
	Large	1108.79	99.87	240.80
Cooch Behar II	Marginal	872.74	175.96	291.64
	Small	889.58	129.30	251.81
	Large	952.24	33.82	174.48
Dinhata I	Marginal	824.45	314.86	384.66
	Small	853.09	170.95	270.16
	Large	816.24	37.92	149.06
Tufanganj II	Marginal	814.88	271.36	371.10
	Small	854.31	132.71	257.38
	Large	877.85	13.42	151.93
Cooch Behar district	Marginal	868.26	253.57	352.14
	Small	971.68	218.42	334.59
	Large	988.99	96.53	228.13

Table 9.5 Gross Return Relative to Cost of Production per Bigha (Benefit-Cost Ratio) Measured in Terms of Cost  $A_1$  and Cash Expenditure over Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Benefit cost ratios relating to	
		Cost $A_1$	Cash expenditure
Haldibari	Marginal	1.27	1.50
	Small	1.35	1.57
	Large	1.10	1.28
Cooch Behar II	Marginal	1.25	1.50
	Small	1.17	1.39
	Large	1.04	1.22
Dinhata I	Marginal	1.62	1.87
	Small	1.25	1.46
	Large	1.05	1.22
Tufanganj II	Marginal	1.50	1.84
	Small	1.18	1.43
	Large	1.02	1.21
Cooch Behar district	Marginal	1.41	1.68
	Small	1.29	1.53
	Large	1.11	1.30

## Chapter X

### PRICE-COST PROSPECT AND EX POST LEVEL OF ADMINISTERED PRICE OF JUTE IN COOCH BEHAR DISTRICT

#### 10.1 Introduction

The incentive of the farmers to produce any commodity, specially cash crop, hinges upon the extent of material gain in the form of profit, not per unit of land but per unit of output. The extent of material gain vis-a-vis profit per unit of output depends predominantly on the efficacy of the price to cover the per unit cost of production of the commodity concerned. That is, the incentive to produce any commodity depends mainly upon the remunerativeness of price. But there prevails a common allegation over years, except the peak price years, among the jute growers that jute price is highly unremunerative. This price is unable to cover the existing level of per unit cost of production which is also evinced from the opinion survey on the sample jute growers in the district of Cooch Behar.

In the year 1971 the Government of India set up an institution called the Jute Corporation of India. Through this the Government announces from time to time the different levels of minimum support and procurement price i.e., administered price for different jute growing zones and for different categories of jute with a view to removing the

inefficacy of the prices paid by other jute market institutions besides the Jute Corporation of India to cover cost of production of jute per unit of output and making jute production remunerative and gainful in terms of its profitability per unit of output. It is reported by the office of the Jute Corporation of India, Cooch Behar district, that from the marketing point of view the dominant variety of jute cultivated in this district is TD-5. The price fixed by the Jute Corporation of India for this variety in the year 1992-93 was of the order of Rs. 413.00 per quintal.

#### 10.2. Position of Jute Price Fixed by the Jute Corporation of India and Other Related Issues

In the year 1992-93 the overall average market prices at which the farmers in the different selected blocks of Cooch Behar district are observed to sell raw jute are of the orders of Rs. 500.16, Rs. 406.05, Rs. 411.62 and Rs. 419.88 per quintal respectively for Haldibari, Cooch Behar II, Dinhata I and Tufanganj II blocks. The comparison of Rs. 413.00, the administered price fixed by the Jute Corporation of India in the said year, with the stated prices exhibits that the administered price is higher in Cooch Behar II and Dinhata I blocks while that is lower in Haldibari and Tufanganj II Blocks. Thus it is observed that the position of administered price fixed by the Jute Corporation of India in relation

to the overall average market price received by the farmers in the selected blocks of Cooch Behar district is mixed in character. However, the prospect in this respect concerning the district as a whole shows that the administered price fixed by the Jute Corporation of India for the year 1992-93 at Rs. 413.00 is strikingly lower than Rs. 447.31, the overall average market price per quintal received by the farmers.

As the administered price is lower than the over all average market price, it becomes more meaningful to assess here the remunerativeness of the later rather than the former and to search out whether there exists any need of refixing the administered price.

Table 10.1 manifests that the overall average market price in Cooch Behar district is significantly above the cost of production of jute per quintal measured in terms of Cost  $A_1$  and cash expenditure. But that is lying remarkably below the cost of production of jute per quintal measured on the basis of two other cost concepts, namely, cost B and cost C. Therefore, though the price received by the jute-growing farmers in this district is observed to be remunerative in terms of its efficacy of covering cost  $A_1$  and cash expenditure that is not so in relation to the cost of production of jute per quintal measured on the basis of cost B and cost C. This observed unremunerativeness of over-all average market

price received by the farmers in this district specially in terms of full cost principle i.e., cost C necessitates refixing of a new normative or administered price on the basis of full cost principle by the intervention of the Government in this sphere through the Jute Corporation of India with a view to protecting the interests of the jute-growing farmers in this district. This practice may bring forth such a situation where the jute growers in this district may be remunerated in the true sense of the term although the calculation of cost C is associated with some arbitrariness.

#### 10.3. Indication about the Level of Refixing the Normative Price or Administered Price

The refixation of administered or normative price of jute for this district on the basis of average cost per unit of output can be said to be appropriate only when there exists minimum inter-farm variation in the per unit cost of production<sup>1</sup>. In the case where there is wide inter-farm variation in the per unit cost of production, the refixation of administered price on the basis of average cost of

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1. Pal, A. (1990) Wheat Revolution in India (Constraints and Prospects), Mittal Publications, New Delhi-59, p. 181.

production loses its statistical significance. Wide inter-farm differences in the per unit cost of production of jute in this district is noted in Table 10.2. At this juncture this may be argued that the bulk of output may be produced within the limit of the estimated average cost per unit of output despite the existence of wide range of inter-farm variation in the unit cost of production of jute. But from Table 10.2 it is observed that only 49.69 per cent of output of jute is being produced within the noted limit of the estimated average cost of production in Cooch Behar district. A further examination of the same table reveals that the cumulative percentages of holding and area lying within the estimated average cost of production of jute in this district are noted to be 50.42 and 43.83 respectively. As the remarkable cumulative percentages of production, holding and area are observed lying outside the limit of the estimated average cost of production of jute in terms of cost C in this district, so the consideration of average cost of production of jute as an appropriate basis of refixation of administered price for this district loses its importance. It may, therefore, be necessary to think of other bases.

Among other bases, the bulk-line cost defined to cover 85 per cent of production along with covering the maximum

possible jute-growing area and protecting the interests of the largest possible number of jute-growing farmers can be considered as the most appropriate mechanism of refixing the administered price in this district. The cost per quintal of jute within the range of Rs. 810 to Rs. 840 covers 85.90 per cent of output, 81.55 per cent of area and 87.09 per cent of holding in this district as revealed in Table 10.3. This range of cost per quintal of jute on the basis of cost C satisfies the definition of bulk-line cost as mentioned. Therefore, the price of jute should be refixed within the range of Rs. 810 to Rs. 840 per quintal for this district. The refixation of price within this range will ensure the protection of the interests of the largest number of farmers making their jute cultivation remunerative in the true sense of the term.

#### 10.4. Findings

The lower magnitude of overall average market price received by the jute growers in Cooch Behar district in relation to cost C per quintal of jute establishes the unremunerativeness of jute price in this district. Besides, the strikingly lower position of price fixed by the Jute Corporation of India in comparison to over-all average market price corroborates the ineffectiveness of the present administered price to cover the full cost of production of

jute per quintal measured on the basis of cost C as well as to fully remunerate the jute growers in this district. The lower position of the prevailing administered price along with the low overall average market price relative to cost of production of jute per quintal measured in terms of full cost principle gives rise to the necessity of refixing administered price to a new level. The consideration of average cost of production on the basis of full cost principle in refixing a new level of administered price shows that remarkable percentages of production, holding and area in this district remain unremunerated. This raises the imperative need to work out the new level of administered price in accordance with the bulk-line cost principle. With the objective of remunerating the jute growers in this district in the true sense of the term, we have suggested as per the above principle to refix the administered price at a new level within the range of Rs. 810 to Rs. 840 per quintal.

## Tables of Chapter X

**Table 10.1 Over-All Average Price per Quintal of Jute Received by the Farmers and Cost of Production of Jute per Quintal Measured on the Basis of Cost A<sub>1</sub>, Cost B, Cost C and Cash Expenditure along with the Difference between Those in Cooch Behar District for the Year 1992-93**

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Name of the items	Magnitudes (in Rs.)
Over all average price per quintal of jute received by the farmers	447.31
Cost of production of jute per quintal on the basis of :	
i) Cost A <sub>1</sub>	371.41
ii) Cost B	519.44
iii) Cost C	662.79
iv) Cash expenditure	312.81
Surplus of over all average price received by the farmers over cost of production of jute per quintal on the basis of :	
i) Cost A <sub>1</sub>	75.90
ii) Cost B	-72.13
iii) Cost C	-215.48
iv) Cash expenditure	134.50

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**Table 10.2 Magnitudes of Highest and Lowest Cost, Related Range, Average Cost of Production per Quintal of Jute and Percentages of Production, Holding and Area Covered at Average Cost of Production in the Year 1992-93 for Cooch Behar District.**

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Cost per quintal of jute on the basis of Cost C (in Rs. )	Maximum	1538.85
	Minimum	407.24
	Average	662.79
Range between maximum and minimum cost		1131.61
Percentage covered at average cost (cost C) per quintal of jute	i) Production	49.69
	ii) Holding	50.42
	iii) Area	43.83

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Table 10.3 Bulk-line Cost of Production of Jute on the Basis of Full Cost Principle (Cost C)  
in Cooch Behar District in the Year 1992-93

Range of cost of production per quintal (in Rs.)	Production			Number	Holding			Area (in bighas)	% to total area	Cumulative percentage
	Production (in quintals)	% to total production	Cumulative percentage		% to total holding	Cumulative percentage				
Below 570	241.10	13.62	13.62	43	17.92	17.92	107.50	11.39	11.39	
570-600	229.40	12.96	26.58	25	10.42	28.34	104.50	11.08	22.47	
600-630	171.40	9.69	36.27	24	10.00	38.34	83.00	8.80	31.27	
630-660	230.30	13.01	49.28	28	11.67	50.01	114.00	12.08	43.35	
660-690	133.20	7.53	56.81	20	8.33	58.34	69.50	7.37	50.72	
690-720	141.10	7.97	64.78	20	8.33	66.67	79.00	8.37	59.09	
720-750	178.40	10.08	74.86	18	7.50	74.17	92.50	9.80	68.89	
750-780	90.80	5.13	79.99	13	5.42	79.59	53.50	5.67	74.56	
780-810	68.60	3.88	83.87	10	4.17	83.76	40.50	4.29	78.85	
810-840	36.00	2.03	85.90	8	3.33	87.09	25.50	2.70	81.55	
840-870	55.60	3.14	89.04	6	2.50	89.59	36.00	3.82	85.37	
Above 870	193.96	10.96	100.00	25	10.41	100.00	138.00	14.63	100.00	
Total	1769.86	100.00		240	100.00		943.50	100.00		

## Chapter XI

### PROBLEMS OF JUTE MARKETING AT GROWER'S LEVEL IN COOCH BEHAR DISTRICT

#### 11.1. Introduction

Though income per bigha from jute cultivation is observed to cover cost of production of jute per bigha measured in terms of cost A<sub>1</sub> and cash expenditure it is significantly below the cost of production of jute per bigha while measured in terms of cost B and, above all, cost C. This significant lower level of income relative to cost B and especially cost C is mostly due to the unfairness of jute price which is also revealed earlier from the strikingly lower level of the price per quintal of jute compared to cost C per quintal. The allegation of the jute growers covered in the opinion survey about the fairness of the price per quintal of jute in this district corroborates the above findings. However, the unfairness of jute price confronted by the jute growers in this district is a crucial problem. The unfairness of the price of any agricultural commodity from the theoretical point of view may largely be due to the inefficient functioning of the market for the commodity concerned. For this, it may be worthwhile to make a study about the nature of jute marketing in this district. Here only a modest attempt has been undertaken to identify the problems of jute marketing in this

district at grower's level. The specific objectives in this chapter are to identify the dominant intermediary associated with jute marketing at grower's level, the location/place and time of sale, and inter alia, the implication of these on the nature of the problems of jute marketing at grower's level.

#### 11.2. Identification of Dominant Intermediary and Related Issues

It is observed from the investigation on the sample farmers in the selected blocks of Cooch Behar district that they are selling their output to various intermediaries namely, the farias, the mahajans\*, and the Jute Corporation of India. Other types of intermediaries such as primary agricultural cooperative marketing societies etc. are reported not to function in this regard. The relative importance of the stated intermediaries functioning in jute marketing operations at grower's level is shown in Table 11.1. From this table it is evident that in all the selected blocks except Haldibari block and in the district as a whole a major proportion of output is observed to be sold through the farias followed by mahajans and the Jute Corporation of India. This

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\* Mahajans are associated with larger volume of turn-over than the farias and bale maker. This agency has the direct correspondence with the jute mills.

indicates that the most dominant intermediary at grower's level is the farias and the least dominant intermediary is the Jute Corporation of India. As the Jute Corporation of India holds the lowest position in case of jute marketing at grower's level it has been left out of consideration from the successive analysis.

The table further exhibits dominantly the inverse relationship between the size of holding and the percentage of output sold in case of farias and the direct relationship between these in case of mahajans in all the selected blocks and in the district as a whole.

The implication of these relationships is that the larger the size of holding the higher is the incentive to sell output through the mahajans. The underline factor behind this higher tendency is that the sale of output through the mahajans yields significantly higher level of price relative to that through the farias, which is evident from Table 11.2. Thus the agency-wise fragmented<sup>1</sup> jute market in Cooch Behar district is associated with heterogeneity in the case of price formation. And the benefits arising out of this heterogeneity are mostly harvested by the larger sizes of holding.

1. Rudra, A. (1992) Political Economy of Indian Agriculture, K. P. Bagchi and Company, New Delhi-92, pp. 50-53.

### 11.3. Place of Sale and Its Implications

Among the intermediaries namely the farias and the mahajans, the farias are functioning at the primary or village level market whereas mahajans are observed to function at the secondary market\*. Thus agency-wise fragmentation of jute market in Cooch Behar district leads to geographical fragmentation. So it may not be irrelevant to state corresponding to Table 11.1 in this context that the highest share of the output of jute is sold at the primary market at relatively lower level of price in all the selected blocks except Haldibari block and in the district as a whole. Again, the previously exposed inverse relationship between the size of holding and percentage of output sold in the case of farias and the positive relationship between those in the case of mahajans jointly establish the fact that the larger the size of holding the higher the capacity to take advantage of higher price prevailing in the secondary market. So the agency-wise as well as geographically fragmented market of jute in Cooch Behar district is observed to bring forth heterogeneity in price formation. The benefit of this heterogeneity is largely gained by the larger sizes of holding.

\* Secondary markets are located in urban centres like block town, sub-divisional town etc.

However, the dominant portion of output which is sold through the farias at the primary or village level market is observed to arrive from remarkably larger number of jute growers compared to that of selling through the maha-jans at secondary markets. This may be understood from Table 11.3. This table shows that the stated fact is true for all sizes of holding in all the selected blocks and in the district as a whole except small and large sizes of holding in Haldibari block. Therefore, it may be viewed that the majority of jute growing farmers in all the selected blocks and in the district as a whole is observed to receive relatively lower level of price from selling their output through the farias at the primary markets, although there prevails higher and better price at the secondary markets. According to the results of opinion survey the notable distance of secondary markets coupled with costly means of transportation creating economic as well as physical hazards is the responsible factor which compels the majority of the jute growing farmers to sell their output at relatively lower level of price through the farias in the primary markets. Besides, the relatively depressing price received by the majority of jute growing farmers from selling their output through the farias at primary markets becomes more depressing when the same is

reduced to net of marketing cost\*. All these may be understood clearly from Table 11.4.

The factors responsible for such height of marketing cost may be realised from Table 11.5. Apart from the disunique and multivarious pictures about this respect in the cases of different sizes of holding over the selected blocks of Cooch Behar district; Table 11.5 shows on an average for the district that the height of marketing cost is mostly explained by the processing cost, transportation cost and imputed value of personal labour rendered for selling output in a descending order of importance. A comparative study on the relative shares of these components in the total marketing cost per quintal manifests that the share of transportation cost though less than the dominant contributing factor namely processing cost but it is noticeably high in this district. This may be attributed on the one hand to the distance between farm-gate and location of market and on the other the mode of transportation, which may be explicated from Tables 11.6 and 11.7 respectively.

Again, the close perusal of Tables 11.8 and 11.9 respectively discloses that the majority of the jute growing

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\* Marketing cost composed of processing cost, transportation cost, loading and unloading and weighing charges, etc.

farmers in this district has to cover about 2 to 6 kms. to sell their produce and they have to use one of the costly means of transport that is, rickshaw/rickshaw van. Thus it is revealed that the majority of the jute growing farmers in this district is confronted with physical and economic problems originating from the distance between farm-gate and location of market as well as costly means of transportation.

#### 11.4. Time of Sale and Its Implications

At grower's level, in terms of time of sale, jute marketing season in Cooch Behar district may be divided into two periods/seasons namely, harvest period and post-harvest period. Harvest period extends from the middle of the month of July to the end of the month of October. The post-harvest period is composed of the time length between the beginning of the month of November to the middle of the month of April. The pattern of disposal of jute at grower's level in this district corresponding to the marketing seasons may be visualized from Table 11.10. This table shows that at grower's level the dominant portion of output is sold in the harvest period in all the selected blocks except Haldibari block and in the district as a whole. This helps one to hold the view that in Cooch Behar district harvest period of sale of dominant portion of jute output is a notable feature in case of jute marketing at grower's level.

Alike other agricultural commodities harvest period price of jute in this district is strikingly lower than the post-harvest price of it, which is evident from Table 11.11. Therefore, corresponding to the previously exposed feature of jute marketing in this district at grower's level it may be stated that the dominant portion of jute output in this district is sold in the harvest period at a highly lower level of price compared to that prevailing in the post harvest period.

From Table 11.10 it is further revealed that percentage of output sold and the size of holding are inversely related in the harvest period while these two are directly related in the post-harvest period in all the selected blocks and in the district as a whole. And again, this table shows that the farmers belonging to large size of holding disposes the dominant portion of their output in the post-harvest period. All these collectively establish the fact that the relatively larger size of holding reaps the benefit of post-harvest period price hike. In other words, in terms of time of sale, jute market in this district is also fragmented and this fragmented jute market is associated with heterogeneity in the price formation and the benefits cropping out of heterogeneity in price formation is appropriated largely in its critical level by the large size of holding.

The results of opinion survey on the sample jute growers over the selected blocks in this district may explain the above findings. The jute growers in this district are compelled to sell dominant portion of their output on account of two reasons which are equally important. However, these two reasons are (a) lack of storage facilities and (b) immediate cash needs originating from purchase of farm inputs for next crop, purchase of consumer goods like rice and other materials, repayment of debt, other works of farm improvement and social ceremonies. Since the capacity to minimise the problems arising out of the stated factors increases with the increase in the size of holding, farmers with the relatively larger size of holding are able to reap the benefits of post-harvest price hike. And again, the problems from lack of storage facilities and immediate cash needs are minimum in case of the jute growers belonging to large size of holding. So they are able to avail the opportunity of post-harvest period price hike or in other words, the benefits of heterogeneity in price formation brought forth by the season-wise fragmented jute market in its maximum possible level.

#### 11.5. Findings

At grower's level jute market or marketing system in Cooch Behar district is fragmented agency-wise vis-a-vis geographically and season-wise. In both the cases the number

of fragments are two generating two levels of prices. The major portion of output of the jute growers in this district are sold at relatively lower level of price generated by the fragmented jute marketing system in terms of both these respects. They sell their dominant portion of output at relatively lower level of price formed by the agency-wise vis-a-vis geographical fragmentation of this market due to economic and physical hazards arising out of the distance and costly means of transportation. This relatively lower level of price becomes more depressing due to the exorbitantly high marketing cost incurred by the farmers. The exorbitantly high marketing cost is largely the consequence of distance and costly means of transportation. Again, the major portion of output is sold by the farmers at relatively lower level of price resulting from season-wise fragmentation of jute market. This is on account of the problems that crop up due to lack of storage facilities and immediate cash needs. The farmers with relatively larger size of holding are to some extent able to minimise the problems arising out of the stated factors and to reap the benefits of this fragmentation. However, as a whole, one may outrightly state that jute market or marketing system at grower's level in Cooch Behar district suffers from the problems arising out of the distance between the farm-gate and market place, costly means of transportation,

lack of storage facilities and immediate cash needs. For all these factors jute marketing at grower's level in Cooch Behar district is functioning inefficiently. Owing to this, jute growers in this district are compulsorily used to receive relatively lower, less fair and less remunerative price from selling the major portion of output though there prevails relatively higher, more fair and more remunerative price in the jute market at grower's level in this district.

Table 11.1 Absolute and Percentage Share of Output Sold to Different Agencies at Grower's Level over Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the year 1992-93

Name of the block	Farm size	Output sold to agencies			Total (in quintals)
		Farias (in quintals)	Mahajans (in quintals)	Jute Corporation of India (in quintals)	
Haldibari	Marginal	129.68 (68.22)	54.00 (28.41)	6.40 (3.37)	190.08 (100.00)
	Small	111.20 (45.31)	114.60 (46.70)	19.60 (7.99)	245.40 (100.00)
	Large	83.60 (31.96)	157.20 (60.09)	20.80 (7.95)	261.60 (100.00)
	All farms	324.48 (46.55)	325.80 (46.74)	46.80 (6.71)	697.08 (100.00)
Cooch Behar II	Marginal	115.60 (82.81)	12.80 (9.17)	11.20 (8.02)	139.60 (100.00)
	Small	106.00 (61.34)	54.40 (31.48)	12.40 (7.18)	172.80 (100.00)
	Large	76.00 (49.87)	56.40 (37.01)	20.00 (13.12)	152.40 (100.00)
	All farms	297.60 (64.03)	123.60 (26.59)	43.60 (9.38)	464.80 (100.00)
Dinhata I	Marginal	81.40 (70.90)	25.00 (21.78)	8.40 (7.32)	114.80 (100.00)
	Small	61.40 (62.65)	25.40 (25.92)	11.20 (11.43)	98.00 (100.00)
	Large	46.00 (58.23)	22.60 (28.61)	10.40 (13.16)	79.00 (100.00)
	All farms	188.80 (64.70)	73.00 (25.02)	30.00 (10.28)	291.80 (100.00)

Contd..

Table 11.1 (Contd..)

Tufanganj II	Marginal	91.20 (74.63)	19.00 (15.55)	12.00 (9.82)	122.20 (100.00)
	Small	63.20 (70.85)	18.80 (21.08)	7.20 (8.07)	89.20 (100.00)
	Large	33.60 (57.54)	16.40 (28.08)	8.40 (14.38)	58.40 (100.00)
	All farms	188.00 (69.68)	54.20 (20.09)	27.60 (10.23)	269.80 (100.00)
Cooch Behar district	Marginal	417.88 (73.74)	110.80 (19.55)	38.00 (6.71)	566.68 (100.00)
	Small	341.80 (56.46)	213.20 (35.22)	50.40 (8.32)	605.40 (100.00)
	Large	239.20 (43.38)	252.60 (45.81)	59.60 (10.81)	551.40 (100.00)
	All farms	998.88 (57.96)	576.60 (33.45)	148.00 (8.59)	1723.48 (100.00)

Note : Figures in the parentheses are the respective percentages.

Table 11.2 Price per Quintal of Jute Received by Jute  
Growing Farmers from Farias and Mahajans in the  
Selected Blocks of Cooch Behar District and  
in the District as a Whole for the Year 1992-93

Name of the block	<u>Price per quintal (in Rs.) received from</u>	
	Farias	Mahajans
Haldibari	476.22	524.12
Cooch Behar II	389.97	446.36
Dinhata I	396.92	447.33
Tufanganj II	409.63	453.41
Cooch Behar district	423.00	491.09

Table 11.3 Number of Farmers in Absolute and Percentage Term Selling Output through Farias and Mahajans over Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Number of farmers selling output through		Total
		Farias	Mahajans	
Haldibari	Marginal	17(89.47)	2(10.53)	19(100.00)
	Small	2(40.00)	3(60.00)	5(100.00)
	Large	1(25.00)	3(75.00)	4(100.00)
	All farms	20(71.43)	8(28.57)	28(100.00)
Cooch Behar II	Marginal	26(96.30)	1(3.70)	27(100.00)
	Small	7(77.78)	2(22.22)	9(100.00)
	Large	5(71.43)	2(28.57)	7(100.00)
	All farms	38(88.37)	5(11.63)	43(100.00)
Dinhata I	Marginal	22(78.57)	6(21.43)	28(100.00)
	Small	10(71.43)	4(28.57)	14(100.00)
	Large	6(75.00)	2(25.00)	8(100.00)
	All farms	38(76.00)	12(24.00)	50(100.00)

Contd..

Table 11.3 (Contd..)

Tufangaj II	Marginal	27 (84.38)	5 (15.62)	32 (100.00)
	Small	11 (78.57)	3 (21.43)	14 (100.00)
	Large	3 (75.00)	1 (25.00)	4 (100.00)
	All farms	41 (82.00)	9 (18.00)	50 (100.00)
Cooch Behar district	Marginal	92 (86.79)	14 (13.21)	106 (100.00)
	Small	30 (71.43)	12 (28.57)	42 (100.00)
	Large	15 (65.22)	8 (34.78)	23 (100.00)
	All farms	137 (80.12)	34 (19.88)	171 (100.00)

Note : Figures in the parentheses are the respective percentages.

Table 11.4 Magnitude of Marketing Cost per Quintal in Absolute and Percentage Term Incurred by the Farmers in Selling Output through the Farias at Primary Markets and Other Related Information over Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Gross price/Price received from the farias at primary markets (in Rs.)	Marketing cost per quintal incurred by the farmers to sell through the farias at primary markets (in Rs.)	Percentage share of marketing cost in gross price	Price received from the farias at primary markets net of marketing cost (in Rs.)
Haldibari	Marginal	467.23	25.92	5.55	441.31
	Small	487.63	25.43	5.22	462.20
	Large	475.00	25.27	5.32	449.73
	All farms	476.22	25.84	5.43	450.38
Cooch Behar II	Marginal	390.31	17.74	4.55	372.57
	Small	375.61	16.45	4.38	359.16
	Large	409.47	22.15	5.41	387.32
	All farms	389.97	18.09	4.64	371.88

Contd..

Table 11.4 (Contd..)

Dinhata I	Marginal	387.53	18.34	4.73	369.19
	Small	399.51	19.69	4.93	379.82
	Large	410.09	24.69	6.02	385.40
	All farms	396.92	19.70	4.96	377.22
Tufanganj II	Marginal	415.31	20.60	4.96	394.71
	Small	405.76	18.94	4.67	386.82
	Large	401.49	22.67	5.65	378.82
	All farms	409.63	20.30	4.96	389.33
Cooch Behar district	Marginal	419.10	20.23	4.83	398.87
	Small	421.93	19.04	4.51	402.89
	Large	431.37	23.47	5.44	407.90
	All farms	423.00	20.32	4.80	402.68

Table 11.5 Absolute and Percentage Share of Different Components in the Marketing Cost per Quintal over Various Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Cost components					Total marketing cost per quintal (in Rs.)	
		Transportation cost (in Rs.)	Loading and un-loading charges (in Rs.)	Imputed value of personal labour rendered for selling output (in Rs.)	Process-ing cost (in Rs.)	Weighing charges (in Rs.)		
Haldibari	Marginal	6.47 (24.96)	0.35 (1.35)	5.62 (21.68)	11.18 (43.13)	0.90 (3.47)	1.40 (5.40)	25.92 (100.00)
	Small	6.25 (24.58)	-	5.43 (21.35)	12.50 (49.15)	-	1.25 (4.92)	25.43 (100.00)
	Large	7.50 (29.68)	-	6.52 (25.80)	10.00 (39.58)	-	1.25 (4.95)	25.27 (100.00)
	All farms	6.50 (25.15)	0.30 (1.16)	5.65 (21.87)	11.25 (43.54)	0.76 (2.94)	1.38 (5.34)	25.84 (100.00)
Cooch Behar II	Marginal	5.28 (29.76)	-	3.94 (22.21)	7.02 (39.57)	0.17 (0.96)	1.33 (7.50)	17.74 (100.00)
	Small	3.18 (19.33)	-	3.97 (24.13)	7.14 (43.41)	0.37 (2.25)	1.79 (10.88)	16.45 (100.00)
	Large	4.70 (21.22)	-	5.55 (25.06)	9.50 (42.89)	0.20 (0.90)	2.20 (9.93)	22.15 (100.00)
	All farms	4.82 (26.64)	-	4.16 (23.00)	7.37 (40.74)	0.21 (1.16)	1.53 (8.46)	18.09 (100.00)

Contd..

Table 11.5 (Contd...)

Dinhata I	Marginal	7.10 (38.71)	-	4.29 (23.39)	5.45 (29.72)	0.09 (0.49)	1.41 (7.69)	18.34 (100.00)
	Small	7.83 (39.77)	-	5.08 (25.80)	4.90 (24.88)	0.50 (2.54)	1.38 (7.01)	19.69 (100.00)
	Large	10.17 (41.19)	-	6.43 (26.04)	6.38 (25.84)	0.17 (0.69)	1.54 (6.24)	24.69 (100.00)
	All farms	7.78 (39.49)		4.84 (24.57)	5.45 (27.66)	0.21 (1.07)	1.42 (7.21)	19.70 (100.00)
Tufanganj II	Marginal	7.65 (37.13)	-	4.72 (22.91)	5.65 (27.43)	0.15 (0.73)	2.43 (11.80)	20.60 (100.00)
	Small	5.86 (30.94)	-	4.45 (23.50)	6.36 (33.58)	-	2.27 (11.98)	18.94 (100.00)
	Large	8.75 (38.60)	-	4.75 (20.95)	6.67 (29.42)	-	2.50 (11.03)	22.67 (100.00)
	All farms	7.25 (35.72)	-	4.65 (22.91)	5.91 (29.11)	0.10 (0.49)	2.39 (11.77)	20.30 (100.00)
Cooch Behar district	Marginal	6.63 (32.77)	0.07 (0.35)	4.56 (22.54)	7.01 (34.65)	0.28 (1.38)	1.68 (8.31)	20.23 (100.00)
	Small	5.92 (31.09)	-	4.61 (24.21)	6.47 (33.98)	0.25 (1.31)	1.79 (9.40)	19.04 (100.00)
	Large	7.88 (33.58)	-	5.81 (24.76)	7.72 (32.89)	0.13 (0.55)	1.93 (8.22)	23.47 (100.00)
	All farms	6.61 (32.53)	0.04 (0.20)	4.71 (23.18)	6.97 (34.30)	0.26 (1.28)	1.73 (8.51)	20.32 (100.00)

Note : Figures in the parentheses are the respective percentages

Table 11.6 Per Quintal Transportation Cost and Marketing Cost at Grower's Level According to Distance Range in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Distance range (Km)	Haldibari		Cooch Behar II	
	Transportation cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transportation cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)
≤ 2	5.83	23.80	2.69	11.91
2-4	6.25	27.32	5.90	22.81
4-6	9.17	27.99	10.00	30.50
Above 6	-	-	12.50	30.52
Average	6.50	25.84	4.82	18.09

Dinhata I		Tufanganj II		Cooch Behar district	
Transportation cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transportation cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transportation cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)
2.45	6.60	3.00	11.17	3.30	12.95
7.08	20.08	6.44	19.97	6.35	21.72
10.56	25.67	11.07	24.68	10.47	26.32
11.40	28.95	13.75	27.86	12.13	28.88
7.78	19.70	7.25	20.30	6.61	20.32

Table 11.7 Per Quintal Transportation Cost and Marketing Cost at Grower's Level Relating to Different Modes of Transport in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Mode of Transport	Haldibari		Cooch Behar II	
	Transport cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transport cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)
Headload	6.67	25.63	2.90	12.50
Rickshaw/Rickshaw van	6.41	26.05	5.11	18.93
Bullock cart	-	-	-	-
Boat	-	-	-	-
More than one mode of transport	7.50	23.10	-	-
Average	6.50	25.84	4.82	18.09

Dinhata I		Tufanganj II		Cooch Behar district	
Transport cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transport cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)	Transport cost per quintal (in Rs.)	Marketing cost per quintal (in Rs.)
6.81	16.74	4.89	16.33	5.86	16.81
7.33	20.78	5.97	18.48	5.86	20.60
10.64	26.57	7.25	23.10	9.41	25.31
-	-	-	-	-	-
11.50	20.09	9.89	23.56	9.84	23.32
7.78	19.70	7.25	20.30	6.61	20.32

Table 11.8 Number of Jute Growing Farmers in Absolute and Percentage Term Selling Their Output in Different Distance Ranges Over Various Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Distance range (Km)				Total
		<2	2-4	4-6	Above 6	
Haldibari	Marginal	12(38.71)	12(38.71)	5(16.13)	2(6.45)	31(100.00)
	Small	8(42.11)	10(52.63)	1(5.26)	-	19(100.00)
	Large	4(40.00)	3(30.00)	2(20.00)	1(10.00)	10(100.00)
	All farms	24(40.00)	25(41.67)	8(13.33)	3(5.00)	60(100.00)
Cooch Behar II	Marginal	12(42.86)	11(39.29)	4(14.28)	1(3.57)	28(100.00)
	Small	11(64.71)	5(29.41)	1(5.88)	-	17(100.00)
	Large	5(50.00)	5(50.00)	-	-	10(100.00)
	All farms	28(50.91)	21(38.18)	5(9.09)	1(1.82)	55(100.00)
Dinhata I	Marginal	6(21.43)	4(14.28)	12(42.86)	6(21.43)	28(100.00)
	Small	4(22.22)	2(11.11)	9(50.00)	3(16.67)	18(100.00)
	Large	-	2(18.18)	3(27.27)	6(54.55)	11(100.00)
	All farms	10(17.54)	8(14.04)	24(42.10)	15(26.32)	57(100.00)

Contd..

Table 11.8 (Contd..)

Tufanganj II	Marginal	2 (5.40)	28 (75.68)	6 (16.22)	1 (2.70)	37 (100.00)
	Small	2 (11.76)	9 (52.94)	4 (23.53)	2 (11.76)	17 (100.00)
	Large	-	5 (83.33)	-	1 (16.67)	6 (100.00)
	All farms	4 (6.67)	42 (70.00)	10 (16.66)	4 (6.67)	60 (100.00)
Cooch Behar district	Marginal	32 (25.81)	55 (44.36)	27 (21.77)	10 (8.06)	124 (100.00)
	Small	25 (35.21)	26 (36.62)	15 (21.13)	5 (7.04)	71 (100.00)
	Large	9 (24.33)	15 (40.54)	5 (13.51)	8 (21.62)	37 (100.00)
	All farms	66 (28.45)	96 (41.38)	47 (20.26)	23 (9.91)	232 (100.00)

Note : Figures in the parentheses are the respective percentages

Table 11.9 Number of Jute Growing Farmers in Absolute and Percentage Term Selling Their Output through Different Modes of Transportation over various Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Modes of transportation				More than one mode of transport	Total
		Headload	Rickshaw/ Rickshaw van	Bullock cart	Boat		
Haldibari	Marginal	5(16.13)	24(77.42)	-	-	2(6.45)	31(100.00)
	Small	2(10.53)	15(78.95)	1(5.26)	-	1(5.26)	19(100.00)
	Large	-	8(80.00)	1(10.00)	-	1(10.00)	10(100.00)
	All farms	7(11.67)	47(78.33)	2(3.33)	-	4(6.67)	60(100.00)
Cooch Behar II	Marginal	6(21.43)	22(78.57)	-	-	-	28(100.00)
	Small	3(17.65)	13(76.47)	1(5.88)	-	-	17(100.00)
	Large	-	8(80.00)	2(20.00)	-	-	10(100.00)
	All farms	9(16.36)	43(78.18)	3(5.46)	-	-	55(100.00)
Dinhata I	Marginal	16(57.14)	9(32.14)	3(10.72)	-	-	28(100.00)
	Small	6(33.33)	8(44.45)	4(22.22)	-	-	18(100.00)
	Large	2(18.18)	3(27.27)	5(45.46)	-	1(9.09)	11(100.00)
	All farms	24(42.11)	20(35.09)	12(21.05)	-	1(1.75)	57(100.00)

Contd..

Table 11.9 (Contd..)

Tufanganj II	Marginal	8 (21.62)	11 (29.73)	7 (18.92)	-	11 (29.73)	37 (100.00)
	Small	3 (17.65)	9 (52.94)	-	-	5 (29.41)	17 (100.00)
	Large	-	3 (50.00)	1 (16.67)	-	2 (33.33)	6 (100.00)
	All farms	11 (18.33)	23 (38.33)	8 (13.33)	-	18 (30.00)	60 (100.00)
Cooch Behar district	Marginal	35 (28.23)	66 (53.23)	10 (8.06)	-	13 (10.48)	124 (100.00)
	Small	14 (19.72)	45 (63.38)	6 (8.45)	-	6 (8.45)	71 (100.00)
	Large	2 (5.41)	22 (59.46)	9 (24.32)	-	4 (10.81)	37 (100.00)
	All farms	51 (21.98)	133 (57.33)	25 (10.78)	-	23 (9.91)	232 (100.00)

Note : Figures in the parentheses are the respective percentages

Table 11.10 Magnitudes of Output in Absolute and Percentage Term Sold in Harvest and Post-Harvest Periods by the Jute Growing Farmers Belonging to Different Sizes of Holding in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93

Name of the block	Farm size	Magnitudes of sale in		Total (in quintals)
		Harvest period (in quintals)	Post-harvest period (in quintals)	
Haldibari	Marginal	171.28 (90.11)	18.80 (9.89)	190.08 (100.00)
	Small	85.20 (34.72)	160.20 (65.28)	245.40 (100.00)
	Large	66.80 (25.54)	194.80 (74.46)	261.60 (100.00)
	All farms	323.28 (46.38)	373.80 (53.62)	697.08 (100.00)
Cooch Behar II	Marginal	122.80 (87.97)	16.80 (12.03)	139.60 (100.00)
	Small	94.40 (54.63)	78.40 (45.37)	172.80 (100.00)
	Large	50.00 (32.81)	102.40 (67.19)	152.40 (100.00)
	All farms	267.20 (57.49)	197.60 (42.51)	464.80 (100.00)
Dinhata I	Marginal	101.40 (88.33)	13.40 (11.67)	114.80 (100.00)
	Small	63.40 (64.69)	34.60 (35.31)	98.00 (100.00)
	Large	39.20 (49.62)	39.80 (50.38)	79.00 (100.00)
	All farms	204.00 (69.91)	87.80 (30.09)	291.80 (100.00)

Contd..

Table 11.10 (Contd..)

Tufanganj II	Marginal	110.20(90.18)	12.00(9.82)	122.20(100.00)
	Small	55.20(61.88)	34.00(38.12)	89.20(100.00)
	Large	28.80(49.32)	29.60(50.68)	58.40(100.00)
	Large farms	194.20(71.98)	75.60(28.02)	269.80(100.00)
Cooch Behar district	Marginal	505.68(89.24)	61.00(10.76)	566.68(100.00)
	Small	298.20(49.26)	307.20(50.74)	605.40(100.00)
	Large	184.80(33.51)	366.60(66.49)	551.40(100.00)
	All farms	988.68(57.37)	734.80(42.63)	1723.48(100.00)

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Note : Figures in the parentheses are the respective percentages

**Table 11.11 Price per Quintal of Jute Received by the Jute Growing Farmers in Harvest and Post-Harvest Periods in the Selected Blocks of Cooch Behar District and in the District as a Whole for the Year 1992-93**

<b>Name of the block</b>	<b>Price received by the farmers in</b>	
	<b>Harvest period (in Rs.)</b>	<b>Post-harvest period (in Rs.)</b>
Haldibari	465.77	531.19
Cooch Behar II	385.01	435.93
Dinhata I	393.16	455.91
Tufanganj II	404.43	459.92
Cooch Behar district	416.92	489.25

## Chapter XII

### SUMMARY AND CONCLUSION

Time series data on area, production and yield of jute in Cooch Behar district show significant variation over years. The inter-year fluctuations in the yield rate and area amply explain the inter-year fluctuations in the volume of production. The factors, namely, (i) jute area and one year lagged price of jute (ii) jute area and jute-aus paddy area ratio and (iii) jute area and jute-aus one year lagged price ratio collectively explained the inter-year variation in the area as well as production of jute. Among these the most dominant factor explaining the inter-year fluctuation of the area vis-a-vis production is the jute-aus paddy area ratio.

The cost of production of jute per bigha is higher than that of aus paddy in the cases of all sizes of holding in all the selected blocks of Cooch Behar district. This higher cost of production of jute per bigha relative to aus paddy is due to the higher human labour cost required in the production of jute. Jute cultivation is thus observed to be more labour-intensive relative to aus paddy.

In case of cost  $A_1$  the cost on human labour, bullock labour and manures occupy the highest share and in case of

cost B and cost C the cost on human labour, imputed value of owned land, bullock labour and manures constitute the highest share in all the selected blocks of Cooch Behar district. The share of cash expenditure in the case of all cost measures is also noticed as remarkably high over all the sizes of holding in all the selected blocks. The share of the cost on human labour among the shares of all other major cost items in the cost of production of jute measured irrespective of cost basis is the highest. However, respective to the cost measures considered, there exist size-wise and block-wise insignificant degree of heterogeneity in the structural composition of the cost of production of jute per bigha in this district.

Irrespective of cost basis there remains inter-size and inter-block variation in the cost of production of jute and also positive relationship between the cost of production and the size of holding. The inter-block and inter-size variation in the cost of production of jute are due to the existence of inter-block and inter-size heterogeneity in input intensity. The positive relationship between the cost of production and the size of holding is the outcome of the size-wise higher degree of input intensity. Alike cost of production, yield rate of jute in this district shows inter-size and inter-block variation but there remains no relationship between yield rate and size of holding. Again the

magnitude of yield rate and that of cost of production vis-a-vis input intensity are noticed to be unrelated. So the variation in the yield rate over different sizes and blocks in this district is the consequence of various factors among which fertility of soil, time of sowing, time of harvesting may be mentionable.

The cultivation of both jute and aus paddy is observed to be unprofitable when the cost of production is measured in terms of cost B and cost C but profitable in the cases of cost measures, cost  $A_1$  and cash expenditure. The profitability of jute worked out on the basis of cost  $A_1$  and cash expenditure is observed to be relatively higher than the same in case of aus paddy cultivation. The higher relative profitability of jute cultivation is the consequence of higher yield rate and higher level of price relative to those of aus paddy. The acreage under jute and aus paddy is also allocated in accordance with the relative profitabilities of both these crops in this district.

The average market price prevailing in this district is higher than the administered price fixed by the Jute Corporation of India for the jute grown in this district. But this marketing price is remarkably lower than the cost per quintal of jute measured in terms of full cost or cost C principle. Thus the price of jute and the cost-price relationship in this district are observed to be unremunerative and

unfavourable to the jute growers respectively. In view of this situation bulk-line cost principle suggests to refix the administered price per quintal of jute at a new level within the range between Rs. 810 and Rs. 840.

In the jute market of Cooch Behar district there exists season-wise, geographical vis-a-vis agency-wise fragmentation. Season-wise there are two fragments, namely, harvest season and post-harvest season and geographically vis-a-vis agency-wise there are also two fragments namely village level primary market and block as well as subdivisional level secondary market. Farias and mahajans are the intermediaries conducting the trade operations in the primary market and secondary market respectively. Although there prevails a higher level of price in the secondary market or at mahajan's place and in the post-harvest marketing season, most of the jute growers in this district are observed to sell the major portion of their output at lower price in the harvest season at the primary market to the farias. They sell their dominant portion of output at primary market to the farias on account of economic and physical hazards due to distance and costly means of transportation. Again, the sale of the dominant portion of output in the harvest season results from the lack of storage facilities and immediate cash needs. Thus, in Cooch Behar district, jute growers are observed to suffer from the problems like

the distance between the farm-gate and the secondary market, costly means of transport, lack of storage facilities and immediate cash needs.

In view of the significant inter-year fluctuations in the area under jute vis-a-vis its production along with its dominant explanatory factor i.e., jute-aus paddy area ratio as well as direct relation of the allocation of area under jute and aus paddy with relative profitability, it may outrightly be concluded that for reducing the degree of fluctuations and stabilizing the area under jute the situation of jute in terms of its relative profitability is needed to be stable. In addition to this, it may also be concluded that adoption of appropriate measures against the above noted jute marketing inefficiencies simultaneously with the administered price policy suggested by the bulk-line cost principle would raise the remunerativeness of jute cultivation and this would encourage the jute growers in this district to increase jute production through the allocation of wider area and adoption of more productive techniques.

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**A P P E N D I X****SCHEDULE FOR THE STUDY ON AN ECONOMIC ANALYSIS OF JUTE CULTIVATION IN COOCH BEHAR DISTRICT OF WEST BENGAL.**

Block ..... Schedule No. .....

Village .....

**1. Family Particulars:**

Name of the cultivator	No. of family members			No. of earners	Literacy
	Male	Female	Children		

**2. Details of Permanent Labour:**

- i) Number of persons (male/female) .....
- Term specify (contract/others) .....
- ii) Total days work per year .....
- iii) Total wage paid per year (in Rs. ) .....
- a) Cash .... (b) Kind..... (c) Clothing.....
- (d) Food .... (e) Misc..... (f) Total .....

3. Farmer's Total Land Area under Cultivation:

Total land	Jute	Aus	Other crops	F
Irri-gated	Irri-gated	Irri-gated	Irri-gated	a
Unirrigated	Unirrigated	Unirrigated	Unirrigated	l
gated	gated	gated	gated	o
				w

Jute season

- i) Land area owned
  - ii) Land area leased-in
  - iii) Land area leased out
- Total cultivation area  
(i+ii+iii)

Last year's jute season

- i) Land area owned
- ii) Land area leased-in
- iii) Land area leased out

Total cultivated area (i+ii+iii)

- a) Charges for leased in area of jute .....
- b) Charges for leased in area of aus .....
- c) Land revenue, cess and other taxes per year/per bigha .....

4a) Farm Inventory:

Number	Year of purchase	Value (Rs.)
Draft bullock		
Draft buffaloes		
Other animals		

b) Farm machineries/implements including irrigation equipments:

Name	No.	Purchase value with year	Life span	Present value	Annual repairing cost	Remarks
i)						
ii)						
iii)						
iv)						
v)						
vi)						
vii)						
viii)						
ix)						
x)						

5. Cropping Pattern:

Name of the crop with variety	Total area	Irrigated	Unirrigated	Total cropped area	Output Per bigha	Value (Rs.)
Pre-khariff season						
Khariff season						
Rabi season						

## 6. Labour Utilization by Operations for Jute (HYV/LW) per Bigha:

Operations HYV Local	No. of days worked involved per day	No. of hours worked	No. of labour used	Categories of labour			Casual labour wage rate per day Male Ca Female Ca Child Ca	Total casual labour cost Male Ca Female Ca Child Ca	Pair of bullock labour used owned Hired Hired with man without man man	Total No. of bullock pair No. of hrs. worked days per worked day	Rate of bullock cost labour of pair day Hired with man	Total bullock cost of labour per pair day Hired with man						
				Family Permanent Casual														
				M F C	M F C	M F C												
i) Land preparation																		
ii) Sowing																		
iii) FYM and fertilizer application (Basal + top dressing)																		
iv) Irrigation																		
v) Weeding and thinning																		
vi) Plant protection																		
vii) Harvesting and carrying																		
viii) Bundling, retting, stripping and drying																		
ix) Others:																		

Note : M = Male, F = Female, C = Child      Ca = Cash, K = Kind, T = Total      FYM = Farm Yard Manure

## 7. Labour Utilisation by Operations for Aus (HYV/LW) per Bigha:

Operations HYV / Local	No. of days worked involved	No. of hrs. worked	No. of labour used	Categories of labour			Casual labour wage rate per day	Total casual labour cost	Pair of bullock labour used		Total No. of No. of hrs. pair days per worked day	Rate of bullock labour pair day	Total cost of bullock labour
				Family perma- nent	Casual Male	Female			M	F			

- i) Land preparation
- ii) Sowing/Seedling/  
Transplanting
- iii) FYM and fertilizer  
application  
(Basel + top dressing)
- iv) Irrigation
- v) Weeding and thinning
- vi) Plant protection
- vii) Harvesting and  
carrying
- viii) Threshing, winnowing  
and drying
- ix) Others:

Note : M = Male, F = Female, C = Child.

Ca = Cash, K = Kind, T = Total

FYM = Farm Yard Manure.

#### **Cost and other Information:**

## 8. Land Preparation:

Date of operation .....

Was Land Preparation: Early/Normal/Late ? (tick)

If not normal, why? .....

9. Seed:

Date of sowing ..... Variety used .....

Was any other variety available ? Yes/No.

If yes, what are other varieties? .....

Crop	<u>Quantity used per bigha</u>		Price per quintal (Rs.)	Total cost (Rs.)
	Home produced	Purchased		
Jute				
Aus				

Did you treat the seed before sowing? Yes/No.

If yes, with what? .....

Method of sowing : Broadcasting/Line sowing

How line sowing done? Manually/Seed drill

#### **10. Fertilizer and Manure Application per Bigha:**

## 11. Irrigation(for Jute and Aus) per Bigha:

Type	Own Cooperative	Others (specify)	Cost per bigha	Repairing cost for irrigation	Operation cost (fuel, oil etc)	Operational cost per bigha	Total gate time per bigha	R/m
Jute								
Aus								
RLI								
STW								
DTW								
Wells								
Tanks								
Canals								
Others								

Did you have any problem to irrigate your plot? Yes/No.

If yes, give details .....

How can it be improved? .....

## 12. Intercultural Operation:

Do you find that weeds are a problem? Yes/No.

If yes, what is the major weeds? .....

How thinning done? Manually/Mechanically

## 13. Pests and Diseases:

Do you find that pest and disease are a problem? Yes/No.

If yes, types of pests and diseases .....

Did you take measure to control it? Yes/No.

If no, why? .....

If yes,

Types of pesticides	Sources	Quantity used per bigha	Price per unit	Total cost	Method of application
Jute					
Aus					

## 14. Harvesting:

Date/Time of harvesting .....

What is your optimum stage of harvesting ?(tick)

- i) before flowering
- ii) before the whole field turn yellow
- iii) when fully yellow in colour
- iv) after flowering
- v) at the time of pod preparation

## 15. Climatic Condition during this Season (tick):

- rainfall
- winds
- hails
- storms
- others

Any loss due to this? .....

How much quantity per unit? .....

## 16. Rental Terms (Jute/Aus plot):

If the plot is rented in who pays for inputs  
and other cost of cultivation

	(in percentage)				
	Seed Fertilizer	Water	Labour	Insecticides	Others
<u>Tenants</u>					
Jute					
Aus					
<u>Landlords</u>					
Jute					
Aus					

17. How Production is divided between tenant and landlord  
(in percentage):

	Fibre	Straw
<u>Tenants</u>		
<u>Landlords</u>		

## 18. Yield and Market Value:

Total area (owned + rented)	Total main product (q)	Total straw pro- (q)	Yield/bigha (g)	Main Straw pro- duct (q)	Price/q Main Straw pro- duct	Gross value of total product
Jute						
Aus						
a) Jute price per quintal at harvest					Rs.	
At current					month	
					Rs.	
					month	
Expected price for later sale					Rs.	
					month	
Government support price per quintal					Rs.	
b) Aus price per quintal at harvest					Rs.	
					month	
At current					Rs.	
					month	
Expected price for later sale					Rs.	
					month	
Government support per quintal					Rs.	

## 19. Disposal of Jute:

	Quantity (q)	Value (Rs.)
Paid to landlord		
Paid to labour		
Loan repaid (in kind)		
Sold at harvest		
Stored for later sale		
Family use		
Others		
Total :		
(Equal to total receipts)		

20. Disposal of straw (q);

Sold ..... Rs. ..... per q.

Fuel .....

Housing purpose .....

Total production/disposal .....

21. How do you store fibre? .....

Is there any problem of storing? .....

22. Did you receive any loan to produce jute this season? Yes/No

If yes,

Source	Month recei- ved	Amount received	Rate of cash Kind Total	Repayment			Re- mar- ks (se- cu- rity if any)
				Month	Cash	Kind	
Banks							
Landlords							
Friends							
Relatives							
Others							

23. What are the problems you faced in the cultivation of jute? (tick)

- i) Untimeliness in supply of inputs
- ii) Higher price of inputs
- iii) Scarcity of irrigation facilities
- iv) Shortage of bullock labour
- v) Shortage of human labour (when?)
- vi) Retting problem
- vii) Insufficient credit facilities
- viii) Low price of jute
- ix) Non-remunerativeness of jute
- x) Marketing problems
- xi) Others

24(a) Do you prefer to grow other crops during this season of the year?

If yes, what crop? .....

Why? .....

(b) Do you plan to shift jute area to aus area? Yes/No.

If yes, reasons.....

25. What are the problems you faced in the marketing of jute? (tick)

- i) Shortage of Government purchase centre
- ii) Credit and forced sale
- iii) Weighing and grading
- iv) Low price
- v) Lack of bargaining power
- vi) Pact of middleman with Govt. purchase centre officials
- vii) Transportation
- viii) Others

26. Are you deprived of legal price by middlemen?

Yes/No.

If yes, how? .....

## 27. Marketing of Jute and Aus by Farmers:

Commodity	Within the village				Outside the village				Total value (Rs.)
	Agency to which sold	Quan- tity (q)	Price per q.	Total value (Rs.)	Distance of the market from village	Agency to which sold	Quan- tity (q)	Price per q. (Rs.)	

Jute

Aus

Marketing cost (Rs.)									
Initial storage cost	Processing charges	Weigh-ing charges	Rick-shaw/ Rickshaw van	Cost of transportation	Head load	Bullock cart	Loading and un-loading if any	Commission charges	Market tolls
									Personal labour hrs. invested

e m a r k s

28. What is your opinion about present jute price? .....

29. Why do you sale your products so early? (tick)

- i) Purchasing rice and food materials
- ii) Purchasing farm inputs and cattle  
(including seed, fertilizer, labour,  
implement etc.)
- iii) Other farm improvements and investments  
etc. (house, land etc.)
- iv) Repayment of debts
- v) Social ceremonies and other purpose.

30. General opinion of the Respondent for  
improvement of jute cultivation .....

.....