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 propor-tionately 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_1, cost B, cost C, cash expenditure are followed in carrying out the study. The inputs included under each category of costs are:

Cost A_1 : 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_1 + 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_1 i.e., farm business income =
Gross income — Cost A_1

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 livestock (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. <u>Statistical Tools Used</u>

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:

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

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

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