Chapter 1
INTRODUCTION

1.0 Introduction:- Cropping pattern has a significant impact on agricultural production. It is quite clear that the farmers of Chhattisgarh who have adopted cropping pattern presently is not the best one. Most of the farmers are not commercial oriented. The agriculture has become for them the means of subsistence. It has become the source of fulfilling the necessities of food only. Therefore cropping pattern in Chhattisgarh as well as in India is chiefly of subsistence cropping pattern not a commercial cropping pattern.

Today in some parts of Chhattisgarh cropping pattern has become commercial oriented. Yet it is very necessary to change the existing cropping pattern of the state in order to increase agricultural production and to make it a useful business. For this purpose there should be the expansion of irrigational facilities, fixation of right price for agricultural products, increase of marketing facilities etc.

In many parts of the state, the improvement of the study has increased on account of the difference of soil, climate (weather) and rain as natural factors and adoption of different agricultural methods.

Chhattisgarh is an agriculturally productive state. Nearly 80% of the population directly or indirectly is confined to the agricultural activities. The total cultivable land in Chhattisgarh is 54.81 lakh hectares. There are 15.22 lakh marginal, 6.24 lakh small and 8.19 lakh middle and big agriculturists' families who are involved in cultivation in whole of the state. (Economic Survey of Chhattisgarh, 2004-2005). In most of the net sown area paddy is produced. Due to this various varieties of paddy and huge production, it is also called Dhan ka katora (Rice bowl). It is presented through Table NO. 1: 1 as under.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Crops</th>
<th>Net Area</th>
<th>Sown Production (thousand tons)</th>
<th>Major producing districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paddy</td>
<td>65.54%</td>
<td>6910</td>
<td>Raipur</td>
</tr>
<tr>
<td>2</td>
<td>Maize</td>
<td>1.63%</td>
<td>734</td>
<td>Surguja</td>
</tr>
<tr>
<td>3</td>
<td>Wheat</td>
<td>1.53%</td>
<td>807</td>
<td>Surguja</td>
</tr>
<tr>
<td>4</td>
<td>Gram</td>
<td>3.43%</td>
<td>106</td>
<td>Durg</td>
</tr>
<tr>
<td>5</td>
<td>Oilseeds</td>
<td>6.17%</td>
<td>177</td>
<td>Surguja</td>
</tr>
<tr>
<td>6</td>
<td>Sugarcane</td>
<td>0.09%</td>
<td>---</td>
<td>Kawardha</td>
</tr>
</tbody>
</table>

In order to increase more production in the state, the only way in the state is to expand the irrigation facilities, use of developed fertilizers, high yielding variety seeds and also advanced techniques. Thus there would be an increase of per hectare productivity of the land in order to meet the necessities of food grains in the state. Owing to this the importance of planned and rational use of land and suitable cropping pattern has increased quite a lot.

1.1 The Meaning of Cropping Pattern:— Cropping pattern means the proportion of area under different crops at a particular period of time. A change of cropping pattern means a change in the proportion under different crops. It connotes the crop-mixed grown in a particular area in an agricultural year.

In 1960, the Government of India for Economics and statistical purposes, gave the definition of cropping pattern as the proportion of area under various crops at a particular time in a given area. Therefore there have been changes in the cropping patterns due to the following causes—development of high yielding and short duration varieties in main crops, development of production technology to grow them, Central and State Govts, spread of irrigation technology, Govt’s special programmes enhancing the production of particular crops, changes in the socio-economic conditions of the people due to rapid industrialization in the country and transformation of subsistence agriculture into market oriented economy. (An Introduction to Agriculture (Jain Brothers) Dr. A.K. Vyas (Principal Scientist) Agronomy National Research Centre for Soybean (ICAR) Indore (M.P.), 2003.

1.2 The Factors Affecting the Cropping Pattern:— The cropping pattern of any country does not remain stagnant. The geographical, technological, economic and the changes in agricultural and governmental policies have a significant impact on cropping pattern. The following factors affect the cropping pattern.

1.2.1 Natural Factors:— The physical factors of any particular area such as soil, climate, monsoon, rain, temperature etc affect the cropping pattern of that particular area very much. For example the farmers cultivate mainly jowar, bajra etc in a dry area where the monsoon is uncertain. On the other hand where there is enough rain, the farmers cultivate paddy, sugarcane and other crops. In the same way the production of rice takes place in sandy loam and sandy loam clay soil, the production of wheat, cotton, sugarcane, jowar and bajra cultivation takes place in black soil. Usually in any new agricultural land the cultivation of the crops of lower price such as kodo-kutki takes place and in the improved land rice is cultivated.
Besides the impact of physical factors such as soil, climate and rain on cropping pattern, the means of irrigation also plays a significant role in cropping pattern. The areas where there are irrigation facilities, there is cultivation not only of the food grains of higher prices but even double and triple cultivation takes place. The methods of cultivation also change on account of the availability of irrigation facilities. Irrigation facilities have a significant impact on crop rotation also. The farmers use developed seeds, modern technology and other developed fertilizers for cultivation due to the availability of irrigation facilities. Thus the irrigation facilities too change the cropping pattern of any particular area.

1.2.2 Economic Factors: - Economic factors play an important role in the cropping pattern. The following are the economic factors below.

(A) Prices of Produce (Prices & More Income): - There is a direct impact of prices of food grains and non-food grains on cropping pattern. If the prices of food grains are higher than non-food grains in the market then the farmers are more oriented towards the production of food grains and vice versa. The Ministry of Food and Agriculture has found in studies that inter-crop-price parity has a significant impact on the changes of the area of crops, namely the expansion and subtraction of the area. The changes in the prices of produce affect the areas of crops in two ways -

Firstly, due to inter-crop-price parity, the change takes place between the crops, i.e. under the changes in the prices of different crops, the crops of higher prices increase the areas compared to the crops of lower prices. Secondly, there is a tendency of the expansion of the areas of those crops which have much stability of the prices. On the contrary there is no expansion of the areas of those crops which have much fluctuation of the prices. The Steady Price Policy adopted by the Indian Government for rice and wheat and other controls of the Government on the farmers have induced the cultivation to produce commercial crops such as sugarcane, tobacco etc instead of food grains for subsistence.1


(B) The Tendency to Maximize the Income: - The tendency of the farmers to maximize the income also affects the cropping pattern. Therefore the farmers select the groups of those crops by which they can get more income through cultivation in a particular year. Dr. Rajkrishna says that per hectare comparative profitable quantity has a significant impact on cropping pattern.
In short the prices of different crops, the tendency to maximize the income and per hectare comparative profitable quantity have a great impact on cropping pattern in a particular year.

(C) Farm Size (Size of Farms):- There is a close relationship between farm size and cropping pattern. Usually the small farmers give more importance and priority for the production of main food grains such as rice, wheat, etc to meet their necessities of life and there after they think of the production of commercial crops. The big farmers produce different crops for subsistence as well as for commercial purposes.

(D) Availability of Inputs:– Availability of agricultural inputs such as developed seeds, fertilizers, water, medicines, godown facilities, credit facilities, transport facilities and marketing facilities etc also influence cropping pattern very much. For example availability of developed seeds i.e. rice or wheat infuses interests in the farmers to produce rice or wheat bigger areas of land.

(E) Land Tenure:– The tenure system of a particular area affect the cropping pattern. Under crop-sharing system the views of the land owner affect the cropping pattern. Generally it is fixed by the tendency to maximize the income. If the production of crops takes place on the basis of land tenure then the land owner has the right and opportunity to select the crops. The land owners select those crops from which they get more income.

(F) Insurance Against Risk:– The insurance given for the loss of crops on account of famine, flood and cyclone has a great impact on cropping pattern. In the years 1965-66 and 1966-67 there was a significant change in cropping pattern due to dry affected areas. In those dry affected areas crops of less importance such as jowar, bajra and kodo-kutki were cultivated instead of main crops like rice and wheat. Thus jowar, bajra and kodo-kutki which need less rain, can be a help as insurance for the farmers in dry affected areas at the moment of adverse monsoon. If the government arranges insurance for the loss of crops then there is the possibility of the increase of the areas of main food grains, pulses, oilseeds and commercial crops. Sometimes to lessen the risks of crop failure crops like jowar, bajra and kodo-kutki are also sown along with other crops. Thus if one crop fails then the other crop compensates the loss of other crop to a great extent.

1.2.3 Government policy:– The government also affects cropping pattern by its policies and laws. The government can attract the farmers for the production of any particular crop by availing developed seeds (High Yielding Variety seeds), fertilizers, modern agricultural technology, medicines etc to them. There is a significant impact of Food Crop Act, Land Use Acts, Intensive Agriculture District Programme, Green Revolution and the policy
made by the government to increase the production of pulses and oilseeds on cropping pattern.

Besides this there is a significant impact of institutional factors, personal prejudices, credit facilities and the facilities of other agricultural means on cropping pattern.

1.3 The Importance of Regional Study:- There are significant differences of natural factors such as soil, climate, rain etc in all the 16 districts of Chhattisgarh state. At the same time on account of the adoption of various agricultural policies in different districts and areas in Chhattisgarh, the importance of the regional study has increased quite much. Whatever policies made and adopted in whole of the state, are of less importance to solve the problems of any particular district or area because the problems of all districts and areas are altogether different. The policies made in other districts and areas of the state may not be appropriate and useful for Jashpur district because the physical construction and economic factors such as the means of irrigation, marketing facilities and agricultural researches differ. Hence regional difference is the main factor which has inspired to study the cropping pattern of the tribal populated area of Jashpur district. In the study there is an effort made to analyse the cropping pattern of the tribal populated area of Jashpur district from 1984-1985 to 2004-2005.

1.4 Objectives:- In the present study, the following objectives have been taken-

1. To study the trend of cropping pattern in Jashpur district from the period of 1984-1985 to 2004-2005
2. To know whether cropping pattern is based on traditional method or modern techniques.
3. To know whether there is a one crop system or double crop system within a year in the district.
4. To study whether cropping pattern is based on subsistence purpose or commercial purpose.
5. To know how far planned and rational use of land and suitable cropping pattern are being implemented in the district.
6. To study how far the natural factors viz. soil, climate, rain, temperature and economic factors viz. price of produce, the tendency to maximize the income, size of cultivated land, insurance against risk, availability of agricultural inputs, tenure system, government policies etc have affected cropping pattern in the district.
1.5 **Hypothesis:** Based on the aforesaid objectives, the following hypotheses are formulated for the empirical testing in this study.

(i) There has been a rapid change in the cropping pattern continuously from the year 1984-1985 to 2004-2005.
(ii) There has been no change in the growth of production.
(iii) There has been a correlation between cropping pattern and production.
(iv) The agriculture is based on traditional method rather than modern technological method or techniques.

1.6 **The Methodology:** The study is based on primary and secondary data. Primary data is collected from a sample of 300 cultivators’ families of Jashpur district in Chhattisgarh. A multi-stage stratified random sampling method is followed in drawing samples. The first stage is the selection of five blocks viz. Pathalgaon block, Pharsabahar block, Duldula block, Jashpur block and Manora block. The second stage being selection of 5 gram panchayats viz. Jamjunwani gram panchayat, Pharsabahar gram panchayat, Charaidand gram panchayat, Sitonga gram panchayat and Jaria gram panchayat and the third being selection of 300 cultivators’ families. Ultimately the farmers are categorized into three groups according to their size of holdings, viz. 0-5 acres of land, 5-8 acres of land and 8- above acres of land. This is indicated below in the flow chart-1.

**Flow Chart-1 Sampling Design**
**Jashpur District**

<table>
<thead>
<tr>
<th>Jashpur Tehsil</th>
<th>Kunkuri Tehsil</th>
<th>Pathalgaon Tehsil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manora</td>
<td>Jashpur</td>
<td>Duldula</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharsabahar</td>
</tr>
<tr>
<td>Grampanchayats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaria</td>
<td>Sitonga</td>
<td>Charaidand</td>
</tr>
<tr>
<td>Families</td>
<td></td>
<td>Pharsabahar</td>
</tr>
<tr>
<td>20 20 20</td>
<td>20 20 20</td>
<td>20 20 20</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Land Division</td>
<td>0-5.5-8.8-Ab</td>
<td>0-5.5-8.8-Ab</td>
</tr>
<tr>
<td>Sample Total</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>
For primary data, the farmers were personally interviewed and information was collected based on designed questionnaires. The data is collected with regard to the details of farmers' families, their involvement in the agriculture, education, loans taken for agricultural purposes, new methods of agriculture, irrigation facilities and their interest of taking loans for agricultural purposes in future.

Secondary data is collected from the Agricultural Department at Pathalgaon block, the Agricultural Department at Raigarh and Jashpur, the Land Records Department, Jashpur, Economic Survey of Chhattisgarh, 2004-2005 and Economic Survey of India, 2004-2005.

The data is collected as regards the total crop area of different crops, total production and the average production and average productivity of the crops of Jashpur district.

To know the cropping pattern of the district, the percentage of the cropped area under particular crop of every year is found out by the total cropped area of every year. The cropping pattern of different crops in Jashpur district is found out from the year 1984-1985 to 2004-2005. To find out the cropping pattern of Jashpur district the following statistical correlation is applied.

\[
\text{Cropping pattern of a particular crop} = \frac{\text{Total cropped area under Particular crop in a particular year}}{\text{Total cropped area in a particular Year}} \times 100
\]

Under the study period, to know the growth rate of crop area, total production and productivity, it is supposed 100 for the area of different crops of 1984-1985, their production and average productivity and thus their index number is drawn till the year 2004-2005.

1.7 Limitation:- The study is limited to the tribals of Jashpur district in Chhattisgarh. For the study, five blocks of Jashpur district, namely Pathalgaon, Pharsabahar, Duldula, Jashpur and Manora blocks were selected. Out of these five blocks, five gram panchayats viz. Jamjunwani gram panchayat under Pathalgaon block, Pharsabahar gram panchayat under Pharsabahar block, Charaidand gram panchayat under Duldula block, Sitonga gram panchayat under Jashpur block and Jaria gram panchayat under Manora block were selected. From each block, based on the division of land into three categories-between 0-5 acres, 5-8 acres and between 8-above acres of land, 20 sample families were selected for the purpose of study from each category of land.
It was observed that tribal people were very sincere in giving out information on their part. But while stating, due to illiteracy, sometimes they might exaggerate and other times undermine the facts. They lacked logical qualification of information.

To illicit the past economic information demands recalling the memory which is difficult for the respondents. Though a special care is taken, the collection of past information may not be without errors.

The lack of proper maintenance of the record registers by the clerks and research assistants at block and district levels and also on account of the formation of new Jashpur district from Raigarh district, created some difficulties in the course of compiling data at block and district levels. Here and there, some adjustments are made based on interpolation without affecting in the general information.

1.8 Chapterisation Scheme:- The study comprises nine chapters. The first chapter presents general introduction, the meaning of cropping pattern, the factors affecting the cropping pattern, statement of the problem, objectives, hypotheses, methodology and limitations.

The second chapter deals with the review of literature. In this chapter it is analysed the researches and the factors affecting the cropping pattern in Punjab, Hariyana, West Uttar Pradesh, Rajasthan, Andhra Pradesh and Madhya Pradesh; and the research methodology and their conclusion are drawn.

The third chapter contains a profile of the study area. Under this there are an overview of the state profile, the origin and location of Jashpur district, population, occupation, industries, literacy, climate, soil, land holding, land classification, working population, implements and machinery and high yielding variety seeds.


The eighth chapter deals with the cropping pattern in Jashpur district from 1984-1985 to 2004-2005.

The ninth chapter presents summary, conclusion and suggestions.