

*Chapter-III*

*Cropping Pattern – Concepts  
and Factors Influencing  
Cropping Pattern*



### **Chapter-III**

## **CROPPING PATTERN – CONCEPTS AND FACTORS INFLUENCING CROPPING PATTERN**

Cropping pattern relates to the proportion of area under different crops at a point of time. Quite often the area statistics are used to denote the cropping. Agricultural Commission Government of India (1960) determined cropping pattern according to relative acreage of various crops in a district or group of districts (Agricultural Situation in India, 1964). According to Kanwar (1972) cropping pattern means both the time and sequence of crops. It includes the identification of the most efficient crops of the region which is considered a homogenous soil and climate belt, the rotation in which the crop fits and the intensity of cropping.

Cropping pattern is a spatial and temporal arrangement of crops to be raised in a parcel of land (Harwood, 1973; modified by Gomez and Gomez, 1983). The term cropping pattern is used to denote the spatial and temporal contribution of crops on a plot management used to produce them (Zandrastra, 1981). Cropping pattern refers to the relative arrangements of crops on a farm, region, province or country with due consideration to natural features (soil and climate), crop production, land capability, infrastructure (changeable) and the nation's agricultural policy (Mahendra Pal, 1985).

A change in cropping pattern would mean a change in the proportionate area under different crops. If the proportion of area under a high value crop increases, it is likely to result in increase in

the total return even if there is no increase in the yield rate or price provided, there is simultaneous decrease in the proportionate area under other equally or more valuable crops. A shift in the cropping pattern could be either advantageous or disadvantageous according to the nature of the shift. A predominantly food grains oriented cropping pattern like that of Karnataka, a substantial increase in the proportion of area under the crops other than food grains might be taken as a radical change and for the reason that commercial crops generally command a larger return percent of cultivated area, such a change may also turn out to be beneficial from the point of view of the farmers.

### **Factors Influencing Cropping Pattern**

Various factors influence cropping pattern in agriculture. Major factors influencing cropping pattern relate to both economic and non-economic considerations viz.

- ❖ Physical and Technical Factors
- ❖ Price and Income Maximization
- ❖ Farm Size
- ❖ Insurance Against Risk
- ❖ Availability of Farm Inputs
- ❖ Land Tenure
- ❖ Government Policies and Measures
- ❖ Plan Target

## **Physical and Technical Factors**

Physical characteristics of any region have a profound influence on the cropping pattern in agriculture. Physical characteristics include soil and climatic conditions which have direct influence on the cropping pattern. Particular soils are suitable for growing certain type of crops. Crops have to be selected taking into account the type of soil which the nature has endowed to different areas and regions. Soil conditions cannot be changed but can only be enriched. Hence, the crops have to be chosen based on the natural endowment of soil. Weather and climatic conditions also influence the cropping patterns which again are determined by nature. Agricultural operations have to be adjusted to the regions climatic conditions. Hence weather and climatic conditions exert a definite influence on cropping pattern in particular regions. Rainfall is another physical factor which has a bearing on the cropping pattern in particular regions. Certain crops need good quantity of water, while others need lesser amount of water. This factor becomes more relevant in rainfed agricultural areas where irrigation facilities are not available. Thus depending upon the rainfall farmers have to decide their cropping pattern accordingly. In dry area for instance where rainfall is scanty and high uncertainty of monsoon there will be greater reliance on crops like Jowar and Bajra as these crops need lesser amount of rainfall. High rainfall in malnad and coastal areas is found useful for growing paddy. Similarly good irrigation facilities in parts of Karnataka have helped farmers to grow sugarcane. Irrigation facilities help in getting more than one crop and

superior crops can be grown. Horticulture crops are suitable in places with good rainfall and irrigation.

It is also observed that cropping pattern may change with adequate capital for better implements, improved seeds and finance for getting fertilizers. These facilities enable farmers to go in for better technology in farm management and a rapid change in the cropping pattern for better income and profitable agriculture.

### **Price and Income Maximization**

Price movements of agricultural products influence cropping pattern. Farmers are obviously interested in better price for their produce and the market price of agricultural produce very much influence them in changing their cropping pattern and to avail the best price for their output. A study of inter crop price parities undertaken by the Ministry of Food and Agriculture has pointed out the relationship between process and the cropping pattern. It seems that prices influence the acreage under the crops in two ways; one is that variation in the inter-crop price parities led to shifts in acreage between the crops. Another is that the maintenance of a stable level of prices for a crop provides to increase the output than what a very high level of price does, if there is no uncertainty of this level being maintained over number of years. Fixed procurement price of wheat and rice and other government control have induced farmer to shift to cash crops like sugarcane.

Crop pattern is very much influenced by income considerations of the farmers. This is an important economic consideration

influencing the cropping pattern. This aspect has been largely accepted by economic analysts in the area of farm economics. Farmers choose that combination of crops which would give them maximum income. It is argued that relative profitability per acre is the main consideration, which influences the crop pattern. Thus farmers are influenced in the choice of crop by such consideration of price parities different products or maximization of income or relative profitability per acre.

### **Farm Size**

Small farms dominate the agricultural economy of most of the developing countries. In developing countries like India small farmers are largely poor and depend upon these farms for their sustenance on these farms. Hence they go in for food crops on these small farms in preference to commercial crops since food grains constitute the major expenditure items in their lives and account for the major part of their income. Hence small farmers have little option for commercial crops and prefer to grow cereals and other food grains on their farms. Medium and large farmers diversify their cropping and devote a good part of their farms for different crops to enhance their farm income through diversification of their agriculture. Hence size of the farms is an important factor determining the cropping pattern.

### **Insurance against Risk**

Cropping pattern is also influenced by the risks involved in certain crops and the need for insuring against the risks. Crop insurances become essential in dry areas. Hence crops have to be

planned taking into account the risk of crop failures and the need for insuring.

### **Availability of Inputs**

Availability of farm inputs also influences the cropping pattern. The inputs such as seeds, fertilizers, water storage, marketing, transport and irrigation, etc. are needed for growing certain crops. In the absence of availability of proper seeds certain crops cannot be grown in some areas even though the soil conditions are favourable. Fertilizer is needed in case of high yield variety of crops. Its availability is an important factor in growing such crops in certain areas. Water storage provides a source of irrigation and crops needing irrigation could be chosen on the availability of this vital input. Bulk commodities like cotton, groundnut and cereals need proper marketing facilities. Hence marketing infrastructure is an important factor for growing such crops. Transport and irrigation influence mass production and distribution of farm products. These factors do exert their influence in determining the cropping pattern in certain areas.

NCAER estimated “If additional irrigation facilities were provided in Punjab the cropping pattern on as much as 3.4 million acres could be changed of which nearly 1.6 million acres now under grain could be plot to more paying crops”.

### **Tenure and Land Holdings**

Land tenure system like self cultivation, crop sharing, leasing of lands, etc. influences the cropping pattern. Self cultivation helps the owner farmers to decide their own cropping pattern. Crop sharing

system puts a constraint on the tillers as the owner has more say in the matter of choice of crops. When the land is leased out to tenants the tenant has the freedom to choose the crop to be grown on the land and his decision has a bearing on the cropping pattern.

### **Government Measures and Crop Pattern**

Cropping pattern is influenced by legislative and administrative measures of the Government apart from economic factors. Government measures include provision of infrastructure facilities like irrigation, electricity, transport and marketing organizations, etc. Government is also actively involved in providing vital inputs like high yielding varieties of seeds, fertilizers, etc. Government ensures adequate supplies of these inputs but also extends subsidies in the sale of these inputs. Adequate availability of these inputs provided by Government with subsidy measures has a direct bearing on the crop pattern in different regions. Legislative measures of the Government too have their impact on cropping pattern. Government has enacted Food Crop Act, Land Use Act, Land Ceiling Acts, etc. Further the Government has also adopted measures like intensive scheme for paddy, cotton and oilseeds, etc. All these bring supply into focus the possibility that while each individual measure may push the crop pattern in the direction intended in that measure. The overall effect of all these measures taken together in the entire crop pattern may not be in accordance with national requirements. The Grow More Food in India and other similar campaigns have this focus.

Crop choice also takes into account the threats of recurrent draught and pest infestations for some crops. These prevent farmers from opting for a more remunerative set of crops. These along with inadequate financial resources also result in changing decisions about cropping pattern.

### **Plan Target and Cropping Pattern**

Government follows a policy of fixing targets of achieving agricultural growth and cropwise targets are fixed. These targets are based on the need to meet the growing need of food grains for the fast growing population and also the other raw materials needed from agriculture to industries like cotton textiles, etc. The targets for agricultural exports also influence the government policies for growing more agricultural and horticultural products. These policies are backed up by necessary support like credit, farm inputs, subsidy, etc. These policies of the Government fixing targets for agricultural crops do influence the cropping pattern in different areas. The government tries to influence the cropping pattern by tax measures, subsidies, etc. Government also uses the policies of manipulation of prices for agricultural product which in turn will have its influence on cropping pattern by farmers.

Cropping pattern expresses the shares of different crops in the farmers' total cultivated area in an agricultural year. It is an important indicator of farmers' decision-making ability, which witness dynamism over space and time in response to the changes in factors which determine the cropping pattern.

## **References**

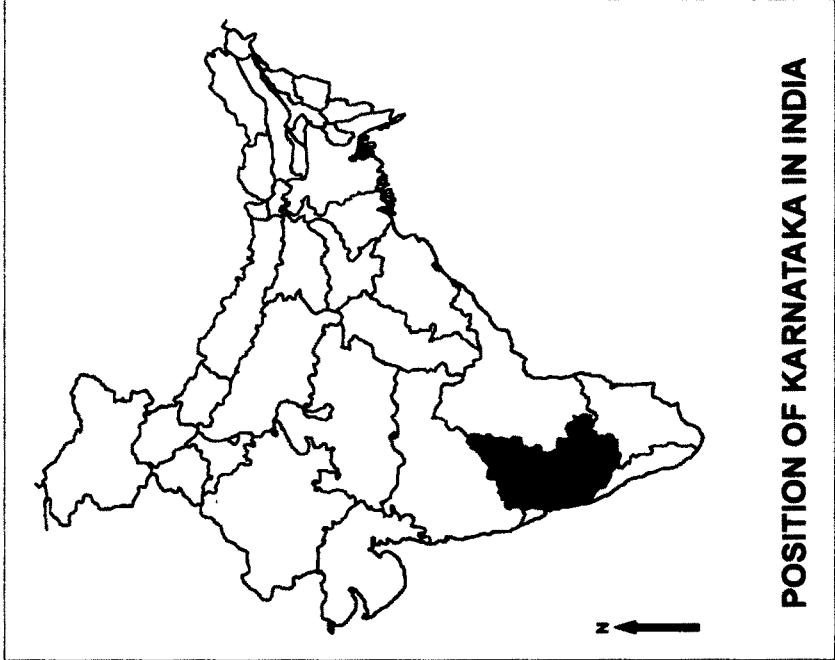
- 1) Harwood (1973): Increasing Food Production Through Multiple Cropping – Workshop – 18-20 September 1993, Indonesia.
- 2) Zandstra H.G. (1981): A Methodology for Farm Cropping System Research – International Rice Research Institute, Los Buenos, Philippines.

*Chapter-IV*  
*Profile of Dharwad District*  
*– The Study Area*

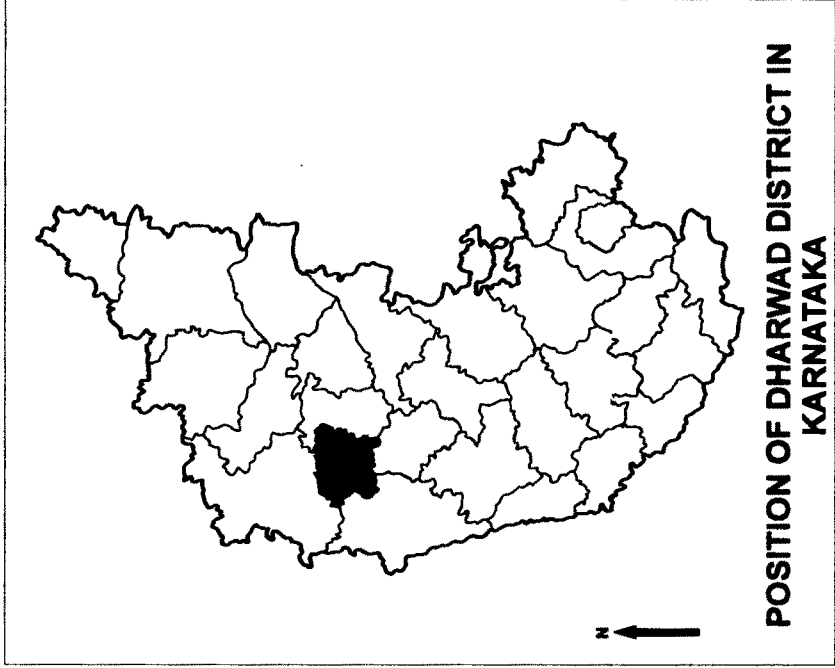


# LOCATION MAP

INDIA



KARNATAKA



DHARWAD DISTRICT

