

# UNIT 54 – UPSC - Major crops

## cropping patterns in various parts of the country

Variation in cropping systems has been one of the main characteristics of Indian agriculture and it is credited to rain fed agriculture and existing socio-economic condition of crop growing community. Fundamentally, cropping pattern entails the proportion of area under various crops at a point of time. The crop statistics published by the governments are used to signify the cropping patterns. Cropping pattern is, however, a dynamic notion as it changes over space and time. The cropping patterns of a region are directly influenced by the geo-climatic, socio-cultural, economic, historical and political factors. The physical environment (physiographic, climate, soils and water) imposes limits on the growth and dis-tribution of plants and animals (Singh and Sharma, 1985).



In the period of Green Revolution, there are signs of inequity in cropping pattern. During sixties, there were technological advancements that caused considerable shifts, in land utilisation, in favour of crops such as wheat and rice at the cost of area under coarse cereals, pulses and oil seeds. This move was the collective effect of differential rates of technological change among crops,

irrigation bias of new technology causing shift, of land away from dry crops in favour of irrigated crops and the related policy of price support system as well as market intervention by the Government for certain crops. Changes in cropping pattern are determined by many factors such as agro-climatic conditions, technological, infrastructural and institutional environment and profitability signals. Major element in crop production scheme in the post-green revolution period is enhanced agricultural technology. This technology is in the form of high yielding plant varieties, intensive cultivation, and greater use of fertilizers, increased irrigation and better method for cultivating, harvesting and plant protection (Velayuthum and Planniappan, 2003).

Cropping systems of an area are decided by several soil and climatic parameters which determine overall agro-ecological setting for nourishment and appropriateness of a crop or set of crops for cultivation. However, at farmers' level, potential productivity and financial benefits act as guiding principles while opting for a particular crop/cropping system. These decisions with respect to choice of crops and cropping systems are further narrowed down under influence of several other forces related to infrastructure facilities, socio-economic factors and technological developments, all operating interactively at micro-level.

**These factors are:**

1. Infrastructure facilities: Irrigation, transport, storage, trade and marketing, post-harvest handling and processing etc.
2. Socio-economic factors: Financial resource base, land ownership, size and type of land holding, household needs of food, fodder, fuel, fibre and finance, and labour availability etc.
3. Technological factors: Enhanced varieties, cultural requirements, mechanization, plant protection, access to information, etc.

It can be established that the cropping pattern and the level of crop production of a region is influenced by capital, marketing, labour, transport, economic condition of the farmer, institutional facilities etc. Agriculture is an economic activity from which farmers earn their livelihood. Therefore, they first look for the economic viability of a crop within their socio-physical and political environment.

There are different ways of growing crops. Growing of two or more crops concurrently and blend together on the same piece of land without row arrangements is called Mixed Cropping. This lessens risk and gives some insurance against failure of one of the crops. Another way is intercropping. It is growing two or more crops simultaneously on the same field in a definite pattern. A few rows of one crop alternate with a few rows. The growing of different crops on a piece of land in a pre-planned succession is called crop rotation.

The role of man in the farming of certain crops in a region is also significant. Person by his techno-logical advancement can improve the physical limits. In the regions of Punjab, Haryana and Rajasthan (Ganganagar), the farming of rice, confirm this fact. Nonetheless, around the globe, the physical environment reduces the choice of crops, either by barring the growth of certain plants or by reducing their yield per unit area.

The cropping patterns differ from region to region. It depends on the land, topography, slope, temperature, amount and reliability of rainfall, soils and availability of water for irrigation. The perception and evaluation of environment is also important for guiding which crop should grow in

certain region. Those areas of the world where physical diversities are less, the cropping patterns are less diversified. For instance, in the rainfall scarce areas of Rajasthan (India), the farmers grow bajra (bulrush millet), while in the Brahmaputra valley of Assam rice is the dominant crop. Likewise, cotton is grown in the regur (black earth) soil of Maharashtra and Gujarat, while the loamy soils of western Uttar Pradesh, Haryana and Punjab are ideally suited for wheat, rice and sugarcane crops.

Furthermore, the land occupancy, ownership of land, size of holdings and size of fields also enforce restrictions on the cropping patterns of a province. In the areas of small holdings, the farmers tend to be subsistent despite innovation diffusion. Dissimilar to this, the farmers with large holdings have more risk bearing capacity and they have relatively high degree of commercialisation.

The cropping patterns of a region unit may be determined on the basis of aerial strength of individual crops. The first, second and third ranking crops of an aerial unit may be called as the dominant crops of that unit. These crops, if occupying more or less the same percentage of the total cropped area, shall be competing for area with each other and the farmer will decide which crop may fetch him more profit in a given year under the prevailing rainfall and demand, supply and commodity price situation. Generally, for the determination of cropping patterns of an area, the minor crops (crops occupying insignificant proportion of the total cropped area) are eliminated. Apart from the proportion of area under a particular crop, its relative yield also guides the suitability of that crop in a given geo-climatic and cultural setting. The relative yield index and the relative spread index for the determination of suitability of crop may be calculated by applying the following formulas:  $\text{Relative Yield Index} = \frac{\text{Mean yield of the crop in a component areal unit}}{\text{Mean yield of the total area}} \times 100$

The area under each crop in a given region may be classified under four groups:

1. High yield, high spread
2. High yield, low spread
3. Low yield, high spread
4. Low yield, low spread

It is apparent that there are countless micro dissimilarity in the cropping patterns. The most important element of farming in India is the production of grains and the dominant food-chain is grainman. On this basis, the country may be divided broadly into five agricultural regions.

- i. The rice region extending from the eastern part to include a very large part of the northeastern and the south-eastern India, with another strip along the western coast.
- ii. The wheat region, occupying most of the northern, western and central India.
- iii. The millet-sorghum region, comprising Rajasthan, Madhya Pradesh and the Deccan Plateau in the centre of the Indian Peninsula.
- iv. The temperate Himalayan region of Kashmir, Himachal Pradesh and Uttar Pradesh and some adjoining areas. Here potatoes are as important as cereal crops (which are mainly maize and rice), and the tree-fruits form a large part of agricultural production.
- v. The plantation crops region of Assam and the hills of southern India where good quality tea is produced. There is an important production of high-quality coffee in the hills of the western peninsular India. Rubber is mostly grown in Kerala and parts of Karnataka and Tamil Nadu. There are some large estates, but most of the growers would come under the

category of small holders. Sugarcane, which in many countries is a plantation crop, is almost entirely grown by small holders in India.

On the accessibility of an alternative more efficient crop than the existing ones, new cropping patterns may come out in a region. The cropping patterns may be strengthening with the help of high yielding short duration varieties. Any cropping sequence to be espoused by the cultivators should be flexible.

The aptness of a crop and cropping pattern may be judged on the basis of the following:

1. The crop should not accentuate certain diseases as a result of a fixed continuous rotation.
2. The crop should not exhaust on some specific plant nutrients from a particular depth of the soil.
3. The crop should be fertility building and soil improving.
4. The crop should obtain good return to the cultivator and should provide the cultivator employment and income all the year round. Moreover, the crop should make certain the optimum utilization of his resources, particularly inputs like irrigation water, chemical fertilizers, insecticides, pesticides, equipment's, power and family labour.

In most parts of India, agriculture is still mainly subsistent in character. As a result, the food grain crops occupy over 71 per cent of the gross cropped area. India grows almost each and every crop. There are varieties of crop grown from Kashmir to Kanyakumari and western coast of Gujarat to extreme north eastern states of Arunachal Pradesh. Among the cereals rice and wheat rank first and second correspondingly. Cotton, sugarcane and oilseeds are the major cash crops.

Among the pulses, gram, lentil, black gram, green gram, pigeon peas are important. The subsistent cropping patterns of India are based on consumption of the natural fertility of the soil without the much use of contemporary inputs and technology. The areas in which HYV have been diffused successfully under the Green Revolution are, however, exceptions.

crops grown in India

SI No.	Types of Crops	Meaning	Major Crops
1.	Food grains	Crops that are used for human consumption	Rice, Wheat, Maize, Millets, Pulses and Oil seeds
2.	Commercial Crops	Crops which are grown for sale either in raw form or in semi-processed form	Cotton, Jute, Sugarcane, Tobacco and Oilseeds
3.	Plantation Crops	Crops which are grown on Plantations covering large estates	Tea, Coffee, Coconut and Rubber
4.	Horticulture	Sections of agriculture in which Fruits and Vegetables are grown	Fruits and Vegetables

The significance of acceptance of proper cropping patterns in a developing country such as India cannot be exaggerated. The horizontal development of agriculture is not possible without heavy capital investment. Only sensible utilization of land by adopting more remunerative cropping patterns, scientific alternation of crops and multiple cropping may help in overcoming the food and raw material issues of the country. The change in the cropping pattern and introduction of crops which improve the soil fertility are crucial to make agriculture more profitable and sustainable.

To summarize, Crop is intended to give a wider choice in the production of a variety of crops in a given area so as to expand production related activities on various crops and also to lessen risk. The cropping pattern in India has undergone significant changes over time. As the cultivated area remains more or less constant, the increased demand for food because of increase in population and urbanisation puts agricultural land under stress resulting in crop intensification and substitution of food crops with commercial crops. Crop diversification in India is generally viewed as a shift from traditionally grown less remunerative crops to more remunerative crops. The crop shift (diversification) also takes place due to governmental policies and thrust on some crops over a given time