

UPSC
NCERT Summary
Land use & Agriculture- 2

Jowar: The coarse cereals together occupy about 16.50 per cent of total cropped area in the country. Among these, jowar or sorghum alone accounts for about 5.3 per cent of total cropped area. It is main food crop in semi-arid areas of central and southern India. Maharashtra alone produces more than half of the total jowar production of the country. Other leading producer states of jowar are Karnataka, Madhya Pradesh and Andhra Pradesh. It is sown in both Kharif and rabi seasons in southern states. But it is a Kharif crop in northern India where it is mostly grown as a fodder crop. South of Vindhya it is a rainfed crop and its yield level is very low in this region.

Bajra: Bajra is sown in hot and dry climatic conditions in northwestern and western parts of the country. It is a hardy crop which resists frequent dry spells and drought in this region. It is cultivated alone as well as part of mixed cropping. This coarse cereal occupies about 5.2 per cent of total cropped area in the country. Leading producers of bajra are the states of Maharashtra, Gujarat, Uttar Pradesh, Rajasthan and Haryana. Being a rainfed crop, the yield level of this crop is low in Rajasthan and fluctuates a lot from year to year. Yield of this crop has increased during recent years in Haryana and Gujarat due to introduction of drought resistant varieties and expansion of irrigation under it.

Maize: Maize is a food as well as fodder crop grown under semi-arid climatic conditions and over inferior soils. This crop occupies only about 3.6 per cent of total cropped area. Maize cultivation is not concentrated in any specific region. It is sown all over India except eastern and northeastern regions. The leading producers of maize are the states of Madhya Pradesh, Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh. Yield level of maize is higher than other coarse cereals. It is high in southern states and declines towards central parts.

Pulses: Pulses are a very important ingredient of vegetarian food as these are rich sources of proteins. These are legume crops which increase the natural fertility of soils through nitrogen fixation. India is a leading producer of pulses and accounts for about one-fifth of the total production of pulses in the world. The cultivation of pulses in the country is largely concentrated in the dry lands of Deccan and central plateaus and northwestern parts of the country. Pulses occupy about 11 per cent of

the total cropped area in the country. Being the rainfed crops of dry lands, the yields of pulses are low and fluctuate from year to year. Grain and tur are the main pulses cultivated in India.

Grain: Grain is cultivated in subtropical areas. It is mostly a rainfed crop cultivated during rabi season in central, western and northwestern parts of the country. Just one or two light showers or irrigations are required to grow this crop successfully. It has been displaced from the cropping pattern by wheat in Haryana, Punjab and northern Rajasthan following the green revolution. At present, grain covers only about 2.8 per cent of the total cropped area in the country. Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh and Rajasthan are the main producers of this pulse crop. The yield of this crop continues to be low and fluctuates from year to year even in irrigated areas.

Tur (Arhar): Tur is the second important pulse crop in the country. It is also known as red grain or pigeon pea. It is cultivated over marginal lands and under rainfed conditions in the dry areas of central and southern states of the country. This crop occupies only about 2 per cent of total cropped area of India. Maharashtra alone contributed about one-third of the total production of tur. Other leading producer states are Uttar Pradesh, Karnataka, Gujarat and Madhya Pradesh. Per hectare output of this crop is very low and its performance is inconsistent.

Oilseeds: The oilseeds are produced for extracting edible oils. Dry lands of Malwa plateau, Marathwada, Gujarat, Rajasthan, Telangana and Rayalseema region of Andhra Pradesh and Karnataka plateau are oilseeds growing regions of India. These crops together occupy about 14 per cent of total cropped area in the country. Groundnut, rapeseed and mustard, soyabean and sunflower are the main oilseed crops grown in India.

Groundnut: India produces about 17 per cent the total of groundnut production in the world. It is largely a rainfed kharif crop of dry lands. But in southern India, it is cultivated during rabi season as well. It covers about 3.6 per cent of total cropped area in the country. Gujarat, Tamil Nadu, Andhra Pradesh, Karnataka and Maharashtra are the leading producers. Yield of groundnut is comparatively high in Tamil Nadu where it is partly irrigated. But its yield is low in Andhra Pradesh and Karnataka.

Rapeseed and Mustard: Rapeseed and mustard comprise several oilseeds as rai, sarson, toria and taramira. These are subtropical crops cultivated during rabi season in north-western and central parts of India. These are frost sensitive crops and their yields fluctuate from year to year. But with the expansion of irrigation and improvement in seed technology; their yields have improved and stabilized to some

extend. About two-third of the cultivated area under these crops is irrigated. These oilseeds together occupy only 2.5 per cent of total cropped area in the country. Rajasthan contributes about one-third production while other leading producers are Uttar Pradesh, Haryana, West Bengal and Madhya Pradesh. Yields of these crops are comparatively high in Haryana and Rajasthan.

Other Oilseeds: Soyabean and sunflower are other important oilseeds grown in India. Soyabean is mostly grown in Madhya Pradesh and Maharashtra. These two states together produce about 90 per cent of total output of soyabean in the country. Sunflower cultivation is concentrated in Karnataka, Andhra Pradesh and adjoining areas of Maharashtra. It is a minor crop in northern parts of the country where its yield is high due to irrigation.

Fibre Crops: These crops provide us fibre for preparing cloth, bags, sacks and a number of other items. Cotton and jute are two main fibre crops grown in India.

Cotton: Cotton is a tropical crop grown in kharif season in semi-arid areas of the country. India lost a large proportion of cotton growing area to Pakistan during partition. However, its acreage has increased considerably during the last 50 years. India grows both short staple (Indian) cotton as well as long staple (American) cotton called 'narma' in north-western parts of the country. Cotton requires clear sky during flowering stage.

India ranks fourth in the world in the production of cotton after China, U.S.A. and Pakistan and accounts for about 8.3 per cent of production of cotton in the world. Cotton occupies about 4.7 per cent of total cropped area in the country. There are three cotton growing areas, i.e. parts of Punjab, Haryana and northern Rajasthan in north-west, Gujarat and Maharashtra in the west and plateaus of Andhra Pradesh, Karnataka and Tamil Nadu in South. Leading producers of this crop are Maharashtra, Gujarat, Andhra Pradesh, Punjab and Haryana. Per hectare output of cotton is high under irrigated conditions in north-western region of the country. Its yield is very low in Maharashtra where it is grown under rainfed conditions.

Jute: Jute is used for making coarse cloth, bags, sacks and decorative items. It is a cash crop in West Bengal and adjoining eastern parts of the country. India lost large jute growing areas to East Pakistan (Bangladesh) during partition. At present, India produces about three-fifth of jute production of the world. West Bengal accounts for about three-fourth of the production in the country. Bihar and Assam are other jute growing areas. Being concentrated only in a few states, this crop accounts for only about 0.5 per cent total cropped area in the country.

Other Crops: Sugarcane, tea and coffee are other important crops grown in India.

Sugarcane: Sugarcane is a crop of tropical areas. Under rainfed conditions, it is cultivated in sub-humid and humid climates. But it is largely an irrigated crop in India. In Indo-Gangetic plain, its cultivation is largely concentrated in Uttar Pradesh. Sugarcane growing area in western India is spread over Maharashtra and Gujarat. In southern India, it is cultivated in irrigated tracts of Karnataka, Tamil Nadu and Andhra Pradesh.

India is the second largest producer of sugarcane after Brazil. It accounts for about 23 per cent of the world production of sugarcane. But it occupies only 2.4 per cent of total cropped area in the country. Uttar Pradesh produces about two-fifth of sugarcane of the country. Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh are other leading producers of this crop where yield level of sugarcane is high. Its yield is low in northern India.

Tea: Tea is a plantation crop used as beverage. Black tea leaves are fermented whereas green tea leaves are unfermented. Tea leaves are fermented whereas green tea leaves are unfermented. Tea leaves have rich content of caffeine and tannin. It is an indigenous crop of hills in northern China. It is grown over undulating topography of hilly areas and well drained soils in humid and sub-humid tropics and sub-tropics. In India, tea plantation started in 1840s in Brahmaputra valley of Assam which still is a major tea growing area in the country. Later on, its plantation was introduced in the sub- Himalayan region of West Bengal (Darjeeling, Jalpaiguri and Cooch districts). Tea is also cultivated on the lower slopes of Nilgiri and Cardamom hills in Western Ghats. India is a leading producer of tea and accounts for about 28 per cent of total production in the world. India's share in the international market of tea has declined substantially. At present, it ranks third among tea exporting countries in the world after Sri Lanka and China. Assam accounts for about 53.2 per cent of the total cropped area and contributes more than half of total production of tea in the country. West Bengal and Tamil Nadu are the other leading producers of tea.

Coffee: Coffee is a tropical plantation crop. Its seeds are roasted, ground and are used for preparing a beverage. There are three varieties of coffee i.e. Arabica, robusta and liberica. India mostly grows superior quality coffee, Arabica, which is in great demand in International market. But India produces only about 4.3 per cent coffee of the world and ranks sixth after Brazil, Vietnam, Colombia, Indonesia and Mexico. Coffee is cultivated in the highlands of Western Ghats in Karnataka, Kerala and Tamil Nadu. Karnataka alone accounts for more than two third of total production of coffee in the country.

AGRICULTURAL DEVELOPMENT IN INDIA

Agriculture continues to be an important sector Indian economy. In 2001 about 53 per cent population of the country was dependent on it. The importance of agricultural sector in India can be gauged from the fact that about 57 per cent of its land is devoted to crop cultivation, whereas, in the world, the corresponding share is only about 12 per cent. In spite of this, there is tremendous pressure on agricultural land in India, which is reflected from the fact that the land-human ratio in the country is only 0.31 ha which is almost of that of the world as a whole (0.59 ha). Despite various constraints, Indian agriculture has marched a long way since Independence.

Strategy of Development: Indian agricultural economy was largely subsistence in nature before Independence. It had dismal performance in the first half of twentieth century. This period witnessed severe droughts and famines. During partition about one-third of the irrigated land in undivided India went to Pakistan. This reduced the proportion of irrigated area in Independent India. After Independence, the immediate goal of the Government was to increase food grains production by (i) switching over from cash crops to food crops; (ii) intensification of cropping over already cultivated land; and (iii) increasing cultivated area by bringing cultivable and fallow land under plough. Initially, this strategy helped in increasing food grains production. But agricultural production stagnated during late 1950s. To overcome this problem, Intensive Agricultural District Programme (IADP) and Intensive Agricultural Area Programme (IAAP) were launched. But two consecutive droughts during mid-1960s resulted in food crisis in the country. Consequently, the food grains were imported from other countries.

New seed varieties of wheat (Mexico) and rice (Philippines) known as high yielding varieties (HYVs) were available for cultivation by mid-1960s. India took advantage of this and introduced package technology comprising HYVs, along with chemical fertilizers in irrigated areas of Punjab, Haryana, Western Uttar Pradesh, Andhra Pradesh and Gujarat. Assured supply of soil moisture through irrigation was a basic pre-requisite for the success of this new agricultural technology. This strategy of agricultural development paid dividends instantly and increased the food grains production at very fast rate. This spurt of agricultural growth came to be known as 'Green Revolution'.

This also gave fillip to the development of a large number of agro-inputs, agroprocessing industries and small-scale industries. This strategy of agricultural development made the country self-reliant in food grain production. But green revolution was initially confined to irrigated areas only. This led to regional

disparities in agricultural development in the country till the seventies, after which the technology spread to the Eastern and Central parts of the country.

The Planning Commission of India focused its attention on the problems of agriculture in rainfed areas in 1980s. It initiated agro-climatic planning in 1988 to induce regionally balanced agricultural development in the country. It also emphasized the need for diversification of agriculture and harnessing of resources for development of dairy farming, poultry, horticulture, livestock rearing and aquaculture.

Initiation of the policy of liberalization and free market economy in 1990s is likely to influence the course of development of Indian agriculture. Lack of development of rural infrastructure, withdrawal of subsidies and price support, and impediments in availing of the rural credits may lead to interregional and inter-personal disparities in rural areas.

Growth of Agricultural Output and Technology

There has been a significant increase in agricultural output and improvement in technology during the last fifty years.

- Production and yield of many crops such as rice and wheat has increased at an impressive rate. Among the other crops, the production of sugarcane, oilseeds and cotton has also increased appreciably. India ranks first in the production of pulses, tea, jute, cattle and milk. It is the second largest producer of rice, wheat, groundnut, sugarcane and vegetables.
- Expansion of irrigation has played a very crucial role in enhancing agricultural output in the country. It provided basis for introduction of modern agricultural technology such as high yielding varieties of seeds, chemical fertilizers, pesticides and farm machinery. The net irrigated area in the country has increased from 20.85 million ha over the period 1950-51 to 2000-01. Over these 50 years, area irrigated more than once in an agricultural year has increased from 1.71 to 20.46 million ha.
- Modern agricultural technology has diffused very fast in various areas of the country. Consumption of chemical fertilizers has increased by 15 times since mid-sixties. In 2001- 02, per hectare consumption of chemical fertilizers in India was 91 kg which was equal to its average consumption in the world (90 kg). But in the irrigated areas of Punjab and Haryana, the consumption of chemical fertilizers per unit area is three to four times higher than that of the national average. Since the high yielding varieties are highly susceptible to pests and diseases, the use of pesticides has increased significantly since 1960s.

Problems of Indian Agriculture: Yet, there are some problems which are common and range from physical constraints to institutional hindrances. A detailed discussion on these problems follows:

Dependence on Erratic Monsoon: Irrigation covers and about 33 per cent of the cultivated area in India. The crop production in rest of the cultivated land directly depends on rainfall.

Low productivity: The yield of the crops in the country is low in comparison to the international level. The vast rainfed areas of the country, particularly drylands which mostly grow coarse cereals, pulses and oilseeds have very low yields.

Constraints of Financial Resources and Indebtedness: The inputs of modern agriculture are very expensive. Crop failures and low returns from agriculture have forced them to fall in the trap of indebtedness.

Lack of Land Reforms: After independence, land reforms were accorded priority, but these reforms were not implemented effectively due to lack of strong political will.

Small Farm Size and Fragmentation of Landholding: There are a large number of marginal and small farmers in the country. More than 60 per cent of the ownership holdings have a size smaller than one (ha). Furthermore, about 40 per cent of the farmers have operational holding size smaller than 0.5 hectare (ha). The average size of land holding is shrinking further under increasing population pressure.

Lack of Commercialization: Most of the small and marginal farmers grow food grains, which are meant for their own family consumption. Modernization and commercialization of agriculture have however, taken place in the irrigated areas.

Vast Under-employment: In these areas, there is a seasonal unemployment ranging from 4 to 8 months. Even in the cropping season work is not available throughout, as agricultural operations are not labour intensive.

Degradation of Cultivable Land: One of the serious problems that arises out of faulty strategy of irrigation and agricultural development is degradation of land resources.