

**Unit – IV: Agriculture: Types - Geographical condition and Distribution of Wheat, Rice, Sugarcane, Cotton, Tea, Coffee.**

## **AGRICULTURAL RESOURCES**

Agricultural resources means the land and on-farm buildings, equipment, manure processing and handling facilities and processing and handling facilities which contribute to the production, preparation and marketing of crops, livestock and livestock products as a commercial enterprise, including a commercial horse boarding operation, a timber operation, compost, mulch or other biomass crops, and commercial equine operation. One of the most important agricultural resources is soils. Productive soils allow farmers to obtain high crop yields with the least expense and damage to the environment. In order to be successful, farmers need not only good soils but also need access to open lands suitable for farming. Farmers also need to be able to install and use various land management systems to support the farm operation including irrigation, manure spreading, and the ability to move equipment over roads and bridges.

- Agriculture involves rearing of animals and crop cultivation
- Agriculture aims at providing enough, healthy food to feed the population worldwide
- Different types of agricultural activities are practiced in different regions across the world
- Factors such as climate affect the type of agricultural activity a farmer can practice
- Types of agricultural activities include subsistence farming, nomadic herding, commercial plantation, livestock rearing, etc

### **Types of Agriculture**

- Shifting Cultivation.
- Nomadic Herding. ...
- Rudimentary Sedentary Tillage. ...
- Livestock Ranching/Pastoral Farming. ...
- Commercial Plantations. ...

- Mixed Farming. ...
- Specialized Horticulture. ...
- Subsistence Farming
- Intensive Subsistence Farming with/without Rice as a Dominant Crops
- Mediterranean Agriculture
- Dairy Farming
- Commercial Grain Farming
- Arable Farming

## **RICE**

There are more than 40,000 varieties of rice.

The Great Wall of China is held together with sticky rice. *Honda* means “the main rice field” in Japanese. Uncooked white rice will stay fresh and edible for anywhere between 10 and 30 years. Just one seed of rice will result in over 3,000 grains.

**Temperature:** between 20°C and 27°C.

**Rainfall:** where minimum rainfall is 115 cm., Average annual rainfall between 175—300 cm are the most suitable

**Soil:** - Alluvial and loam

- Paddy needs a level surface to enable the fields to be flooded at least during the growing period.
- Paddy requires three essential plant nutrients: nitrogen, phosphorus and potassium.
- Paddy cultivation is extremely labour-intensive

### **China:**

The greatest rice-producing country in the world is China. The average annual production of rice in China is 130 million metric tons, which is about 36 per cent of the world production.

In China rice culture has been developed in early phase of civilisation, therefore, it is a traditional rice-producing country. Szechuan Region, Lower Yangtze Basin, South-West Region of China, Kwantung Region, Szechun-Hunan Region

### **India:**

India is the second largest rice-producing country in the world. Its average annual production is 95 million metric tons, which is about 20 per cent of the world total. Rice is the staple food and cultivated in most of the states of India. Among the regions Ganga-Brahmaputra valley contributes the largest amount of rice followed by coastal regions. West Bengal, Bihar, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Karnataka, Assam and Odisha

### **Bangladesh:**

The total rice average of nearly 10 million hectares and the annual output of nearly 30 million metric tons make Bangladesh a major world rice producer. The bulk of the rice fields are unirrigated in the Ganges delta region, where annual rainfall is more than 250 cm and soil is heavy and wet all the time.

Japan:

- Japan is the country which has not only developed rice cultivation under adverse topographical conditions but is also a leading producer of rice.
- It ranks 10th in world rice production.
- In Japan rice dominates the low alluvial filled valleys and coastal plains.
- Kwanton plain is the main rice-producing region of Japan.

**Apart from above mentioned countries,**

- South-East Asian countries are also leading producers of rice.
- In fact, all the countries of South-East Asia produce rice. But, the main countries are Vietnam, Thailand, Myanmar and Philippines.
- These countries rank 5th, 6th, 7th and 8th in world rice production

- . • Thailand and Myanmar are considered the ‘rice bowl of Asia’. Other countries of South-East Asia which produce rice are Cambodia, Laos and Malaysia.
- Pakistan also produces rice and ranks 12th in world’s rice-producing countries.
- Rice is also produced in South Korea. In Taiwan, paddy is grown on the wetter west coast
- . • Outside Monsoon Asia, relatively little rice is grown. In Egypt, rice is grown both in the Nile delta and valley.
- It was originally cultivated by the basin irrigation system, in which annual flood water of the Nile River is used. Today, apart from basin irrigation, rice is grown in canal irrigated region of the Aswan dam.
- Brazil is the important rice-growing country in the southern continents.
- In USA also rice is produced, mainly in regions from the coast lands of the Gulf of Mexico. The leading rice state is Louisiana, followed by California, Texas and South Carolina. .
- In Europe, paddy farming is done in the North Italian plain, the Ebro basin of Spain, the Rhone delta of France and scattered areas of the Balkans.
- Paddy is grown mainly in South-East Brazil where the heavy precipitation, the swampy coastal lowlands and the abundant sunlight all make the area ideal for wet paddy cultivation.

## **WHEAT**

- The crop originated from the Middle East and has been cultivated for thousands of years.
- In 1777, the crop was first planted as a hobby crop.
- Wheat is the most harvested crop in the world.
- The country producing the largest amount of the crop in the world is China
- In 2016, China, India, Russia, United States, and France were the top five producers

- In the United States, 42 out of the 50 states grow the crop
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### **China:**

China is the largest producer of wheat in the world and its average annual production is 110 million metric tons. Production of wheat in China has registered a spectacular increase in recent years. The productivity of wheat is 4.69 metric tons per hectare. In China intensive-mechanised wheat farming is done. Wheat is produced chiefly in the north of the country in the Huang He (Hwang Ho) basin and in Manchuria. But now wheat is also grown in other areas.

The major wheat-producing areas of China are:

- (a) North-East China includes Beijing and Manchurian plain
- (b) . (b) South-East China includes Human and Yangtze fertile plain. In this region spring wheat cultivation is done.
- (c) (c) North China Plain and Kaoliang Region are famous for winter wheat. The Hwang Ho valley is considered as the best wheat-producing region.

### **India:**

India is the second largest producer of wheat in the world. In 2009-10, it produced 77.50 million metric tons of wheat. India has registered a massive increase in wheat production after 'Green Revolution'. Once importer of wheat, now it not only fulfils the needs of its own large population but also has a surplus stock. The climate of northern plain of India with its mild, rainy winter and hot dry summer is highly favourable for wheat production.

### **The major wheat-producing states are:**

- a) Punjab, Uttar Pradesh, Haryana, Madhya Pradesh, Bihar, Rajasthan, Maharashtra and Gujarat.
- b) In India both spring and winter wheat is grown. Winter wheat is more popular in northern India, while spring wheat is cultivated in western India. Now wheat cultivation has become more mechanised and also commercial in nature.

c) The yield of wheat in India is 2.79 tons per hectare, which is lower in comparison to other leading wheat-producing countries.

### **USA:**

In the world, USA is the third largest producer of wheat and produces 68 million metric tons of wheat in 2008-09. About 25 million hectare of land in USA is devoted to wheat cultivation. The cultivation of wheat in USA is highly mechanised, capital-intensive and commercial.

The leading wheat-producing states are Kansas, North Dakota, Nebraska and Montana, although in many other states wheat is grown. The four major wheat-growing regions of USA are as follows:

#### **The Hard Red Spring Wheat Region:**

This is a continuation of the Canadian Prairies and is leading commercial wheat region of America. It includes the states of North and South Dakota, Montana and Minnesota. In this region wheat is sown in early spring rain and grows through the warm summer and is harvested by autumn.

#### **The Hard Red Winter Wheat Region:**

South of Minnesota and South Dakota is another great wheat region that grows hard red winter wheat. The states included in this region are Nebraska, Kansas, Missouri, Oklahoma, and Northern Texas. The wheat is sown in winter and harvested in early summer.

#### **The Soft Red Winter Wheat Region:**

It includes such states as Illinois, Indiana, Ohio, Pennsylvania and most of the MidAtlantic States. Increased moisture and higher relative humidity gives the wintersown wheat a softer texture.

#### **The Soft White Wheat Region:**

The soft white wheat is grown in two areas of USA, first, around lakes Michigan and Huron and second, the west coast including California and the Columbia plateau region. This wheat is sown in spring or winter depending on the local climate and relief.

#### **Russia/Ukraine/Kazakhstan:**

- Russia alone ranks fourth in world wheat production, which produces more than 50 million metric tons of wheat. Ukraine once the part of USSR is now an independent state and ranks 13th in wheat production.
- The black soil region of Russia and Ukraine is best for wheat cultivation.
- Both spring and winter wheat are grown. Since the Communist Revolution (1917) planned efforts were made to achieve self-sufficiency in wheat production.
- Large-scale mechanization, extension of agriculture in the virgin land, state-sponsored community farming enabled the country to spectacularly increase wheat production.
- Large areas of the Steppes stretching from the Dnieper into Asiatic Russia have been brought under wheat cultivation.
- Besides Russia and Ukraine, Kazakhstan region (now independent) is another major wheat-producing country.

### **European Countries:**

- Almost all the countries of Europe grow wheat, but France, Germany and UK are the three leading countries. Other wheat-producing countries of Europe are Poland, Italy, Spain, Denmark and Hungary
- Europe fulfils all requirements of wheat cultivation: a temperate maritime or continental climate with an annual precipitation of between 40 to 75 cm.
- Europe contributes nearly one-fourth of wheat production of the world.
- The productivity of wheat is also higher, for example, in UK, Germany and Denmark the per hectare yield of wheat is more than 7 metric tons which is highest in the world. Despite high productivity, due to high density of population, local consumption is also high, therefore, wheat surplus is not available, even some countries import wheat.

### **Canada**

- Canada is not only a leading wheat producer of the world but also a leading exporter. The average annual production of wheat in Canada is 25 million metric tons and ranks 8th in world producers.

- Since Canada is having small population, most of the wheat is exported to other countries especially to Britain and other West European countries. In Canada 95 per cent wheat is grown in Saskatchewan, Alberta and Manitoba province.

- Other wheat-producing provinces are Ontario and British Columbia. The Canadian Prairies is one of the leading granaries of the world. This is because of the following factors:

- (i) Extensive cheap land was available,

- (ii) Good network of railways,

- (iii) Fertile prairie soils,

- (iv) Undulating topography,

- (v) Suitable climate, and

- (vi) Access to world market

### **Argentina:**

- In South America, the leading wheat producer is Argentina, which ranks 9th in the world wheat producer countries.

- Its average annual production of wheat is 10 million metric tons

- Its greatest concentration is in the ‘wheat crescent’ of the Pampas from Rosario to Bahia Blanca, where the cool temperate oceanic climate with mild winter and warm summer is almost ideal for wheat-growing.

- The rolling treeless Pampas facilitates the extensive use of machines. The dense network of railways allows the harvested grain to reach the coastal ports of Buenos Aires and Bahia Blanca for export.

### **Australia:**

Australia is the 14th wheat-producing country of the world. In 2007-08 it produced 13.84 million metric tons, but in 2008-09 its production of wheat went up to 21.5 million metric tons. Murray-Darling basin and South-Western Australia Region are the main

wheat-producing regions, because these areas are having suitable climatic conditions for wheat production.

### **Pakistan**

Pakistan is also a leading wheat-producing country in the world and ranks 6th in wheat production. Its wheat production in 2007—08 was 23.30 million metric tons. The Indus Plain is the main wheat-producing region of Pakistan. The geographical conditions of the Indus Plain are suitable for wheat production.

Apart from above mentioned important countries, wheat is also produced in many other countries of the world. The other important wheat-producing countries are Iran, Turkey, Egypt, Uzbekistan, Syria, Afghanistan, Romania, Morocco, Bulgaria, New Zealand, South Africa, Uruguay, Central Chile and Southern Brazil

### **TEA**

- Tea was so valuable in the 18th century that it was kept in a locked chest – which we now call a tea caddy.
- There are around 3,000 different types of tea

#### **Climate:**

- Climatically, tea belongs to the monsoon lands where high temperatures, long growing season and heavy rainfall help the growth of tea plants. A temperature of 21°C during the growing season of not less than eight months is ideal.
- Warm summers and frequent rains promote rapid leaf reproduction and increase the number of annual pickings.
- During the cool season, e.g., in China and Japan, the tea bushes lie dormant and there is no picking but where growth is not restricted by a distinct season, as in Sri Lanka, picking can be carried out all the year round.
- In India and Bangladesh, the highest yields are obtained from June to September when the weather is hot and rainy, but the best quality tea is derived from the earlier and later pickings when the climate is cooler and drier.

**Relief:**

- Almost all the commercially-managed tea plantations are located in the highlands and on hill slopes where the natural drainage is good. Tea cannot tolerate stagnant water and waterlogged lowlands are thus least suited to tea cultivation. Almost all the black tea that enters international trade comes from highland districts.
- Different grades of tea are obtained at varying altitudes, e.g., the low grade 'Low Crown Tea' from tea grown below 610 meters; the intermediate grade 'Medium Crown Tea' from altitudes of 610-1,200 meters, while the best quality 'High Crown Tea' comes from estates located at 1,220 meters and above.
- Mountain slopes have been adopted for tea gardens all over the tea regions of the monsoon lands. Undulating and well-watered tracts, where the water escapes freely without serious soil erosion, offer best conditions for tea cultivation.

**Soils:**

- Tea is grown in variety of soils. The best, however, is a light; friable loam with porous sub-soil which permits a free percolation of water, for tea is highly intolerant to stagnant water. In general the most suitable soils are slightly acidic and without calcium

**Shade:**

- Tea shrubs grow better when shielded from strong sunlight or violent winds. It is therefore usual in plantations to plant some large trees in between the shrubs to give shade not only to tea plants but also to the pickers.

**Capital:**

- Tea cultivation is a capital-intensive farming. Tea cultivation requires large finances for the development of plantations, payment to labourers, for processing, etc. In early phase of development of tea gardens, foreign capital has been used.

**Labour:**

- Tea cultivation and processing are labour-intensive tasks. The work of field preparation, weeding, manuring, pruning and picking goes on all the year round on tea estates. Female

labour is preferred for tea picking because it is a tedious job, requiring both skill and patience.

- Picking is done entirely by hand, and pickers are paid by piece rate, i.e., by the amount of tea picked during the day. Workers are also required in the tea processing plants where the leaves are dried, rolled, fermented, sifted, graded and packed.

**China** is the largest producer of tea in the world, at 2,473,443 tonnes, and also has the most land devoted to tea growing, at 2,224,261 hectares. China is the birthplace of specialty tea and the diversity of tea styles produced there is unparalleled. The top 5 growing regions, ranked by tea production, are:

- Fujian Province
- Yunnan Province
- Hubei Province
- Sichuan Province
- **Hunan Province**

**India** is the 2 producer of tea in the world at 1,325,050 tonnes and second in terms of land devoted to tea growing as well, with 621,610 hectares. Much of India's tea production is concentrated in the areas of Darjeeling, Nilgiri, Dooars, and Assam, which is the single largest tea growing region in the world. The top 5 growing states in India, ranked by production, are:

- Assam
- West Bengal
- Tamil Nadu
- Kerala
- Karnataka

**Kenya**

Kenya is in the top five, being the 3 producer of tea in the world at 439,857 tonnes, and #4 in area, with 218,538 hectares of tea land.

### **Sri Lanka**

Sri Lanka is the #4 largest producer of tea in the world at 349,699 tonnes, and #3 in terms of area, with 233,909 hectares of tea land. They grow tea all over the island, but mostly around the Southern mountain ranges. The Sri Lanka Tea Board holds trademarks for the following growing regions: Sabaragamuwa, Nuwara-Eliya, Dimbula, Ruhuna, Uva, Uda Pussellawa, and Kandy. We visited there recently to explore some different styles of tea

### **Vietnam**

Vietnam is the 5 largest producer of tea in the world at 260,000 tonnes, and also #5 in terms of area, with 123,188 hectares of tea land. We've explored the tea-growing regions before, in addition to the history of tea production.

### **Turkey**

Turkey is the 6th largest producer of tea in the world at 234,000 tonnes, and 8th in area, with 82,108 hectares of tea land. Turkey's tea production is concentrated in and around Rize Province.

## **COFFEE**

Coffee production, cultivation of the coffee plant, usually done in large commercial operations. The plant, a tropical evergreen shrub or small tree of African origin (genus *Coffea*, family Rubiaceae), is grown for its seeds, or beans, which are roasted, ground, and sold for brewing coffee. This section treats the cultivation of the coffee plant. For information on the processing of coffee and the history of its use, see the article coffee.

### **Brazil**

The production of coffee has played a pivotal role in the development of Brazil and continues to be a driving force in the country's economy. The plant was first brought to Brazil in the early 18th century by French settlers. With the rise in popularity of coffee among Europeans, Brazil became the world's largest producer in the 1840s and has been ever since. Some 300,000 coffee farms are spread over the Brazilian landscape.

According to the United States Department of Agriculture (USDA), Brazil is expected to produce 58 million 60-kilogram bags of coffee in the 2019-20 marketing year, accounting for more than a third of the world's production.

## **Vietnam**

Vietnam Relatively new to the international coffee trade, Vietnam has quickly become one of the largest producers. In the 1980s, the Communist Party made a big bet on coffee, and production increased by 20% to 30% every year during the 1990s, completely transforming the nation's economy.

Vietnam is expected to produce 32.2 million 60-kilogram bags of coffee in 2019– 2020, according to the USDA.

Vietnam found a niche in the international market by focusing primarily on the less expensive Robusta bean. Robusta beans can have up to twice the caffeine as Arabica beans, giving the coffee a more bitter taste. Vietnam is the No. 1 producer of Robusta coffee in the world, accounting for more than 40% of global output in the 2019–2020 marketing year.

## **Colombia**

A popular advertising campaign featuring a fictional coffee farmer named Juan Valdez helped brand Colombia as one of the most famous coffee-producing nations. Colombia is renowned for its quality coffee and is expected to produce 14.3 million 60- kilogram bags of coffee in 2019-20.

For several years beginning in 2008, Colombian coffee crops were hit by a leaf disease known as coffee rust. Output plummeted but has since rebounded as the country replaced trees with rust-resistant varieties.

Colombia ranks second in Arabica production, and millions worldwide prefer their mild, well-balanced flavour.

## **Indonesia**

Indonesia's location and climate have helped it become the third-largest producer of Robusta beans in the world. Total production, including Robusta and Arabica, is 10.7 million 60-kilogram bags in the 2019–2020 marketing year. In Indonesia, there are 1.2 million hectares

of coffee crops; small, independent farms account for the vast majority of output, each owning one to two hectares.

Indonesia produces several types of highly sought-after specialty coffees, the most interesting of which is Kopi Luwak. Harvested from the feces of Asian palm civets, the beans have a distinctive and understandably unique flavor. The process of collecting and harvesting the beans is rather intensive, and the result is one of the most expensive coffee beans in the world.

### **Ethiopia**

Ethiopia regained the No. 5 spot in the 2018–2019 year and is expected to produce 7.3 million 60-kilogram bags in the 2019–2020 marketing year, just edging out Honduras, which had captured position from Ethiopia in the 2016–2017 marketing year. Ethiopia is the largest coffee producer in Africa and is expected to export a record amount in the 2019–2020 marketing year, according to the USDA.

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