

## CATTLE REARING AND FISHING

Cattle rearing is an important economic activity in India. Milk and milk products (Butter, Ghee etc) meat, eggs, leather, and silk are raw materials for industries. Animals provide a large proportion of energy required in the farm sector. The bullocks, buffaloes, horses, ponies, camel etc. are used as draught animals. They are used in agricultural activities like ploughing of fields, drawing of water from wells and for carrying loads. It is to be noted here that with rise in mechanized farming, the use of animal power for farm operations is on gradual decline. This is more true of Green Revolution areas. Hides and skins of animals are used as raw material for leather industries. Sheep, goats and camels provide wool. Their dung are used for biomass gas production and for making manure.

India is leading producer of milk in the world. It is due to initiative taken by government through 'Operation Flood'. Under this program good breeds of cows and buffaloes, which yield more milk, have been introduced. Co-operative societies in this field were encouraged. The modern dairy farms produced milk powder, butter, and cheese; condense milk, cream, and ghee along with milk. The largest number of livestock is found in Uttar Pradesh followed by the states of Rajasthan, Bihar and Madhya Pradesh. These four states account for 44% of total livestock of India. The density of animals in India is the highest in the world. It is about 130 heads of livestock per 100 hectare of land. The percentage of area under permanent pasture is very low in comparison to the density of animal population. Cattles, Buffaloes, sheep and goats are important livestock in India.

### Distribution of Animal Resources in India

Cattle rearing in India is an important economic activity. The cattle population accounts for 43.5% of the total livestock in the country. The largest number of cattles in the country is found in Uttar Pradesh. Except Haryana, Punjab and Rajasthan, in other states of India the number of cattles are greater among live-stock. The yield of milk from Indian cows is the lowest in the world. It is only 188 liters per animals per annum in India while in Netherland it is 4200 liters differing by about twenty three times. Buffaloes account for 18% of total livestock in India. They outnumber other animals in the states of Haryana and Punjab. For the milk point of view, buffaloes are important as they account for about 53% of total milk production in India. Sheep are found mostly in the cold and dry regions of the country. They are very few in areas which are very hot and receive heavy rain during monsoon. They develop hoof diseases in hot and humid climate. Rajasthan, Tamil Nadu, Jammu & Kashmir, Himachal Pradesh, Andhra Pradesh and Uttar Pradesh are major states where sheep are in large numbers.

Among the other animals goats, camels, horses, yaks and mithuns are important. The goats reared mainly for meat and milk. In Rajasthan goats are greater in number than other animals. Camels are reared in western Rajasthan and adjoining areas of Gujarat, Haryana and Punjab. Camel is called the aeroplane of desert region implies to Thar Desert of India. Horse and ponies are distributed all over India specially in Jammu & Kashmir, Uttar Pradesh, Bihar, Madhya Pradesh and Punjab. Yaks are found in mountainous areas of Jammu & Kashmir, Haryana, Himachal Pradesh, Sikkim, and Arunachal Pradesh. Mithuns are found in Nagaland and Arunachal Pradesh. The general condition of animals in India is very poor due to the lack of nutritious fodder, and harsh hot and humid weather conditions. Also, there is a lack of artificial insemination centers, and veterinary hospitals and doctors.

## FISHING

Fishing has been an important occupation of the people in the coastal areas. However, in spite of having a long coastline and broad continental shelf, India's fishing industry is still largely in a developing stage. Modernization on limited scale has started recently. Fisheries are of two types (i) the inland and (ii) the open sea. The inland fishing is done in rivers, tanks, ponds and canals. The major rivers like Brahmaputra, Ganga, Satluj, Narmada, Mahanadi and Godavari; and numerous tanks and ponds are tapped for fishing. Inland fish production is accounted for two fifths or 40 percent of total fish production in India during 1995-96. Open sea fishing or marine fishing, done in sea water, is caught in shallow water in our country. More than two-thirds of marine fish is landed on western coast of India. While remaining one third on the eastern coast .

India caught 5.6 lakhs tonnes of fish during 2000-01. Though, India has huge potential for fishing but the actual catch is very small. The main factors responsible for poor performance in fishing are traditional methods, wooden loge made boats, driven by human energy, and poor socio-economic conditions of the fishermen. In order to increase fish production and trade, the Government has taken a number of steps including (i) financial assistance to fishermen (ii) introduction of large vessels, (iii) better harbours and breathing facilities (iv) provision of refrigerated wagons and road transport facility (v) introduction of accident insurance scheme and (vi) marketing of fish on co-operative basis. The rapid increase in the production of fish in the country is called Blue Revolution. This is synonymous with shrimp farming or Aquaplosion.

## 22.6 MAJOR CROPS IN INDIA

Owing to cash physical diversity, a variety of crops are grown in our country. The crops grown in the country may be categorised as under:-

#### Types of Crops Foods crops

Pulses Oil seeds Beverages Fibre crops Other crops Paddy Gram Groundnut Tea Cotton Sugarcane  
Wheat Arahara Mustard Coffee Jute Spices Jawar Pease Cottonseeds Coco Fruits Bajara Black gram  
Soyabean Vegetable Maize Lentil Coconuts Floriculture Ragi Sunflower Rubber Tobacco

(i) Paddy Paddy is basically a tropical crop. India is one of the major producers of rice in the world, accounting for one-fifth of the world production, ranking next only to China. About 23 per cent of the total cropped area in the country is under this crop. Paddy is grown in Kharif season. Paddy is ideally grown in rainfed areas where annual rainfall is more than 125 cms. It requires high temperature (20 0 - 25 0 C). However, it is also grown in areas of less than 125 cms rainfall with the help of irrigation. At present, 51 per cent of rice producing area is under irrigation. Deep fertile loamy or clayey soils are considered ideal for this crop. It requires considerable manual labour for sowing and transplantation. Although paddy crop is grown in almost all states of India, the leading producing states are West Bengal, Uttar Pradesh, Andhra Pradesh, Punjab, Tamil Nadu, Bihar, Orissa and Assam. Andhra Pradesh is the largest producer of rice in India but consumption of rice being large, it has to import from other states. Against this, Punjab is the biggest contributor of rice to central public distribution system. In some states, three crops of paddy in a year are grown. For example, in West Bengal three crops are known as Aman, Boro and Aon.

(ii) Wheat Wheat is basically subtropical crop grown in the winter season in India. It is grown in rabi crop season, while paddy is sown in kharif season. Wheat ranks second after Paddy crop, having about 13 per cent of total cropped area under it. Wheat requires cool weather with moderate rainfall. It grows well in the northern plains of India during winter season when the mean temperature is between 10 and 15 0 C. Well drained loamy soil is ideal for wheat cultivation.

Uttar Pradesh, Punjab and Haryana are major wheat producing states in India. They accounted for 60 per cent of total area under wheat and 73 per cent of total wheat production in the country in 2000-2001. Other important wheat growing states are Rajasthan, Bihar, Madhya Pradesh and Maharashtra. The wheat production in the country showed maximum increase after Green Revolution introduced in 1966. During 2000-01 the total production was 688 lakh tonnes. India is an important producer of wheat in the world. It is followed by China and USA. Although productivity per hectare has increased rapidly

from 815 kg. in 1950-51 to 2743 kg. in 2000-01 per hectare the yield of wheat in India is lower in comparison with other major wheat producing countries.

(iii) Tea India is the leading producer and consumer of tea in the world. The country earns a sizable amount of foreign exchange through export of tea. Tea grows best on the mountain slopes receiving large amount of rains (above 150 cms.) Well drained deep loamy soils, rich in humus is ideal for tea plantation. Most of the tea producing areas are on the hilly slopes of Surma and Brahmaputra valleys in Assam, Darjeeling and Jalpaiguri districts of West Bengal. In south India, tea cultivation is confined mainly to the Annamalai and the Nilgiri hills. A small quantity of tea is also produced in the Kumaon hill in Uttarakhand and in the Kangra valley of Himanchal Pradesh. India produced 8.5 lakh tonnes in 1999. An amount of Rs. 2000 crores were earned in foreign exchange from the export of tea in 2000-01 despite huge demand in the domestic market.

(iv) Cotton India is one of the leading cotton producing countries in the world. The fibre of the cotton crop is used as raw material for the textile industries whereas oil extracted from its seeds is used in the vanaspati industry. Cotton seeds are also used as a cattle feed.

Cotton require a moderate rainfall of about 75 cms. and a cloud free weather for about 150 days at the time of flowering and ball opening. Well drained black soils of the Deccan Plateau is considered ideal for its cultivation, though it is also grown on alluvial soils of the northern plains. India produces about 8 per cent of the world's cotton and is the fourth largest producing country after USA, China and Russia. However, the quality of cotton is rather poor. Therefore, the long staple cotton is imported to make good quality of fibre. The good quality of cotton is grown in Punjab and Haryana. Leading producers of cotton in India are Maharashtra, Gujarat, Andhra Pradesh, Haryana, Rajasthan, Punjab, Karnataka, Madhya Pradesh and Rajasthan.

(v) Sugarcane Sugarcane is the native plant of India. The country has the largest area under this crop in the world. It requires a hot and humid climate. Irrigation facility is required if rainfall is not enough. Fertile loamy and black soils are ideal for this crop. Sugarcane is cultivated in two belts (i) in Northern Plains from Punjab to Bihar, and (ii) in Peninsular India from Gujarat to Tamil Nadu, Maharashtra, Karnataka and Andhra Pradesh. More than 60 per cent of the total area under sugarcane is found in the North Plains. The yield per unit area of sugarcane in South India is higher than in the North India.

The leading producers of sugarcane are Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh. During 2000-2001, about 300 lakh tonnes of sugarcane was produced in India which is the

highest in the world. Efforts are being made to increase production of sugarcane by developing hybrid varieties. The Sugarcane Research Institute at Coimbatore is engaged in its research.

(vi) Spices India produces a wide variety of spices including black pepper, cardamom, chillies, turmeric, ginger, cloves etc. Indian spices are known for their quality and find a market all over the world. Chilly is an important condiment crop which is widely grown in the country and shares more than one third or 34 per cent of total production of spices in India. Tamil Nadu, Andhra Pradesh, Maharashtra and Karnataka are the leading producers of chillies. After chillies, turmeric is second important spice crop in India. Major producing states are Andhra Pradesh, Tamil Nadu, Maharashtra, Orissa and Bihar. Among all the states, Kerala is one state where a large number of spices such as cloves, black pepper, ginger, cardamom are produced in the largest quantity. The other leading states in the production of spices are Karnataka, Tamil Nadu, Himachal Pradesh, Maharashtra, Orissa and Bihar.

(vii) Fruits India accounts for about 10 per cent of the production of fruits in the world. It leads the world in the production of mango, banana, sapota and lemons. A large variety of fruits are grown in India. Mango, bananas, citrus fruits, pine-apple, papaya, guava, sapota, jack fruit, lichi and grapes are tropical and sub-tropical fruits. The fruit of temperate areas are apple, pear, peach, plum, apricot, almond and walnut which are grown mostly in the mountainous areas of the country. The important fruits of arid zone of India are aonla, ber, pomegranate and figs. Mango is the most important among fruit crops covering about 39 per cent of the area and account for 23 per cent of the total fruit production in the country. More than one-half or about 54 per cent of the world's mango is produced in India. The mango tree grows throughout the country especially in Uttar Pradesh, Andhra Pradesh, Maharashtra, Tamil Nadu and Kerala. Dussahari and Alphonso varieties of mango are in great demand in foreign countries.

The country exports such varieties to earn foreign exchange. In terms of area Citrus fruits rank next only to mango. Oranges and lemons are grown in Assam, Maharashtra, Punjab, and Tamil Nadu. Undulating sloppy terrain is most suitable for the growth of citrus fruits. India is ranking first in the world in the banana production. Banana ranks third in areal coverage and are grown mainly in Maharashtra, Tamil Nadu and Kerala. It is also grown in West Bengal, Orissa and Assam. Apple is the fourth major fruit crop, mainly grown in the Himalayan region of the country. Guava is largely produced in Uttar Pradesh and Bihar, whereas pine-apples are produced in Assam, Meghalaya, West Bengal, Tripura, Andhra Pradesh, Kerala and Karnataka.

(viii) Vegetables India is the second largest producer of vegetables in the world next only to China. It contributes about 13 per cent to the world vegetable production. It occupies first position in the

production of cauliflowers, second in onion, and third in cab-bage in the world. Other major vegetable crops are potato, peas, tomato and bringal. More than fifty varieties of vegetables are grown in India.

(ix) Floriculture With breaking of trade barriers in post-globalization phase, international trade in vegetables, fruits and flowers has become lucrative. India can earn a sizable amount of foreign exchange by exporting flowers. Flower such as rose, jasmine, marigold, chrysanthemum, tuberose, and aster are grown over large area in Karnataka, Tamil Nadu, Andhra Pradesh, Rajasthan, West Bengal, Maharashtra, Delhi, Uttarakhand, Assam and Manipur.

## 22.7 AGRO-CLIMATIC REGIONS OF INDIA

India has diverse agro-climatic conditions. It has almost all types of climatic conditions, capable of producing almost all kinds of agricultural produce in one or the other region. Several attempts have been made to classify India into various agri-cultural regions based on climatic and natural vegetation.

In 1989, the Planning Commission divided India into following 15 Agro-climatic regions. (Figure No. 22.6)

I The North-Western Himalaya

II The North-East Himalaya

III The Lower Ganga Plain

IV The Middle Ganga Plain

V The Upper Ganga Plain

VI The Trans Ganga plain (Punjab plains)

VII The Eastern Plateau and hills

VIII The Central Plateau and hills

IX The Western Plateau and hills

X The Southern Plateau and hills

XI The East Coast Plains and hills

XII The West Coast Plains and Ghats

XIII The Gujarat Plains and hills

XIV The Western Dry Region

XV The Islands

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