GEOGRAPHY

4TH SEMESTER (HONOURS)

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INTENSIVE SUBSISTENCE AGRICULTURE

- The term 'intensive' implies that farmers in this region must expend a large amount of effort to produce the maximum feasible yield from a given parcel of land and 'subsistence' means that the crops grown are consumed by the farmers and his family. There are two types of intensive tillage- one dominated by wet paddy and other dominated by the crops without paddy (wheat, pulses, maize, millets, sorghum, kaoling, soya-beans, tubers and vegetables). In this farming system holding are small, and highly fragmented. The high density of population of these areas has necessitated greater intensity in the tillage of land. The crude, iron pointed light wooden plough is the most important agriculture tools.

- **Intensive Subsistence Agriculture in Asia:**
  Intensive subsistence agriculture is best developed and practically confined to the monsoon lands of Asia. It is carried on mainly in China, Japan, India, Bangladesh, Myanmar (Burma), Thailand, Sri Lanka, Malaysia, Philippines, Indonesia, Laos, Cambodia and the islands of Pacific Ocean, Indian Ocean and Southeast Asia. These are the most densely populated parts sustaining about two-third population of the world.

- **Intensive Subsistence Agriculture Dominated by Wet Paddy:**

Intensive subsistence agriculture dominated by wet paddy is practiced mostly in the Monsoon Asia. In this agricultural typology, the size of holding is generally very small. Farm sizes are also very small and they, through many generations, have been subdivided so that they have become extremely small and often uneconomic to run.

An average farm in Japan is 0.6 hectare, and in some parts of Kerala and West Bengal it is even smaller. Individual peasants grow crops mainly to support their families, though there may be some surplus for sale which fetches some amount for the farmer's secondary and tertiary needs. In the Monsoon Asia the farmers are so 'land hungry' that almost every bit of tillable land is utilized for agriculture.

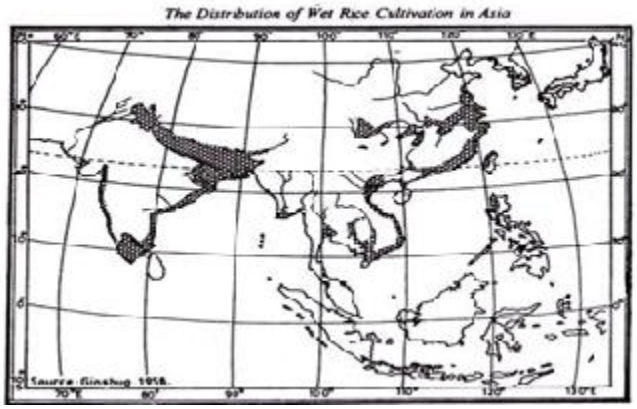
The fields are separated only by narrow handmade ridges and footpaths by which the farmers move around their fields. The boundary bunds, locally called as maindh or daul, are kept very narrow to save space. Only the steepest hills and the infertile and alkaline (reh and kaller) patches of land are left uncultivated. The farming is so intensive that two and even three crops of rice can be raised in one year. In tracts where only one crop of rice can be raised the fields are normally used in the dry season to raise other food or cash crops such as oats, pulses, tobacco, oilseeds and vegetables.

In wet paddy agriculture, traditionally much manual and hand labour is required. Ploughing is done with the help of buffaloes, oxen, mules and horses. Paddy crop is planted in narrow rows by females, while hoeing and harvesting operations are done by both males and females. Harvesting and thrashing are done manually.

The farm implements are often very simple. Machines have been developed recently which can work on the flooded plains for ploughing and hoeing. Small machines are used in the farms of China, South Korea and Japan which are gradually being diffused in other countries of Monsoon Asia.

In this type of agriculture the cultivator concentrates on the cultivation of food crops, especially rice and vegetables, comparatively, few sheep, goats or horses are kept in wet paddy areas. He-buffaloes are kept as draught animals in many parts of the monsoon world.

In paddy intensive subsistence farming the farmers make use of every available type of manure, including farm waste, rotten vegetables, fish waste, cow dung and human excreta to ensure higher agricultural returns and also to maintain the high fertility of the land. The green manuring and chemical fertilizers are also used to enhance the productivity of land. In India, the farmers of West Bengal, Kerala, the coastal Andhra Pradesh and Tamil Nadu provide a good example of intensive subsistence wet paddy agriculture.



- **Intensive Subsistence Agriculture Dominated by Other Crops:**

Owing to variations in terrain, soil, vegetation, temperature, length of growing season, moisture conditions, sunlight, wind and many socioeconomic constraints, it is neither practicable nor profitable to grow paddy in many parts of the monsoon world. In the intensive subsistence farming, dominated by other crops, the methods and operations of cultivation are equally intensive and farming is on subsistence basis.

In north China, Manchuria, North Korea, and Punjab, Haryana and western Uttar Pradesh in India, wheat, maize, millets, pulses, soya-bean and oilseeds are intensively grown. In Myanmar, Thailand and peninsular India, millets, maize and pulses are the dominating cereal crops as soil moisture in these areas is not conducive for the cultivation of paddy.

Farming in these regions has very similar features to those of wet paddy cultivation. There is intensive use of land, multiple cropping, heavy use of manual labour, little use of farm machinery and use of a variety of manures and fertilizers.

In India, operational holdings and sizes of fields are generally small and uneconomic. About 25 per cent of the total rural population has land less than 0.4 hectare and another 25 per cent is landless. As a result, the farmers are poor and the majority of them cannot afford to purchase modern agriculture implements, fertilizers, quality seeds, insecticides and pesticides. Though tractors are popular in the relatively large farms of Punjab, Haryana and western Uttar Pradesh, yet the oxen and buffaloes are the principal draught animals. Most of the agricultural operations are, however, labour intensive.

COMMERCIAL GRAIN FARMING

Commercial grain farming is a type of farming in which grain are grown for selling purpose only. Example- Wheat, Maize.

- **Characteristics of commercial grain farming:**
  1) Farms are very large, ranging from 240 to 1600 hectares. The most important crop grown is wheat.
  2) Cultivation is highly mechanized. Farmers invest heavily in labour saving devises such as tractors, ploughs, drills, and combine harvesters.
  3) The output of land is always low as compared to region where intensive cultivation is the common practice. Despite low yields per unit of land, the farming is commercial because of a large surplus (the per capita production is high)
  4) Extensive commercial grain farming is subject to climatic vagaries like drought, hail, and frost, plant diseases and attack by pests and insects.
     Large commercial grain farming is found only five countries- the United States, Canada, CIS, Argentina, and Australia.

- **Commercial Grain Farming in USA:**

  The United States is a market leader in many of the world's major crops. The largest US crop in terms of total production is corn, the majority of which is grown in a region known as the "cornbelt". The second largest crop grown in the US is soybeans. As with corn, soybeans are primarily grown in the Midwestern states. US barley is grown over a wide area geographically and the US produces about 60 per cent as much barley as Canada. **Table1** shows the average annual production of each crop in the US:

Crop	Average annual production 2008-2012	Primary growing areas	Seeding	Flowering or heading	Harvesting

Corn	12 billion bushels	Iowa	April and	July through	Oct and Nov
		Illinois	May	first half of	
		Nebraska		Aug	
		Indiana			
		Minnesota			
		Ohio			
Soybeans	3 billion bushels	Illinois	May and	July through	Late Sept
		Iowa	June	first 3 weeks	through Oct
		Minnesota		of Aug	
		Indiana			
		Ohio			
Barley	205 million bushels	North Dakota	April and	July through	Late July to
		Montana	May	first half of	end of Sept
		Washington		Aug	
		Idaho			
Oats	76 million bushels	Iowa	April and	July through	Aug and
		Minnesota	May	first half of	Sept
		South Dakota		Aug	

		North Dakota			
		Wisconsin			

Source: USDA 2013 (http://www.nass.usda.gov/Statistics_by_Subject/index.php); USDA 2010

Wheat:

The third largest crop grown in the United States is wheat. The US produces hard red, soft red and white winter wheat and hard red and durum spring-seeded varieties. The US also produces very small amounts of white spring wheat. **Table 2** shows the primary growing areas for each type of wheat, including the average seeding, heading, and harvesting dates.

Type of wheat	**Average annual production 2008-2013**	**Primary growing areas**	**Seeding**	**Heading**	**Harvesting**
Hard red	951 million bushels	Kansas	Late Aug to	The following	Late Aug to
winter		Colorado	end of Oct	year from late	end of Oct
wheat		Oklahoma		April through	
		Texas		early June	
Hard red	506 million bushels	North Dakota	April to May	Mid-June to	Mid-July to
spring		South Dakota		mid-July	Mid-Sept
wheat		Montana			
Soft red	426 million bushels	Indiana	Late Sept to	the following	Late Aug to
winter		Ohio	end of	year from	end of Oct

			Oct	late	
wheat		Illinois		April through	
		N. Carolina		early June	
		Arkansas			
		Tennessee			
Soft white	209 million bushels	Washington	Early Sept	The following	Mid-July to
winter		Oregon	to mid-Nov	year from mid-	early Sept
wheat		Southern Idaho		May to end of	
				June	
Durum	86 million bushels	Wisconsin North Dakota	April to May	Mid June to	Mid-July to
wheat		Eastern		mid-July	mid-Sept
		Montana			
		South Dakota			
Hard white	16 million bushels	Kansas	Late Aug to	The following	Late Aug to
winter		Colorado	end of Oct	year from late	end of Oct
wheat				April through	

				early June	

Source: USDA 2013 (http://www.nass.usda.gov/Statistics_by_Subject/index.php)

LIVESTOCK RANCHING

- Livestock ranching is the commercial grazing, of livestock over an extensive area which is associated with a very large land requirement and modest input of capital and human resources. Example- sheep, cattle, goats and horses.

- **Characteristics of Livestock Ranching:**
  1) The size of herds and flocks is very large. The larger the herd, the greater the chances of survival.
  2) The animals in the ranches are raised for highly organized markets.
  3) The most numerous animals, from commercial view point, are the sheep, which is kept for both mutton and wool. Cattle are even more valuable and are reared for beef, hides and dairy products.

- **Sheep rearing in Argentina:**

  In South America, sheep rearing is most important in the direr parts of Argentina including the whole of Patagonia, Tierra deal Fuego, western Argentina and the eastern foothills of the Andes. The low and variable rainfall, the poor pasturage, the severe winter and the sparse population, all make the region more suitable for sheep grazing than for cattle rearing. Sheep farming is extensive; each farm has, on average, three to four 5 000-ha fenced paddocks. Three kinds of farms can be recognized: (1) Large commercial farms, with more than 6 000 head and which are usually derived from the first settlements and on the best pastures. (2) Small and medium commercial farms, in the drier areas, with flocks of 1 000 to 6 000; these have serious financial problems due to present wool prices. (3) Subsistence farms, with less than 1 000 sheep, mainly in northwestern Patagonia, which belong mostly to aboriginal families and graze on unfenced public lands.

  The sheep ranchers are extremely large in Patagonia, covering several hundred thousands of hectares each, because it needs many hectares of this semi-arid land with its bunchy grasses to support a single sheep. Despite this, sheep stocks have declined continuously since the 1980s and, under current conditions, sheep farming is unsustainable, whether in economic, ecological or social terms. Factors contributing to this are low wool prices, small farm size, and poor adoption of available technology, desertification, high winter losses, predator losses, high farmer indebtedness and lack of sustainable development policies. Argentina is an exporter of both wool and mutton and Patagonia alone contributes between a third and half to the national output.

MARKET GARDENING AND ORCHARD FARMING (HORTICULTURE)

- Horticulture is the branch of plant agriculture dealing with garden crops, generally fruits, vegetables, and ornamental plants. It covers all forms of garden management, but in ordinary use it refers to intensive commercial production.
- **Characteristics of market gardening:**
    1) The scale of farming is small and intensive. The farming is capital intensive and scientifically managed.
    2) The market gardens are located just outside the city in suburban areas or in areas where climatic and soil conditions are particularly favorable.
    3) Farmers in these regions specialize either in particular fruit and vegetables in certain places combinations of both predominant.

- **Market gardening and orchard farming in Europe:**

Fruit and vegetables are key European Union (EU) agricultural products, with an annual output value of over €57 billion in 2018, of which about 60 % is accounted for by vegetables and nearly 40 % by fruit. The sector's output represents one quarter of the value of the EU's total crop output and 14 % of the overall agricultural output value, with a 30 % increase in ten years. Even though fruit and vegetable growers are geographically concentrated, products such as cabbages. Apples have been the main fruit produce in the EU, both in terms of output value volume (about one fifth of overall fruit production) and of harvested production (29 % of total fruit production) over the past few years, followed by oranges, peaches and pears (between 8 and 9 % of output value each, and 18%, 9% and 7% of volume of production respectively). Nuts cover about one third of all fruit groves, followed by apples (16%) and oranges (9%). Regarding vegetables, tomatoes generated about 20% of the overall vegetable output value over the last ten years. Tomatoes were by far the main EU vegetable production in 2017, followed by onions and carrots (with about 10%of the total volume of vegetable production each), and cabbages, watermelons and lettuces (about 5%each). Slightly less than 200000 horticulture specialist farms and about 540000 fruit and citrus specialist farms represented7%of the 10.5 million agricultural holdings operated in the EU in 2016. One characteristic of the EU trade in fruit and vegetables is the predominance of internal flows over extra-EU trade countries, due to perishability, but also to the variety of the EU's produce. In 2017, except for nuts, bananas and other tropical fruit, intra-EU trade registered a much than trade in fruit and vegetables with non-EU countries. Among the (in terms of value) products, Spain was leader for citrus fruit, Italy for apples and the Netherlands for tomatoes and strawberries and other berries, with Germany being the main importing country for these products.

To strengthen the resilience of both the fruit and vegetable sector and its operators, and to boost the consumption of their produce, the EU has in place a comprehensive support system, especially through the regulatory framework for the common organization of the markets in agricultural products. Rules on producer organizations and their operational programmes, crisis management and marketing standards, help the functioning of the sector, with additional support from the EU school fruit and vegetables scheme, as well as from the EU promotion and quality policies, income support and rural development measures, valid for all agricultural sectors.

Recently passed EU legislation has already brought in important adjustments for the fruit and vegetable sector and no further major policy changes are currently anticipated. It will be its capacity to overcome its structural vulnerability and weak organization, adopt innovation and respond to consumer needs that will shape its future.

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