

Agriculture System of the World

Agriculture can be regarded as a system with inputs that have physical, cultural, economic and behavioural elements. In areas where farming is less developed, physical factors are usually more important, but as human inputs increase, these physical controls become less significant. This system model can be applied to all types of farming, regardless of scale or location. It is the variations in the inputs which are responsible for the different types and patterns of agriculture around the world. This leads to classifications of agriculture in which contrasts between the different types of farming are clear. It includes not only the cultivation of crops, but also the domestication of animals. It is practiced in different regions of the world, particularly, in river valleys and where irrigation is possible.

The Elements of the Agricultural System

The agricultural system is of course, the totality of all of the above. While this paper has taken a segmented approach to discuss, review and link the various aspects of the agricultural system – the reality is that it is a composite of all of these features (Table 1 and Figure 1). It is important to note that the lists of elements are not exhaustive. Many more could be added to reflect the comprehensive nature of the agriculture system and the diversity, breadth and depth that is difficult to capture in a single document. There are six elements of the agricultural system that can be identified and help to summarize this report.

1. Farms: Farms of various sizes produce a range of crops, livestock and other goods and services. They can include multiple properties and combinations of owned and rented lands.
2. Natural Environment: Including climate, soil types, and water access, these and other natural inputs impact agricultural viability but are also impacted by farming activity.
3. Government: Services and programs, policy directives, and regulations from all levels of government impact production, building and other on-farm activities, as well as marketing, processing, and distribution.
4. Agribusiness: Includes the range of wholesale or retail companies who buy, process, package, store and/or distribute goods or services to or from farms, including crop inputs and farm outputs.
5. Technical, and Professional Expertise: Farms depend upon labour and the services of various technical and professional people, including accountants, bankers, lawyers, IT service providers, crop advisors, tile drainage contractors, nutrient management consultants, veterinarians, electricians, carpenters, and plumbers.
6. Non-Profit and Community Sector: Includes a broad range of organizations including those involved in research, innovation, and knowledge transfer. It also includes agricultural associations and non-profit organizations, which offer organizing, programmatic, and advocacy

support for agricultural communities. Community groups and local churches are also part of this category.

CLASSIFICATION OF WORLD AGRICULTURAL SYSTEM BY Whittlesey

Agriculture is the most fundamental form of human activity. An area or region with similar functional attributes is termed as agricultural system as a wider term which emphasizes on the functional attributes. An agricultural system may be single farm or group of interrelated farms having similarities of agricultural attributes.

An area with similar functional attributes is as an agricultural region. The demarcation of agricultural region is also seriously constrained by the non-availability of reliable data on the various aspects of agricultural patterns. The first scientific attempt for the Whittlesey in his paper. Major agricultural regions of the Earth published in 1936 in the Annals of Association of American Geographers (vol.26: 199-240) Whittlesey in his monumental paper delineated the agricultural system of the earth on the following five characteristics of agriculture—

- (1) The crop-livestock association
- (2) The methods used to grow the crops produce the stock
- (3) The intensity of application to the land of labor capital organization the output of product which results
- (4) The disposal of the products for consumption
- (5) The ensemble of structures used to house facilitate the farming operations

With the aid of above indicators Whittlesey has identified the following types of agricultural system regions—

1. Nomadic herding
2. Livestock ranching
3. Shifting cultivation
4. Rudimentary tillage
5. Intensive subsistence tillage (with paddy dominance)
6. Intensive subsistence tillage (without paddy dominance)
7. Commercial plantation
8. Mediterranean agriculture
9. Commercial grain farming
10. Commercial livestock and crop farming
11. Subsistence crop & livestock farming.

12. Commercial dairy farming
13. Specialized horticulture

A brief account of these agricultural regions is given below under separate heads.

(1) Nomadic Herding:

This is an extensive form of animal grazing on natural pasturage involving constant seasonal migration of the nomads their flocks nomadic herding is confined to rather sparsely populated parts of the world where the natural vegetation is mainly grass.

Location:

Nomadic herding at present is mainly concentrated in Saharan Africa (Mauritania, Mali, Niger, Chad, Sudan, Libya, Algeria). The south western central parts of Asia the north western parts of Scandinavian countries (Norway, Sweden, Finland) northern Canada.

Characteristics:

- (a) Nomadic herding is an ecological or rear ecological systems of agriculture

It is carried mainly to produce food for the family to fulfill the needs of clothing shelter recreation.

- (a) It is a declining type of agriculture continues to become less important.
- (b) The main characteristics of nomadic herding is the continued movement of people with their livestock in search of forage for the animals.
- (c) The Bedouin of Saudi Arabia the herders of the Sahara also practice nomadic herding in the desert semi desert areas of North Africa south west Asia.
- (d) The chief characteristics of nomadic herding are described below--
 - Seasonal pattern of movement.
 - Many kinds of animals grazed.
 - Transhumance.

(2) Livestock Ranching:

In the extensive temperate grasslands once named by nomadic herdsmen or by hunters are found permanent ranches where large numbers of cattle sheep goats horses are kept.

Location:

Livestock ranching at present is mainly located in the Americas, Australia, the Republic of South Africa, Brazil Argentina, Peru, New Zealand the nearest equivalent to nomadic herding is ranching.

Characteristics:

(a) The livestock ranchers specialize in animal husbanding to the exclusion of crop raising even though both live in arid or semi-arid region.

(b) Tim livestock ranchers have fixed place of residence and operate as individuals rather than with in a tribal organization.

(c) Livestock ranching differs from nomadic herding in some important aspects.

- The vegetation cover is continuous.
- There is little or no migration.
- Ranches are scientifically managed.
- The animals are raised for sale.
- Commercial grazing supports the development of town's communications.

(3) Shifting Cultivation:

Shifting cultivation essentially this is a land rotation system. Farmers using machetes or other bladed instruments chop away the undergrowth from small patches of land. Then they kill the trees by cutting a strip of bank completely around the trunk. After

the dead clean it farm the land. These cleaning techniques have given shifting cultivation the name slash and burn agriculture.

Location:

Shifting cultivation is the primitive form of soil utilization usually in tropical rainforests also in tropical lowlands hills in the center America, Africa, and Southeast Asia, Indonesia.

Characteristics:

(a) Shifting cultivation is called by different names in different parts of the world. It is generally known as slash burn and bush fallow agriculture. It is variously termed as ladang in Indonesia, Milpa in central America, Mohole in the Congo central Africa.

(b) The farmer grows food only for his family in this agriculture systems. Some small surplus if any are exchanged or bartered (exchange of commodity for commodity) or sold for cash in the neighboring markets.

(c) Shifting cultivation has been described as an economy of which the main characteristic is the rotation of fields rather than rotation of crops.

(d) In the hill tracts of north-east India Thinning is the dominant economic activity. About 86 percent of the people living on hills are dependent on shifting cultivation.

(e) The shifting cultivators grow food grains-rice maize-millet- pulses-beans-vegetables- soybean.

(4) Rudimentary Tillage:

Location:

Mostly confined to the tropical lands of Central & South America, Africa, South- East Asia.

Characteristics:

- (a) Crop rotation occurs most rather than field rotation.
- (b) Potatoes, Sweet potatoes, Maize, Sorghum, Banana etc are grown.

(5) Intensive Subsistence Tillage (with paddy dominance):

This form of agriculture is best developed in partially confined to the monsoon lands of Asia.

Location:

Intensive subsistence tillage dominated by paddy is practiced mostly in the tropical Asia. It is carried on mainly in China, Japan, India, Bangladesh, Myanmar, Thailand, Srilanka, Malaysia, Philippines etc.

Characteristics:

- (a) Farming is also intensive that double or treble cropping is practiced. That is several crops are grown on the same land during the course of a year.
- (b) Where only one crop of paddy can be raised. The fields are normally used in the dry season to raise other food or cash crop such as sugar tobacco on oil seeds on the fiber crop jute.
- (c) Asian farmer are now producing even greater yields per acre because of the recent introduction to improved varieties of hybrid rice.

(6) Intensive Subsistence Tillage (without paddy dominance):

Location: It includes interior India and North-East China.

Characteristics:

- (a) Land is intensively used & worked primarily by human power.
- (b) Farming in these regions suffers from frequent crop failures & famines.
- (c) Wheat, Soya bean, Barley, Kaoliang crops are grown.

(7) Commercial Plantation:

The specialized commercial cultivation of cash or estates or plantation is a very distinctive type of tropical agriculture is found many parts of world.

Location:

The term plantation agriculture was originally applied specifically to the British settlements in America then to any Inga estate in north America , west India, south-east Asia which was cultivated mainly by Negro or other colored labor.

Characteristics:

(i) A plantation is a land holding devolved to the specialized production of one tropical or subtropical crop raised for market.

(ii) Climatic hazards' strong winds, topography, drainage soil vegetation condition often handicap or many even prevent the development establishment of plantation stct. Accessibility connectivity availability of labor difficulties of clearing vegetation prevalence of discover sin sect pest , weeds, rapid deterioration of the tropical soil , soil erosion are some of the main problem of plantation agriculture.

(iii) The plantation forms arc generally large and arc found mainly in the thinly populated areas. The size of farm varies from 40 hectares in Malaya India, too 60000 hectares in Liberia. In these estates on large disciplined but unskilled labor force is necessary.

(iv) Some of the main plantation crops are rubber, oil palm, cotton, copra, beverages like coffee, tea, coco, fruits like pineapples, bananas, as well as sugar-cane jute.

(v) The continent wise analysis reveals that Asia is the leading producer of Jute (96%), rubber (90%) tea (87%) coconut (37%) tobacco (46%) of the total world production Asia share in the production of sugarcane is 39% that of banana , oil palm is 25% each.

(vi) The characteristics features of commercial plantation may be summarized as follows--

- (a) Estate farming.
- (b) Foreign ownership local labor.
- (c) Fanning in estates is scientifically managed.

(8) Mediterranean Agriculture:

Within the Mediterranean climatic region where there is winter rain summer drought a distinctive type of agriculture has evolved.

Location:

Agricultural typology is confined to the coastal areas the Mediterranean sea in Europe, Asia, Minor, North African coastal strip. Outside the Mediterranean cost this system is found in California (USA). Central Chile the south-cast of cape province (South Africa)

South-West of Western Australia.

Characteristics:

(a) This type of farming is also found in irrigated semi-desert areas in similar latitudes

(b) The agricultural landscape of Mediterranean region has been largely

affected by long day summers occurrence of rains during the winter season devices for artificial irrigation during drought periods of summers.

(c) Traditional Mediterranean agricultural is based on what barely cultivation

in the rainy winter season raising drought resistant vine tree crops like the grape olive, fig, small livestock herding particularly of sheep goats pigs.

(d) In recent times farmer have begun using irrigation in 1 major way which has led to the expansion of crops such as the citrus fruits.

(e) The Mediterranean land in fact the Orchard lands of the world the heart of the world's wine industry.

(9) Commercial Grain Farming:

Commercial grain farming is another market oriented type of agriculture in which farmers specialize in growing wheat on less frequently rice or corn.

Location:

Great wheat belts stretch through Australia the plains of interior North America, the steppes of Russia, the pampas of Argentina, together the United states, Canada farmer, Soviet union.

Characteristics:

(i) The commercial grain farming is basically extensive. The main characteristics of these systems are--

(ii)

(a) Big farm size

(b) Comprehensive use of heavy machines

(c) Low use of irrigation fertilizer

(d) Low production rate

(e) Long distance of farm from market.

(f)

(iii) Widespread use of machinery enables commercial grain farmer to operate on this large scale indeed planting harvesting grain is more completely mechanized than any other form of agriculture.

(iv) Wheat is the main crop; Mize, Barleys, oat are another important crops. The wheat production regions are divided into two belts.

(a) Winter wheat belt.

(b) Spring wheat belt.

(10) Commercial Livestock & Crop Farming:

Location:

It is found throughout Europe from the land in the West through central Europe to Russia. It is also found in north America east at 98° meridian in the pampas of Argentina, Southeast Australia, Australia, South Africa, New Zealand.

Characteristics:

(a) The main characteristic of the mixed farming area that farms produce both crops and livestock, the two enterprises are interwoven and integrated.

(b) Mixed farms are characterized by high expenditure on machinery

farm building, extensive use of machinery, farm buildings, fertilizers, also by the skill experts of farmers who need to know about all aspects of farming to grow market their range of products successfully.

(c) Mixed farming is essentially associated with the densely populated, urbanized, industrialized societies dependent upon high incomes for the sale of its products upon manufacturers' industry for the provision of its inputs.

(d) In mixed farming a number of crops are grown. Cereals dominate the cropland, use the leading grain varying with climate and soil. A large portion of cereals is fed to animals on the farms or sold to meat factories for feeding stuff. Livestock feed on crops grown on the farm or graze the pastures.

(11) Subsistence Crop & Livestock Farming:

Location:

Northern Europe, Middle East, Mountain region of Mexico.

Characteristics:

(a) Produced crops & raised livestock mainly used for own subsistence.

(b) Traditional way of farming.

(c) Seeds are poor quality & animals are poorly husbanded.

(d) Capital input is normally unknown.

(e) Wheat, Maize, Rye, Barley etc are the main crops.

(f) Sheep and Goats are the most important animals.

(12) Commercial Dairy Farming:

Location:

The rearing of the cattle for milk, milk products (butter, cheese, condensed, dried milk etc) is known as dairy farming. It is mainly practiced in Europe, Northern USA, Canada, Australia, New Zealand, Denmark, Netherlands, Belgium, Finland, France, and Switzerland. It contributes 40% of agricultural income.

Characteristics:

(i) Dairy farming is capital intensive farming. A modern dairy farm needs long here's from the farming huge amounts for the development of infrastructural facilities capital is required for the purchase of mechanical equipments like milking machines milk freezers, feeding towers, barn silos for the storage of fodder for winters.

(ii) The size of cattle in dairies varies from country to country from farm to farm depending on the size of holding. In the United Kingdom for example the ratio of cattle pasture is one cow after one acre. The average size of dairy cattle in north-west Europe is only five cows per farm.

(iii) Nearly 80% of the total milk production of the world is produced in Europe, Russia, Anglo America, Australia, New Zealand (Hussain 1996).

(iv) Modern method of dairy farming cattle breeding herd management allow high yields of dairy products. A cow in temperate latitudes under normal healthy conditions yield or much as 3000kg of milk per year.

It will be seen from data that the average production of milk per cow per annum varies between 2896kg in Canada to 4284kg in Japan.

(13) Specialized Horticulture:

Specialized cultivation of vegetables, fruits, flowers is called horticulture.

Location:

Horticulture is well developed in the densely populated industrial districts of north-west Europe, Britain, Denmark, Germany, Netherlands, France, Italy.

Characteristics:

(i) In horticultural the farms are small such farms are located where communication links the consumption centers are appreciably good. The land fruits' vegetable gardening is very intensively cultivated. Soil fertilizers Mimi oldie work is done by hand labor.

(ii) The market gardens are scientifically managed to achieve optimum yields and some returns.

(iii) The important vegetable regions are California Rio Grande of Texas Florida Netherlands, Rhone valley etc. fruits regions are west of Paris, Rhine valley lake region of Switzerland, Mendoza, San Juan of Argentina etc. (grapes production) south western Germany (apple).

(iv) Besides south Arab, Iraq for date. India, South-East Asia for spices, pineapple, mango etc.

Conclusion:

By agriculture many of the necessities of life especially food, drink, fibers is produced. In this modern period, most of people are depends on agriculture for this food livelihood. But at this stage, many portion of the world suffers from food deficiency. So, a modern cultivation method should apply for achieving sufficiency in food.