

AGRICULTURAL DEVELOPMENT

Types of Agricultural System:

There are three types of agricultural systems in Pakistan.

1. Small scale subsistence
2. Cash Crop Farming
3. Livestock Farming

1. Small Scale Subsistence:

- It produces raw materials and food.
- Generally, family members do the manual work.
- The produce is usually consumed by the people who work on these farms.

2. Cash Crop Farming:

- On these farms, crops are grown for sale.
- High yields of crops and maximum profit.
- The crop products include cotton, rice-wheat. Sugarcane, tobacco, and oilseeds.

3. Livestock Farming:

- Animals are reared for commercial and family use.
- Cows, bullocks, sheep, goats, etc. are the animals that are reared in livestock farming.

Types of Crops

Rabi Crops:

- They are sown in the winter season's beginning i.e. October to November.
- They are harvested in early summers i.e. April to May.
- These crops include barley wheat, pulses, grams, and oilseeds.

Kharif Crops:

- They are sown in the summer season i.e. April to June.
- They are harvested at the beginning of winter i.e. October to November.
- These crops include sugarcane, rice, cotton, millet, and maize.

Barani Crops:

- The cultivation of these crops depends on rainfall.

Cash Crops:

- These crops are grown to sell and generate profit.

Subsistence Crops:

- These crops are grown by and for the farmers and their families.

Crops Farming

Wheat:

Requirements:

- It requires a warm temperature for cultivation i.e. 10-20° for sowing and 25-30° for harvesting.
- It requires a moderate amount of rainfall i.e. 325 mm to 625 mm.

- The soil should be alluvial, and land should be well-drained.
- It requires a dry harvesting season and the rainfall of October & November also helps in its growth.

Main Areas for Wheat:

- The wheat grows in Nawabshah, entire Punjab and Indus Plains.

Method of Cultivation:

- The field is ploughed.
- Wheat seeds are sown in the ground directly.
- It does not require too much water to cultivate.
- After one month, the first irrigation is required.
- Second irrigation is done one month before harvesting.
- It takes a total of three months for wheat harvest.
- The harvesting requires extensive manual work because grains needed to be separated from the chaff.
- Stored or transported for sale.

Rice:

Requirements:

- It requires a hot temperature i.e. 20-30° while cultivating.
- It required dry and warm weather to harvest.
- The soil needs to be clayey or loamy and water retentive.
- The lands need to be flat.
- It required a huge amount of rainfall i.e. 1270 mm at least.
- The ideal rainfall is 2000 mm, but Pakistan has insufficient rainfall.

Main Areas for Rice:

- Shekhupur, Larkana, Gujranwala, and Sialkot.

Method of Cultivation:

- The seeds are sown into nurseries or beds.
- When the plants reach a height of 9 inches, it is replanted.
- Replantation is done in a flooded ploughed field.
- The depth of the flooded ploughed field should be 30 cm to 37 cm.
- Water needs to be full until the rice is not fully ready to be harvested.
- Once the rice is ripe, water is drained, and harvesting begins.
- Depending on the size of the farm, threshing can be done using machines or animals.
- The rice then goes to mills for polish and packaging.

Cotton:

Requirements:

- It requires hot temperatures during cultivation i.e. 25° to 35°.
- For harvesting, it requires dry weather.
- It needs the soil to be alluvial and deep.
- The land needs to be flat.
- It requires a high amount of rainfall i.e. 1000 mm.

Main Areas for Cotton:

- Nawabshah, Bahawalpur, Multan, Bahawalnagar, and Rahim Yar Khan.

Method of Cultivation:

- In April – May seeds are sown at 30 cm to 45 cm apart.
- First irrigation takes place after a month.
- After two months from 1st irrigation, second irrigation is needed.
- In October and November the balls of cotton ripe completely.
- These cotton balls are picked and transported to ginning mills.
- At ginning mills, seeds are separated from lint.

Sugarcane:

Requirements:

- It requires hot temperatures for cultivation i.e. 25° to 35°.
- It required dry weather for harvesting.
- The soil needs to be alluvial and deep.
- The land needs to be flat and well-drained.
- A huge amount of rainfall is required i.e. 1520 mm.

Main Areas for Sugarcane:

- Faisalabad, Nawabshah, Peshawar, and Mardan.

Method of Cultivation:

- Stalks are planted from April to May which are 30 cm apart.
- It requires regular irrigation and harvesting.
- The sugarcane is grown by ratooning.
- Harvesting requires manual labour.
- After it is cut, it is transported to sugar mills.
- The sugarcane stalks are scrubbed with chalk to remove any dirt and smells.
- The juice is extracted from the sugarcane stalks with the help of heavy rollers.
- The juice is processed to produce sugar.
- In village gur and brown sugar is also produced from sugarcane juice.
- Molasses and Bagasse are two important by-products.

Other Crops

Maize:

- It is a Kharif crop.
- It is a food grain.
- It is also used as a raw material for oil production.
- It is used in the production of custard powder, cornflour, etc.

Pulses:

- It is rich in protein.
- It is widely used in diet plans.
- It fertilizes the soil by fixing nitrogen.
- It is a low-value crop.
- Some important pulses include Mash, Masoor, Grams, and Mung.

Millets:

- In Pakistan, there are two millets Jowar and Bajra.
- They are used as fodder for poultry and animals.
- They are also used as coarse cereals after grinding.

Oilseeds:

- Pakistan does not produce enough oilseeds.
- The oilseeds produce are rape seeds, sunflower, soya bean, sarson, mustard, sesame, rai,

castor, and linseed.

- Castor seeds and linseeds are also used in industries.
- Only 32% of the demand for edible oil is catered with local production.

Tobacco:

- It is grown in KPK mainly.
- Peshawar and Mardan are the main regions where tobacco grows.

Livestock Farming Importance of Livestock Farming:

- Animals help in the ploughing, threshing, and harvesting of the crops in farming.
- They are also used to transport materials.
- Livestock provides food. e.g. buffaloes and cows produce milk, goats and cattle produce meat when slaughtered and chickens produce eggs.
- Livestock also provides raw materials like bones, animal hairs, wool and skins to produce rugs, footwear, leather products, and carpets.
- In the international market, products produced in the cottage industry have high demand.
- Livestock's contribution to the GDP is about 10%.

Factors Affecting Livestock Farming:

- Shortage of facilities for the proper care of livestock e.g. vets, vaccinations, etc.
- Lack of grazing ground led to overgrazing that damages grasslands.
- Animal fodder is expensive.
- Lack of proper marketing means for milk and other livestock products.
- Lack of breeding quality.
- Price gap of livestock in urban and rural areas.

Governments' Role:

- Some measures have been taken to promote the livestock and poultry industry.
- Scientific breeding methods have been introduced e.g. crossbreeding.
- For calves, early diets have been introduced to save milk for human consumption.
- For proper vets, individuals have been trained.
- To fatten cows for meat and milk, programs have been introduced.
- Livestock research farms have been improved.
- Vaccination facilities have been improved.

Factors Affecting Production

Natural Factors Affecting Agriculture:

Topography:

- The land needs to be flatter for better output.
- The output decreases as land gets steeper and higher.

Soil:

- Alluvial and Loess soil produces the best output when farming.

Rainfall:

- If adequate rainfall is received, then crops can be cultivated without irrigation.
- The northern areas of Pakistan including the Potwar Plateau received adequate rainfall.

Temperature:

- Temperature plays an integral role.
- In the northern areas, crops/fruit grow from April to September only.
- Whereas in southern parts, fruits are grown all year round.

Pests and Diseases:

- If preventive measures are not taken, then crops can be attacked by diseases and pests.
- They can reduce agricultural output.

Human Factors:

Irrigation Facilities:

- Irrigation facilities help in cultivation if there is not enough rainfall.
- Using the irrigation system, the deserts of Thar and Thal have been reclaimed for cultivation.
- However, canal irrigation can cause waterlogging and salinity issues.

Fertilizers:

- They can increase agricultural production.

Mechanization:

- Machines have also made farming easy e.g. threshers, tillers, tractors, etc.
- Mechanization can reduce farmers' costs by preventing losses.

HYVs (High-Yielding Seed Varieties):

- They can also increase the output by 10 to 20 %.
- These are used widely in commercial farms.

Marketing:

- If proper marketing is done, it will increase profit.
- It will include processing, storage, transport, wholesale and retail.

Plant Protection Programs:

- Aerial and ground spraying of pesticides can prevent pests and diseases attacks.
- The Plant Protection Department is also producing treated seeds.

Land Reforms:

- Over time, several governments came up with land reforms to:
 - Break the holdings of big landlords.
 - To make land distribution equitable.
 - To protect the rights of tenants.
 - For the consolidation of holding.

Government's Efforts to Improve Agricultural Production:

- Following are the steps were taken by the government:
 - Encouraging the use of fertilizers by increasing its production.
 - Regulations are introduced for the quality of seeds.
 - Distribution of improved seeds.
 - Initiation of the Plant Protection Department responsible for regular checks for pests, giving guidance and conducting aerial pesticide sprays.
 - Providing financial aid to farming communities.

Sustainable Agricultural Development:

- For sustainability following steps can be taken:
 - Environmentally friendly technologies and the system must be developed.
 - Waterlogging salinity issues must be addressed.
 - The soil fertility measure must be taken seriously e.g. afforestation.
 - Cutting of forests must be stopped to prevent soil erosion.

- Over-cropping and multi-cropping should be prevented as it can exhaust soil nutrients.
- Organic farming should be encouraged as it can make the soil more productive.
- Irrigation systems must be used to reclaim desert areas for agriculture.