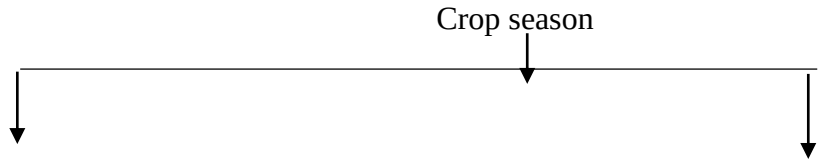
LS-3 PRODUCTION AND MANAGEMENT OF CROP

Day 1

Agriculture: The process of growing crops on a large scale. It can be classified as: **(SAQ -Q4)**
Agronomy: Study and development of techniques for improving agricultural practices.
Horticulture: Art of growing fruits, vegetable and ornamental plants.
Animal husbandry: Rearing and caring of domestic animals for food and other useful purpose is called animal husbandry**. (SAQ- Q6)**

Crop or Crop plants: The crops grown by human beings in large numbers to get useful products.



RABI CROP KHARIF CROP

Winter season crop	Monsoon crop.
Sown in the beginning of winter (Oct- Nov)	Sown in the beginning of monsoon (Jun-July).
Harvested by March-April	Harvested by Sep-Oct
Eg: Wheat, Mustard, Gram etc.	Eg: Rice, cotton, groundnut etc

Agricultural Implements(TO BE WRITTEN ON WHITE PG)

S.No	TOOLS	USED FOR
1	Wooden plough	Tilling
2	Iron plough	Tilling
3	Wooden plank	Breaking crumbs
4	Leveler	Levelling
5	Seed drill	Sowing
6	Spade	Digging and bund formation
7	Khurpa / hoe	Weeding
8	Harrow	Weeding
9	Sickle	Harvesting
10	Combine	Harvesting and threshing
11	Sprayers	Spraying pesticides

Basic Practices for crop production (SAQ-Q3)

- Preparation of soil
- Sowing
- Applying manure and fertilizers
- Irrigation
- Weeding
- Protection of crops from pests and microbes
- Harvesting, Threshing and Winnowing
- Storage

DAY 2

1. **Preparation of soil:**

- By ploughing, levelling and manuring
- Ploughing or digging loosens the soil
- It is done wing wooden or iron plough

Advantages of ploughing

1. It provides good aeration to the roots.
2. It helps in uprooting the weeds.
3. It promotes growth of useful microbes in the soil.
4. It helps in brining nutrient rich soil to the top for the plant use.

Levelling: (LAQ-Q3)

After ploughing, the big pieces of soil (soil crumbs) are broken into smaller pieces using a plank and levelled with the help of a leveller.

Advantages of levelling:

1. If promotes uniform irrigation.
2. It protects the upper fertile layer from erosion.

Adding Manures and fertilisers:

Manures: It is a natural organic substance obtained by the decomposition of plant and animal residue.

It is of 4 types:

- **Farmyard manure**: Prepared from cattle dung and farm waste.
- **Compost**: Prepared from plants and animal waste.
- **Vermicompost**: Prepared from organic waste by using worms.
- **Green manure**: Growing and decomposition of fast-growing leguminous plants such as guar and hemp.

Fertilisers: It is a man-made chemical compound which supplies specific nutrients to the soil.

Eg : Urea, ammonium sulphate, super phosphate, NPK(nitrogen, phosphate, potassium)

Difference between manure and fertilizer (ON WHITE PAGE) (LAQ -Q4)

Manure	**Fertiliser**
Advantages	
Natural substances prepared by decomposition of animal and plant waste	Nutrient specific
Add humus to soil	Can easily be transported
Cheaper	Added in small amount
Prepared in the field	Soluble in water
Disadvantages	
Not easy to transport	They are prepared from chemicals in the factories
Not nutrient specific	They are inorganic salts or compounds
	Excessive fertilisers may get washed away by rainwater from the fields and enter into water bodies, harming aquatic plants and animals. (SAQ- Q5)
	Do not add humus
	Expensive

Draw agriculture tools from page 7- HW

DAY 3

SOWING: The process of putting seeds into the soil.

Precautions to be taken while sowing:

- Seeds should have good percentage of germination.
- Seeds should be sown at the correct depth in the soil.
- Seeds should be sown at the right distance from each other to avoid overcrowding.
- The soil should have enough water for the seeds to germinate. If the soil is dry, it should be watered before sowing.

Methods of sowing :

- **Using traditional tools**: Consists of an iron tube with a funnel at the top attached to the plough. Seeds are introduced into the funnel opening and then released into the soil furrows made by plough.
- **Seed drill** : This tool sows the seed in the soil at proper depth and distance and then covers them with soil. It protects the seeds from birds and also saves time and labour.
- **Transplantation:** Seed of paddy and some vegetables and then the seedlings are transferred to the main field.

DAY 4

4. **Irrigation (LAQ-Q6)**

The process of supplying water to crops in the field at different intervals of time.

Sources of irrigation : Wells, tube wells, ponds, lake, rivers, dams and canals.

Traditional method of irrigation:

In our country, traditional system of irrigation such as the pulley system (moat), chain system, lever system (rahat) and dhekli have been in use for centuries to lift water from reservoir.

- Excess of water (water logging) in the soil inhibits process of germination as seeds do not get sufficient air.

Modern Method of Irrigation :

- **Sprinkler system**: This type of irrigation is used where the soil can't retain water for a long time. Here the water is supplied by sprinklers with rotating nozzles imitating natural rainfall.
- **Drip irrigation or trickle or micro irrigation:** It is a highly efficient system in areas where there is shortage of water. In this system water falls drop- by - drop on the root zone of plant through a network of valves.

DAY 5

CROP PROTECTION

5. **WEEDING : (SAQ- Q2)**

***** Weeds are unwanted plants which grow along with the main crop and compete for food, water, light, space etc

* The process of removing weeds from field is called weeding.

Methods of weeding:

a. Manual weeding: Weeds can be removed manually either by uprooting them or cutting them with the help of hoe, khurpa and harrow.

b. **Chemical Method:** The chemical substances which destroy weeds but do not harm crops are called weedicides or herbicides. Eg. 2-4-D, Metachlor, Butachlor etc.

c. **Biological methods:** Destruction of weeds with the help of living organisms is called biological method of weeding. Eg: Cochineal insect destroys weed Opuntia

* Crops are also damaged by pests (rodents, insects and stray animals), by bacteria, fungi and viruses.
* Chemical substances such as DDT, diuron atrazine etc. are used to kill pests without harming crops. These are known as pesticides. **(SAQ – Q1)**

Disadvantages of pesticides:

- They can kill useful insects which help in pollination.
- They are mostly non-biodegradable (eg. DDT- dichloro-diphenyl-trichloroethane)
- These contain harmful chemicals and may be injurious to health.

7.**HARVESTING, THRESHING AND WINNOWING:**

*The process of cutting and gathering the mature crops is known as harvesting.
*The process of separating grains from harvested stalks is known as threshing.
*The process of separating grain from chaff is known as winnowing.

DAY 6
8. Storage:

1. **Dry storage**: In this method, food grains are dried in sun to bring down the moisture content to below 14%.
*The dried grains are packed in gunny bags and transferred to properly ventilated halls called godowns.
2. **Grain Silos**: Specially designed tall cylindrical structures for bulk storage of food grains.
3. **Cold storage**: This method is used for food with short shelf life.
*Food materials are stored at very low temperature.

Advantages of food storage:

- It prevents spoilage of food by moisture, insects and pests.
- Helps in availability of fruits and vegetables throughout the year.
- Helps to maintain buffer **s**tock to meet any emergency in the country.
- Helps to maintain price in the market.

Increasing Crop production

- **Crop Rotation** – The practice of growing different crops in succession on the same field, so that the productive capacity of soil can be preserved.
- **Mixed Cropping** – Growing two or more crops simultaneously in the same field is known as Mixed cropping. **(LAQ-Q2)**
- **Hybridization** – It is the process of cross breeding two plants having desirable characteristics to give high yield of superior quality. (LAQ-Q1, refer textbook pg 15 last para))

- **Green Revolution** - Dr. Norman and E. Borlaug introduced the method of hybridization in wheat in Mexico by crossing between high yield varieties of Mexico with Indian varieties of wheat which led to tremendous increase in wheat production also called as green revolution.

Day 7

Animal Husbandry -

- The breeding, feeding and caring of livestock for food and other useful purpose is called animal husbandry.
- The process of keeping and caring animals for various purposes is called domestication.

- Cattle – Cows, buffaloes and bullocks are known as cattle. They are reared for Milk, and other dairy products.
  Animals reared for milk are called Milching animals.
  Animals reared for agricultural practices are called as draught animals.
- Sheep and goats are reared for wool, meat and milk.
- Poultry is rearing of poultry birds like hen, chickens, ducks etc. for meat and eggs.
- Pisciculture – the rearing of fish on a large scale. It is also called as Fish farming.
- Apiculture – rearing of honey bees for their honey and wax is called as Apiculture.

SAQ- Short Answer Questions

LAQ- Long answer Questions } Given in text book page 20 and 21