



PUBLIC SCHOOL DARBHANGA
SESSION (2020-21)
SCIENCE
CLASS-8
CROP PRODUCTION AND MANAGEMENT

CHAPTER NOTES

Introduction

The science that deals with the growth of plants and animals for human use is called *agriculture*. Agriculture includes-

- Soil management- the cultivation of soil
 - Crop farming- growing and harvesting of crops.
 - Horticulture- growing and harvesting of fruits, vegetables, flowers and decorative plants
 - Animal husbandry- the breeding and raising of livestock including poultry
- The land where plants are cultivated is known as *fields*.

Plants grown in large quantities in field are known as *crop plants or crops*.

Based upon the seasons, the crops are divided into two types- summer crops called *kharif crops* and winter crops called *rabi crops*.

Kharif crops are grown during summer between june/july and harvested by september/october.

Rice, groundnut, maize, cotton , pulses are some common kharif crps.

Rabi crops are grown in the winter between october/november and harvestedv by march or april.

Wheat, barley, mustard, potato and peas are some common rabi crops.

The recent progress in agriculture has taught farmers to cultivate crops in a systematic way. The tasks that a farmer follows are called agricultural practices. The major steps involved in this process are-

- Preparation of soil
- Selection and sowing of seeds
- Addition of manure and fertilizers
- Irrigation
- Protection from weeds and pests
- Harvesting
- Storage

Preparation of soil:

Ploughing or tilling involves loosening and turning of soil using a tool or an implement called the plough. Then the soil is leveled.

Loosening of the soil-

1. Allows the roots to breath easily
2. Helps the roots to penetrate deeper into the soil.
3. Enables fertilizers to mix uniformly with the soil.
4. Aids the growth of organisms such as earthworms, millipedes, bacteria and fungi.

Sowing of seeds:

Seeds used for sowing should be of good quality, healthy, viable and free of infections. Seeds are sown manually by broadcasting or by seed drills. *Broadcasting* is the scattering of seeds over the soil surface by hand.

Addition of manure and fertilizers:

Plants require nutrients for growth. They get these nutrients from the soil. This can be done either by natural methods or by adding manures and fertilizers to the soil.

Natural methods:

Field fallow: The method of leaving the field without cultivating any crops to replenish nutrients in the soil.

Crop rotation: It involves growing two or more crops alternatively on the same land in the same growing season so that the soil is not depleted of any particular nutrients.

Differences between manures and fertilizers:

Differences between manures and fertilizers:	
Manures	Fertilizers
These are natural organic substances that are derived from animal wastes and plant residues.	These are inorganic salts made by humans.
These are rich in humus but not in inorganic nutrients.	These are rich in inorganic nutrients but do

Irrigation:

Irrigation is the artificial supply of water to farms when needed. Some of the modern irrigation methods are as follows:

- Sprinkler system
- Drip irrigation

Protection from weed and pests:

Weeding:

- Weeds are unwanted plants that grow along with the crops. They compete with the crops for water, minerals and sunlight and, therefore reduce crop yield.
- Amaranthus is very common weed which grow with almost every crop.
- Weeding can be done manually using a trowel or a harrow or by using a seed drill using certain chemicals called weedicides for example- 2,4-D. some common weedicides are Dalapon, Siniazine and Picloram.

Pests:

- Insects that attack crops and damage them are called pests.
- Pests can be controlled by pesticides which are poisonous chemicals. Pesticides kill pests as well as their eggs and larvae but do not affect the plants.

Harvesting:

- *Harvesting* is the cutting and gathering of the mature crop from the fields.
- *Threshing* is the process of removal of the edible part of grain from the scaly, inedible chaff that surrounds it.
- *Combine harvester* is a farm machine which does both harvesting as well as threshing.
- *Wind winnowing* is a method of separating grain from chaff by throwing the mixture into the air with a winnowing fan.

Storage:

Large scale storage of grains is done in granaries or silos to protect them from pests like rodents, microbes or insects.

Increasing crop produce:

Crop produce can be increased by increasing the land under cultivation, by improvement in the methods of agriculture, and by developing better varieties of crops by plant breeding.

Hybridization is a technique used for plant breeding in which new varieties with desired characteristics of high yield and resistance to disease, are developed.

Nitrogen cycle:

Air contains about 78% nitrogen. Nitrogen is used by life forms for the formation of protein, amino acids and nucleic acids.

The cyclic process of nitrogen being fixed, used by plants and animals and later returned to the atmosphere is referred to as the nitrogen cycle. Nitrogen cycle involves the following steps:

- *Nitrogen fixation*: fixing free nitrogen gas of the atmosphere into inorganic compounds by organism such as Rhizobium.
- *Nitrogen assimilation*: converting inorganic nitrogen into usable organic compounds in organisms.
- *Ammonification*: Conversion of organic nitrogen into ammonia.
- *Nitrification*: Ammonia is converted into nitrates in the soil with the help of bacteria.
- *Denitrification*: Conversion of nitrates into nitrogen gas by denitrifying bacteria.

Animal husbandry:

- The breeding, feeding and caring of domestic animals for food and other purposes is called animal husbandry.
- Meat or egg yielding animals such as goat, poultry animals (e.g. chicken, duck and turkey), fish, sheep.
- Milch or (milk yielding) animals such as cow, buffalo, goat and camel.
- Large scale rearing of fish for food is known as *pisciculture*.
- Large scale rearing of honeybee is known as *apiculture*.

Check your Knowledge

Fill in the blanks

1. The breeding and raising of livestock including poultry is called _____
2. _____ growing and harvesting of fruits, vegetables, flowers and decorative plants
- 3 The crops are divided into two types- summer crops called kharif crops and winter crops called _____ crops.
4. _____ crops are grown during summer between june/july and harvested by september/october.
5. _____ crops are grown in the winter between october/november and harvested by march or april.
6. _____ is the scattering of seeds over the soil surface by hand.
7. Pesticides kill pests as well as their eggs and _____ but do not affect the plants.
8. _____ is the cutting and gathering of the mature crop from the fields.
9. _____ is the process of removal of the edible part of grain from the scaly, inedible chaff that surrounds it.

10. Wind winnowing is a method of separating grain from chaff by throwing the mixture into the _____ with a winnowing fan.
11. Hybridization is the process used for plant _____ in which new varieties with desired characteristics of high yield and resistance to disease, are developed.
12. Air contains majority of _____ .
13. Nitrogen is used by _____ forms for the formation of protein, amino acids and nucleic acids.
14. Ammonification is the process of _____ of organic nitrogen into ammonia.
15. Nitrification is the process in which _____ is converted into nitrates in the soil with the help of bacteria.
16. _____ are natural organic substances that are taken from animal wastes and plant residues
17. _____ are rich in inorganic nutrients but do not contain humus
18. Large scale rearing of fish for food is known as _____
19. Large scale rearing of honeybee is known as _____.
20. _____ is the artificial supply of water to farms when needed. 21 _____ are unwanted plants that grow along with the crops.
- 22 _____ is very common weed which grow with almost every crop

Now check your answers and score yourself:

1. Animal husbandry
2. Horticulture
3. rabi
4. Kharif
5. Rabi
6. Broadcasting
7. larvae
8. Harvesting
9. Threshing
10. air
11. breeding
12. nitrogen
13. life
14. Conversion
15. Ammonia
16. Manures
17. Fertilizer
18. pisciculture
19. apiculture
20. Irrigation
21. Weeds
22. Amaranthus