

SCIENCE

Chapter 1: Crop Production and Management

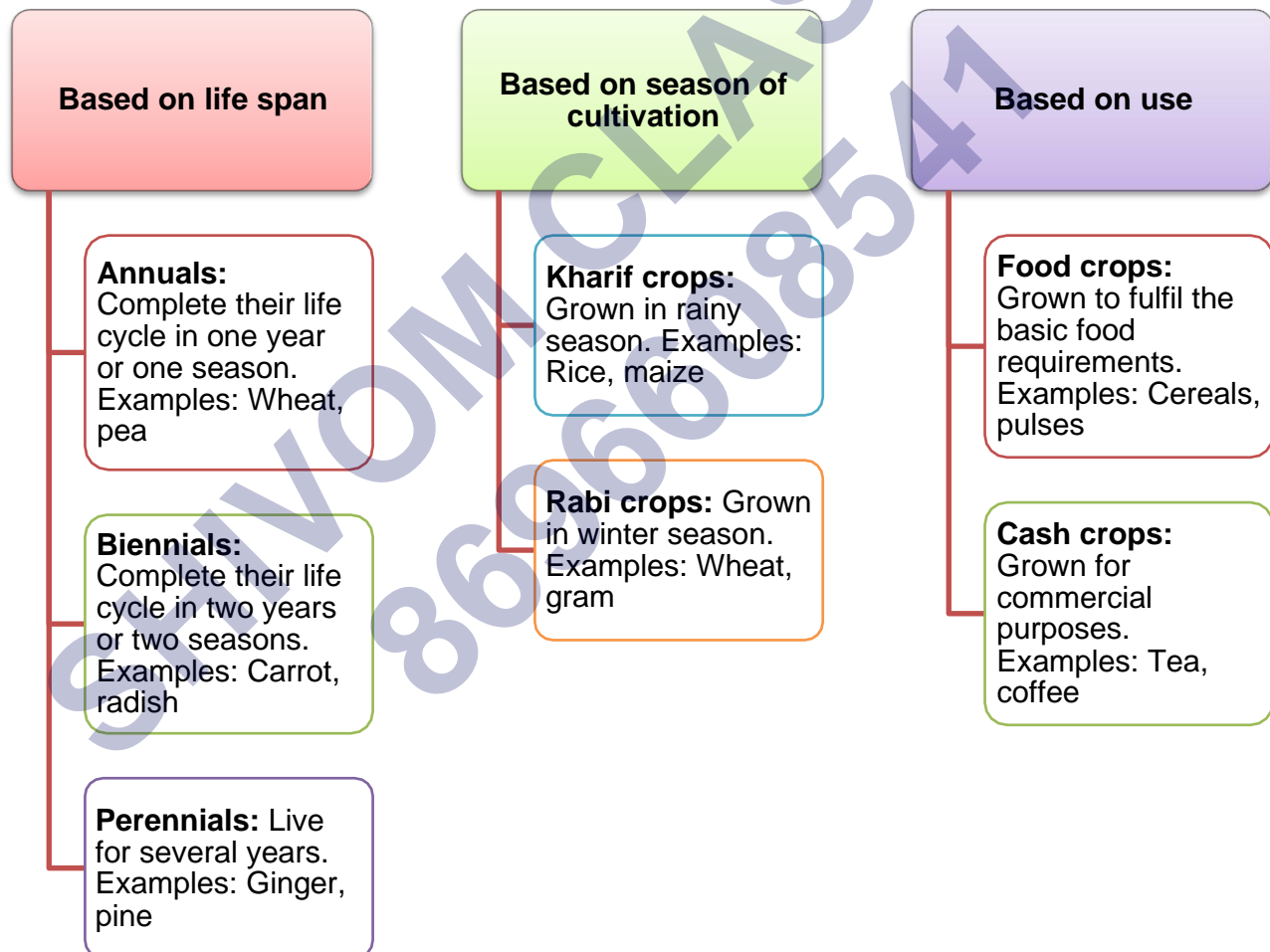


Crop Production and Management

Crops

- Plants grown by man on a large scale to obtain food, clothing and other useful products are called **crops**.
- Some examples of crops:**
 - ✓ Cereal crops: Wheat, paddy, maize
 - ✓ Pulses: Gram, pea, bean
 - ✓ Oil seeds: Mustard, groundnut, sunflower
 - ✓ Vegetables: Tomato, cabbage, spinach
 - ✓ Fruits: Banana, mango, guava

Types of Crops



- Agriculture** is the art and science of cultivating soil, producing crops, rearing animals for food and other useful products.
- Early man collected the edible parts of the plants as food.
- However, when he observed that seeds give rise to new plants, he started farming and began to live a settled life.

- As time passed, he tried to improve the wild varieties of plants to meet his demands. Crop plants grown today have evolved due to this human activity which occurred over 2000 years ago.

Basic Practices of Crop Production



Preparation of Soil

- The soil is prepared for sowing seeds of the crop by ploughing, harrowing, levelling and adding manure.

Ploughing

- It is the process of breaking, loosening and turning the soil over for uprooting weeds and aerating the soil.
- Benefits of ploughing**
 - Brings fresh nutrients to the surface.
 - Loosens soil so that roots can penetrate easily.
 - Soil is able to hold more moisture.
 - Weeds are removed.

Harrowing

- It is a method to destroy germinating weeds.
- It is done by using a blade harrow or spike tooth harrow.

Levelling

- It involves breaking big lumps of soil and levelling it.
- Levelling is done by using a wooden or iron plank.
- Advantages of levelling:**
 - Helps in uniform distribution of water during irrigation.
 - Prevents top soil from being carried away.
 - Prevents loss of moisture.

Manuring

- It is the process of adding manure to the soil.
- It is done to increase the fertility of the soil before the seeds are sown into it.

Implements Used For Ploughing

IMPLEMENT	DESCRIPTION
Plough	<ul style="list-style-type: none"> • It is a T-shaped instrument made of either wood or metal. • One of the arms of the iron plough which is wedge shaped penetrates the soil. • A plough is generally drawn by a pair of bullocks or horses. The plough is attached to the bullocks by using a yoke. The farmer controls the plough and guides the bullocks.
Hoe	<ul style="list-style-type: none"> • A hoe is used to remove weeds as well as loosen the soil. • A strong, broad and bent plate made of iron is fixed at one end of the hoe which acts like a blade. • The hoe is pulled by animals.
Cultivator	<ul style="list-style-type: none"> • A cultivator is a tractor-driven agricultural implement used for ploughing. • It has many ploughshares which can dig into a considerable area of soil and at the same time, loosen it and turn it.

Sowing

- The process of scattering seeds in the soil for growing crop plants is called **sowing**.

Precautions for Sowing Seeds

Seeds should be sown at the right depth in the soil suitable for germination.

Seeds should be sown at right intervals or spacings in the field.

Seeds should not be sown in dry soil.

Seeds should not be sown in highly wet soil.

METHODS OF SOWING SEEDS	DESCRIPTION
Broadcasting	<ul style="list-style-type: none"> It is the process of manually scattering seeds in the field. This method results in non-uniform distribution of seeds and hence, affects productivity.
Drilling	<ul style="list-style-type: none"> It is the process of sowing seeds at a uniform distance by using a seed drill. A seed drill is made of iron. Seeds are put into the funnel of the seed drill which is fitted at the back of the plough. As the plough moves, it cuts a hole into the soil, and the seeds move from the funnel into the hole or a furrow is made into the soil. <p>Advantages of sowing with a seed drill</p> <ul style="list-style-type: none"> Seeds are sown at the correct depth and at correct intervals Seeds cannot be picked up and eaten by birds
Transplantation	<ul style="list-style-type: none"> The process of transferring seedlings from the nursery to the main field by hand is called transplantation. To produce new varieties, seeds are first allowed to germinate in a nursery. When young seedlings are developed, they are planted in the field. <p>Advantages of transplantation</p> <ul style="list-style-type: none"> Helps farmers to select better and healthy seedlings. Allows better penetration of roots in the soil. Promotes better development of roots and shoots. Enables farmers to plant seedlings at uniform distance.

Adding Manure and Fertilisers

- Plants require minerals for growth and they continuously extract them from the soil
- The deficiency of plant nutrients and organic matter in the soil is made up by adding manure and fertilisers to the soil.

Types of Fertilisers

Natural Fertilisers	
Manure	<ul style="list-style-type: none"> Dead and decaying vegetable matter, waste from farms, household waste, excreta of animals form manure. Manure mainly contains nitrogenous compounds.
Compost	<ul style="list-style-type: none"> It is formed by decomposition of vegetable and animal wastes. Organic substances are decomposed by bacteria and are converted into humus.
Green Manure	<ul style="list-style-type: none"> Farmers grow leguminous plants such as groundnuts, soya beans and pulses in between two crops. Leguminous plants help to replenish nitrogen in the soil.

Advantages of natural fertilisers

- Increase the water-holding capacity of soil.
- Make the soil porous.
- Improve soil texture.
- Increase the number of useful microbes in the soil.

Disadvantages of natural fertilisers

- Inconvenient to store and transport
- Not nutrient-specific

Artificial/Chemical Fertilisers

- They are used to fertilise a larger area at a time.
- They are made of ammonia, urea and phosphates.

Advantages of artificial fertilisers

- Nutrient-specific
- Have plant nutrients in concentrated form
- Provide quick replenishment of plant nutrients in soil
- Highly soluble in water
- Easily absorbed by plants
- Easy to store, transport and handle

Disadvantages of excessive use artificial fertilisers

- Reduces fertility of the soil
- Changes the chemical nature of the soil
- May cause water pollution through runoff

Differences between Manures and Fertilisers

MANURE	FERTILISER
<ul style="list-style-type: none"> Natural substance obtained owing to the decomposition of plant and animal remains by bacteria 	<ul style="list-style-type: none"> Inorganic substances or compounds
<ul style="list-style-type: none"> Less rich in plant nutrients 	<ul style="list-style-type: none"> Rich in plant nutrients such as nitrogen, phosphorus and potassium
<ul style="list-style-type: none"> Can be prepared in fields 	<ul style="list-style-type: none"> Manufactured in factories
<ul style="list-style-type: none"> Inconvenient to store and transport 	<ul style="list-style-type: none"> Easy to store and transport

Crop Rotation

- Crop rotation** is the practice of growing different crops each season in a particular field.
- For example, when a cereal crop such as maize is grown first, it takes away a lot of nitrogen from the soil for its growth and makes the soil nitrogen deficient. When leguminous crops such as pulses are grown in the same field, the crops with nitrogen-fixing bacteria enrich the soil with nitrogen compounds and increase its fertility.

Advantages of Crop Rotation

- Allows soil to recover its lost nutrients.
- Helps to control pests, weeds and diseases.
- Helps to reduce the use of chemical fertilisers.
- Improves fertility of the soil.

Organic Farming

- Organic farming** is a kind of farming in which crops are grown without using chemical fertilisers and pesticides.
- Food grown by organic farming is called **organic food**.

Irrigation

- The process of supplying water to crop plants in fields through canals, wells, reservoirs, tube wells etc. is known as **irrigation**.
- Wells, tube wells, ponds, lakes, dams, rivers and canals are some of the sources of irrigation.

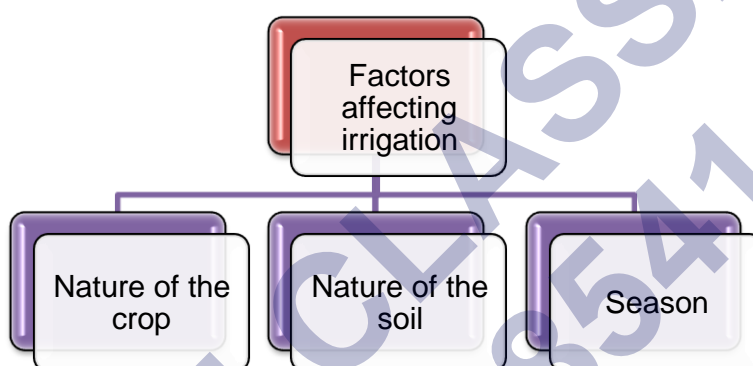
Need for Irrigation

To make the soil soft due to which ploughing of fields can become easier

To provide moisture for germination of seeds

To maintain the moisture of soil for healthy crop growth

Factors affecting Irrigation requirements of crops



Methods of Irrigation

Traditional methods of Irrigation	
Canal irrigation	<ul style="list-style-type: none"> In India, irrigation of extensive areas is carried out by canals. The main canal receives water from different sources such as reservoirs or rivers and branches further for irrigation.
Moat/Pulley system	<ul style="list-style-type: none"> The pulley system along with a rope and a bucket is known as a moat. Water is lifted out from the well by using a bucket attached to a rope which passes over the pulley. The rope is either pulled by man or by animals.
Persian wheel (Rahat system)	<ul style="list-style-type: none"> A Persian wheel consists of a large wooden wheel with several buckets arranged on its outer rim. The whole arrangement is submerged in an open well.
Swing basket method	<ul style="list-style-type: none"> The swing basket is an ancient water lifting device. Two people stand facing each other and swing the basket to fill in water. The basket is raised and water is discharged in the crop field.
Dhekli	<ul style="list-style-type: none"> Dhekli is generally used to lift water from an unlined well, stream or pond.
Chain pump	<ul style="list-style-type: none"> The chain pump is used to lift water from a shallow well. It is useful to lift water from a depth of about 6 metres.

Modern methods of irrigation	
Basin irrigation	<ul style="list-style-type: none"> • It is a kind of surface irrigation. • The land is surrounded with embankments in the form of a basin. • Basins are flooded with water. • It is used for crops which require a large amount of water to grow.
Furrow irrigation	<ul style="list-style-type: none"> • It is a kind of surface irrigation. • Small channels or furrows are created along the field length between crop rows. • It is used for crops which do not require much water.
Drip irrigation	<ul style="list-style-type: none"> • Water is supplied through perforated pipes. • Pipes are placed in rows between the plants close to the roots. • It is used in fruit orchards, gardens and trees.
Sprinkle irrigation	<ul style="list-style-type: none"> • Sprinklers or spray guns are attached to a large hosepipe at regular intervals to spray water. • It is suitable for all types of crops.

Advantages and Disadvantages of Irrigation

Advantages of irrigation

- Provides moisture to germinating seeds.
- Facilitates absorption of nutrients by minerals.

Disadvantages of irrigation

- Excess of water in soil leads to water logging
- Sometimes, it inhibits the process of germination.

Removal of Weeds

- Wild and undesirable plants which grow in crop fields and compete with crops for space, soil, nutrients, water and sunlight are called weeds.
- *Amaranthus (Chaulai)*, *Chenopodium (Bathua)*, wild oat (*Javi*) and grass are examples of weeds.

Disadvantages of Weeds

- Compete with crops for available resources.
- Can be responsible for spreading diseases.
- Provide hideouts for rats and snakes.

Methods of Weeding

Weeding is the process of removal of weeds.		
<p style="text-align: center;">By hand</p> <ul style="list-style-type: none"> • Weeds can be removed from crop fields by pulling them out with hands. 	<p style="text-align: center;">Using implements</p> <ul style="list-style-type: none"> • Weeds can be removed by digging or cutting them from close to the ground from time to time with implements such as a trowel, harrow and hoe. 	<p style="text-align: center;">Spraying weedicides</p> <ul style="list-style-type: none"> • A solution of weedicides such as 2,4-D, MCPA and Butachlor is sprayed on the standing crops.

Harvesting

- A combine harvester is used in commercial farming where the processes of harvesting, threshing and winnowing all occur in a sequence.
- **Harvesting** is the cutting and gathering of mature crops.
- **Threshing** is the process of beating grains from stems.
- **Winnowing** is the process of separating grains from the chaff.
- In India, the period of harvest is celebrated as harvest festivals.
- Pongal, Baisakhi, Holi, Nabanya and Bihu are some of the harvest festivals celebrated in India.

Storage of Food Grains

- Harvested grains contain a lot of moisture. Hence, they are first dried.
- Harvested crops are stored until they are sold in the market.

Methods of storage of Food Grains

Granaries	Gunny bags	In silos
<ul style="list-style-type: none"> • Dried grains are stored in granaries. 	<ul style="list-style-type: none"> • Grains are also stored in gunny bags made of jute. 	<ul style="list-style-type: none"> • Government stores grains in large containers or tall cylindrical structures called silos.
<ul style="list-style-type: none"> • Granaries are large metal or earthen pots. 	<ul style="list-style-type: none"> • The mouths of the bags are stitched tightly, and the bags are placed one above the other in big godowns. 	<ul style="list-style-type: none"> • Buffer stocks are stored in godowns to meet emergency needs in natural calamities etc.

Food from Animals

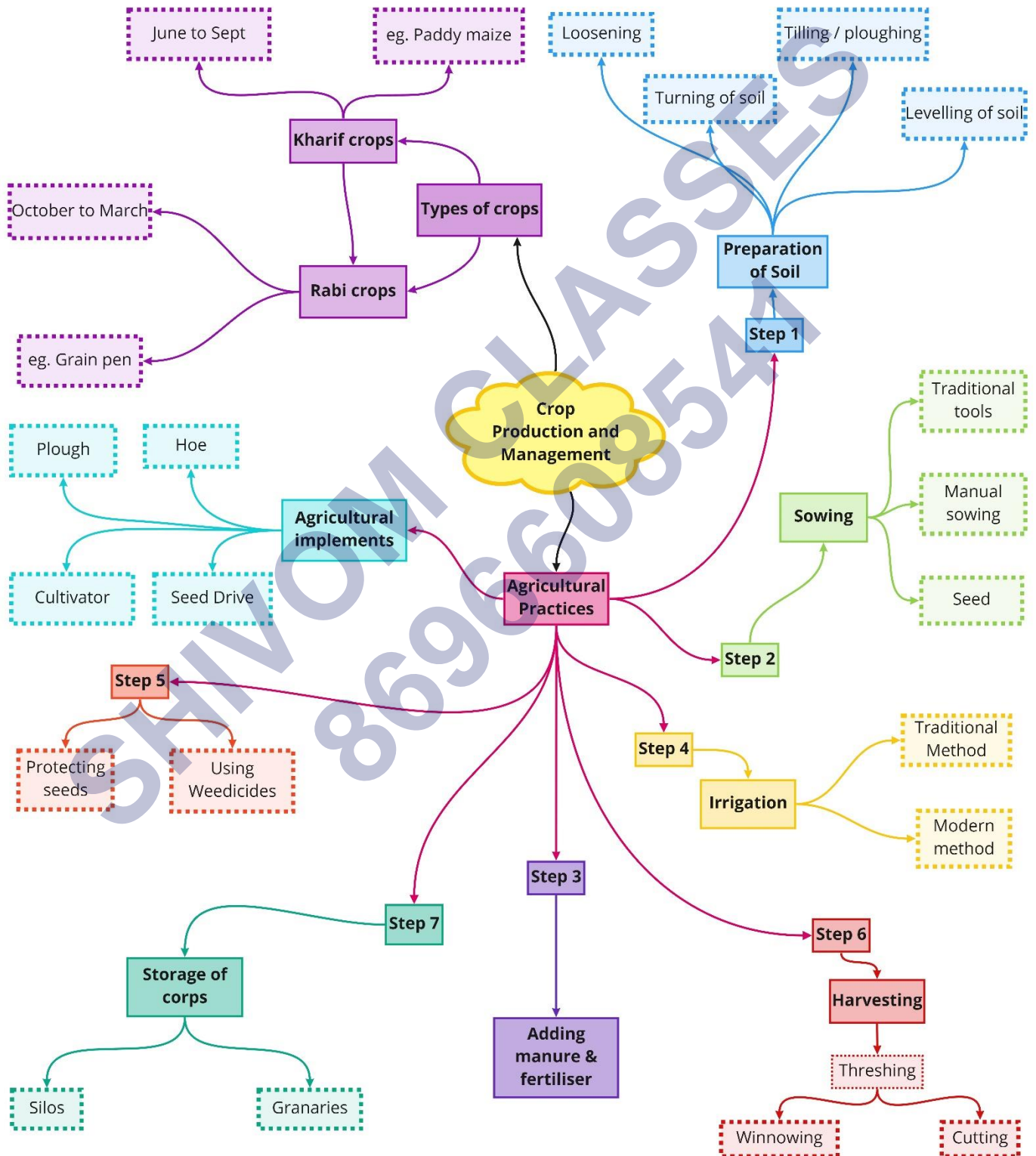
Milk	Meat and Eggs	Honey	Fish
<ul style="list-style-type: none"> Source animals: Cow, buffalo and goat 	<ul style="list-style-type: none"> Source animals: Goat, sheep, fish, hen and duck 	<ul style="list-style-type: none"> Source animal: Honeybee 	<ul style="list-style-type: none"> Source animal: Fish
<ul style="list-style-type: none"> Milk and milk products are highly nutritious foods 	<ul style="list-style-type: none"> Rich in proteins 	<ul style="list-style-type: none"> Highly nutritious food rich in proteins 	<ul style="list-style-type: none"> Highly nutritious and easily digestible food

Animal Husbandry

- Animal husbandry is the branch of agriculture which deals with feeding, shelter, caring and breeding of domesticated animals.

Important Practices of Animal Husbandry

- Proper feeding of animals
- Proper shelter of animals
- Prevention and cure of diseases in animals
- Proper breeding of animals



Important Questions

Multiple Choice Questions-

Question 1.

Rhizobium bacteria fix atmospheric

- (a) nitrogen
- (b) carbon dioxide
- (c) oxygen
- (d) hydrogen

Question 2.

The supply of water to crops at different intervals is called

- (a) watering
- (b) irrigation
- (c) harvesting
- (d) none of these

Question 3.

The sources of irrigation are:

- (a) wells
- (b) damr
- (c) canals
- (d) all of these

Question 4.

The chemicals used to control weeds are called:

- (a) pesticides
- (b) insecticides
- (c) weedicides
- (d) all of these

Question 5.

Harvesting is a task of:

- (a) cutting of crop after it is-mature
- (c) separating of grain seeds from chaff
- (b) cutting of crop before it is mature
- (d) none of these

Question 6.

Winnowing is a method of separating:

- (a) soil from chaff
- (b) grain from chaff
- (c) soil from grain
- (d) none of these

Question 7.

At home to store grains we use:

- (a) wet neem leaves
- (b) dried neem leaves
- (c) dried mango leaves
- (d) dried peepal leaves

Question 8.

The plant roots containing nitrogen fixing bacteria are:

- (a) maize
- (b) potato
- (c) pea
- (d) onion

Question 9.

A combined harvester and thresher is called:

- (a) Combo
- (b) Combine
- (c) Harvester-thresher

(d) None of these

Question 10.

Before storing, the grains are properly dried in the:

- (a) sun
- (b) air
- (c) fan
- (d) none of these

Question 11.

Which one of the following provide us manure:

- (a) dog
- (b) cattle
- (c) frog
- (d) birds

Question 12.

The process of separating grains from chaff is known as:

- (a) threshing
- (b) harvesting
- (c) winnowing
- (d) transplantation

Question 13.

The process of cleaning grains from chaff is known as:

- (a) freshing
- (b) harvesting
- (c) winnowing
- (d) transplantation

Question 14.

Growing of legume crop in between wheat crops is called:

- (a) crop improvement

- (b) crop rotation
- (c) mixed cropping
- (d) none of these

Question 15.

Agriculture can be defined as:

- (a) art of growing vegetables
- (b) art of growing fruits
- (c) art of growing flowers
- (d) all of these

Very Short:

1. How green plants synthesize their own food?
2. Where do animals get their own food?
3. What do you mean by crop?
4. Name two broad cropping patterns.
5. Mention the names of two kharif crops.
6. Write the names of two rabi crops.
7. What are agricultural practices?
8. What do you mean by the tilling or ploughing?
9. What is plough?
10. Name two materials used to make a plough.
11. What are crumbs?
12. Name some tools used in agriculture.
13. Write two uses of plough.
14. Write two uses of hoe.
15. What is traditional tool used for sowing?
16. What is manure?
17. What do you mean by manuring?
18. What are fertilisers?
19. Which is better to use manure or the fertilizers?
20. What do you mean by the term irrigation?
21. Is the time and frequency of irrigation same for all the crops?

22. Write some sources of irrigation.
23. Mention traditional methods of irrigation.
24. What is the use of pumps?
25. What are the modern methods of irrigation?
26. What are weeds?
27. What is weeding?
28. What are weedicides?
29. Name a weedicide which is commonly used by the farmers.
30. Define harvesting.
31. What is threshing?
32. Name a machine which is combined harvester and thresher.
33. What is winnowing?
34. Name some harvest festivals.
35. What do you mean by storage?

Short Questions :

1. Define crop along with examples
2. Differentiate between kharif and rabi crops
3. What do you mean by preparation of soil?
4. Why loosened soil is important for cultivation of crops?
5. Write a paragraph in your own word on each of the following:
 - (a) Tilling
 - (b) Weeds
6. Write shorts notes on:
 - (a) Sowing of seeds
 - (b) Threshing
7. What are the advantages of a cultivator over plough for the purpose of ploughing?
8. How could you separate good and healthy seeds from the damaged ones?
9. Write a short note on tools used for sowing seeds.
10. What are the advantages of a seed drill used for sowing?

Long Questions:

Question 1.

What do you mean by the term crop? Explain briefly the types of crops.

Question 2.

What is ploughing or tilling? State its advantages.

Question 3.

Define the term agricultural practices and also state the important steps taken during crop production.

Question 4.

What is irrigation? Name the two main methods of irrigation and define them briefly.

Question 5.

What do you mean by weeding? Why the process of weeding necessary? Name the methods applied for weeding.

Question 6.

Write short note on the terms:

- (i) Storage
- (ii) Harvesting

ANSWER**MCQ:**

1. Nitrogen
2. irrigation
3. all of these
4. weedicides
5. cutting of crop after it is-mature
6. grain from chaff
7. dried neem leaves
8. pea
9. combine
- 10.sun
- 11.cattle
- 12.threshing
- 13.winninging
- 14.crop rotation
- 15.all of these

Very Short:

1. **Answer:** Green plants synthesize their own food by the process of photosynthesis.
2. **Answer:** Animals get their food from plants and other animals.
3. **Answer:** When plants of same kind are grown and cultivated at one place on a large scale, it is called crop.
4. **Answer:**
 - (a) Kharif crops
 - (b) Rabi crops
5. **Answer:**
 - (a) Paddy crops
 - (b) Maize crops
6. **Answer:**
 - (a) Wheat crops
 - (b) Gram crops
7. **Answer:** The various steps to grow crops and storage of grains are collectively known as agricultural practices.
8. **Answer:** The process of loosening and turning of the soil is called tilling or ploughing.
9. **Answer:** The device used for tilling or ploughing is called plough.
10. **Answer:** Wood and iron.
11. **Answer:** The big pieces of soil are called crumbs.
12. **Answer:** Plough, hoe, cultivator.
13. **Answer:**
 - (a) It is used for tilling of soil.
 - (b) It is used to remove the weeds.
14. **Answer:**
 - (a) It is used to remove the weeds.
 - (b) It is used to loosen the soil.
15. **Answer:** The tool used traditionally for sowing is funnel-shaped tool.
16. **Answer:** Manure is an organic substance obtained from the decomposition of plant and animal wastes.
17. **Answer:** The process of providing manure to replenish the soil with nutrients is called manuring.

18.Answer: Fertilisers are the chemical substances which are rich in a particular nutrient.

19.Answer: Manure is better than the fertilizers.

20.Answer: The supply of water to crops at different intervals is called irrigation.

21.Answer: The time and frequency of irrigation varies from crop to crop.

22.Answer: Wells, tubewells, ponds, rivers and canals are the main sources of irrigation.

23.Answer:

(a) Moat

(b) Chain pump

(c) Dhekli

(d) Rahat.

24.Answer: Pumps are commonly used for lifting water.

25.Answer:

(a) Sprinkler system

(b) Drip system.

26.Answer: The unwanted plants growing naturally with the main crop are called weeds.

27.Answer: The process of removal of weeds is called weeding.

28.Answer: The chemical substances which are used to control the weeds are called weedicides.

29.Answer: The weedicides commonly used by the farmers are 2, 4 D.

30.Answer: The cutting of crop after it is mature is called harvesting.

31.Answer: The process by which grains are separated from the chaff is called threshing.

32.Answer: Combine.

33.Answer: It is a process of separation of grain and chaff.

34.Answer: Pongal, Baishakhi, Nabanya, and Bihu are some harvest festivals.

35.Answer: The process to keep grains for a longer time by saving them from moisture, insects, rats and microorganisms is called storage.

Short Answer :

Answer: Plants of same kind that are grown and cultivated at one place on large scale are called a crop. Some of the crop plants are wheat, rice, maize, sugarcane, cotton, vegetables, fruits etc.

Answer:

Kharif Crops	Rabi Crops
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Kharif crops are the crops which are sown at the beginning of the rainy season, e.g. between April and May.	Rabi crops are the crops that are sown at the end of monsoon or at the beginning of winter season, e.g. between September and October.
These crops are known as monsoon crops.	These crops are also known as winter or spring crops.
These crops depend on the rainfall patterns.	These crops are not affected by the rainfall.
Major Kharif crops are rice, maize, cotton, jowar, bajra etc.	Major Rabi crops are wheat, gram, peas, barley etc.
It requires a lot of water and hot weather to grow.	A warm climate is required for seed germination and cold climate for the growth of crops.
Flowering requires shorter day length.	Flowering requires longer day length.
Harvesting months from September to October.	Harvesting months from March to April.

Answer: Preparation of soil is a very important step in agriculture before cultivation of crops. It includes loosening of soil, removing weeds from the soil and levelling of soil before sowing of seeds. Loosening of soil improves the air circulation in soil and enhances the water retaining capacity of the soil.

Answer: It is necessary to turn and loosen the soil because only loose soil allows the roots to penetrate freely deeper into soil. The roots can breathe easily in loose soil. The deep roots hold the plants more firmly. The water also can reach easily up to more depth in loose soils. Microbes and worms can also grow in loose soil.

Answer:

(a) Tilling: The process of loosening and turning of the soil is called tilling or ploughing and is carried on by using a plough. Ploughs are made by wood or iron material, it is being used since ancient time for different purposes like tilling the soil, adding fertilisers to crops, removing weeds etc. this implement is drawn by a pair of bulls or other animals like camels, horses etc.

(b) Weeds: Weeds are unwanted plants that grow along with crop plants and compete with them for water, nutrients, space and light, thus they affect growth of crop plants. Some of the weeds are poisonous for animals and human beings and they interfere even in harvesting of crop plants and the removal of weeds is called weeding.

Answer:

(a) Sowing of seeds: One of the important part of crop production is sowing. Good quality seeds are selected and are sown in prepared soil with the help of various tools like traditional tools and seed drill.

(i) Traditional tools: The shape of this tool is like a funnel which is filled by seeds, then the seeds are passed down through two or three pipes having sharp ends and these ends pierce into the soil and place seeds there.

(ii) Seed drill: This tool is used for sowing with the help of tractors and it sows the seeds uniformly and at proper distances and depth, it also ensures covering of the seeds from soil after sowing, so that seeds could not get damaged by birds and by other organisms. Sowing by using a seed drill saves time and labour. In order to avoid overcrowding of plants it is very important to leave some space between two seeds. This also allows plants to get sufficient sunlight, nutrients and water from the soil.

(a) Threshing: Threshing is the process of separating the grains from the straw and chaff. This is carried out with the help of a machine called combine which works as harvester and thresher both.

Answer: Ploughing by cultivators save time and labour as cultivator is driven by tractors whereas plough is driven by pair of bull.

Answer: Take a beaker half filled with water and put some seeds into it and stir well, wait for some time. You will observe some seeds sink in water while some seeds float in water, damaged seeds become hollow and lighter and thus they float on water.

Answer: Tools used for sowing of seeds are:

(a) Traditional tools: The shape of this tool is like a funnel which is filled by seeds, then the seeds are passed down through two or three pipes having sharp ends and these ends pierce into the soil and place seeds there.

(b) Seed drill: This tool is used for sowing with the help of tractors and it sows the seeds uniformly and at proper distances and depth, it also ensures covering of the seeds from soil after sowing, so that seeds could not get damaged by birds and by other organisms. Sowing by using a seed drill saves time and labour. In order to avoid overcrowding of plants it is very important to leave some space between two seeds. This also allows plants to get sufficient sunlight, nutrients and water from the soil.

Answer: Advantages of seed drill are as follows:

- (a)** This sows the seeds uniformly at equal distance and depth.
- (b)** It ensures that seeds get covered by the soil after sowing.
- (c)** This protects seeds from being eaten by birds.
- (d)** Sowing by using a seed drill saves time and labour..

Long Answer:

1) Answer:

Crop is the term used to describe a plant that is grown in a field on a large scale. For example, cereal crops, pulses and fruit crops. The crops grown in India can be classified as kharif and rabi.

Kharif crops are sown in the rainy season by June/July and are harvested by September/October. Thus they are also known as summer season crops. For example, rice, maize, etc.

Rabi crops are sown in the winter season in October or November and are harvested by March/April. Thus, they are also called winter season crops. For example, mustard, wheat, potato, etc.

2) Answer:

The process of loosening and turning of the soil is called tilling or ploughing. This is done by using a plough. Ploughs are made of wood or iron. Following are the advantages of ploughing or tilling:

Ploughing loosens the soil and makes it aerated.

It helps in mixing organic matter with the soil uniformly.

It initiates the growth of natural agents and microorganisms and thus, keeps the soil fertile.

It increases the water holding capacity of soil.

It helps in easy penetration of root into the soil.

3) Answer:

Agricultural practices are those practices which involves the necessary steps to be taken during production of crops. There are number of steps of crop production which are to be done very carefully to ensure that crops get produced timely. Some of the most important steps taken during crop production are as under:

- Soil preparation
- Sowing
- Adding manure and fertilisers
- Irrigation
- Weeding
- Harvesting
- Threshing and winnowing
- Storage of grains

4) Answer:

The artificial method of watering the plants for assisting in the growth of the plants is called irrigation. The two main methods of irrigation are:

- (i) Traditional method: The traditional method of irrigation is very less expensive and they often lead to wastage of water. Traditional method of irrigation involves chain pump, dhekli, moat (the pulley system) and rahat (lever system).
- (ii) Modern method: Modern methods of irrigation are more inclined towards the use of diesel, bio-gas, solar energy and electricity for lifting water.

The two most important modern system of irrigation are:

- Sprinkler irrigation system
- Drip irrigation system

5) Answer:

The undesirable plants that grow among the crops are called weeds. The process of removing these weeds is known as weeding. Weeds compete with the crop plants for nutrients and space. They grow much rapidly than the crop plant. So weeding is necessary.

Methods applied for weeding are as follows:

- (i) Manual method: Manual method of removing weeds is the most time consuming method. In this system weeds are controlled by hand pulling, digging, shallow tillage, etc., by using certain implements like khurpi, hoe, etc.
- (ii) Chemical method: In this method chemicals called, weedicides are used to remove weeds. For example, metachlor and 2, 4-D.
- (iii) Biological control method: This method is the most commonly used method of weed control. It involves the use of some specific insects that destroy the growth of some specific weeds. For example, leafy spurge, a weed, is controlled by using flea beetles.

6) Answer:

- (i) Storage: Storage of produce is an important task. If the crop grains are to be kept for longer time, they should be safe from moisture, insects, rats and microorganisms. Before storing, the grains are properly dried in the sun to reduce the moisture in them. This prevents the attack by insect pests, bacteria and fungi. Grains are stored by farmers in jute bags or metallic bins. However, large scale storage of grains is done in silos and granaries to protect them from pests like rats and insects.
- (ii) Harvesting: After maturation of crop, harvesting is an important task. In harvesting, crops are pulled out or cut close to the ground. It usually takes 3 to 4 months for a cereal crop to mature. Harvesting in our country is either done manually by sickle or by machine called harvester.