



INDIAN SCHOOL AL WADI AL KABIR



CLASS: IX	DEPARTMENT: SCIENCE (2024-25) SUBJECT: BIOLOGY	DATE: 07/11/2024
WORKSHEET NO: 8 WITH ANSWERS	TOPIC: IMPROVEMENT IN FOOD RESOURCES -PART 1	NOTE: A4 FILE FORMAT
CLASS & SEC:	NAME OF THE STUDENT:	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS

Multiple choice Questions: -

- What is the process of growing two or more crops in a definite pattern?
 - Crop rotation
 - Inter-cropping
 - Mixed cropping
 - Organic cropping
- Which one is not a source of carbohydrate?
 - Rice
 - Millets
 - Sorghum
 - Gram
- A soil sample has adequate water holding capacity but is deficient in phosphorus and potassium? Which of these would improve the quality of crops grown in that field?
 - Removing weeds
 - Applying fertilizer
 - Modifying irrigation system
 - Growing two different crosses at the same time.
- Find out the wrong statement from the following.
 - White revolution is meant for increase in milk production.
 - Blue revolution is meant for increase in fish production.
 - Increasing food production without compromising with environmental quality is called sustainable agriculture.
 - None of the above.
- To solve the food problem of the country, which among the following is necessary.
 - Increased production and storage of food grains
 - Easy access of people to food grain
 - People should have money to purchase the grains
 - All of the above

6. Weeds affect the crop plants by
 - a) Killing of plants in field before they grow
 - b) Dominating the plants to grow
 - c) Competing for various resources of crops(plants) causing low availability of nutrients
 - d) All of the above
7. Using fertilizers in farming is done for
 - a) No cost production
 - b) Low cost production
 - c) High cost production
 - d) None of these
8. Manures are used in sandy soil mainly to
 - a) Provide all essential nutrients to crops
 - b) Increase the water holding capacity
 - c) Avoid water logging
 - d) Reduce soil pollution
9. Crop varieties can be made disease resistant by:
 - a) Genetic modification
 - b) Hybridisation manures
 - c) green manure
 - d) Both a and b
10. Identify the oil seed among the following:
 - a) Sugarcane
 - b) Cotton
 - c) sunflower
 - d) Green gram

For the question numbers 11,12 and 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -

- i) Both A and R are true and R is the correct explanation of assertion.**
- ii) Both A and R are true but R is not the correct explanation of assertion.**
- iii) A is true but R is false.**
- iv) A is false but R is true**

11. Assertion: Nitrogen is a micronutrient.

Reason: Micronutrients are nutrients required in small quantity.

12. Assertion: Presence of weeds affects the crop field.
Reason: Weeds compete for food, space and light.
13. Assertion: Crop rotation is the practice of growing two or more varieties of crops in the same region in sequential seasons.
Reason: Cauliflower and chilli plants grown together in alternating rows are examples of crop rotation.
14. Assertion: Presence of weeds affects the crop field.
Reason: Weeds compete for food, space and light.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

15. Define hybridization and its types.
16. Enumerate two differences between mixed cropping and intercropping.
17. Give two advantages of using manure over fertilizer.
18. State any four factors for which crop variety improvement is done.
19. Define the term photoperiod. State its significance.
20. Briefly explain any two sources of irrigation.
21. Which are the fresh initiatives in irrigation?
22. What are weeds? Give two examples of weeds.

III. SHORT ANSWER TYPE QUESTIONS (3M):

23. Mention the three different ways in which crop plants can be attacked by insect pests.
Suggest one control measure and two preventive measures against pests.
24. A farmer wants to harvest more than two varieties of crop at a time from his field. Suggest him one method to get the desired result. Also state two advantages of this cropping pattern.
25. a) Briefly describe the formation of vermi-compost and green manure.
b) Give one advantage of using manure for nutrient management.
26. Define crop rotation. While choosing plants for crop rotation, what factors should be kept in mind?
27. How many nutrients are essential for the plants? What are macronutrients and micronutrients?
28. a) Farmer 'X' planted soya bean + maize + cowpeas in the same field simultaneously in set row pattern. Farmer 'Y' planted cereal crop in one season and leguminous crop in the next season on the same piece of land in preplanned succession. Name the cropping pattern used by farmer 'X' and 'Y'. b) State two advantages of cropping pattern followed by farmers 'X' and 'Y'.

IV. LONG ANSWER TYPE QUESTIONS (5M):

29. a) Distinguish between
- Macro Nutrients and Micro Nutrients
 - Compost and Vermicompost.
 - Manure and fertilizers.
- b) List two biotic and abiotic factors each that is responsible for grain loss?
30. i) Briefly explain the protection of stored grains.
ii) Differentiate between cereals and pulses as crops.
31. i) Why is organic farming considered a sustainable agricultural method?
ii) Of the various cropping patterns, why is crop rotation called a sustainable cropping pattern?
32. a) A farmer observed a Parthenium plant growing along with wheat crop. What is Parthenium? What should he do to protect his crop? why?
b) How does grain loss occur during storage? What preventive and control measures are used before grains are stored for future use?

V. CASE-BASED / SOURCE BASED QUESTIONS.

33. Yash decided to grow a plant during summer. He decided to grow peas. So, he went to the market and bought the best quality seeds, sand and fertilizers, planted the seed. Started taking good care of it. But as day passed he began to realise that the seeds he planted are getting worse. The plant was unhealthy and very poor in quality. He tried everything but was unable to figure out the solution.
- Rabi crops are grown in which period?
 - Which system is used for irrigation?
 - Why Yash's crops were grown unhealthy?
 - What are the disadvantages of fertilisers?
34. Mixed cropping is growing two or more crops simultaneously on the same piece of land, for example, wheat + gram, or wheat + mustard, or groundnut + sunflower. This reduces risk and gives some insurance against failure of one of the crops. Inter-cropping is growing two or more crops simultaneously on the same field in a definite pattern. A few rows of one crop alternate with a few rows of a second crop, for example, soya bean + maize, or finger millet (bajra) + cowpea (lobia). The crops are selected such that their nutrient requirements are different. This ensures maximum utilisation of the nutrients supplied, and also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. This way, both crops can give better returns.

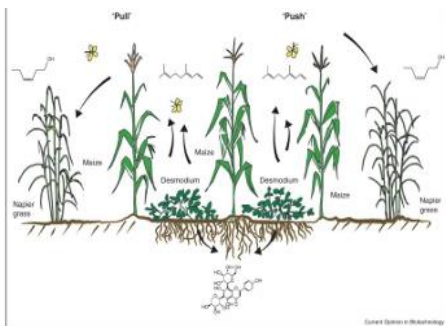


Fig: Inter-Cropping

- i) Name the different cropping patterns mentioned in the paragraph.
- ii) On what basis are the crops selected for inter cropping?
- iii) What are the advantages of Intercropping?
- iv) Give one example of mixed cropping?

35. Cereals like wheat and rice provide us with carbohydrates for fulfilling the body's energy requirement. Pulses like gram and peas provide us with proteins. Fruits and vegetables provide us with a range of vitamins and minerals in addition to some proteins, carbohydrates, and fats. Page 3 of 5 The crops can also be classified as Kharif and Rabi crops. Kharif crops are the crops which are grown in the rainy season (June to October). Some of the examples of Kharif crops are Cotton, Paddy, Maize. Rabi crops are grown in the winter season (November to April). Some of the Rabi crops are Wheat, gram, mustard.
- i) Define Rabi and Kharif crops.
 - ii) What are the crops which give you protein?
 - iii) Why are fruits and vegetables important in our diet.

ANSWER KEY AND HINTS

I.	<u>OBJECTIVE TYPE QUESTIONS - Multiple choice Questions: -</u>
1.	b) Inter-cropping
2.	d) Gram
3.	b) Applying Fertilizer
4	d) none of the above
5	d) All of the above
6.	Competing for various resources of crops(plants) causing low availability of nutrients
7.	c)High cost production
8.	b) Increase the water holding capacity
9.	d) Both a and b
10.	c) sunflower
	Assertion and reasoning:
11.	d) Assertion is false, but reason is true.

12.	a) Both assertion and reason are true, and reason is the correct explanation of assertion.											
13.	c) Assertion is true, but reason is false.											
14.	a) Both assertion and reason are true, and reason is the correct explanation of assertion.											
II. VERY SHORT ANSWER TYPE QUESTION- 2 MARKS												
15.	i) Crossing of genetically dissimilar plants is called hybridisation. ii) The different types of hybridisation are: a) Intergeneric - Crossing of plants belonging to different genus. b) Interspecific - Crossing of plants belonging to different species of same genus c) Intervarietal - Crossing of plants belonging to same species. The most commonly used type of hybridisation is Intervarietal.											
16.	<table><tr><td>Mixed cropping</td><td>Intercropping</td></tr><tr><td>Two or more crops in same field simultaneously randomly</td><td>Two or more crops in same field simultaneously in specific rows.</td></tr><tr><td>Individual attention to crops is difficult</td><td>It is easy to give individual attention to crops.</td></tr><tr><td>Harvesting and storage is difficult</td><td>Harvesting and storage is easy.</td></tr><tr><td>Doesnot increase productivity per unit area</td><td>Productivity per unit area is high for each crop.</td></tr></table>	Mixed cropping	Intercropping	Two or more crops in same field simultaneously randomly	Two or more crops in same field simultaneously in specific rows.	Individual attention to crops is difficult	It is easy to give individual attention to crops.	Harvesting and storage is difficult	Harvesting and storage is easy.	Doesnot increase productivity per unit area	Productivity per unit area is high for each crop.	
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17.	It increases the water-holding capacity of the soil. It makes the soil porous and facilitates the exchange of gases. The texture of the soil improves. The number of microbes increases in the soil.											
18	Higher yield. Improved quality. Good looks. Disease resistance. More height. Wider adaptability.											
19.	Duration of light needed for the proper growth, flowering and development of a plant is called photoperiod.											
20.	Wells: There are two types of wells, namely dug wells and tube wells. In a dug well, water is collected from water bearing strata. Tube wells can tap water from the deeper strata. From these wells, water is lifted by pumps for irrigation. • Canals: This is usually an elaborate and extensive irrigation system. In this system canals receive water from one or more reservoirs or from rivers. The main canal is divided into branch canals having further distributaries to irrigate fields.											
21.	Fresh initiatives for increasing the water available for agriculture include rainwater harvesting and watershed management. This involves building small check-dams which lead											

	to an increase in ground water levels. The check-dams stop the rainwater from flowing away and also reduce soil erosion.
22.	Weeds are responsible for extracting the nutrients which are essential for the main crops. Examples of weeds are Amaranthus, Chenopodium, Gajar Ghas, etc.
III. SHORT ANSWER TYPE QUESTIONS -3 MARKS	
23.	insect pests attack the plants in three ways: (i) they cut the root, stem and leaf, (ii) they suck the cell sap from various parts of the plant, and (iii) they bore into stem and fruits. They thus affect the health of the crop and reduce yields.
24.	To get best result, the farmer can try for mixed cropping. Mixed cropping is growing two or more crops simultaneously on the same piece of land. • Farmers can keep their fields under continuous production. • It enhances the productivity of the farmland.
25.	i. When compost is prepared by using earthworms to hasten the process it's called vermicompost. Prior to the sowing of the crop seeds, some plants like sun hemp or guar are grown and then mulched by ploughing them into the soil. These green plants thus turn into green manure which helps in enriching the soil nutrients. ii. Advantages of Manure Improves soil fertility. Reduces soil erosion and leaching. Improves the physical properties of the soil and aerates the soil. Improves the water and nutrient holding capacity of the soil.
26.	The growing of different crops on a piece of land in a pre-planned succession is called crop rotation. Criteria for the selection of crops for crop rotation: (i) Availability of moisture through rain or irrigation. (ii) Status of nutrients in the soil. (iii) Duration of crop - short or long.
27.	There are sixteen nutrients which are essential for plants. six are required in large quantities and are therefore called macronutrients. The other seven nutrients are used by plants in small quantities and are therefore called micro-nutrients
28.	X intercropping Y crop rotation Advantage of intercropping - This ensures maximum utilisation of the nutrients supplied, and also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. This way, both crops can give better returns. Advantage of crop rotation - If crop rotation is done properly then two or three crops can be grown in a year with good harvests.
IV. Long Answer type questions carrying 05 marks each.	
29.	Macro-nutrients Micro-nutrients

	1. The nutrients that are required by the plant in greater amounts are known as macro-nutrients. 2. 0.2 to 0.4 % of dry weight of plant. 3. Nitrogen, phosphorous, potassium, sulphur, calcium and magnesium.	1. The nutrients that are essential for the plant in lesser amounts are known as micro-nutrients. 2. 0.1 to 0.02% of dry weight of the plant. 3. Boron, manganese, chlorine, iron, zinc, copper, nickel and molybdenum.								
	ii. Compost is made from waste that has undergone biological breakdown by using microbes. Vermicompost is produced when the decomposition of organic waste occurs and to speed up the decomposition, earthworms are used. It provides nutrients that are soluble in water, acts as a soil conditioner, and is used to treat sewage. <table><tr><th>Manure</th><th>Fertilizer</th></tr><tr><td>Manure is an organic substance that is obtained from decomposition of vegetables and animal waste.</td><td>Fertilizers are inorganic substances manufactured in factories.</td></tr><tr><td>Manures are relatively less rich in plant nutrients, they only remove general deficiency of soil.</td><td>Fertilizers are very rich in plant nutrients like Nitrogen <i>N</i>, Phosphorus <i>P</i>, Potassium <i>K</i>.</td></tr><tr><td>They add humus to soil by providing organic substances and nutrients.</td><td>They ensure healthy growth and development of plants by providing nutrients however lack to add humus to soil.</td></tr></table>		Manure	Fertilizer	Manure is an organic substance that is obtained from decomposition of vegetables and animal waste.	Fertilizers are inorganic substances manufactured in factories.	Manures are relatively less rich in plant nutrients, they only remove general deficiency of soil.	Fertilizers are very rich in plant nutrients like Nitrogen <i>N</i> , Phosphorus <i>P</i> , Potassium <i>K</i> .	They add humus to soil by providing organic substances and nutrients.	They ensure healthy growth and development of plants by providing nutrients however lack to add humus to soil.
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	iii. biotic— insects, rodents, fungi, mites and bacteria, and abiotic— inappropriate moisture and temperatures.									
30.	i) Stored grains are to be protected from various abiotic factors and biotic factors. This includes: a) Proper cleaning and drying of the produce before storage. b) Cleaning and keeping granaries and storage area free of moisture. c) Using pesticides in storage areas before storage. Fumigating storage areas. ii) <table><tr><th>Cereals</th><th>Pulses</th></tr><tr><td>Cereals are crops rich in carbohydrate content.</td><td>Pulses are crops rich in protein content.</td></tr><tr><td>E.g.: Rice</td><td>E.g.: Green gram</td></tr></table>		Cereals	Pulses	Cereals are crops rich in carbohydrate content.	Pulses are crops rich in protein content.	E.g.: Rice	E.g.: Green gram		
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31	i) Organic farming is considered a sustainable agricultural method as it is the farming practice which involves minimum use of chemicals. Here the farmers use biopesticides, biofertilizers etc. to increase productivity. Hence this agricultural practice does not degrade or pollute any resource and at the same time give high yield and better-quality products.									

	ii) In mixed cropping and intercropping the soil is being exploited as two or more crops are grown at the same time. In crop rotation, crops are grown one after the other. So, the soil is not over used. Furthermore, one of the crops in the planned cycle is a legume which helps the soil to regain its fertility. It is thus considered as a sustainable technique as it does not degrade the soil as a resource.
32	A. Parthenium (Gajar ghas) is an invasive weed which grows with rabi crops and is also toxic for cattle as well as human. Protection of crop- Removal of Parthenium and burning it. Growing of Cassia near the field can prevent spreading of Parthenium. Weeds absorb nutrients and water from the soil and cause deficiency of nutrients and water for the original crop. B. Various factors responsible for loss of grains during storage- i) Abiotic factors – Improper moisture (present in food grains), humidity (of air) and temperature. ii) Biotic factors- insects, rodents, birds, worms, bacteria, fungi and mites. Before storage- Sun Drying, Maintenance of hygiene like the containers and gunny bags used for storing food should be clean, dry and properly fumigated. (Or any) After storage- Regular monitoring of the godowns (hygienic condition, moisture/humidity, light), using pesticides as per requirement.
V.	CASE STUDY BASED QUESTIONS
33.	i) Option (b) - October to March ii) Sprinkler System and Drip System. iii) Peas are the Rabi Crops which grow in winters i.e. from October to March and require low temp at the seedling stage. iv) The disadvantages of fertilisers are – (a) Fertilisers change the nature of the soil and reduce its fertility. (b) Inadequate use of fertilisers can lead to pollution
34.	1. Mixed cropping and Inter cropping 2. The crops are selected such that their nutrient requirements are different. 3. i. Ensures maximum utilisation of the nutrients supplied. ii. Prevents pests and diseases from spreading to all the plants belonging to one crop in a field. 4. soya bean + maize, or finger millet (bajra) + cowpea (lobia).
35.	i) Kharif crops are the crops which are grown in the rainy season (June to October). Rabi crops are grown in the winter season (November to April). ii. Gram, beans, pulses iii. for vitamins and minerals.

<i>Prepared by</i> <i>Ms Ranjana Sangtani</i>	<i>Checked by</i> <i>HoD Science</i>
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