

IX Biology, Chapter-4 Improvement of Food Resources

Exercise Solutions

1. NPK stands for "nitrogen, phosphorus, and potassium.
2. *Rhizobium* is a biofertilizer.
3. Canal
4. DDT and Boric acid
5. Kharif crops sown in June/July harvested in November/December

LEVEL-2

1. Silviculture- cultivation of wood & trees. E.g. pine, teakwood
2. Ammonium sulphate, calcium and ammonium nitrate, urea etc.
3. Excessive use adversely affects the pH of soil.
4. Weeds
5. Temperature, moisture content and insects.
6. Organic farming
7. The area where the agricultural farm land is in close proximity of a river.
8. Mixed cropping and intercropping
9. Interspecific hybridisation
10. It reduces the quality of the soil used for growing crops

Multiple Choice Question

- I. C) horticulture is a branch of science dealing with growing fruits, vegetables and ornamental plants. Botany is the scientific study of plants. Crops are plants that are grown in large quantities. Biotechnology is technology that utilizes biological systems, living organisms or parts of this to develop or create different products.
- II. D) Pea is a leguminous plant, it is not cereal.
- III. D) Calcium is a macronutrient. (Macronutrients-nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), sulfur (S), magnesium (Mg), carbon (C), oxygen (O), hydrogen (H))
- IV. A) Calcium bicarbonate is not a fertilizer.
- V. D) Manure- Manure is an organic matter derived from the decomposition of solid animal wastes, plant waste & use to improve the soil quality and increase the yield of healthy crops."
- VI. C) fertilizers may be inorganic (ammonium sulphate) or organic (urea).
- VII. D) Groundwater
- VIII. C) Crop rotation is growing different crops on the same piece of land periodically. Mixed cropping is a farming practice of sowing two or three crops together on the same land. Intercropping is growing two or more crops next to each other at the same time. In agriculture, multiple cropping or multicropping is the practice of sequentially growing two or more crops in the same piece of land during one growing season instead of just one crop.
- IX. A) Pea is a leguminous plant. - Leguminous, because they fix nitrogen to soil .
- X. A) Sustainable agriculture (Refer page-93)
- XI. A) Pulses are rich source of proteins.
- XII. B) Genetically modified crop (refer page-94, under topic-introduction of new gene into the crop)
- XIII. C) Biofertilizers are the substance that contains microbes, which helps in promoting the growth of plants, trees by increasing the supply of essential nutrients to the plants.

- XIV. B) Gram is a leguminous plant, and in leguminous plant *Rhizobium* bacteria are present in the nodules which help in nitrogen fixation.
- XV. A) Crop rotation is growing different crops on the same piece of land periodically, to increase fertility of the soil

LEVEL-2

- I. D) Moisture content is the abiotic factor. Insects, Rats & fungi are living/ biotic factors.
- II. D) Weeds-unwanted plants that grow along with the desired plants and compete for sunlight, water, minerals etc.
- III. A) Sulphur. (Macronutrients-nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), sulfur (S), magnesium (Mg), carbon (C), oxygen (O), hydrogen (H))
- IV. D) Rice is the main cereal crop of India.
- V. D) Plant can be made disease resistant by modifying their genetic makeup, also by creating a disease free hybrid (refer page 94-95 under topic improvement by genetic hybridization)
- VI. D) Except maize all others are leguminous plants.
- VII. B) As the water holding capacity of sandy soil is less, so manures are used to increase the water holding capacity of the soil.
- VIII. C) Crop rotation is growing different crops on the same piece of land periodically, to increase (maintain) fertility of the soil

Assessment test

- Moisture and temperature play important role in the growth of microorganisms. High humidity (High temperature and high amount of moisture in air) led to growth of microorganisms which led to rotting of food grains. So temperature and moisture are important factor which affects the life of food materials.
- Seed beetle, pulse beetle
- In question change pasts to pests
Sol- because chemicals may alter the pH of the soil.
- Kharif season crops are also called as rainy season crops so in rainy season the climatic conditions are very favorable for the pests and worms for their multiplication and growth also whereas in Rabi season the climatic conditions are harsh and are not favorable for them.
- Chickpea, Cowpea, Barseemetc,
- Varietal improvement is the development of new varieties of crops by combining desirable characteristics in one and multiplying it.
- Pea is a leguminous plant, so it would require minimum amount of NPK or urea for its proper growth.
- The ratio 1:2 is called the Land Equivalent Ratio (LER) in intercropping. It is the ratio of area which is under sole cropping to the ratio of area under intercropping which requires to give same amounts of yield in same conditions.

Or

- The land equivalent ratio is a concept in agriculture that describes the relative land area required under sole cropping (monoculture) to produce the same yield as under intercropping (polyculture).
- a) latitude – as across the latitude temperature and climate will remain same. Hence vegetation will remain same.

10. Coconut is a true fruit.
11. a) So as the branches are wide spread, hence plant will require more nutrients, to absorb more nutrients from the soil, the root system will be tap root. Tap root is the characteristic of dicots.
12. a) Crop rotation is growing different crops on the same piece of land periodically, to increase variation in the mineral content of the soil.
13. Modern method of irrigation such as drip irrigation & sprinkler irrigation check the water loss.
14. Teak-*Tictonagrandis*
Shisham- *Dalbergiasisoo*
Rohida-*Tecomella undulate*
Khejri- *Prosopiscinearia*
- 15.

RABI	KHARIF
Mustard	Paddy
Gram	Moong
Linseed	Soybean
Arhar	Millet
Wheat	Urad
Peas	Maize
	Cotton
	Sugarcane