Solution LAQ - 1:
Manures:
(i) They are organic in nature.
(ii) They are generally insoluble in water.
(iii) They are not nutrient specific.
(iv) They are biodegradable.
(v) They are voluminous and bulky, so difficult to store and carry.
(vi) They provide humus to the soil.
Examples - compost and green manure.
Fertilizers:
(i) They are inorganic in nature.
(ii) They are generally soluble in water.
(iii) They are nutrient specific.
(iv) They are non-biodegradable.
(v) They can be easily stored and are easy to carry.
(vi) They do not provide humus to the soil.
Examples - urea and ammonium sulphate.
Advantages of Fertilizers:
(i) They are easy to store, transport and apply to crops.
(ii) Being soluble in water, they are readily absorbed by the crop plants.
(iii) They are nutrient specific and can be selected according to the specific nature of the soil.
Disadvantages of Fertilizers:
(i) They are costly.
(ii) These are the chemicals, which when washed away with rain water, pollute the water bodies.

Solution LAQ - 2:
Mechanism of compost formation:
(i) A trench of dimension of 4 to 5 m long, 1.5 to 1.8 m broad and 1.0 to 1.8 m deep is dug.
(ii) A layer of well mixed refuse of about 30 cm thickness is spread in the trench.
(iii) The refuse layer is well moistened by slurry of cow dung, earth and water.
(iv) Now, a second layer of well mixed refuse is spread in trench till the heap rises to a height of 45 to 60 cm above the ground level.
(v) The top of the heap is covered with a thin layer of moist earth.
(vi) After three months, the material is taken out of the trench and placed in the form of conical heap. The conical heap, if required, be suitably moistened and should be covered with earth.
(vii) Conical heap is left undisturbed for about one to two months. After this period, compost can be used in crop fields.
Solution LAQ - 3:
Manures are rich in organic matter but are poor supplier of nutrients. So, the cultivated field which is not supplied with fertilizers may suffer from the deficiency of nutrients and not give very good yield.
The cultivated field which is supplied with fertilizers only may face drainage problem and water logging due to lack of organic matter in the soil. This may harm the crop and the yield. Use of fertilizers over long periods of time can destroy the soil texture by killing the microorganisms that recycle nutrients in the soil.

Solution LAQ - 4:
Irrigation is the process of supplying water to crop plants by means of canals, wells, reservoirs, tube-wells, etc.
Irrigation is necessary in the areas where there is scarcity and irregular distribution of rain that can cause drought. It provides sufficient moisture for the germination of seeds, as seeds do not germinate in dry soil. It is also necessary for the growth and development of crop plants. The irrigation water tends to dissolve the nutrients present in the soil and forms a Solution which is easily absorbed by the roots of the plants.
Excessive irrigation causes water logging and increases surface salinity. In water logged soil, plants do not get proper aeration.

Solution LAQ - 5:
The various types of irrigation systems are -
(i) Canal system: In this system, the human-made canals receive water from one or two reservoirs or from rivers. The main canal is distributed into branch canals which have further distributaries or field channels.
(ii) Tanks: These are small storage reservoirs which catch and store the runoff of smaller catchment areas.
(iii) Wells: These are of two types - dug wells and tube wells. In dug wells, water is collected from water bearing strata. The water from the shallow strata slowly accumulates in the pit and water is lifted by mechanical means. A tube well can tap water from the deeper strata.
(iv) River lift system: It is more useful in the areas where canal flow is insufficient or irregular due to inadequate water release. In this system, water is directly drawn from the rivers for supplement irrigation.
(v) River valley system: Certain parts of the country such as Karnataka and Kerala which lie along the Western Ghats use water that is discharged into the steep and narrow riverine valleys, during the rainy season. The bottom flat lands of the valleys are used for growing crops.
(vi) Drip and sprinkler system: It employs the overhead pipes for spraying water.
Efficiency of applied water can be increased by rain water harvesting and water shed management.

Solution LAQ - 6:
Mixed Cropping:
(i) It aims to minimize the risk of crop failure.
(ii) Seeds of two crops are mixed before sowing.
(iii) It involves no set pattern of rows of crops.
(iv) Spraying for pest control to individual crop is difficult.
Intercropping:
(i) It aims to increase the productivity per unit area.
(ii) Seeds of two crops are not mixed.
(iii) It involves set pattern of rows of crops.
(iv) Pesticides can be easily applied to individual crop.
Advantages of mixed cropping:
(i) The risk of total crop failure due to uncertain monsoon is reduced.
(ii) Chances of pest infestation are greatly reduced.
(iii) Fertility of the soil is improved by growing two crops simultaneously.
Advantages of intercropping:
(i) It makes better use of the natural resources of sunlight, land and water.
(ii) Soil erosion is effectively arrested.
(iii) The produce of each crop can be marketed and consumed separately.

Solution LAQ - 7 :
Crop variety improvement is the manipulation of crop plants for

increasing their yield and improving quality. Various approaches which are used for genetic improvement of crop plants are referred as plant breeding methods. These involve three processes:
(i) Introduction - This refers to the transportation of crop plants from the place of cultivation to the place where grown earlier.
(ii) Selection - This process involves the selection of most desirable offspring of a variety of plant for controlled propagation.
(iii) Hybridisation - It involves the crossing between genetically dissimilar plants to produce a new kind. Crossing may be between two different varieties (intervarietal cross - breeding) or between the two different species of the same genus (inter specific cross - breeding) and between different genera (intergeneric cross - breeding).

Crop	Improved Variety
Rice	IR8
Maize	Ganga 5
Soyabean	PK 262
Sunflower	BSH 1
Mustard	Pusa Bold

Solution LAQ -08:
Methods to control plant diseases:
(i) Seed treatment with Thiram 2.5 g/kg to prevent blast of rice.
(ii) Spraying Bavistin at 10 days interval to prevent wheat rust.
(iii) Spraying Dithane M45 at 2 g/l water at 10 days interval to prevent wheat rust.
(iv) Avoid water logging for fungus diseases.
(v) Growing sorghum and pigeon pea mixed cropping to avoid stem rot.
(vi) Spraying the crop with 0.2% Ziram and Maneb.

Solution LAQ -09:
Preventive measures against insect pests:
(i) Root cutting type of insects is controlled by mixing insecticides in the soil.
Example - chloropyriphos.
(ii) Stem and leaf cutting type of insects can be controlled by dusting or spraying the contact insecticides.
Example - malathion, lindane and thiodan.
(iii) All sap sucking insects can be controlled by spraying systematic insecticides.
Example - dimethoate and metasystox.

Solution LAQ -10:
The food eaten by animals is called feed.
The animal feed is of two types:
(i) Roughage - It largely contains fibres such as green fodder, silage, hay and legumes.
(ii) Concentrates - It includes the mixture of substances which are rich in one or more nutrients. Concentrates are low in fibres and contains relatively high proteins and other nutrients. Example - oil seeds, cotton seeds, oats, barley, jowar, gram etc.
Feed according to age and functions are:
(i) Maintenance requirements - The food is required by the animal to support it to perform the basic functions of life.
(ii) Milk producing requirements - It includes the type of food during lactation period. Maintenance part of the ration depends upon the body weight and age while milk production part is dependent upon the level and composition of milk.

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