



CROP PRODUCTION

Chapter 1

Descriptive classification of crops

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Descriptive classification of crops

A-Crop Classifications According to Mode of Reproduction:

1-Sexual- plants that develop from a seed or spore after undergoing union of male and female gametes. Examples: palms and ferns.

2. Asexual- plants which reproduce by any vegetative means without the union of the sexual gametes or by apomixis. Examples: red mombin (sineguelas), breadfruit, mangosteen.

cross-pollination occur. Examples: cotton and sorghum.

Self-pollination Examples: rice, corn, cowpea,



B- Crop Classifications According to

Mode of Pollination

1- Naturally self-pollinated crops- the predominant mode of pollination in these plants is self-pollination in which both pollen and embryo sac are produced in the same floral structure or in different flowers but within the same plant. Examples: rice, most pulses, okra, tobacco, tomato.

2- Naturally cross-pollinated crops- pollen transfer in these plants is from the anther of one flower to the stigma of another flower in a separate plant, although self-pollination may



reach 5 percent or more. Examples: corn and many grasses.

3- Both self- and cross-pollinated crops- these plants are largely self-pollinated but varying amounts of cross pollinated.

C-Crop Classifications According to Life Span

1-Annual- a plant which live within a short period of time, for a few weeks or months, perpetuated by seed, and which die soon after producing seeds; a plant which germinate, grow, flower, produce seed, and die all in one season. Examples: wheat-rice-corn.



2-Biennial- a plant which requires two growing seasons to

complete its life cycle, the first for vegetative growth and accumulation of food reserves, and the second for the production of reproductive parts. It grows from a seed, produces flower and seed and then dies in two growing seasons. Sugar

3-Perennial- a plant that lives indefinitely, including all trees and shrubs and many herbaceous plants with underground stems (e.g. corm, rhizome, tuber)



D. 4-Shrubs- small trees or tree-like plants, generally less than 5 meters in height but by other authorities it is restricted to small, erect, woody plants which produce several trunks from the base. Examples: Barbados cherry.

5-Trees- plants having erect and continuous growth with a large development of woody tissue, with a single distinct stem or trunk, reaching a height of 5 meters or more. Examples: durian, mango,



6-Evergreen- plants that maintain their leaves throughout the year. Abscised leaves are continually replaced by new flushes. Examples: pines, banana, papaya, palms and most tropical plants.



7- Deciduous- plants which naturally shed off or lose leaves annually for extended periods. Natural leaf shedding is pronounced in deciduous trees of temperate regions.

F. Crop Classifications According to Ecological Adaptation or Habitat

1-Aquatic, hydrophyte or hydrophytic plant

- a plant adapted to growing in water or waterlogged soil. It may grow entirely submerged, partly



submerged or floating, or anchored to the ground in bogs, swamps, or beside the edges of ponds, lakes or streams. Examples: azolla

2- Epiphyte or epiphytic plant- a plant that grows aboveground on another plant but is not parasitic, usually deriving only physical support from the host and obtaining nourishment from the air and other sources. The most common epiphytes belong to the pineapple (bromeliad)

3. Halophyte or halophytic plant- a plant that is able to grow in habitats excessively rich in salts or under saline conditions. Examples: nipa



4. Lithophyte or lithophytic plant- a plant adapted to growing on rocks or in rocky terrain with little humus, absorbing nutrients from the atmosphere, rain, and decaying matter which accumulate on the rocks. Examples Vanda.

5. Mesophyte or mesophytic plant-a terrestrial plant which is adapted to moderate conditions for growth, i.e. not too dry and not too wet (e.g. corn and most commercially-grown crops).

6. Parasite or parasitic plant- a plant which grows on another plant from which it takes part or all nourishment (e.g. Cassytha, Loranthaceae)



7. Saprophyte or saprophytic crop- grows on decaying organic matter and has no green tissue. This classification applies to the mushrooms, which are fungi.

8. Sciophyte or sciophytic plant- a plant that is adapted to low light intensity or shade, e.g. most ferns and mosses, black pepper, cacao, coffee.

9. Terrestrial or land plant- a plant which grows on land, rooting in the soil. It has aerial parts, collectively called shoot, and an underground part called root which absorbs most of its water and nutrient needs from the soil. such as halophytes, mesophytes, sciophytes and xerophytes.



10. Xerophyte, xerophytic or xeric plant- a plant which is adapted to conditions with little or no water. Examples: adelfa and bromyliads.

III. AGRICULTURAL CLASSIFICATION OF PLANTS

A. Agronomic vs. Horticultural Crops

On the basis of tradition, extent of cultivation and intensity of culture, agricultural crops are classified into two main divisions: agronomic and horticultural.

1-Agronomic crops are also called “field crops”. They are mostly annual herbaceous plants that are grown under extensive or large-scale culture.



Such as cereals, seed legumes, root and tuber crops, sugar crops, pasture and forage crops.

2. Horticultural crops have been referred to as “garden crops”. Included in this classification are those grown under any of the fields of horticulture such as olericulture or vegetable crops production.



B. Agricultural Classifications Based on Primary Uses

1. Food Crops – plants grown primarily for the harvesting of any part which is used by man as food or processed into food product. This classification is a collective term for crops which are variously sub classified into smaller groups such as cereals, root and tuber crops, legume seed crops, sugar crops, beverage crops, fruit crops and vegetables.



2. Non-food Crops- plants grown for the production of non-food products such as fiber, fodder, alcohol, tobacco, industrial oil, rubber, gums and resins, drugs, etc. or for ornamentation. Included in this classification are fiber crops, pasture and forage crops, rubber crops, latex and gum crops, dye and tannin crops, biofuel crops, essential-oil crops, biocidal crops and most industrial crops.



3. Staple Crops- plants grown for the harvesting of parts which are used as staple food. A staple food is one that is regularly consumed in such quantities as to form the basis of a traditional diet and from which people obtain a major proportion of their energy and nutrient requirements. In the Philippines, the top staple crop is rice followed by corn. Cassava is also consumed as staple by some ethnic groups. Examples of other staple crops: wheat, banana and plantains, breadfruit, millet, white potato, sweet potato, yam.



4. Cereal or Grain Crops - annual, herbaceous plants belonging to the grass family Gramineae (Poaceae) and some graminoids which are grown for their seeds or grains. Such as cereal crops. predominantly consists of starch. Examples: corn, millet, rice, sorghum, wheat.

5. Legume Seed Crops or Pulses- leguminous plants which produce edible, protein-rich seeds. Examples: cowpea, mungbean, peanut, peas, pigeon pea (*Cajanus cajan*).



6. Root and Tuber Crops or Tuberos Crops- plants with modified, swollen root or underground stem. These organs are rich sources of carbohydrate and are commonly used as staple, livestock feed, or as raw materials for industrial purposes, such as starch and alcohol production, or processed into various food products. Crops with modified roots are distinct from those having modified stems. Examples of modified roots are the tuberous and fleshy roots while the tuber and corm are examples of modified stems. A tuberous root is a thickened secondary root as in arrowroot, cassava, sweet potato and yam bean.



7-Oil Seed Crops- plants grown for their seeds which are rich source of edible and industrial oil. The important oil seed crops in the world include soybeans, peanut, sunflower, oil palm, sesame and cotton.

8- Sugar and Sweetener Crops - plants grown primarily for the production of sugar or other sweet-tasting products. Examples: sugarcane, sugar beet (a temperate crop), sweet sorghum, Stevia, corn, sweet potato, cassava, rice, many palms.



9-Beverage Crops- plants which are sources of various drinks including fruit juices, tea, coffee, cocoa, toddy, beer and wine. They supply water which is essential to human nutrition. Some of these drinks also provide vitamins and minerals. Others have stimulating or relaxing effects. Examples: cacao, coconut, coffee, soursop, tea.

10-Rubber Crops- plants grown for the production of latex which is processed into the industrial product called rubber. Examples: para rubber tree (*Hevea brasiliensis*), Castilla rubber (*Castilla elastica*).



11-Latex and Gum Crops- plants grown for the collection of latex which is processed into chewing gum, inelastic rubber and other industrial products Examples: chicle tree or chico (Manilkara zapota), gutta-percha (Palaquium spp.).

12-Dye and Tannin Crops- plants grown as sources of tannin and coloring substances. Examples: anatto or achuete,



14- Pasture and Forage Crops – plants grown or managed as vegetable feed for grazing animals. They are classified as either native or improved species, grasses or legumes, and may be fed fresh or dry or in processed form. Examples: carabao grass, paragrass, napier, ipil-ipil, renzoni.

Soilage Crops- grasses grown, cut and directly fed to animals.

Silage Crops- grasses grown, cut, fermented and preserved before being fed to animals



15- Biofuel Crops- plants grown for the production of fuel that is used as additive or replacement for petroleum products. The main biofuels are bioethanol, an alcohol derived from fermented sugar or starch, and biodiesel from vegetable oils. Examples: sugarcane, cassava, corn, coconut, castor bean, Jatropha.

16- Olericultural or Vegetable Crops – plants (except mushroom) grown for their succulent and edible parts such as the roots, stems, leaves, young tops. Melons are generally included in this crop classification.



C. Special-Purpose Classifications of Crops:

There are other groupings of agricultural crops or crop-epithets which are commonly used but cannot be appropriately placed under either agronomic or horticultural classification.

1-Main Crop- any crop which is intended by the grower to become his main source of revenue.

2-Nursery crop- a plant which is temporarily grown in the nursery and later planted in the field or garden or used for ornamental display when it reaches the proper age and size (e.g. most fruit crops and ornamental crops).



3. Intercrop- any crop which is planted simultaneously with or before the flowering season of the main crop in intercropping.

4- Filler Crop- any crop which is planted to fill a gap. In quincunx system of planting arrangement, the space at the center of four hills of a main crop is commonly intended for a filler crop which is of a different variety or species.

5. Relay Crop- the crop which is planted after the flowering period or harvest of the main crop in relay cropping.



6- Cash crop- any short maturing crop which is grown to generate income while the main crop is still in its vegetative stage of growth; any crop grown to generate cash rather than for subsistence.

7. Catch crop- any short maturing plant that is grown simultaneously with, or between successive plantings of a main crop to utilize residual fertilizer and soil moisture.

8. Nurse crop- any crop which is grown to provide shade and increase humidity for the benefit of the main crop during its seedling and early stages of growth. Examples: a. Black pepper is planted with live madre de cacao



9. Cover crop- a crop grown mainly to control soil erosion, regulate soil temperature, control weeds and reduce evaporative losses. Leguminous vines such as improved pasture and forage crops are excellent cover crops. As legumes they can enrich the soil fertility by fixing atmospheric nitrogen.

10. Green manure crop- a leguminous crop grown to be plowed under the soil to increase organic matter and serve as organic fertilizer. Mung bean (mungo) is ideal for this purpose.

11. Agroforest Crop – any crop which is suited under a cropping system consisting of mixed agricultural and forest crops.



12. Trap crop or Decoy crop- plants grown to attract certain insect pests or parasites because they are favorite hosts. They act as decoys to lure pests away from the main crop. Also, they make pest control easier because the insects are concentrated on a few plants. Examples of trap crops and the insect pests that they attract: a. Basil (*Ocimum basilicum*)- green, loopy tomato caterpillar.



13. Insect pest repellent crop- plants grown along the borders and at strategic places in the farm to repel insect pests because of their strong aroma and anti-herbivory properties. Examples: a. Anise or Aniseed (*Pimpinella anisum*)

14. Natural enemies attractant crop- flowering plants grown at strategic places in the farm to attract natural enemies of insect pests. Examples: a. Dill (*Anethum graveolens*)-



Questions

1-..... plants that develop from a seed or spore after undergoing union of male and female gametes.

a- Sexual

b- A Sexual

c- self-pollinated

d- cross-pollinated

2- plants which reproduce by any vegetative means without the union of the sexual gametes or by apomixes.

a- Sexual

b- A Sexual

c- self-pollinated

d- cross-pollinated



3-the predominant mode of pollination in these plants is self-pollination in which both pollen and embryo sac are produced in the same floral structure or in different flowers but within the same plant.

a-Naturally self-pollinated crops

b- Naturally cross-pollinated crops

c-Both self- and cross-pollinated crops

d- sexual.



4- pollen transfer in these plants is from the anther of one flower to the stigma of another flower in a separate plant.

a- Naturally cross-pollinated crops-

b- Naturally cross-pollinated crops

c- Both self- and cross-pollinated crops

d- completely self pollinated

5- these plants are largely self-pollinated but varying amounts of cross-pollination occur.

a- Naturally cross-pollinated crops

b- Naturally cross-pollinated crops

c- Both self- and cross-pollinated crops

d-completely self pollinated



6-..... a plant which live within a short period of time, for a few weeks or months, perpetuated by Seed.

a-Annual

b-Biennial

c-Perennial

d- Asexual

7-..... a plant which germinate, grow, flower, produce seed, and die all in one season.

a- Biennial

b- Perennial

c- Asexual

d- Annual

8- a plant which requires two growing seasons to complete its life cycle.

a- - Perennial

b- Asexual

c- Annual

d- Biennial



9-plants continue growing and produce seeds year after year.

a-Perennial

b- Asexual

c- Annual

d- Biennial

10- tree-like plants, generally less than 5 meters in height it is restricted to small, erect, woody plants.

a - Trees

b- Shrubs

c- Vines

d- Herbs



11- plants having erect and continuous growth with a large development of woody tissue, with a single distinct stem or trunk, reaching a height of 5 meters or more.

a - Trees b- Shrubs c- Vines d- Herbs

12- plants that maintain their leaves throughout the year.

a- Deciduous **b- Evergreen** c- Shrubs d- Vines



13- A plant adapted to growing in water or waterlogged soil. It may grow entirely submerged, partly submerged or floating.

a- epiphytic plant

b- Hydrophytic plant

c- halophytic plant

d- lithophyte plant

14- a plant that grows aboveground on another plant but is not parasitic.

a- mesophytic plant

b- saprophytic crop

c-

land plant

d- Epiphytic plant

15- a plant that is able to grow in habitats excessively rich in salts or under saline conditions.

a- parasitic plant

b- sciophytic plant

c- xerophytic plant

d- Halophytic plant



16- a plant adapted to growing on rocks or in rocky terrain with little humus, absorbing nutrients from the atmosphere.

a- lithophyte plant

b- sciophytic plant

c- land plant

d- hydrophytic plant

17-a terrestrial plant which is adapted to moderate conditions for growth, i.e. not too dry and not too wet.

a- Parasitic plant

b- Sciophytic plant

c- Mesophitic plant

d- Xerophytic plant



18-a plant which grows on another plant from which it takes part or all nourishment.

a- land plant

b- sciophytic plant

c- Parasitic plant

d- xerophytic plant

19-grows on decaying organic matter and has no green tissue.

a- lithophyte plant

b- sciophytic plant

c- land plant

d- saprophytic crop

20- a plant that is adapted to low light intensity or shade:

a- Sciophytic plant

b- lithophyte plant

c- Saprophytic crop

c- land plant



21- a plant which grows on land, rooting in the soil. It has aerial parts, collectively called shoot.

a- mesophytic plant

c-land plant

b- saprophytic crop

d- lithophyte plant

22- a plant which is adapted to conditions with little or no water.

a- parasitic plant

c- mesophytic plant

b- sciophytic plant

d- xerophytic plant



23- plants grown for the harvesting of parts which are used as staple food.

a- Grain Crops

b- Legume Seed Crops

c- Tuberous Crops

d- Staple Crops

24-.....annual, herbaceous plants belonging to the grass family Gramineae (Poaceae) and some graminoids which are grown for their seeds or grains.

a-Oil Seed Crops

b-Sugar and Sweetener Crops

c-Beverage Crops

d-Grain Crops



25- leguminous plants which produce edible, protein-rich seeds. The seeds are utilized in the mature, dry form as food or feed or processed into various products:

a-Latex and Gum Crops

b-Dye and Tannin Crops

c- Pasture and Forage Crops

d- Legume Seed Crops or Pulses

26- plants with modified, swollen root or underground stem. These organs are rich sources of carbohydrate.

a-Soilage Crops

b- Silage Crops

c- Biofuel Crops

d- Tuberous Crops



27- plants grown for their seeds which are rich source of edible and industrial oil.

a- Oil Seed Crops

b- Vegetable Crops

c- Latex and Gum Crops

c- Biofuel Crops.

28- plants grown primarily for the production of sugar or other sweet-tasting products.

a- Grain Crops

b- Legume Seed Crops

c- Tuberous Crops

d- Sugar and Sweetener Crops

29- plants which are sources of various drinks including fruit juices, tea, coffee and cocoa.

a- Latex and Gum Crops

b- Vegetable Crops

c- Beverage Crops

d- Biofuel Crops.



30-plants grown for the production of latex which is processed into the industrial product called rubber.

b- Vegetable Crops

c- Biofuel Crops

c-Latex and Gum Crops

d- Rubber Crops

31-..... plants grown for the collection of latex which is processed into chewing gum, inelastic rubber and other industrial products.

a-Latex and Gum Crops

c- Vegetable Crops

b- Silage Crops

d- Tuberos Crops



32-plants grown as sources of tannin and coloring substances:

a- Soilage Crops

b- Silage Crops

c- Biofuel Crops

d- Dye and Tannin Crops.

33- plants grown or managed as vegetable feed for grazing animals:

a- Grain Crops

b- Legume Seed Crops

c- Tuberous Crops

d- Pasture and Forage Crops

34- grasses grown, cut and directly fed to animals.

a- Soilage Crops

b- Silage Crops

c- Vegetable Crops

d- Tuberous Crops



35- grasses grown, cut, fermented and preserved before being fed to animals.

a- Soilage Crops

b- Silage Crops

c- Latex and Gum Crops

d- Biofuel Crops

36- plants grown for the production of fuel that is used as additive or replacement for petroleum products.

a- Grain Crops

b- Legume Seed Crops

c- Tuberous Crops

d- Biofuel Crops

37- crops (except mushroom) grown for their succulent and edible parts such as the roots, stems, leaves, young tops.

a- Soilage

b- Silage

c- Vegetable

d- Tuberous



38- any crop which is intended by the grower to become his main source of revenue.

a-Nursery b-Inter C-Filler **d- Main**

39- a plant which is temporarily grown in the nursery and later planted in the field or garden or used for ornamental display when it reaches the proper age and size.

A- Nursery b-Relay c -Cash d-Catch



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A- Nursery b-Relay c -Cash d-Catch

40- a crop grown mainly to control soil erosion, regulate soil temperature, control weeds and reduce evaporative losses. Leguminous vines such as improved pasture and forage crops are excellent cover crops.

a-Nurse b-Cover **c- Cover** d-Green manure

41- a leguminous crop grown to be plowed under the soil to increase organic matter and serve as organic fertilizer.

a-Trap crop

b-Insect pest repellent crop

c-Natural enemies attractant crop

d- Green manure crop



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Thank
You!