

Horticulture definition

Horticulture: Is a very important branch of plant science .it is the science, technology and art of culturing, utilizing and improving three major sources of food fruit/nut, vegetable and plays a significant role in provides employment and beauties the environment.

The two main goals of horticulture are:

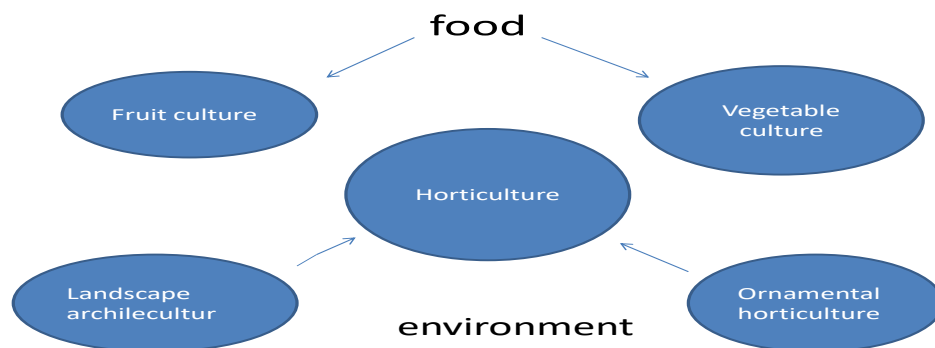
1. Provides food
2. Impact to environment.

The term of horticulture is derived from the Latin **Hortus** means **garden** and **culture** means **cultivation**. (That means garden cultivation).

Differences between field crops and horticulture:

Field crops	Horticulture
1. Require a wide open area.	1. Cultivated in either small or wide (open and close).
2. Need more agriculture practices.	2. Need less agriculture practices.
3. The mechanical technique is use widely.	3. The mechanical technique is not used widely.
4. The price is constant nearly.	4. The price is differing from year to year.
5. The storage period is long.	5. The storage period is not long.
6.The return on investment / unit area of production are less.	6.The return on investment / unit area of production are higher.
7.Agronomic plants are utilized in the non living state (grain, fiber, sugar)	7.Horticulture plants are largely utilized fresh or as living material (ornamental in the landscape)
8. E.g. wheat, soy bean, rice, cotton.	8. E.g. banana, rose, zinnia..

Professional division of horticulture



Divisions of horticulture

These divisions form, the basis of certain academic programs in horticulture:

1. Fruit culture:

Science Pomology: is the practice of fruit culture. Such as apple, orange grapes and strawberries.

2. Vegetable culture (Olericulture):

It is branch of horticulture involved with the production of vegetable, it is short-duration plants that need to be restarted each growing season and may be harvested and use fresh, or processed in variety of ways



3. Ornamental horticulture:

The branch of horticulture that deals with the cultivation and use of plants for their aesthetic value.

- a. May be cultivated in open space (landscape) or indoor containers.
- b. May be grown and arranged and displayed in a variety of ways.



Floriculture: Is the science and practice of cultivating and arranging ornamental flowering plants.



Arranging flowers

4. Landscape design or architecture:

Landscaping is the use of ornamental plants in conjunction with other elements to beauty a given area, and it can be an integral part at home construction.

5. Nursery culture

a. Nurseries provide seedlings for growers (vegetables, fruits or ornamental plants).

b. Also grow and cell mature plants in containers for use indoors and outdoors

C. It facilitate the work of landscape architects and contractors by providing materials that are ready to be installed on site. enabling a bare ground to be instantly transformed into a lawn with trees and other ornamental plants.

6. Aromatic and medical plants and miscellaneous plants:

Which include (rubber plants, resins plant, Christmas).

Classification of horticulture plants

1. BOTANICAL CLASSIFICATION

(For Example classification of Onion)

Kingdom : plant
Division : Spermatophytes
Class : Monocotyledon
Family : Alliceae
Genus : Allium
Species : cepa
Allium cepa



Seasonal growth cycle

There are four life cycle in horticulture:

- 1- Annuals plants eg: zinnia, tomato.
- 2- Biennial plants eg: Carrot.
- 3- Perennial plants eg: all the trees and shrubs ,may be :

a- Herbaceous:

A perennial that loses its stems and foliage at the end of the growing season they persist year-round through the advance weather of the non-growing seasons (winter or drought) and then flower and fruit after a variable number of years of vegetative growth beyond the second year .

Herbaceous perennial survives the unfavorable season as dormant underground structures eg. Roots, rhizomes, bulbs and tubers eg. Bermuda grass.

Spring short growing season: it return next season from underground storage organs (e.g. bleeding heart القلب الدامى , daffodils نرجس برى).

b- Woody perennials: Develop over-wintering tissue along woody stems and in buds, (e.g. most trees and shrubs). Perennial that maintains live woody stem growth at the end of the growing season. (e.g. grape).

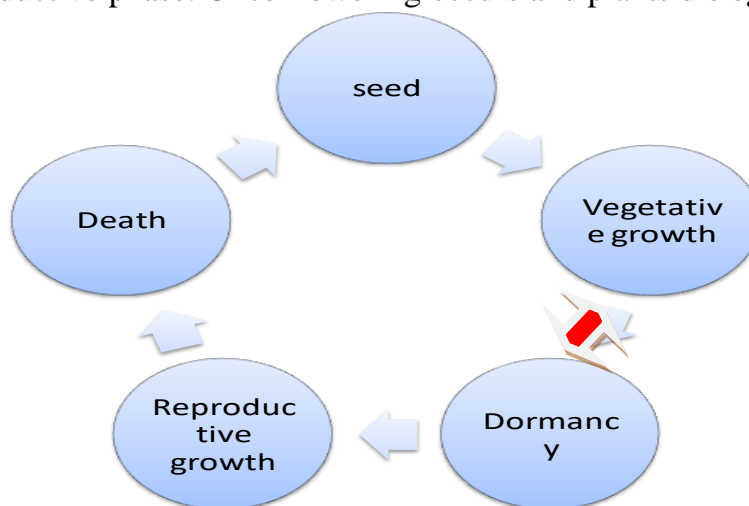
Note:

The plant usually requires some special environmental conditions such as exposure to cold temperature (vernization) to be induced to enter the reproductive phase eg .Onion

c- Combination plants: are classified as annual, biennial or perennial on the basis of the plant part that lives the longest. For example, raspberries توت العليق have biennial canes and perennial roots

4- Monocarp:

Are characterized by repeated, long vegetative cycle that may go on for many years without entering the reproductive phase. Once flowering occurs and plants die eg. Agave.



Kinds of horticulture plants base on stem type

Herbs:

Are plants with soft, non woody stems? They have primary vegetative parts. There are several types of steam growth forms, the common ones include erect, decumbent مفترش, creeping, زاحف, climbing متسلق .eg. Potted plants, many annual bedding plants, and many vegetables and it is associated with spices (plants that are aromatic or fragrant and used to flavor foods or beverages).

Shrubs:

A woody perennial plant.

2. A shrub has no main stem.

3. Branches arise from the ground having side branches emerging.

4. They are smaller than tree (1- 5 m).

Eg. Dogwood, kalmia, azalea.

Trees:

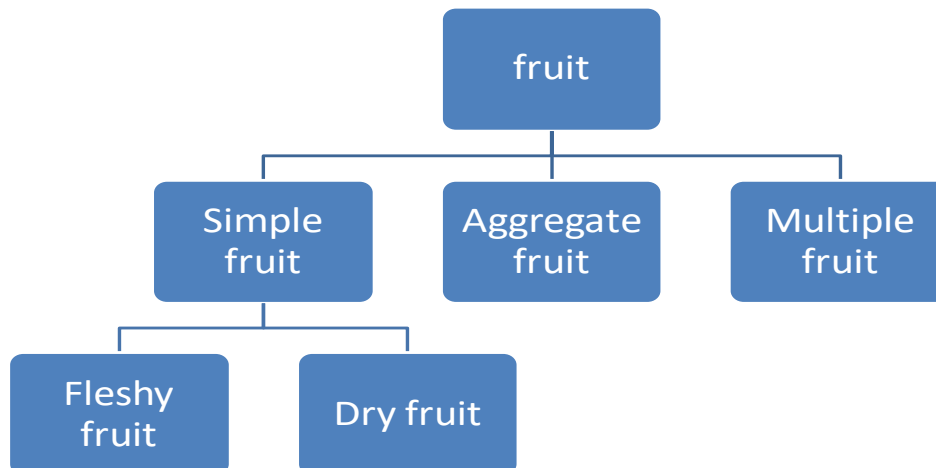
1. A large woody perennial.

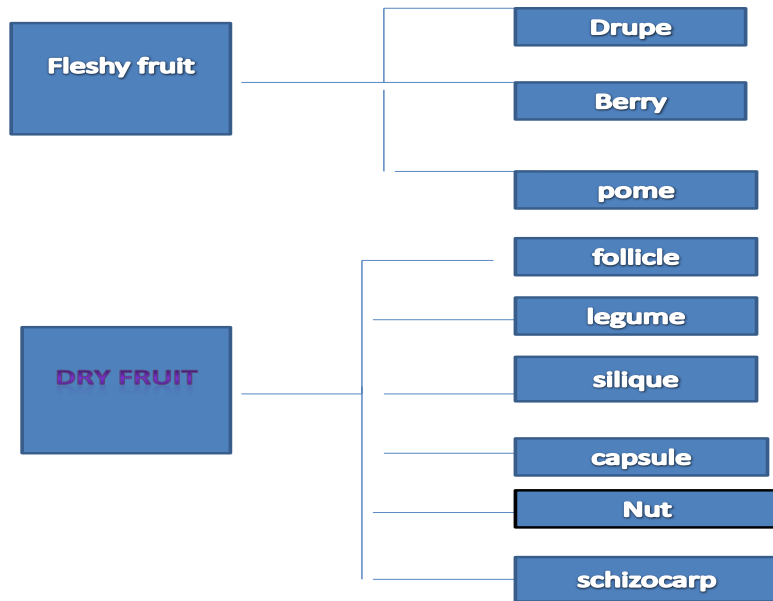
2. Are large plants characterized by one characterized (one main trunk).

3. Un branched for some distance, they brunch on the upper part of the plant .

4. They have secondary tissue.

Classification of fruit





Fruit classified according to type of growth:

1. Ever green

It maintains green leaves year-round .some leaves may be lost, but not all at one time eg. Citrus and pine. It contains date palm, banana, orange

2. Deciduous plants

They shed their leaves at the same time during one of the season of the year (dry or cold) new leaves are developed from dormant buds upon the return of favorable growing conditions .contains

1. Pome fruit (apple) 2. stone fruit (cherries) 3. Small fruit (grapes, blue berry, black berry) 4. Nut fruit
Eg. Oak,

3. Semi- deciduous

is a botanical term which refers to plants that lose their foliage for a very short period, when old leaves fall off and new foliage growth is starting.

Semi-deciduous may also describe some trees, bushes or plants that normally lose part of their foliage in autumn/winter or during the dry season, but might lose all their leaves in a manner similar to deciduous trees in an especially cold autumn/winter or severe dry season (drought It has intermediate conditions occur in which some plants do not lose all of their leaves.



Classification of vegetable:

Vegetables vary in numerous ways (economic parts):

- a. Some are grown for their fruits eg. Tomato
- b. Grown for their leaves eg. Spinach.
- c. Grown for their roots e.g. Carrot (root crops)
 - d. Grown for their Pods eg. Bean.
 - e. Tuber crops e.g. potato
 - f. Onion crops (onion).
 - g. Vegetables for their flowers e.g. cauliflower. قرنابيط



Classification of vegetables

1. Life cycle

A. Annual crops

- Winter vegetable crops: it is cool growing plants eg . Spinach, cultivated in autumn
- Summer vegetable crops: It is warm growing plants, , e.g. tomato ,pepper, cucumber cultivated in spring .

Vegetable crops with two season: The first season begin at March – July, the second cultivated at the end of August –November e.g. potato, phasoleous

B. Biennial crops: e.g. Carrot. Brokenly

C. Perennial crops: e.g. Horseradish فجل حار, Asparagus هليون.

2. Adaptation:

Just like fruits, vegetables may be classified into two groups:

a. Cool season:

eg. Cabbage, carrot.

b. Warm season:

e.g. Eggplant, shallot and gumbo.

Notes:

Plant breeders have developed cultivars with wide adaptation for many crop species. Even though cultivars with cold or heat tolerance may have been bred for different crops.

Classification of ornamental plants

Ornamental plants may classify based on stem type:

1. Herbaceous ornamental plants

- Herbaceous plants are non woody, many horticulture plants especially those grown indoors are non woody. They have a wide variety of uses in landscape as well they may be classified in various ways:

a. Growth cycle:

- **Annuals:**

It contains bulb beds, hanging baskets, cut flowers eg. Petunia, zinnia and marigold. There are two **types:**

1. Annual winter, grow and flower in winter and spring

2. Annual Summer, grow and flower in summer and autumn e.g. zinnia

- **Biennials:** E.g. foxglove, planted at May and coming to flower at May and august.
- **Perennials**

Perennials live for along time in the landscape. Perennials may be flowering or not flowering plants. e.g. Geranium, lily, tulip (flowering). Foliage is no flowerings Perennials are popular for indoor use in houses and offices as potted plants eg. Coleus, sensevieria and dumb cane

B. Other operational classification:

Herbaceous plants may be used in a variety of other ways, both indoors and outdoors.

a- Bedding plants:

1. Annual plants raised for planting outdoors in flower beds.

2. They are usually started from seed indoors in the off-season and transplanted later in the growing season. E.g. Zinnia, pansy marigold.



b- Hanging plants

Are plants, annuals or perennial, flowering or foliage, that are grown in decorative containers and hung by equally elegant ropes from the ceiling in the patio in the doorway area , or from decorative plant poles e.g. . Geranium, spider plant.



c-House plants :

They are plants adapted to indoor conditions .They are adapted to indoor conditions .They are grown in containers , are usually slow growing , and may be flowering or foliage plants .Eg. Sansevieria, Indian rubber plant.

2. Woody ornamental plants:

May be classified to:

a. Shrubs:

- Is perennial woody plant of relatively low stature
- Produces multiple stems that arise from the ground or very close to it.
- Used as hedge plants or ground cover.
- It can be divided to deciduous and evergreen (narrow leaves, broad leaf).

Binomial Nomenclature

الاسم الثنائي



Name this tree

Redbud

Judas Tree

Salad Tree

ALL WRONG

b. Trees:

- There are deciduous and evergreen trees.
- Tree can also modify the local climate (shade tree, wind breaks).
- They are largest plant materials
- They can overwhelm a house in the adult stage if inappropriate tree species are planted.

3. Vines (climbers and creepers):

Vines are climbers

1. They can be deciduous and evergreen.
2. Classification according to adaptation:
 - Cold condition.
 - Warm or tropical conditions



4. Succulent and cacti plants:

These plants are capable of storing large amounts of water in their tissue. The water is stored in either stems or leaves. Succulents come in wide variety of shapes, size and growth forms Succulents may be propagated from seed, cutting or offsets, epiphyte فسانل eg. Agave, Aloe,

Cacti: are special group of succulent that frequently carry spines and are sites of flower production, eg. Desert cacti (xerophytes) and jungle cacti (epiphytic) which a adapted to humid and shady conditions



5 - Lawns:

Lawns are very important in the landscape for several reasons, the aesthetic value *القيمة الجمالية* and it provides a relatively inexpensively ground cover that protects the soil against erosion, also reduces dust and mud on a wet day and heat and glare from ground on a sunny day. Planting methods are by seeding or by vegetative methods.



6 - Green houses and shade plant:

Contain many types of plants may be shrubs, trees and herbaceous cultivate for leaves beauty or its flower or both. This type requires high pressure and low light intensive.

7. Hedges and fences:

A hedge is an excellent gardening feature for privacy, fencing, or decoration. Some plants are better suited for hedges than others, depending on the needs of the gardener and location. In general, most bushes (shrubs) work well in hedges, and for especially tall hedges, small trees may bus as well. To create a good hedge, the gardener must commit to constant pruning and shaping. If left unattended for too long, hedges will run wild and require several years of care to be fully restored



8. Aquatic and semi-aquatic plant

Are plants that have adapted to living in or on aquatic environments? Because living on or under water surface requires special adaptations, aquatic plants can only grow in water or permanently saturated soil. Aquatic vascular plants can be ferns or angiosperms (from a variety of families, including among the monocots and dicots). Plants Semi aquatic plants are those whose roots are wholly or partly underwater.