

## **Vegetable crops**

Vegetables are herbaceous plants that have been part of the human diet from time immemorial. Some are staple foods but most are accessory foodstuffs, adding variety to meals with their unique flavors and at the same time, adding nutrients necessary for health. Some vegetables are perennials but most are annuals and biennials, usually harvested within a year of sowing or planting. Vegetables need attention especially during the cultivation, production, handling and storage, and growing areas.

**Definition of Vegetables:** - The term vegetable is used to describe the tender edible shoot, leaves, fruits and root of plants and spices that are consumed whole or in part, raw or cooked as a supplement to starchy foods and meat.

**Importance of vegetables in human diet:** Vegetables supply most of the nutrients that are deficient in other food materials. This includes: -

- 1- Supply of minerals, especially calcium and iron.
- 2-Vegetables are acid neutralizers e.g. okra neutralizes the acid produced from some fruits.
- 3-Vegetables prevent constipation and promote digestion as a result of fibers/roughages obtained from okra, cucumber, lettuce and cabbage.
- 4-Vegetables are rich sources of vitamins A, B, and C which helps to lower susceptibility to infection.
- 5- Some vegetables are rich sources of carbohydrate e.g. potatoes, and carrot etc.
- 6-Green beans and peas are cheap sources of protein in human diet.
- 7-Vegetables are generally needed to have balanced diets and overcome nutritional deficiencies.

## **Classification of vegetables**

1. According to the part consumed (disposition)
2. According to season or area of production
3. According to their botanical or taxonomy
4. According to their frequency of cultivation
5. According to their maturity time, harvesting pattern and growth habit.

### **1- According to the part consumed**

**1-Leafy vegetables:** the leaves and succulent young shoots are picked for consumption. Examples are lettuce, cabbage, spinach etc.

**2-Stem or Stalk vegetables:** Minerals and vitamins are transported through the stem or stalk to other parts of the plant. Celery and asparagus are common stalk vegetables.

**3- Flowers vegetables:** They include the flower of the plant and the stems. They are high in vitamins and mineral. Broccoli and cauliflower are examples.

**4- Tuber vegetables:** A tuber is a large underground stem that stores nutrients. Tubers have carbohydrates and vitamins. Potatoes are tubers.

**5- Bulb Vegetables:** A bulb is made up of layers of fleshy leaves surrounding a portion of stem. They have intense flavor. Onion and garlic are examples.

**6-Fruit vegetables:** this comprises of young, immature unripe fruits or mature ripe fruits of plants grown as vegetables. Examples are cucumber, tomato, okra, pumpkin, eggplant, garden egg, water melon, sweet pepper and chilli pepper.

**7- Root vegetables:** such as sweet potato, carrot and radish

**8-Seed vegetables:** this group is important for the seed produced. Examples are pea and bean.

**9- Spices:** important for their flavor and color in foods such as chilli pepper and basil.

## **2- According to Season/Climatic area/ area of cultivation**

**1- Cool season vegetables:** such as cabbage, garlic, onion, radish, spinach, lettuce, potato and carrot.

**2-Warm season vegetables:** such as tomato, pepper, cucumber, okra, eggplant, garden egg, melon, pumpkin, sweet potato.

**3- Botanical or Taxonomic Classification:** Vegetables are classified according to family, genera and species. It is the most important and acceptable form of classification.

## **4- Frequency of Cultivation**

**1-Regularly cultivated vegetables** such as: Onion, Okra; Eggplant, Tomato and Pepper

**2- Occasionally/Wild vegetables** such as: Indian spinach.

## **5-According to their maturity time, harvesting pattern and growth habit**

**1-Vegetables with short growing period and harvested two or three times by topping or young leaf removal:** This group consists of leafy vegetables such as celery and spinach.

**2-Vegetables which can be harvested over several weeks or months:** This group comprises of vegetables such as *Solanum spp*, *Capsicum spp*, Tomato, Okra, and Cucurbits.

**3- Vegetables with climbing growth habit:** These are vegetables which are trained along a stake and on house walls. Examples are fluted pumpkin, and melon.

**4- Vegetables with Creeping stems:** such as cucumber and water melon.

## **Factors necessary for the vegetable crop productions:**

Each plant has certain environmental requirements. To attain the highest potential yields a crop must be grown in an environment that meets these requirements. Unfavorable environmental conditions can produce a stress on plants resulting in lower yields.

The most important factors for the vegetable crop production are the following:

1-**Weather factors** including the following:

**A-Temperature:** It is the factor that effects the growth and development of vegetable crops, affect all phases of plant growth the beginning from germination and even reach to fruit development.

**Minimum temperature** a less temperature could happen then the growth.

**Optimum temperature** at which the maximum rate of growth it happens and **Maximum temperature** it is the highest temperature that can happen then the growth and increased temperature affected all the vital plant processes.

**B-Light:** Is very essential for the process of photosynthesis in all green plants, and the plants get its needs of light from the sun and the effect of light on the growth of plants is in each of:

- 1- The illumination intensity (lighting Intensity).
- 2- The length of light period (light period).

**Plants are divided according to the light length effect on the flowering period in to:**

**1-Short day plants:** plants that do not bloom until they exposure to a period of light less than a certain critical period such as potatoes.

**2-Long day plants:** plants that do not bloom until they exposure to a period of light more than a certain critical period such as spinach and radish.

**3-Neutral plants:** plants blooming in this group under what conditions of darkness and lighting, such as tomatoes and eggplant.

**2- Soil factors:** Soils basically consist of decomposed mineral matter (sand, silt, and clay) and decomposed organic matter. Optimum vegetable production is achieved on well-drained sandy loam soils. Although vegetables can be grown on a wide range of soil types, most vegetables are not well adapted to heavy clay soil types. Soils of this type tend to have poor aeration and drainage and can restrict root growth.

Soil factors include the following:

**1-Cultivation of the soil:** drainage of the soil is one of the first conditions for success in vegetable growing.

**2-Promotion soil fertility and maintaining a healthy soil structure** are important factors in crop production.

**3-chemical and physical properties of the soil:** some vegetables prefer light lands such as potatoes, carrots, and other prefers the yellow light lands.

**4- The presence of salinity and alkalinity:** are limiting factors in vegetable crops growth especially in beans, cucumber and tomatoes.

**5-The high level of ground water:** is one of the specific factors for the cultivation of vegetables.

**3-Vital factors:** plant, animal and/or human are factors for the cultivation of particular crop or class from one region to another, such as plant or insect or competition vital injuries as well as the human role in the transfer of a certain class of one region to another.

**4-Economic factors:** other factors that affect the distribution of crops are economic conditions in addition to the climatic conditions and soil conditions.

These can include:

1. Easy transport.
2. The value of agricultural land.
3. The degree of awareness of the population and culture of health and nutritional side.