

Crop Classification According to Their Growing Season

The growing season depends on climatic conditions (temperature, atmospheric humidity and photoperiod).

1-Cool Season Crops (Winter Habit)

They are well adapted to temperate climate. They are sown in the autumn, germinate and grow vegetative, then become dormant during winter. They resume growing in the springtime and mature in late spring or early summer. Winter varieties do not flower until springtime because they require vernalization (evaporation). These crops comprise wheat, barley, fabacean, lentils, chickpea, clover (*Trifolium*).

2- Warm Season Crops (Summer Habit)

These are grown in tropical lowlands year-round and in temperate climates during the frost-free season. Rice is commonly grown in flooded fields, though some strains are grown on dry land. Other warm climate cereals, such as sorghum, are adapted to arid conditions. Other crops include maize, millet, peanut, soybean, mung bean, sesame and cotton. These crops are planted in early springtime and mature later that same summer; these are typically requiring more irrigation. Warm season crops can be sown in two different times of year:

- 1- Early spring sown in the end of March and harvest in July and August.
- 2- Midsummer sown, ripe and mature during fall.

Classification of Crops According to Their Life Cycle

This involves the period from sowing to full maturity and dryness of the crop:

1- Annual Crops

The life length of these crops, from sowing to maturity is less than one year, such as wheat, barley, flax, rice, maize, sorghum, etc.

Also included crops that can live more than one year under certain conditions, but they usually grow for one season only; such as cotton and castor bean.

2- Biennial Crops

The life of these crops exceeds one year, but is less than two years. Often, they store food in the first season and do not give flower or fruit until the second season; such as sugar beet, sweet white clover.

3-Perennial Crops

These lives for more than two years, such as alfalfa, sorghum, sugar cane, and many of forage grasses.

Crops Classification Chart

The famous Swedish botanist Linnaeus was responsible for the development of the present-day binomial system of plant classification. The binomial system includes the name of the genus (plural genera) and the species. *Species are plants that are essentially similar in the majority of their fundamental structural characters and that in reproduction, through a series of generations, produce offspring having the same fundamental characters.* The genus is considered as a group of species.

The following chart is useful for understanding the classification of field crops:

- Kingdom: Plant kingdom (Plantae)
- Division: Spermatophyta

- Sub-division: Angiospermae
- Class: Dicotyledons or Monocotyledon
- Order:
- Family:
- Genus:
- Species: Genus + species
- Variety: Genus + species + var.

Cereals

The term cereal is a derivative from Latin word 'cereal' meaning 'grain' which is botanically, a type of fruit called a caryopsis, composed of the endosperm, germ, and bran. The cereals are annual common grass members of the grass family (a monocot family Poaceae, also known as Gramineae), which usually have long, thin stalks, such as wheat, rice, maize, sorghum, millet, barley and rye, whose starchy grains are used as food. The term cereal is not limited to these grains, but also refers to foodstuff prepared from the starchy grains of cereal like flours, breads and pasta. Cereal science is a study concerned with all technical aspects of cereal. It is to study the nature of the cereals and the changes that occur naturally, and as a result of handling and processing. Cereal grains are grown in greater quantities and provide more food energy worldwide than any other type of crops; they are therefore main food crops. In their natural form (as in whole grain), they are a rich source of vitamins, minerals, carbohydrates, fats, oils and protein. However, when refined by the removal of the bran and germ, the remaining endosperm is mostly carbohydrate and lacks the majority of the other nutrients. nutritional contents of whole grain cereals. The grains consist of three major parts which are:

(1) Bran: The outer layer of the grain (fiber, omega-3, fatty acids, vitamins and dietary minerals).

(2) Endosperm: The main part of the grain (mainly starch).

(3) Germ: The smallest part of the grain (vitamin E, folate, thiamine, phosphorus, magnesium). The whole grains contain all three layers of the grain. The wholegrain cereals are a rich source of many essential vitamins, minerals and phyto-chemicals. The typical cereal food is low in saturated fat, but, is a source of polyunsaturated fats, including omega-3 linolenic acid, cholesterol free, high in both soluble and insoluble fiber and resistant starch, an excellent source of carbohydrates, a significant source of protein, a good source of B-complex vitamins, a good source of many minerals such as iron, magnesium, copper, phosphorus; zinc, and a good source of antioxidants and phytochemicals that can help to lower blood cholesterol levels. The wholegrain cereals contain many different phytochemicals that have been linked to significant health benefits. These phytochemicals include: (1) Lignans: Can lower the risk of chronic heart disease, and regress or slow cancers in animals. (2) Phytic acid: Reduces the glycemic index of food, which is important for people with diabetes, and helps to protect against the development of cancer cells in the colon.

Legumes

Legumes are plants that are members of the Leguminosae (fabaceae) family. They have "fruits" which consist of a pod that opens on two sides down its length to reveal the seed. Legume crops are also capable of fixing atmospheric nitrogen, an essential plant nutrient, in the soil. It does this with

the help of root nodules, which usually contain a beneficial bacteria (various Rhizobia species). Some examples of legumes are faba bean, chickpea, lentil, mung bean, peanuts, beans and peas. [Pulses are therefore often regarded as poor man's meat]. **Economic importance of legumes crops or their benefits and uses:** The importance of legume crops as a source of basic and cheap protein for human nutrition, animal and in improving soil (chemical and physical properties). They are increase crop production of the crops followed in crop rotation, in addition to the possibility of use as fertilizer green.

- 1- Most of legume crops do not require large amounts of water, due to the deep roots that make them tolerant to drought for a long time.
- 2- Most of protein and vitamins do not disappear when peeling seeds of legume crops unlike cereal crops that store protein in the outer layer of the grains.
- 3- The seeds of legumes contain a thick cover and slow permeability to water, so the availability of moisture in the soil is mainly to obtain a higher rate of emergence of seedlings.
- 4- Legumes are sensitive to drought, especially during periods of seedling emergence and vegetative growth as well as periods of flowering and maturity which are significantly affect on the yield and its components.
- 5- Pulses are different from most other crops, in fruit splitting or fission at maturity and this leads to delay in harvesting and loss of seeds and a large percentage of yield.