CC 7: UNIT 2: CEREALS WHEAT

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Origin

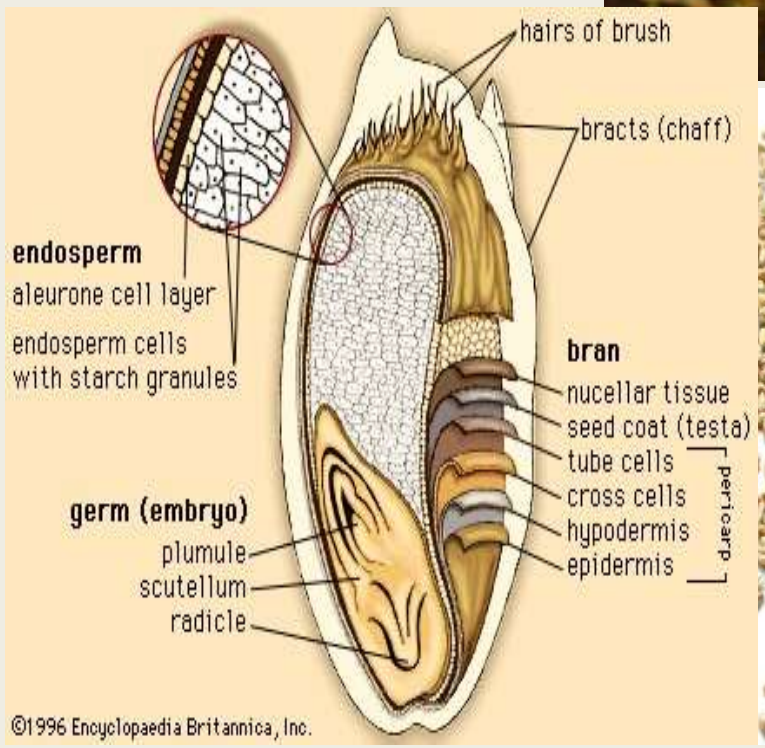
- Cultivation of wheat started after 8000 BC.
- Archaeological analysis of **wild emmer** indicates that it was **first cultivated in the southern Levant with Iran** as for back as 9600 BC. Genetic analysis of **wild einkorn wheat** suggests that it was first grown in the Karacadeg Mountain **in South eastern Turkey.**
- The cultivation of emmer reached Greece, Cyprus and India by 6500 BC, Egypt after 6000 BC and Germany and Spain by 5000 BC. The early Egyptians were developers of bread or the use of over and developed baking into one of the first large-scale food production industries.
- **Wheat (Triticum sp.)** is a cereal grain **originally** from **the Levant region of the near East and Ethiopian Highlands**.

The major varieties of wheat cultivated are as follows:

- **1. Diploid species:**
- **Einkorn wheat (Triticum monoccum):**
- It is a diploid species with wild and cultivated varieties. It was domesticated at the same time as emmer wheat, but never reached the same importance.
- **2. Tetraploid species:**
- **Durum wheat (Triticum durum):**
- This is the only tetraploid wheat grown in ancient times.
- **3. Hexaploid species:**
- **Bread wheat (Triticum aestivum):**
- It is the most widely cultivated hexaploid species of wheat, commonly used variety in the world.

Wheat, any of several species of cereal grasses of the genus *Triticum* (family Poaceae) and their edible grains. Wheat is one of the oldest and most important of the cereal crops.

The wheat plant has long slender leaves and stems that are hollow in most varieties. The inflorescences are composed of varying numbers of minute flowers, ranging from 20 to 100. The flowers are borne in groups of two to six in structures known as spikelets, which later serve to house the subsequent two or three grains produced by the flowers.



Cereal processing

- Cereal processing is complex. The principal procedure is **milling**—that is, the **grinding of the grain** so that it can be easily cooked and rendered into an attractive foodstuff. Cereals usually are not eaten raw, but different kinds of milling (dry and wet) are employed, depending on the cereal itself and on the eating customs of the consumer. Wheat may be crushed with grinding stones or similar devices or by modern automated systems employing steel cylinders, followed by air purification and numerous sievings **to separate the endosperm from the outer coverings and the germ.**
- On an average, the kernel contains 12 percent water, 70 percent carbohydrates, 12 percent protein, 2 percent fat, 1.8 percent minerals, and 2.2 percent crude fibres. Thiamin, riboflavin, niacin, and small amounts of vitamin A are present, but **the milling processes removes most of those nutrients with the bran and germ.**

About 72 percent of the milled grain is recovered as white flour.

Flour made from the **whole kernel is called graham flour and becomes rancid** with prolonged storage because of the germ-oil content retained.

White flour, which does not contain the germ, preserves longer.

- The three principal types of wheat used in modern food production are *Triticum vulgare* (or *aestivum*), *T. durum*, and *T. compactum*. *T. vulgare* provides the bulk of the wheat used to produce flour for bread making and for cakes and biscuits (cookies).
- *T. durum*, longer and narrower in shape than *T. vulgare*, is mainly ground into semolina (purified middlings) instead of flour. Durum semolina is generally the best type for the production of pasta foods.
- *T. compactum* is more suitable for confectionery and biscuits than for other purposes.

Uses

- **Uses of Wheat:**
- Of the thousands of varieties known, the most important are common wheat (*Triticum aestivum*), used to make bread;
- durum wheat (*T. durum*), used in making pasta (alimentary pastes) such as spaghetti and macaroni; and
- club wheat (*T. compactum*), a softer type, used for cake, crackers, cookies, pastries, and flours.
- Additionally, some wheat is used by industry for the production of starch, paste, malt, dextrose, gluten, alcohol, and other products.
- There are three main kinds of flour—maida, and ata which are used for various purposes. The flour is used chiefly for making 'bread' and 'chapatis'. The flour is also used for making biscuits, cakes, pastry and similar articles. Wheat flakes are used as breakfast food.

Uses

- Wheat is also used in the manufacture of beer and other alcoholic beverages.
- Wheat straw is used for seating chairs, stuffing mattresses, etc.
- It makes a good food for livestock. Wheat straw is also used as fodder.
- This makes a staple food in most parts of the world. Properties of gluten in the grains are such that It produces bread-stuffs generally superior to those from any other cereal grains
- By products of wheat milling, such as bran, germ and middling's constitute valuable feed for stock readily eaten;

Uses.....

- The straw is used as bedding for cattle; it is also used for padding, as in mattresses tor packing fragile goods, for thatching and many other purposes.
- It may be used also for production of furfuryl alcohol.
- Straw-pulp is utilized for the manufacture of paper, straw-board and building-beard.
- Non-feed industrial uses of wheat include the manufacture of starch, industrial alcohol, malted wheat, and core-binder flour; only small quantities of wheat are used for starch and gluten manufacture.
- Low-grade flours are utilized in the preparation of pastes for wall papering and ply-wood adhesives, and in iron foundries as a core binder.