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Cereals- Importance and Characters

Cereals are annual cultivated grasses grown for edible starchy grains/seeds. In general, they provide the main concentrated carbohydrate food for man and for livestock. All cereals are members of the grass family Poaceae (or grass family) and further classified into tribes within the family. Some common cereal groups are:

- Triticeae: Wheat (*Triticum* spp), Barley (*Hordeum* spp), Rye (*Secale cereale*), Triticale (*Triticosecale*).
- Oryzae: Rice (*Oryza sativa*), African rice (*O. glaberrima*), Wild rice (*Zizania palustris*).
- Aveneae: Oat (*Avena sativa*).
- Andropogoneae: Maize (*Zea mays*), Sorghum (*Sorghum bicolor*), Adlay (*Coix lacryma - jobi*).

Six great cereals of the world are rice, wheat, maize, barley, rye and oats. These form the principal sources of food for man and animals. Wheat and barley are the most important cereal grains of the warm temperate regions and high rainfall. Rye and oats are the dominant cereals of the colder regions with high rainfall and low fertility areas. Rice and maize dominate in the tropical zones with assured irrigations. Millets are grown in areas with limited water supply for irrigation.

The term cereals are derived from '**Ceres**', the Roman goddess of harvest. In ancient Rome at every harvest, great festival in honor of Ceres was celebrated and she was worshipped as the giver of grain. Wheat and barley were generally the offerings to the goddess and these were called **Cerealia munera**. Subsequently, the grains used for food, especially for making bread were called Cerealia or cereals. Most of the cereals are herbaceous annuals, although rye has a tendency towards a perennial habit. The stem or culm is often erect, usually cylindrical and always hollow, except at the nodes. The cereals are characterized by the shallow fibrous root system, tillering habit, sheathing leaf bases and inflorescence which are panicles. The primary root developed from the radicle is generally short lived; often the adventitious and fibrous root system which persists and is functional during the whole life time of the crop plant. The plant assumes a tufted appearance through this tillering (stooling) habit. The tillering habit though a common habit in the cereals, may be suppressed as in the case of maize or Indian sorghum. The culms are generally enclosed within the sheathing leaf bases and the jointed nodes may be distinctly exposed or completely enveloped. Ligules are almost invariably present except in the case of barnyard millet. Spiklets are the ultimate units of inflorescence in Poaceae which may be borne on panicles. Panicles are free and lax or compact or in some compressed to spiciform one. Flowers in the spiklet may vary from one as in the case of paddy to many as in the case of finger millet and wheat. The fruits are generally termed as grains are the caryopsis, which are either fully enveloped by the glumes as in the case of paddy or relatively exerted as in the case of sorghum or fully exposed as in the case of maize. All the cereals supply food to man and straw to animals. The flour or the meal of the grains is generally made use of and this is made up mostly of starch. The whole grains are used as food as in case of rice. Grains are also popped as maize, and rice, or used as pressed or processed food as in case of rice and oats. In a light form, they go as cereal foods or breakfast cereals. Rice is a staple food for nearly half of the population of the world. It contains a larger proportion of starch than all the other cereals. Wheat, a very valuable cereal contains a good proportion of proteins besides the starch and comes second in the popularity. Maize has gained importance in all tropical regions of the world. In the colder regions of Europe and Russia, rye takes the place of wheat. Barley is important mainly as malt food and oats is beaten and processed in the form of light food. A large percentage of the world's population subsists mainly on wheat, rice or maize each accounting for nearly a quarter of the world's total cereal supply. Barely, oats and rye together make up the rest.

Characters of cereals:

- Most of the cereals are herbaceous annual.
- Stem or culm often erect, cylindrical, hollow except at nodes.
- Tillering habit with shallow fibrous root system.
- Leaves alternate, distichous with parallel venation and sheathing leaf base.
- Presence of ligules and lodicules.
- Inflorescence is panicle or spike.
- Stamens usually three (But six in rice).
- Fruit is a caryopsis.

The cereals are cultivated in major parts of the world due to the following reasons.

- Greater adaptability.
- Easy for cultivation.
- Giving more yield per unit area due to tillering habit.
- Grains are compact, dry and can be easily handled.
- Grains can be easily separated from the plants.
- Grains have high nutritive value with higher percentage of carbohydrates, sufficient protein (7 to 10%), fats, vitamins and minerals.

REFERENCES:

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Prepared By:
Mr. Rajeev Kumar
Department of Agriculture
Monad University, Hapur (U.P.)