Lecture 07

Maize - Zea mays (2n - 20)

Maize is the most important cereal in the world after wheat and rice; it was also most widely distributed. The genus Zea is considered to be monotypic previously. Recently Teosinte the related genera of Zea has been included as Zea mexicana.

Centre of origin : Southern Mexico.

Systematic Position

Division : Phanerogams

Sub - Division : Anageosperms

Class : Monocotyledon

Series : Glumacea

Sub class : Glumiflorae

Family : Poaceae

Sub family : Poaideae

Tribe : Maydeae

Zea Mexicana - The Probable Three Species involved in The evolution ancester of Maize of Cultivated Maize

Tripsacum dactyloides (2n= 36, 72) Gama grass:

A perennial grass which is used as fodder. Distributed in tropical and subtropical North America.

Origin and putative parent:

There are three different views about the origin of maize.

1. It originated from Teosinte (Euchlaena mexicana) (Zea maxicana) by direct selection, mutation or hybridization with other grasses.

2. Another theory is that maize originated from a wild pod corn.

3. Another theory is that teosinte, tripsacum and maize, all descended from a common ancestor by divergent evolution but the ancestor would have been lost.

Sorghum -Sorghum bicolor (L) Moench (2n = 20)

Sorghum is the fourth important world cereal, following wheat, rice and maize. It is the staple food in the drier parts of tropical Africa, India and China. The threshed grain is ground into a wholemeal flour, and used for making thin porridge or a thick paste or dough by boiling in water.

Systematic Position:

Division : Phanerogams

Sub - Division : Anageosperms

Class : Monocotyledon

Series : Glumacea

Sub class : Glumiflorae

Family : Poaceae

Sub family : Poaideae

Tribe : Andropoganae

Sub tribe : Sorgasturm

Origin:

Africa in the primary centre. India is the secondary centre of origin.

Sorghum bicolor **(2n = 20)**

Origin: Africa

Progenitor of sorghum

1. S.arundinaceum 2. S.verticilliflorum 3. S.sudanense 4. S.aethiopicum. The cultivated sorghum *Sorghum bicolor* is divided in to five basic races based the coverage of glume on the grain (Fig 1).

Hybrid races:

This consists of all combinations of the basic races.

1.Guniea	bicolor (GB)	6.Guinea	kaffir (GK)
2.Caudatum	bicolor (CB)	7.Guinea	durra (GD)
3.Kaffir	bicolor (KB)	8.Kaffir	caudatum (KC)
4.Durra	bicolor (DB)	9.Kaffir	durra (KD)
5.Guinea	caudatum (GC)	10.Durra	caudatum (DC)

Pearlmillet - *Pennisetum glaucum* L. (2n = 14)

Pearl millet is the staple food in the drier parts of Tropical Africa and in India, where it is the fourth most important cereal after rice, sorghum and wheat. The grains are also fed to poultry and other livestock. The green plants provide a useful fodder and it is sometimes grown for this purpose. It also plays a major role in fodder improvement by crossing with Napier grass.

Systematic Position :

Division : Phanerogams

Sub – Division: Anageosperms

Class : Monocotyledon

Series : Glumacea

Sub class : Glumiflorae

Family : Poaceae

Tribe : Paniceae

Origin: Africa

Distribution : Africa, India, Pakistan, Bangladesh,

Origin and putative parents

Stapf included 32 species is Penicillaria. Of these 32 species found in Africa, six annuals are considered wild and probable ancestors of the cultivated one. Pearl millet is a product of **multiple domestication.** They are

1. *Pennisetum perottettii*

2. P. molllissimum

3. P. violaceum

4. P. versicolor

5. P. adonense

6. P. gymnothrix

The cultivated species of *Pennisetum* is believed to have originated thro' hybridization with in these six species.

Characteristics features of Bajra :

1. Spikelet subtended by involucre of bristles.

2. Lodicules are absent (flower opening does not occur, only androecium and gynoecium protrude out).

3. Pennicillate anthers (anther tip cilliated - charecteristic of the genus Pennisetum)

4. Fused style with bifid stigma.

5. Protogynous nature.

Ragi - Eleusine coracana Gaertn. (2n = 36)

Finger millet is an important staple food in parts of East and Central Africa, India, particularly in Karnataka. It is used for malting and brewing.

Systematic Position:

Division : Phanerogams

Sub - Division: Anageosperms

Class : Monocotyledon

Series : Glumacea

Sub class : Glumiflorae

Family : Poaceae

Tribe : Eragrostideae

Place of origin: India

Characters of Eleusine:

Infloresence is contracted into a number of digitate spikes of spikelet. Spikelet consists of more than two florets subtended by two glumes.