EXTENDED LECTURE OUTLINE

GPB6 311 **Crop Improvement (*Kharif* crops)-I** **(1+1)**

Sl. No.	Topic	No. of classes
1.	Crop improvement aspects in rice - Centers of origin, Evolution of rice: Monophyletic and Polyphyletic origin ,distribution of species, Wild relatives – difference between *Oryza sativa* & *Oryza glaberrima*, different races of rice- indica, japonica, javanica, donars for biotic and abiotic stresses, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance, quality traits) and breeding methods & procedures, Biofortification –Golden rice & hybrid seed production- three line and two line breeding system, Ideal plant type.	2
2.	Crop improvement aspects in maize -Centers of origin, distribution of species,Wild relatives, classification of maize based on endosperm characteristics, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance, quality traits) and breeding methods & procedures, Quality- QPM, hybrid seed production, Ideal plant type	2
3.	Crop improvement aspects in sorghum-Centers of origin, classification of sorghum- Snowden's classification (1936) later refined by Garber (1950) and by Dogget (1970), Harlan & De wet (1972)- Five races of sorghum, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance, quality traits) and breeding methods & procedures, hybrid seed production, Ideal plant type	1
4.	Crop improvement aspects in Bajra - Centers of origin, distribution of species, Stapf classification of bajra (1954), Wild relatives, Races of bajra, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance, quality traits) and breeding methods & procedures, hybrid seed production, Ideal plant type	1
5	Crop improvement aspects in Ragi - Centers of origin, distribution of species, Classification based on ear head shapes, Wild relatives, Differences between *E. africana* & *E. corocana*, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance, quality traits) and breeding methods & procedures, hybrid seed production, Ideal plant type	1
6.	Crop improvement aspects in pigeon pea -Centers of origin, distribution of species, Wild relatives, differences between Arhar & Tur breeding objectives (yield improvement, adaptability, stability,	1

	biotic & abiotic stress resistance). breeding methods & procedures & hybrid seed production, Ideal plant type	
7.	Crop improvement aspects in urd**,** mung and cowpea -Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance). breeding methods & procedures, Ideal plant type	1
8.	Crop improvement aspects in soybean - Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type	1
9.	Crop improvement aspects in groundnut - Centers of origin, distribution of species, Wild relatives, Smart classification (1964), breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type	1
10.	Crop improvement aspects in sesame- Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type	1
11.	Crop improvement aspects in Castor - Centers of origin, distribution of species, Wild relatives, Basic sex forms (N, S & NES type) in castor breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type	1
12.	Crop improvement aspects in cotton - Centers of origin, distribution of species, Wild relatives, Origin of cultivated tetraploid cotton, Different species of cultivated cotton, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Transgenic cotton- Bt cotton, Ideal plant type	1
13.	Crop improvement aspects in Jute- Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type.	1
14.	Crop improvement aspects in Tobacco- Centers of origin, distribution of species, Wild relatives, Origin of cultivated tobacco, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type.	1
15.	Crop improvement aspects in Brinjal & Okra- Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress	1

	resistance), breeding methods & procedures, Ideal plant type.	
16.	Crop improvement aspects in Cucurbits (Ridge gourd, Cucumber & Pumpkin) - Centers of origin, distribution of species, Wild relatives, breeding objectives (yield improvement, adaptability, stability, biotic & abiotic stress resistance), breeding methods & procedures, Ideal plant type.	1