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Current trends in genomics and phenomics in wheat breeding

Wheat (Triticum aestivum L.) breeding is a combination of art and science necessary for the accumulation of genes for high grain yield and stability, superior end-use quality and tolerance to prevalent biotic and abiotic stresses. Wheat breeding is also a numbers' enterprise requiring the development of hundreds of targeted crosses, derivation of thousands of lines from early segregation bulk populations, and the screening of tens of thousands of advanced lines across multiple locations and years. High throughput phenotyping, via unmanned aircraft and ground-based systems, in conjunction with high throughput genotyping of molecular markers for high value traits, has become indispensable for maximizing gain from selection and development and release of superior genotypes for consequent release and adoption by producers. This presentation highlights current trends in phenomics and genomics tools necessary for large wheat improvement programs seeking to maintain their cutting edge in developing and releasing of superior wheat cultivars.

Biography

Amir M H Ibrahim is a Professor and the project leader of the Small Grains Breeding program at TAMU. He joined the faculty of the Soil and Crop Sciences Department at TAMU in 2007. He received his Ph.D. in plant breeding and genetics from CSU in 1998. Dr. Ibrahim is currently involved in international collaborative research in North and East Africa, Central America, Central Asia and East Europe. His current research interests include mapping of genes and quantitative trait loci (QTL) associated with biotic and abiotic stress tolerance, end-use quality characteristics, germplasm diversity and genetic distance, yield per se and synthetic wheat. Dr. Ibrahim is also the Chair of the advisory Committee of Texas A&M AgriLife AgriGenomics Laboratory. Dr. Ibrahim teaches a graduate level course in "Experimental Designs in Agriculture" and an undergraduate course in "Crop Stress Management".

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