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PROJECT 3 ABSTRACT
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Wheat production currently faces an increasing threat of extreme variability. Exploiting natural and induced genetic diversity is required in developing new wheat varieties to face these threats for sustainable food production. Development of mutant populations (RB07, Berkut) in wheat cultivars will provide an opportunity to identify FHB resistant mutants and genes in bread wheat. The genotypes in the proposed work are founder parents of nested association mapping (NAM) populations. The resistant lines then can be used to transfer genes to other cultivars and the mutants could help in understanding the mechanism of FHB resistance.

Our objectives of the proposed work are: 1) Develop a TILLING resource (EMS mutagenized M2) for characterization of genes that could play a role in FHB resistance in spring wheat; 2) Development and evaluation of EMS mutagenized M2 derived M4 lines for resistance to FHB.

The M4 lines would be characterized the FHB resistance and any FHB resistant /susceptible mutants identified could be further characterized through MutMap and exome capture sequencing.

The data on mutant populations and gene characterization will be shared with other participating breeding programs, geneticists, pathologists, extension specialists, producers, and end-use stakeholders through meetings, field days, social media platforms, publications, and Scab database.