

Project FY22-HW-008: Development of Montana Adapted FHB Resistant Winter Wheat Varieties

1. What are the major goals and objectives of the research project?

Objective 1.) Improvement in FHB resistance in MSU's winter wheat breeding program using both conventional and MAB breeding. MAB will be aimed to increase frequency of FHB resistant alleles in the winter wheat program.

Objective 2.) Screen Montana adapted winter wheat experimental lines for FHB resistance in a mist irrigated screening nursery located at the Southern Agriculture Research Center (SARC) in Huntley, MT. Experimental lines with FHB resistance will be advanced in the breeding program and considered for public release.

2. What was accomplished under these goals or objectives? (For each major goal/objective, address these three items below.)

What were the major activities?

MAB was conducted for the BC3F1 that are sown in field in Oct23. Some lines do show moderate resistance as observed in 2nd week of July 2024.

From the pre yield trial screening sown in FY 23 – lines with moderate resistance were selected for preliminary yield evaluations and also being reevaluated for FHB resistance in FY24

What were the significant results?

Lines with moderate resistance identified in early generation screening in FY 23

List key outcomes or other achievements.

Lines with moderate resistance identified in early generation screening in FY 23. These lines are being reevaluated in FY24 and also being evaluated for yield in preliminary yield trials.

3. What opportunities for training and professional development has the project provided?

We did not conduct any professional development activities related to the project.

4. How have the results been disseminated to communities of interest?

The results of FY23 were distributed internally to the breeding teams at Montana State University. We do have lines that are showing moderate resistance in testing at MSU and data from KSU

5. What do you plan to do during the next reporting period to accomplish the goals and objectives?

Continue with new crosses and selection of backcrosses using MAB in the BC3F2 generation

Screening of advanced lines is ongoing in FY 24. Disease incidence was not similar to other years likely due to it be a relatively warm year in Montana. Disease was rated in 2nd week of July for scab infested heads. Materials will be harvested and DON samples sent for quantitative assesment