

Project FY22-BA-024: Coordination of the NABSEN and Screening US Barley Germplasm

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

To coordinate and execute the North American Barley Scab Evaluation Nursery (NABSEN) and screen elite US barley germplasm for resistance to Fusarium head blight (FHB), including assessments of FHB severity, incidence, and deoxynivalenol (DON) accumulation across multiple environments.

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

What were the major activities?

Coordinated and conducted NABSEN trials across 7 environments: Fargo, Langdon, Osnabrock, and Casselton, ND; St. Paul and Crookston, MN; and Brandon, Manitoba. We implemented standard mist irrigation and grain spawn inoculation at 5 sites and evaluated 29 advanced lines and 6 checks for FHB severity, incidence, DON, and heading date.

What were the significant results?

Disease pressure was high at misted sites including Fargo, Langdon, and Crookston for 2024, with DON levels were highest at Langdon and Crookston. Lines such as TR23198, FB24624, and S2M193 consistently showed low DON and FHB across sites.

List key outcomes or other achievements.

The NABSEN provides critical validation for breeders across the US and Canada. The data supports public and private breeders in selecting FHB-resistant germplasm and the continued involvement from major breeding programs, including NDSU, University of Minnesota, AAFC, FCDC, and AB-InBev.

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

The research specialist, Abraham Hangamaish, led field efforts and report generation. Also, graduate students were taught and assisted in misting, scoring, and data analysis across locations.

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

The full 2024 NABSEN report was distributed to breeders and stakeholders and is published on the USWBSI website. Data has been uploaded to T3.

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

Continue the 2025 NABSEN in Fargo, Langdon, Osnabrock, and Casselton, ND; St. Paul and Crookston, MN; and Brandon, Manitoba.