

Final Report – 2021-22 for the Wyoming Bean Commission

Germplasm Collection and Evaluation for Early maturity and Begin Initial Crossing

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Funding Awarded: \$3,000

Project Goal

The goal of this project was to obtain dry bean germplasm from the USDA Germplasm Collection and screen the material in order to identify potential germplasm with early maturity.

Objectives

The objectives of this project were three-fold. The first objective was to obtain germplasm material from the USDA that flowered in 30 days or less based off data recorded in the USDA Germplasm Database (no maturity data was available). Seventy-eight lines from 20 different countries were obtained that met this criterion. The second objective was to evaluate all lines in the field in Sheridan in the summer of 2021 and collect data on flowering and maturity for each line. The last objective was to begin making crosses with the earliest maturing lines in the greenhouse over the winter and spring of 2021-22.

Results

Seventy-eight germplasm lines from USDA were grown in the field along with known cultivar checks. The experiment was planted on June 3rd, 2021, and sprayed on June 4th. From this test, six germplasm lines were identified that matured in August and ranged from 6 – 16 days earlier in maturity than the cultivar check, Poncho. Crossing of these lines has begun to an upright, virus resistant, high yielding pinto-type experimental line that was made available to our program from Phil Miklas who is located at USDA in Prosser, WA. Future work will include developing populations from each of these crosses to determine the location of the gene(s) responsible for the early maturity so that the earliness trait can be quickly and efficiently introgressed into dry bean lines adapted to Wyoming. Additionally, we will evaluate lines derived from these populations across years and locations to determine potential for cultivar release, with the goal of having at least 1 cultivar ready to release within the next 5 to 6 years.