

MICHIGAN DRY BEAN PERFORMANCE TRIALS

2024



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Michigan Dry Bean Performance Trials 2024

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Introduction

In 2024, Michigan State University researchers and Michigan dry bean producers tested 159 lines from 12 market classes of dry beans. The trial plots (Table 1) were placed in 6 locations across 5 Michigan counties: Bay, Huron, Montcalm, Sanilac, and Tuscola (2 locations). Included in these testing locations Headsup seed treatment was trialed on two varieties of black beans.

Small- and medium-seeded beans were tested in Bay, Huron, Sanilac, and Tuscola counties. This report summarizes the results of the Headsup trial. Please contact Scott Bales (phone 989-262-8550, extension 2; email balessco@msu.edu) with questions about the 2024 performance trials and suggestions for the 2025 trials.

Table 1. 2024 research trial conditions: locations, grower co-operators, planting dates, nitrogen application rates and methods, total accumulated growing degree days (GDD), and total precipitation.

County	Grower co-operator	Planting date	Nitrogen rate (Lbs/A)	Nitrogen application method	Total GDD ^a	Total precipitation (inches)
Bay	Meylan Farms	June 3	45	2x2	1,877	10.5"
Huron	Cedar Pond Farms	June 13	0†	Clover	1,882	10.5"
Sanilac	Wadsworth Farms	June 4	45	2x2	1,975	8.8"
Tuscola	LAKKE Ewald Farms	June 4	50	Broadcast	2,078	9.7"

Note. Weather data was retrieved from the Michigan Automated Weather Network (MAWN) and MSU Enviroweather stations nearest to the performance trial. All weather data is from the day of planting to the day of harvest.

† Nitrogen was not applied at the Huron location in 2024 due to sufficient nitrogen credits given by a clover cover crop in 2024 in addition to a history of biosolids application to the field location.

^a Growing degree days (GDD) were calculated using the following equation: $([MAX + MIN] \div 2) - 50 = GDD$

Methods

Dry beans were seeded in four-row plots that measured 6.6' wide by 24' long, with 20" rows. Each entry was replicated four times. All trial plots were designed as randomized complete blocks (RCB). (RCB is a standard agricultural trial design in which entries are randomly assigned to groups or blocks, and the blocks are randomly repeated. The goal of the replication is to control for variables that might affect an entry's yield, such as soil nutrient levels [Table 2], pest loads, and variability in soil textures.

Trials received industry standard seed treatments, fertilization, and weed control applications at labeled rates. Yield data was obtained by direct harvest

Table 2. Soil test information from the 2024 trial locations, including the percentage of organic matter, soil type, soil pH, and soil cation exchange capacity (CEC). All macro- and micronutrients were sufficient for dry bean production.

Location	Percentage of organic matter	Soil type	Soil pH	Soil CEC
Bay	1.7	Sandy Loam	6.9	12.2
Huron	2.3	Loam	7.6	12.3
Sanilac	8.0	Loam	7.7	19.5
Tuscola	2.4	Sandy Clay Loam	7.6	15.4

Results

Tables 3 provides yield each entry's yield results in pounds per acre (Lbs./A) adjusted to 18% moisture. The combined average yield for each entry across all sites in 2024 is also included. The last three rows of the agronomic and yield results tables list the trial average (mean), least significant difference (LSD), and coefficient of variation (CV), respectively, for the data in each column.

Table 3. Headsup Seed Treatment agronomic and yield results.

Factor 1: Variety	Factor 2: Seed Treatment	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)
<i>Spectre</i>	<i>Cruiser Seed Treatment</i>	2320 AB	4457 AB	3092 A	3307 A	3294 AB
	<i>Cruiser Seed Treatment + HeadsUp (0.5oz cwt⁻¹)</i>	1614 B	4412 AB	2741 A	3310 A	3019 B
	<i>Cruiser Seed Treatment Fb. HeadsUp (1oz cwt⁻¹)</i>	2841 AB	4856 A	2530 AB	3346 A	3393 A
<i>BlackBeard</i>	<i>Cruiser Seed Treatment</i>	3160 A	4396 B	3085 A	3039 A	3420 A
	<i>Cruiser Seed Treatment + HeadsUp (0.5oz cwt⁻¹)</i>	3259 A	4451 AB	2056 B	3243 A	3252 AB
	<i>Cruiser Seed Treatment Fb. HeadsUp (1oz cwt⁻¹)</i>	2902 A	4401 B	2526 AB	3291 A	3280 AB
	MEAN:	2618	4496	2672	3256	3158
	LSD_(0.05):	983	445	634	524	298
	CV:	18.64%	7.99%	19.17%	12.98%	12.55%

*Data within the same column followed by the same letter are not significantly different ($P \geq 0.05$). Both variety 'Blackbeard' and 'Spectre' were sourced from cooperative elevator company, Pigeon, MI.