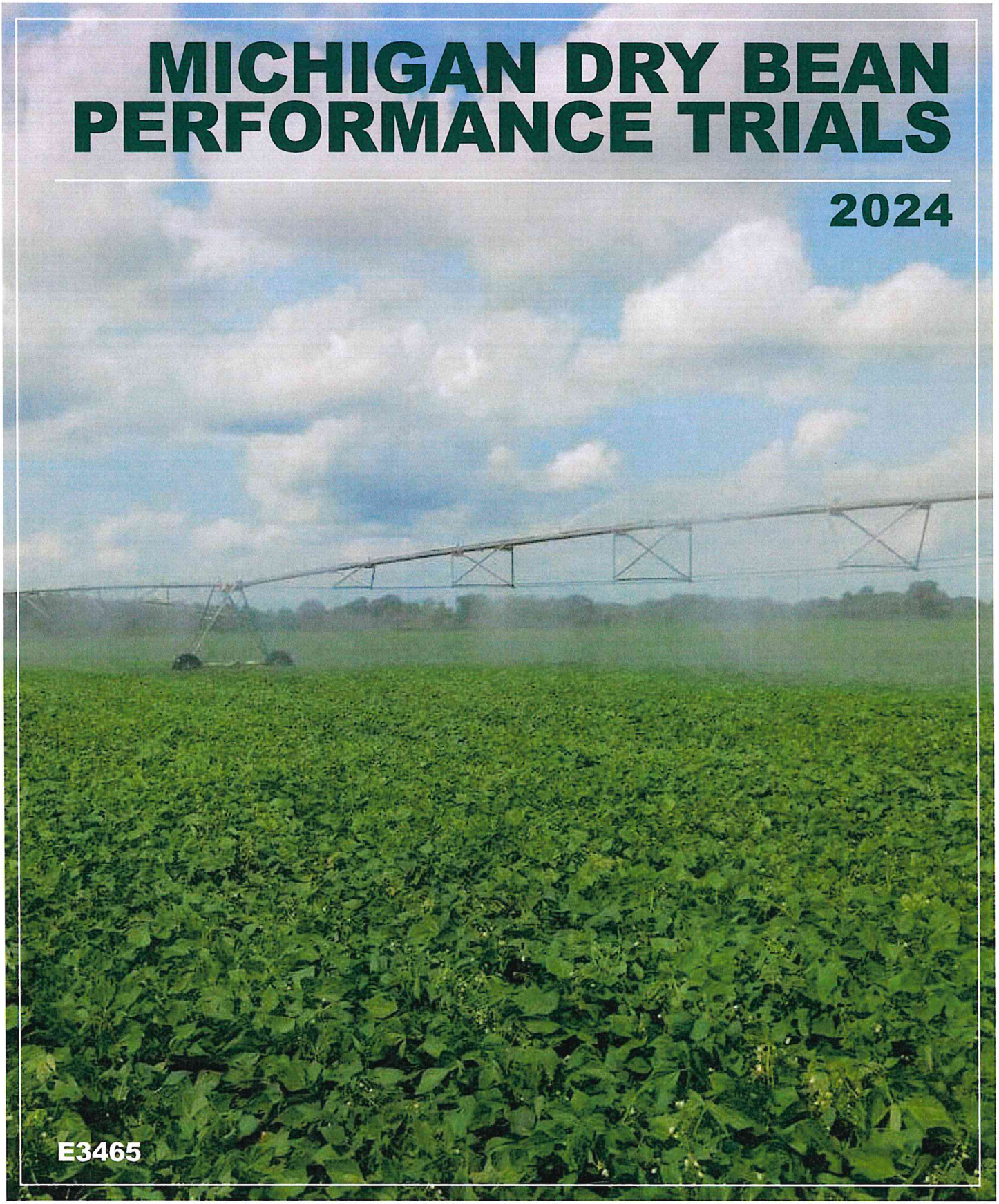
MICHIGAN DRY BEAN PERFORMANCE TRIALS

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 155 lines from 12 market classes of dry beans. The trial plots (Table 1) were placed in six locations across five Michigan counties: Bay, Huron, Montcalm, Sanilac, and Tuscola (two sites).

Small- and medium-seeded beans were tested in Bay, Huron, Sanilac, and Tuscola counties. Black beans (small-seeded beans) were also tested in Montcalm County based on grower feedback and interest. Large-seeded beans were tested in Montcalm and Tuscola counties.

This report summarizes the results of the trials. 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 [b]	Clover	1,882	10.5"
Montcalm	Thorlund Brothers	June 8	85	Broadcast + 2x2	1,937	11.6" + Irrigation
Sanilac	Wadsworth Farms	June 4	45	2x2	1,975	8.8"
Tuscola	LAKKE Ewald Farms	June 4	50	Broadcast	2,078	9.7"
Tuscola	Saginaw Valley Research & Extension Center (kidney beans)	June 12	60	Broadcast	2,027	11.7"

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.

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

[b] Nitrogen was not applied at the Huron location in 2024 because a clover cover crop in 2024 and a history of biosolids application to the field provided enough nitrogen.

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 (with the exception of black beans in Montcalm County, which were tested in a three-replication design). 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 for small- and medium-seeded beans. Large-seeded beans were pulled by a two-row Pickett bean puller and then mechanically threshed to prevent harvest loss. Following harvest, samples were cleaned, weighed, and moisture tested.

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
Montcalm	1.7	Sandy Loam	5.5	6.7
Sanilac	8.0	Loam	7.7	19.5
Tuscola (LAKKE Ewald)	2.4	Sandy Clay Loam	7.6	15.4
Tuscola (SVREC)	2.0	Sandy Clay Loam	7.5	11.3

Results

Tables 3 through 13 provide agronomic information such as plant maturity, height, and lodging. Plant maturity is rated visually in days after planting (DAP) for all locations. Lodging is rated on a scale of 1 to 5, with 1 indicating that the entry was completely erect in the field at harvest and 5 indicating that it was flat on the ground with stems and pods touching the soil surface.

The tables also present 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. (**Note:** If an entry was grown under different production systems [irrigated versus dry land] at different sites, the combined yield was not calculated.) When possible, two- and three-year average yields were also calculated across locations. For example, the three-year average yield of a navy bean entry (Table 3) includes data from 2022, 2023, and 2024 at four locations per year (12 site-years).

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.

The entry with the **highest** value in each yield column is followed by two asterisks (**). Any yields listed in the same column that are not significantly different from the highest yield are noted with one asterisk (*). This means that if two entries in the same column are followed by either one or two asterisks, the difference in values between the entries is not statistically significant.

Table 14 lists the sources of dry bean varieties tested in 2024. The entries are organized by bean market class.

Table 3. Navy bean agronomic and yield results.

Navy bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
14084	44	94	21	2	2,332	4,067	2,843	2,753	3,221 [a]	3,052	2,871
14092	45	93	20	1	1,971	4,472	3,171	3,014	3,552	NA	NA
21102	44	90	20	2	1,762	3,342	2,043	2,685	2,689	NA	NA
21108	44	98	21	1	2,439*	3,694	2,464	2,742	2,966	NA	NA
21127	46	98	22	3	2,319	4,177	2,521	3,128	3,275	NA	NA
Argosy	43	100	21	4	2,332	4,313	3,339*	3,122	3,592	3,146	2,890
Armada	44	94	19	3	1,572	4,513	2,690	3,206	3,469	3,188	2,950*
AuSable	45	90	19	2	1,554	3,661	2,666	2,987	3,104	2,823	2,379
Blast	43	93	22	4	1,776	4,360	2,635	3,006	3,333	NA	NA
Blizzard	44	93	22	3	2,310	4,216	2,733	3,250	3,400	3,256*	2,942*
EX2109-N	43	90	19	3	1,960	3,928	1,926	2,722	2,859	2,616	2,434
EX2111-N	46	92	21	2	2,693*	3,780	3,108	3,162	3,350	2,913	NA
HMS Bounty	44	96	21	1	1,774	3,402	2,252	2,449	2,701	3,043	2,984*
HMS Medalist	43	96	18	3	2,571*	4,206	2,658	2,891	3,252	3,300	3,134*
Liberty	43	97	18	3	2,234	3,908	2,801	3,022	3,244	3,166	3,173**
N21510	44	98	19	3	1,640	3,509	2,456	3,077	3,014	2,859	NA
N22005	44	96	22	1	2,982*	4,120	2,469	2,710	3,100	NA	NA
N22616	45	93	22	2	2,030	4,089	2,869	3,366*	3,442	3,087	NA
N22622	46	94	23	2	3,430**	4,447	3,466*	3,328	3,747	NA	NA
N22623	44	91	21	2	2,123	4,205	2,801	3,065	3,357	NA	NA
N23706	45	95	22	2	2,781*	3,898	3,064	3,477*	3,480	NA	NA
N23715	44	94	20	3	1,964	3,557	1,927	3,061	2,848	NA	NA
Nautica	45	95	20	2	2,776*	3,832	3,288*	2,905	3,342	3,047	2,813
ND Polar	46	97	20	3	1,620	3,086	2,721	2,549	2,785	2,551	2,530
OAC Charm	44	98	18	3	2,212	3,709	3,181	2,786	3,226	NA	NA
OAC Seal	45	96	18	3	2,391*	4,411	2,725	3,138	3,425	3,109	NA
Steam	46	99	19	4	2,965*	5,347**	3,782**	3,636**	4,255**	NA	NA
T9905	45	92	20	3	2,350	3,751	2,766	3,093	3,204	3,079	2,762
Valiant	44	89	19	3	2,124	3,672	2,695	2,774	3,047	3,116	2,951*
Victory	45	91	20	2	2,572*	4,220	2,506	3,042	3,256	3,454**	3,093*
MEAN	44	94	19.9	2.3	2,244	3,996	2,752	3,004	3,251	3,045	2,871
LSD(0.05)	NA	NA	NA	NA	536	290	531	464	356	280	249
CV	NA	NA	NA	NA	34.0%	10.30%	27.4%	13.1%	16.9%	18.1%	19.5%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

[a] Due to poor trial quality this season, Bay County yield averages were not included in the one-year average.

Table 4. Black bean agronomic and yield results.

Black bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Montcalm (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
17746	45	92	19	3	3,046**	4,198	3,409[a]	2,780	2,994	3,306[b]	NA	NA
17751	45	94	23	2	2,179	4,250	4,510	2,646	3,005	3,315	3,350	3,291
17771	46	92	21	3	2,291	4,104	3,374	2,059	2,649	2,902	NA	NA
21650	43	94	23	1	1,341	4,668	3,769	2,455	3,064	3,115	NA	NA
21702	44	95	22	2	1,775	5,306*	4,646	2,967	3,376*	3,659*	NA	NA
21723	45	92	19	1	1,344	4,336	4,122	2,820	2,860	3,136	NA	NA
21727	44	95	20	3	1,276	4,335	5,383	2,581	3,370*	3,395	NA	NA
22B042	44	94	19	1	1,548	3,172	3,622	2,157	2,401	2,639	NA	NA
22B127	46	97	19	2	1,714	3,144	4,619	2,233	2,285	2,932	NA	NA
B2002-1-3	43	95	17	4	2,522*	4,725	5,188	3,126	3,521**	3,812*	NA	NA
B20591	45	96	20	2	2,270	4,552	4,402	2,121	3,077	3,278	3,292	3,099
B21710	44	92	20	2	2,119	4,740	4,475	3,355	3,148	3,597*	3,212	3,178
B22041	44	91	18	2	1,694	4,844	4,954	2,820	3,283	3,540*	3,687*	NA
B22042	45	92	19	1	2,688*	4,702	4,691	3676*	3,361*	3,906**	NA	NA
B22062	46	92	18	2	1,986	5,338**	4,568	2,843	3,441*	3,586*	NA	NA
B22854	46	94	18	3	2,898*	4,419	5,252	3,259	3,200	3,729*	3,516*	NA
B23911	47	92	19	2	2,259	4,771	5,993**	2,971	3,423*	3,772*	NA	NA
B23949	46	95	19	2	1,728	4,532	5,658*	3,134	3,093	3,733*	NA	NA
B5054313	44	96	19	2	1,889	3,740	3,994	2,189	2,614	2,878	3,202	NA
B7071259	45	92	20	3	1,532	4,251	4,963	3,197	3,419*	3,497	3,739**	3,533**
B7072252	45	96	16	2	1,712	3,994	4,080	2,587	3,013	3,097	3,302	NA
B7072269	45	97	16	2	1,502	3,600	4,655	2,260	2,713	3,015	3,171	3,126
B18094173	44	95	19	2	2,188	3,662	5,200	2,043	3,008	3,167	3,397	3,293
Black Bear	46	96	20	2	1,928	4,350	4,156	2,533	2,791	3,098	3,282	3,276
Black Beard	45	95	25	3	2,093	4,632	4,006	2,762	2,895	3,239	3,550*	3,317*
Black Pearl	44	93	20	2	2,573*	4,204	4,282	2,602	3,126	3,349	3,148	3,094
Black Tails	45	98	21	2	2,175	4,495	4,377	2,359	2,747	3,225	2,982	2,925
Kona	44	95	19	2	2,554*	4,542	4,657	3,972**	3,348*	3,770*	3,671*	3,465*
Nimbus	46	96	19	2	2,871*	4,182	3,861	2,072	3,225	3,228	3,269	3,325*
Spectre	46	99	17	2	1,735	3,551	4,367	2,228	3,048	3,051	3,142	3,091
Umbra	45	95	22	3	2,257	4,851	5,450*	3,287	3,040	3,689*	3,621*	NA
Zenith	45	98	17	1	1,601	4,495	4,996	2,871	3,475*	3,508	3,212	3157
MEAN	45	95	19.5	2.1	2,065	4,333	4,552	2,721	3,063	3,354	3,356	3227
LSD(0.05)	NA	NA	NA	NA	454	234	546	336	215	362	238	218
CV	NA	NA	NA	NA	33.9%	8.38%	18.6%	19.2%	10.9%	16.9%	16.6%	17.0%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

[a] Black beans in Montcalm County were tested in a three-replication design. All other locations had four replications.

[b] Due to poor trial quality this season, Bay County yield averages were not included in the one-year average.

Table 5. Small red and pink bean agronomic and yield results.

Small red & pink bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
16686	45	97	19	4	2,607*	4,141*	2,647*	3,665**	3,265*	3,335*	3,132*
17822	46	99	15	4	2,717*	3,755	2,175	3,540*	3,047	3,220*	3,198*
17837	45	98	15	3	2,322	4,108	2,737*	3,347*	3,128*	3,359*	3,059
17848	44	98	18	4	3,095*	4,034	2,782*	3,319*	3,308*	NA	NA
17851	45	98	18	4	1,901	4,573*	2,374*	3,305*	3,038	NA	NA
19837	44	94	16	2	3,103*	4,241*	2,380*	2,936	3,165*	3,231*	3,105
R20669	45	99	18	2	3,449*	4,250*	2,002	3,297*	3,250*	3,329*	3,347**
R22703	43	98	18	3	2,894*	4,599**	2,562*	3,403*	3,364*	NA	NA
R22710	43	95	17	3	2,899*	4,117*	2,413*	3,020	3,112*	NA	NA
Viper	46	99	18	3	3,187*	4,093	2,701*	3,588*	3,392**	3,368**	3,285*
Coral[a]	44	100	18	3	2,354	4,351*	2,855**	3,022	3,146*	3,005	2,873
ND Rosalind[a]	46	100	19	4	3,532**	4,054	2,655*	3,283*	3,381*	NA	NA
S22507[a]	48	97	18	3	2,316	3,830	2,583*	3,129*	2,965	NA	NA
MEAN	45	98	17.4	3.2	2,798	4,165	2,528	3,296	3,197	3,264	3,143
LSD(0.05)	NA	NA	NA	NA	1090	489	485	544	343	294	226
CV	NA	NA	NA	NA	32.6%	9.8%	16.0%	13.8%	18.3%	18.2%	17.9%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

[a] Pink bean variety.

Table 6. Conventional pinto bean agronomic and yield results.

Pinto bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
Cancun	43	93	17	2	2,022	3,722	2,166	3,003	2,964[a]	NA	NA
Charro	42	94	21	3	2,253	4,722*	3,117**	3,705*	3,848**	3,671**	3,491**
Cowboy	43	89	19	2	1,417	4,198	2,829*	3,573*	3,533	NA	NA
EX2145-P	43	92	17	3	1,529	2,541	2,473	3,066	3,027	2,860	NA
EX2146-P	42	91	16	2	1,960	3,841	2,347	2,887	3,025	3,025	2,716
ND Falcon	46	98	20	2	2,174	4,085	2,397	3,229	3,237	2,876	2,791
P23311	43	93	19	3	3,356	4,772*	2,614	3,743**	3,710*	NA	NA
SV6139GR	42	93	17	1	NA	4,347	2,164	2,638	3,050	2,945	2,733
USDA Rattler	42	94	19	2	2,917	5,252**	2,537	3,389*	3,727*	3,338	NA
MEAN	43	94	18	2.0	2,214	4,153	2,556	3,247	3,319	3,128	2,953
LSD(0.05)	NA	NA	NA	NA	NS	563	446	501	285	292	305
CV	NA	NA	NA	NA	37.7%	11.2%	14.4%	12.8%	12.6%	17.0%	17.2%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. NS = Non-significant. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

[a] Due to poor trial quality this season, Bay County yield averages were not included in the one-year average.

Table 7. Slow darkening pinto bean agronomic and yield results.

Pinto bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
Bronco	43	91	18	4	2,013	4,098	2,150	2,597	2,714 [a]	NA	NA
Eternal	47	101	18	4	2,241	3,048	2,916*	3,242	3,069	NA	NA
Gleam	42	91	20	3	2,014	4,145	2,436	3,158	2,938	3,037	NA
Mystic	43	92	22	3	2,016	4,177	2,507	3,563*	3,066	3,066	NA
ND Palomino	44	96	20	4	2,001	4,466*	2,709*	3,094	3,068	3,274*	2,865
ND Rodeo	43	99	16	4	2,480*	5,087**	3,170**	3,796**	3,633**	3,536**	NA
Shine	46	92	22	4	3,278**	3,883	2,780*	3,301*	3,311	NA	NA
USDA Diamondback	45	91	21	3	1,809	4,033	2,733*	3,735*	3,077	2,800	NA
Vibrant	43	92	22	3	2,455	4,583*	2,723*	3,354*	3,279	3,220	NA
MEAN	44	93	20	3.4	2,258	4,309	2,651	3,325	3,136	3,120	NA
LSD(0.05)	NA	NA	NA	NA	815	677	500	528	310	262	NA
CV	NA	NA	NA	NA	29.6%	12.9%	15.5%	13.0%	16.8%	16.5%	NA

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface)

[a] Due to poor trial quality this season, Bay County yield averages were not included in the one-year average.

Table 8. Great northern bean agronomic and yield results.

Great northern bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Lodging (1–5)	Bay (Lbs./A)	Huron (Lbs./A)	Sanilac (Lbs./A)	Tuscola (Lbs./A)	1-year avg. (Lbs./A)	2-year avg. (Lbs./A)	3-year avg. (Lbs./A)
Eiger	44	98	17	4	2,188	4,730*	2,031	2,368	3,043 [a]	3116**	3021**
G22004	43	100	17	2	3,590	4,929**	2,165	3,233**	3,422**	NA	NA
ND Pegasus	43	98	20	4	3,396	3,958	2,239	2,301	2,833	2912*	2928*
Powderhorn	43	89	18	2	1,991	3,633	1,379	1,915	2,309	2235	2281
MEAN	43	96	18	3.0	2,791	4,312	1,954	2,454	2,907	2754	2744
LSD(0.05)	NA	NA	NA	NA	NS	648	NS	267	337	294	236
CV	NA	NA	NA	NA	29.5%	11.6%	32.8%	8.4%	16.6%	21.4%	21.2%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. NS = Non-significant. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

[a] Due to poor trial quality this season, Bay County yield averages were not included in the one-year average.

Table 9. Cranberry bean agronomic and yield results.

Cranberry bean entry	Flowering *(DAP)*	Maturity *(DAP)*	Plant height *(inches)*	Montcalm *(Lbs./A)*	Tuscola *(Lbs./A)*	Irrigated 2-year avg. *(Lbs./A)*	Irrigated 3-year avg. *(Lbs./A)*	Dry land 2-year avg. *(Lbs./A)*	Dry land 3-year avg. *(Lbs./A)*
16756	39	93	15	3,370	2,610	3,421	3,000	2,443	2,137
16758	36	85	12	2,872	2,097	2,828	2,653	2,158	1,750
16775	40	86	12	3,500	2,507	2,906	2,703	2,667*	2,156
16816	35	86	19	3,495	2,245	3,233	2,940	2,240	1,948
151093	39	92	16	4,197**	3,081**	4,024**	3,633**	3,337**	2,737**
Amaranto	37	89	13	3,181	2,421	3,078	2,975	2,199	2,108
CR2007-3-1	39	85	12	3,459	2,262	NA	NA	NA	NA
Etna	35	85	16	3,115	2,344	3,161	2,992	2,170	1,896
IG-VN	42	88	13	3,255	2,600	NA	NA	NA	NA
Jester	39	92	14	4,156*	2,713	3,218	2,979	2,984*	2,615*
OAC Firestripe	40	87	15	3,590	2,444	2,462	3,280	2,903*	2,395*
OAC Navabi	34	87	13	3,107	2,551	2,840	2,857	2,073	2,035
MEAN	38	88	14	3,441	2,490	3,217	3,001	2,512	2,181
LSD$_{(0.05)}$	NA	NA	NA	466	363	443	334	670	489
CV	NA	NA	NA	11.3%	12.1%	13.8%	13.7%	26.6%	27.6%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

Table 10. Light red kidney bean agronomic and yield results.

Light red kidney bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Montcalm (Lbs./A)	Tuscola (Lbs./A)	Irrigated 2-year avg. (Lbs./A)	Irrigated 3-year avg. (Lbs./A)	Dry land 2-year avg. (Lbs./A)	Dry land 3-year avg. (Lbs./A)
15916	37	85	14	3,631*	2,689	3,221	3,161*	3,051*	2,543**
15923	37	91	15	3,630*	2,496	3,545*	3,490**	2,210	1,962
20870	40	93	16	3,199	3,463**	NA	NA	NA	NA
20909	40	94	15	3,393	2,881	NA	NA	NA	NA
161055	38	90	15	3,475	3,017	NA	NA	NA	NA
161082	36	90	14	3,503	2,341	3,296	3,362*	2,982*	2,484
Big Red	35	85	13	3,985*	2,336	3,406*	3,225*	2,386*	2,029
Cal Early	34	84	16	3,555	2,143	3,060	3,108*	2,298	2,038
K2007-3-2	39	90	16	3,164	2,510	NA	NA	NA	NA
K22601	38	94	18	3,417	2,944	NA	NA	NA	NA
K22604	39	92	15	4,371**	3,057*	3,960**	NA	3,185**	NA
Pink Panther	35	86	17	3,512	2,642	3,277	3,137*	2,520	2,140
Ronnies Red	41	91	18	3,406	2,701	3,056	3,096*	2,510	2,323
Rosie	39	92	16	3,095	2,218	NA	NA	NA	NA
Spitfire	38	94	16	3,285	2,124	NA	NA	NA	NA
MEAN	38	90	16	3,508	2,637	3,356	3,226	2,656	2,229
LSD$_{(0.05)}$	NA	NA	NA	800	430	576	411	703	431
CV	NA	NA	NA	19.1%	13.7%	17.0%	15.6%	26.2%	23.6%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

Table 11. Dark red kidney bean agronomic and yield results.

Dark red kidney bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Montcalm (Lbs./A)	Tuscola (Lbs./A)	Irrigated 2-year avg. (Lbs./A)	Irrigated 3-year avg. (Lbs./A)	Dry land 2-year avg. (Lbs./A)	Dry land 3-year avg. (Lbs./A)
15977	39	90	15	3,604	2,889*	2,675	2,612	2,386	2,063
161156	38	89	14	4,622*	2,789	3,666*	3,360*	2,742*	2,389*
161165	40	88	14	4,103*	2,985*	3,395*	NA	3,223**	NA
181017	38	92	16	4,612*	3,099*	3,648*	3,510*	3,221*	2,670**
181020	36	85	13	4,153*	2,821*	3,308*	3,218*	2,174	1,892
181021	36	84	11	4,253*	2,295	3,526*	3,368*	1,973	1,826
Cinder	40	89	12	2,916	2,361	NA	NA	NA	NA
Dynasty	39	93	16	4,677**	3,172**	3,505*	3,374*	2,844*	2,633*
Epic	37	93	15	4,401*	2,925*	3,723**	3,520**	2,646*	2,421*
Gallantry	38	93	15	4,214*	3,014*	3,554*	3,313*	2,522	2,271*
K1920-2-3	40	92	19	3,952*	2,006	NA	NA	NA	NA
K23212	37	93	16	4,428*	2,861*	NA	NA	NA	NA
Montcalm	38	93	14	4,095*	2,214	3,505*	3,235*	2,252	2,087
ND Redbarn	39	89	15	3,368	2,140	NA	NA	NA	NA
Rampart	39	88	12	4,277*	2,553	3,536*	3,288*	2,546*	2,187*
Red Hawk	38	90	15	3,785	2,124	3,008	2,968	1,918	1,769
Seattle	39	91	12	3,964*	2,540	3,260*	3,001	2,707*	2,370*
MEAN	38	90	14	4,084	2,635	3,408	3,208	2,550	2,203
LSD$_{(0.05)}$	NA	NA	NA	779	418	612	432	681	514
CV	NA	NA	NA	16.1%	13.3%	18.0%	15.4%	26.9%	26.8%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

Table 12. White kidney bean agronomic and yield results.

White kidney bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Montcalm (Lbs./A)	Tuscola (Lbs./A)	Irrigated 2-year avg. (Lbs./A)	Irrigated 3-year avg. (Lbs./A)	Dry land 2-year avg. (Lbs./A)	Dry land 3-year avg. (Lbs./A)
Beluga	41	94	15	3,618*	2,770	2,970	2,631	2,959	2,414*
Denali	35	89	12	4,005*	2,900**	3,534*	3,401*	2,847	2,390*
K22801	38	95	16	3,936*	2,798	NA	NA	NA	NA
ND Whitetail	40	94	18	3,846*	2,613	3,056	3,172*	2,839	2,523*
OAC Snowshoe	28	93	14	2,840	2,598	2,817	3,030*	2,897	2,704**
Snowdon	35	90	14	3,624*	2,722	2,935	2,929	2,526	2,175
WK1601-1	39	91	16	4,215**	2,732	3,759**	3,507**	3,108	2,544*
MEAN	37	92	15	3,726	2,733	3,178	3,145	2,864	2,462
LSD(0.05)	NA	NA	NA	601	NS	518	503	NS	491
CV	NA	NA	NA	13.1%	9.2%	16.0%	19.5%	20.1%	24.6%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. NS = Non-significant. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

Table 13. Yellow bean agronomic and yield results.

Yellow bean entry	Flowering (DAP)	Maturity (DAP)	Plant height (inches)	Montcalm (Lbs./A)	Tuscola (Lbs./A)	Irrigated 2-year avg. (Lbs./A)	Irrigated 3-year avg. (Lbs./A)	Dry land 2-year avg. (Lbs./A)	Dry land 3-year avg. (Lbs./A)
Claim Jumper	42	88	17	4,419**	2,744	3,432**	2,993*	3,014*	2,688**
Honeycomb	36	91	12	3,957*	2,446	3,245*	3,139**	2,499	2,112
Motherlode	41	94	13	3,198	2,214	2,709	2,362	2,529	2,213
USDA Yellowjacket	35	83	13	3,385	2,326	2,681	2,524	2,117	1,970
Y1803-5-3	42	90	12	3,352	2,843**	NA	NA	NA	NA
Yellowstone	36	93	14	3,334	2,175	3,095*	2,802*	2.288	1,989
Yukon Gold	40	92	15	3,983*	2,106	3,417*	NA	3,211**	NA
MEAN	39	90	14	3,707	2,411	3,042	2,768	2,556	2,196
LSD(0.05)	NA	NA	NA	560	275	490	345	564	367
CV	NA	NA	NA	12.2%	9.3%	15.7%	15.1%	20.0%	20.3%

Note. The **highest** yield in each column is marked with two asterisks. Any values in a column that are not statistically different from the column's two-asterisk entry are marked with one asterisk. NA = Not available. DAP = Days after planting. Lbs./A = Pounds per acre. Lodging is rated on a scale from 1 (entry was completely erect in the field at harvest) to 5 (entry was flat on the ground with stems and pods touching the soil surface).

2024 Sourcing Information

Table 14. Sources of dry bean entries tested in the 2024 performance trials, organized alphabetically by market class.

Entry	Market class	Source
17746	Black	ProVita
17751	Black	ProVita
17771	Black	ProVita
21650	Black	ProVita
21702	Black	ProVita
21723	Black	ProVita
21727	Black	ProVita
22B042	Black	ADM [a]
22B127	Black	ADM
B2002-1-3	Black	USDA-ARS [b]
B20591	Black	MSU [c]
B21710	Black	MSU
B22041	Black	MSU
B22042	Black	MSU
B22062	Black	MSU
B22854	Black	MSU
B23911	Black	MSU
B23949	Black	MSU
B5054313	Black	ADM
B7071259	Black	ADM
B7072252	Black	ADM
B7072269	Black	ADM
B18094173	Black	ADM
Black Bear	Black	ProVita
Black Beard	Black	ProVita
Black Pearl	Black	MSU
Black Tails	Black	ProVita
Kona	Black	MSU
Nimbus	Black	ProVita
Spectre	Black	ProVita
Umbra	Black	Gentec
Zenith	Black	MSU
16756	Cranberry	ProVita
16758	Cranberry	ProVita
16775	Cranberry	ProVita
16816	Cranberry	ProVita
151093	Cranberry	ProVita
Amaranto	Cranberry	Seminis
CR2007-3-1	Cranberry	USDA-ARS
Etna	Cranberry	Seminis
IG-VN	Cranberry	Gentec
Jester	Cranberry	ProVita
OAC Firestripe	Cranberry	TVS [d]
OAC Navabi	Cranberry	TVS
15977	Dark Red Kidney	ProVita
161156	Dark Red Kidney	ProVita
161165	Dark Red Kidney	ProVita
181017	Dark Red Kidney	ProVita
181020	Dark Red Kidney	ProVita
181021	Dark Red Kidney	ProVita
Cinder	Dark Red Kidney	ADM
Dynasty	Dark Red Kidney	Gentec
Epic	Dark Red Kidney	ProVita
Gallantry	Dark Red Kidney	Gentec
K1920-2-3	Dark Red Kidney	USDA-ARS
K23212	Dark Red Kidney	MSU
Montcalm	Dark Red Kidney	MSU
ND Redbarn	Dark Red Kidney	NDSU [e]
Rampart	Dark Red Kidney	ProVita
Red Hawk	Dark Red Kidney	MSU
Seattle	Dark Red Kidney	ProVita
Eiger	Great Northern	MSU
G22004	Great Northern	MSU
ND Pegasus	Great Northern	NDSU
Powderhorn	Great Northern	MSU
15916	Light Red Kidney	ProVita
15923	Light Red Kidney	ProVita
20870	Light Red Kidney	ProVita
20909	Light Red Kidney	ProVita
161055	Light Red Kidney	ProVita
161082	Light Red Kidney	ProVita
Big Red	Light Red Kidney	ProVita
Cal Early	Light Red Kidney	TVS
K2007-3-2	Light Red Kidney	USDA-ARS
K22601	Light Red Kidney	MSU
K22604	Light Red Kidney	MSU
Pink Panther	Light Red Kidney	Seminis
Ronnies Red	Light Red Kidney	ProVita
Rosie	Light Red Kidney	NDSU
Spitfire	Light Red Kidney	ADM

Entry	Market class	Source
14084	Navy	ProVita
14092	Navy	ProVita
21102	Navy	ProVita
21108	Navy	ProVita
21127	Navy	ProVita
Argosy	Navy	Gentec
Armada	Navy	ProVita
AuSable	Navy	MSU
Blast	Navy	Gentec
Blizzard	Navy	ProVita
EX2109-N	Navy	TVS
EX2111-N	Navy	TVS
HMS Bounty	Navy	ProVita
HMS Medalist	Navy	ProVita
Liberty	Navy	ProVita
N21510	Navy	MSU
N22005	Navy	MSU
N22616	Navy	MSU
N22622	Navy	MSU
N22623	Navy	MSU
N23706	Navy	MSU
N23715	Navy	MSU
Nautica	Navy	Gentec
ND Polar	Navy	NDSU
OAC Charm	Navy	TVS
OAC Seal	Navy	Jefferies Seeds
Steam	Navy	Gentec
T9905	Navy	TVS
Valiant	Navy	ProVita
Victory	Navy	ProVita
Coral	Pink	MSU
ND Rosalind	Pink	NDSU
S22507	Pink	MSU
Cancun	Pinto	ProVita
Charro	Pinto	MSU
Cowboy	Pinto	ProVita
EX2145-P	Pinto	TVS
EX2146-P	Pinto	TVS
ND Falcon	Pinto	NDSU
P23311	Pinto	MSU
SV6139GR	Pinto	Seminis
USDA Rattler	Pinto	Kelley Bean
Bronco	SDP[f]	TVS
Eternal	SDP	Gentec
Gleam	SDP	ProVita
Mystic	SDP	ProVita
ND Palomino	SDP	NDSU
ND Rodeo	SDP	NDSU
Shine	SDP	ProVita
USDA Diamondback	SDP	Kelley Bean
Vibrant	SDP	ProVita
16686	Small Red	ProVita
17822	Small Red	ProVita
17837	Small Red	ProVita
17848	Small Red	ProVita
17851	Small Red	ProVita
19837	Small Red	ProVita
R20669	Small Red	MSU
R22703	Small Red	MSU
R22710	Small Red	MSU
Viper	Small Red	ProVita
Beluga	White Kidney	MSU
Denali	White Kidney	MSU
K22801	White Kidney	MSU
ND Whitetail	White Kidney	NDSU
OAC Snowshoe	White Kidney	TVS
Snowdon	White Kidney	MSU
WK1601-1	White Kidney	USDA-ARS
Claim Jumper	Yellow	ProVita
Honeycomb	Yellow	USDA-ARS
Motherlode	Yellow	ProVita
USDA Yellowjacket	Yellow	USDA-ARS
Y1803-5-3	Yellow	USDA-ARS
Yellowstone	Yellow	MSU
Yukon Gold	Yellow	MSU

[a] ADM = Archer-Daniels-Midland

[b] USDA-ARS = U.S. Dept. of Agriculture—Agricultural Research Service

[c] MSU = Michigan State University

[d] TVS = Treasure Valley Seed

[e] NDSU = North Dakota State University

[f] SDP = Slow darkening pinto