

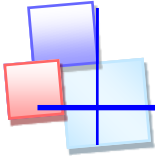
DRY BEAN VARIETIES FOR 2018



Michigan's
Premier Dry
Bean Marketer

Navy Beans
Black Beans
Small Red Beans
Pinto Beans

COOPERATIVE ELEVATOR CO.



Vision

We develop long-term relationships with customers and the community that exceed their business expectations.

Mission

We provide quality service, products and markets to enhance the value of the Cooperative.

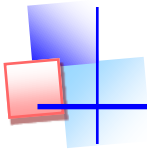


Cooperative Elevator Co. is dedicated to bring you the best dry bean varieties in the country. Our seed is researched and hand selected by our elite breeders in Idaho. The selected varieties go through an intense research program and then they are chosen based on traits for our specific needs here in the thumb of Michigan. Once chosen, the varieties are sent to be grown for seed production in Washington State. Cooperative Elevator Co. works with certified trained individuals and together we present to you this reference book of our top dry bean varieties.



NAVY BEANS

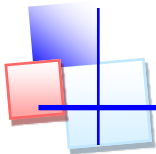
**Blizzard
Medalist
Merlin
Vigilant
06063**



Blizzard

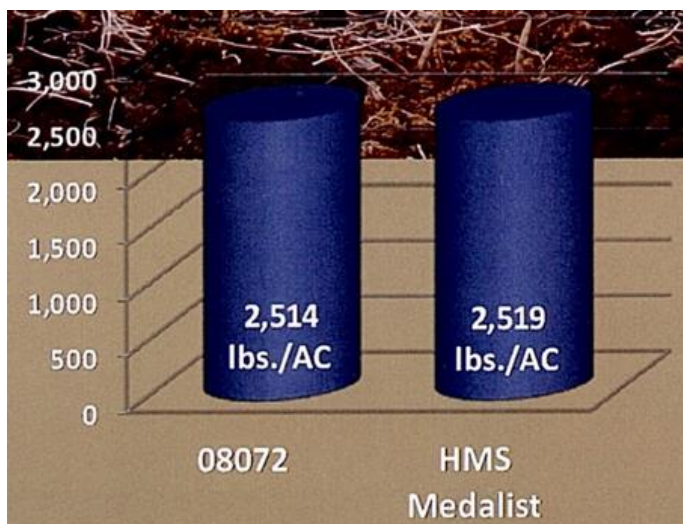


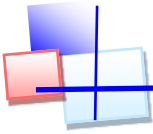
- Excellent upright architecture and good dry down suitable for direct harvest.
- Good Dry Down
- Matures 97-101 days or about 4 days earlier than HMS Medalist.
- Approximate seed count is 2,298 seeds/lb.
- Blizzard has demonstrated good canning characteristics.
- Blizzard has the “I” gene for bean common mosaic virus.



Blizzard is a broadly adapted navy bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture, good dry down, early maturity and yield potential make it an excellent choice for Michigan and Ontario growers.

Blizzard yields competitively with HMS Medalist and has earlier maturity allowing the grower to replant or plant later, stagger harvest, and maximize risk due to weather. Data shows Blizzard yielding with HMS Medalist for 24 yr./location of data.

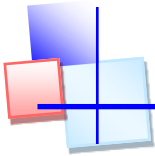




Medalist

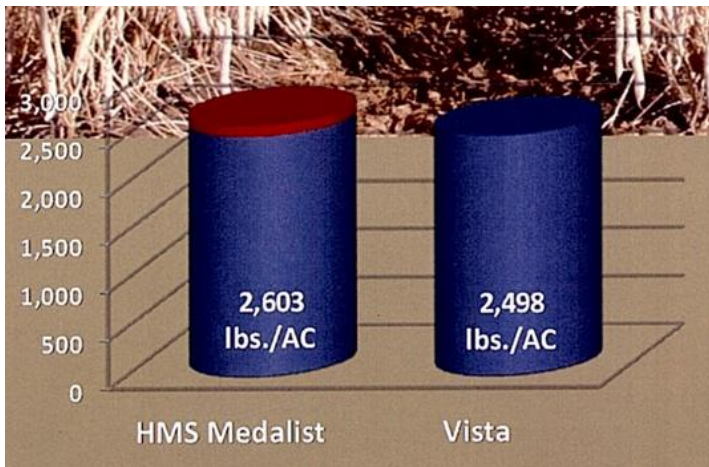


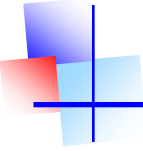
- Excellent upright architecture suitable for direct harvest.
- Matures 96-100 days or about the same maturity as Vista.
- Approximate seed count is 2,416 seeds/lb.
- HMS Medalist has demonstrated good canning characteristics.
- HMS Medalist has the “I” gene for bean common mosaic virus, has shown some resistance to Anthracnose (race 7) and has shown rust resistance in the Colorado State rust nursery.



HMS Medalist is the new standard for your yield and direct harvestability in Michigan, North Dakota, and beyond.

HMS Medalist is a broadly adapted navy bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture, and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

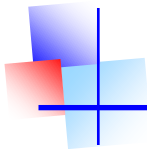




Merlin

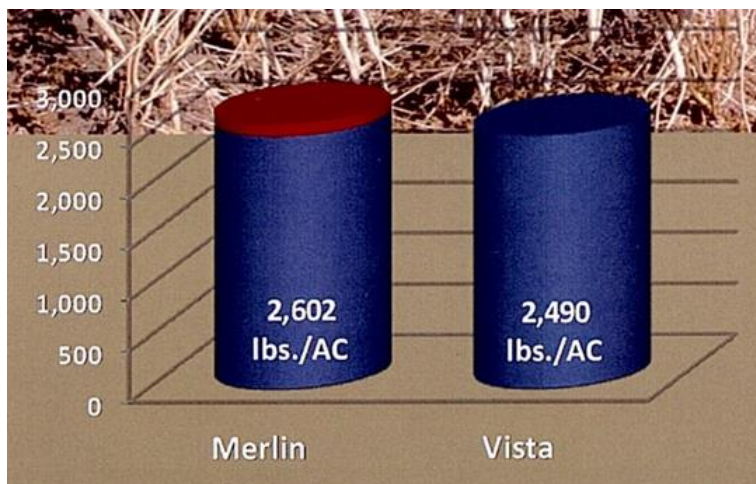


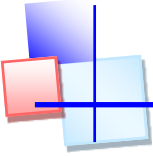
- Excellent upright architecture suitable for direct harvest.
- Matures 95-99 days or about 1 days earlier than Vista.
- Approximate seed count is 2,470 seeds/lb.
- Merlin has the “I” gene for bean common mosaic virus, is resistant to Anthracnose (race 7), and has shown resistance to rust in the CSU rust nursery.
- User feedback is that Merlin demonstrates an avoidance or tolerance to white mold.



Merlin is a broadly adapted navy bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture, earlier maturity and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

Assuming an 80 lbs./AC yield increase over Vista, profit would increase \$32/AC on \$45/cwt. beans. This would amount to \$3,200 increased profit over Vista on 100 acres of production and the added benefit of maturing 1 days earlier and better architecture.

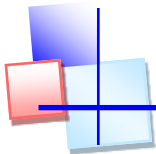




Vigilant

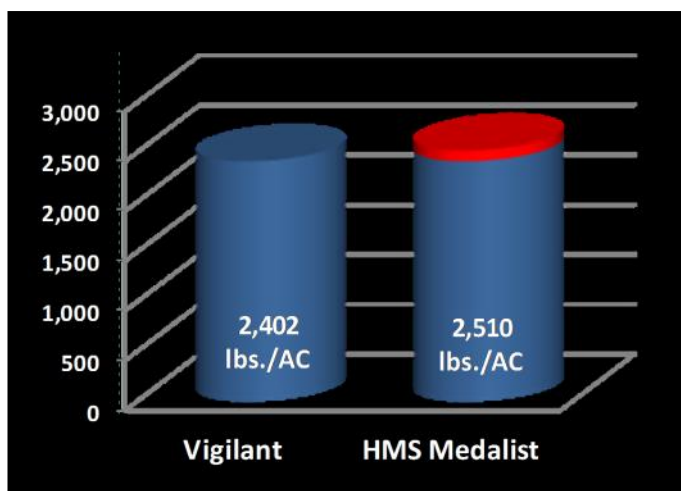


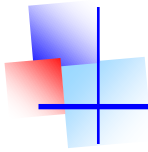
- Excellent upright architecture suitable for direct harvest.
- Matures 93-97 days or about 3 days earlier than HMS Medalist
- Approximate seed count is 2,400 seeds/lb.
- Vigilant has demonstrated exceptional canning characteristics.
- Vigilant has the “I” gene for bean common mosaic virus, is resistant to Anthracnose (race 7), and has shown resistance to rust in the CSU rust nursery.



Vigilant is a broadly adapted navy bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture, earlier maturity and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

Vigilant's economic benefit over HMS Medalist is its earlier maturity. Vigilant's earlier maturity allows the grower to replant or plant later, stagger harvest, and minimize risk due to weather; when paired with a longer season variety such as HMS Medalist. Vigilant dries down good and is one of the best candidates for direct harvest.

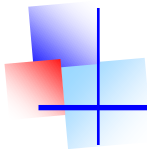




Navy 06063

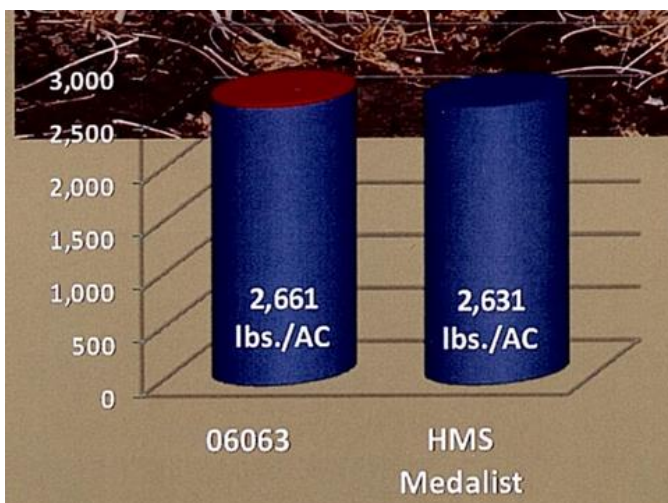


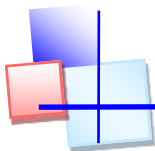
- Excellent upright architecture suitable for direct harvest.
- Good Dry Down
- Matures 94-98 days or about 3 days earlier than HMS Medalist.
- Approximate seed count is 2,200 seeds/lb.
- 06063 has demonstrated good canning characteristics.
- 06063 has the “I” gene for bean common mosaic virus and has shown resistance to rust in the CSU rust nursery.

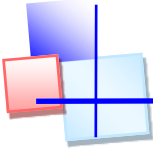


06063 is a broadly adapted navy bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture, good dry down, earlier maturity and excellent yield potential make it an excellent direct harvest choice for Michigan and Ontario growers.

Assuming a 57 lbs./AC yield increase over HMS Medalist, profit would increase \$25/AC on \$45/cwt. beans. This would amount to \$2,500 increased profit over HMS Medalist on 100 acres of production and the added benefit of maturing 3 days earlier.





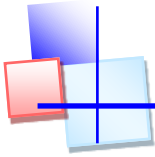


Black Beans

Black Bear

Black Cat

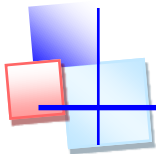
Loreto



Black Bear (12576)

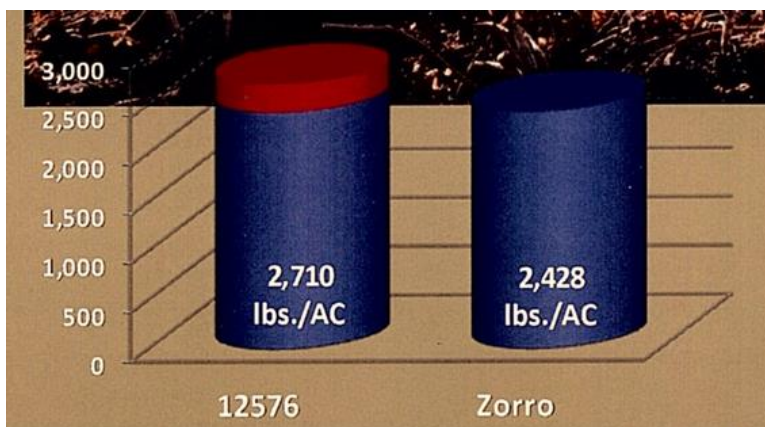


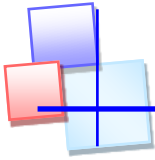
- Excellent upright architecture suitable for direct harvest.
- Matures in 99-103 days or about 4 days earlier than Zorro.
- Approximate seed count is 2,271 seeds/lb.
- Preliminary testing shows that the Black Bear has the “T” gene for bean common mosaic virus.



Black Bear is a new black bean variety that initially has shown good adaptability ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

Using only 2014 PRAB data from Huron, Sanilac, Tuscola and Bay counties; which is Black Bear's first year trialed. The Black Bear has shown a yield advantage of 110 lbs./AC over Zorro and matures 4 days earlier.

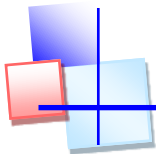




Black Cat

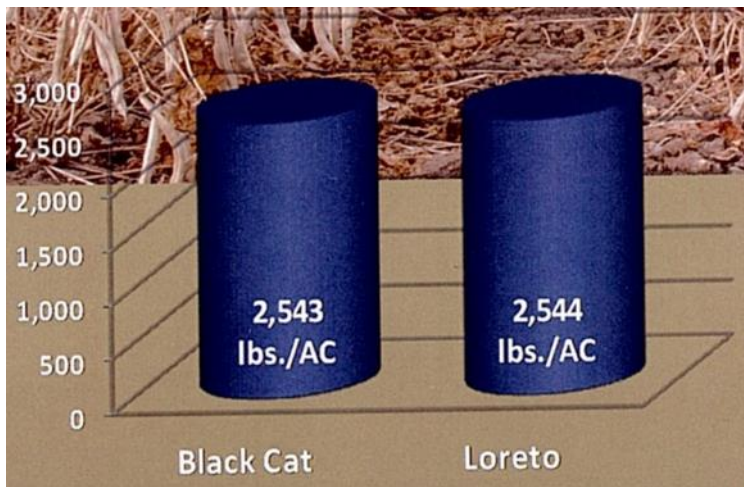


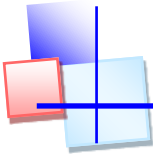
- Excellent upright architecture suitable for direct harvest.
- Matures 97-101 days or about 1 day earlier than Loreto.
- Approximate seed count is 2,356 seeds/lb.
- Black Cat has the “T” gene for bean common mosaic virus, is resistant to Anthracnose (race 7), and has shown resistance to rust in the CSU rust nursery.



Black Cat is a broadly adapted black bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

Black Cat has shown to yield competitively with full season blacks and may show some advantage on poorer soil conditions when compared to Loreto and Zorro.

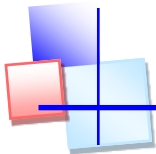




Loreto

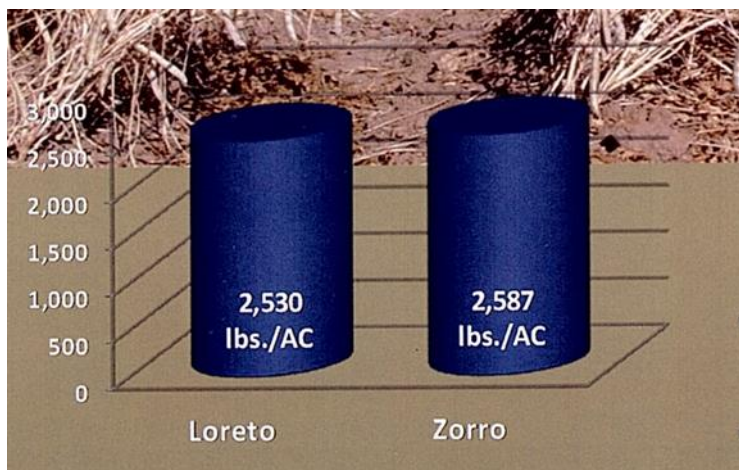


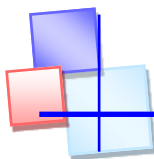
- Excellent upright architecture suitable for direct harvest.
- Matures 97-101 days or about the same as Zorro.
- Approximate seed count is 2,137 seeds/lb.
- Loreto has the “T” gene for bean common mosaic virus, is resistant to Anthracnose (race 7), (race 65), and (race 73) and has the UR3 gene for resistance to the most prevalent strains of rust.

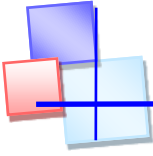


Loreto is a broadly adapted black bean variety ideally suited to Michigan and Ontario production regions. A consistent performer throughout the trialing process and in commercial production, its upright architecture and excellent yield potential make it an excellent choice for Michigan and Ontario growers.

Loreto has shown to yield competitively with full season blacks such as Black Cat and Zorro.

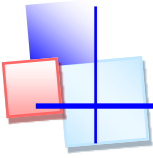




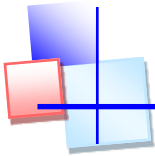


Small Red **Beans**

Viper

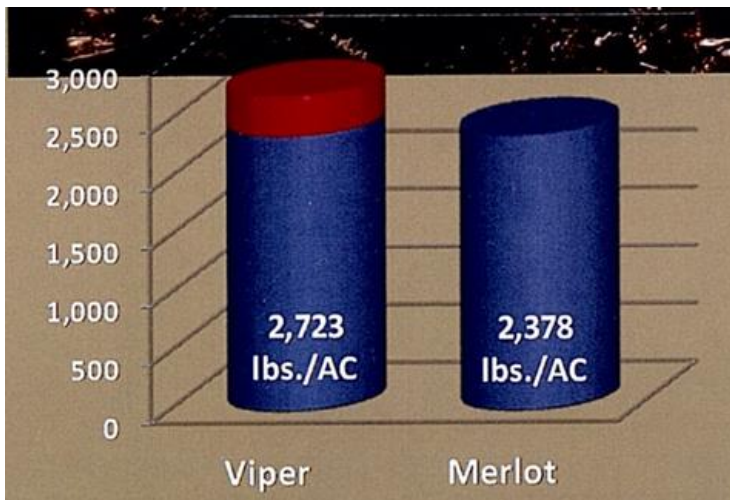


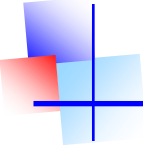
- Excellent semi-upright architecture.
- Matures 95-99 days or about one day earlier than Merlot.
- Approximate seed count is 1,565 seeds/lb.
- Good seed color, appearance and shape.
- Viper has demonstrated average canning characteristics.
- Preliminary testing has shown that the Viper has resistance to bean common mosaic virus (BCMV).
- Resistant to Rust strains tested for at Colorado State University

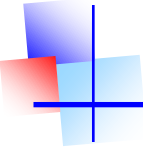


Viper has shown broad adaptability in trials throughout the U.S. growing regions as well as the Manitoba and Ontario growing regions in Canada. The Viper is in-determinant, semi-upright in it's architecture and provides great yield potential to the grower.

Preliminary yield data from the Great Lakes region shows Viper with a yield advantage of 2,723 lbs./AC. Assuming a 280 lbs./AC yield increase over Merlot. Assuming a 345 lbs./AC yield increase over Merlot, profit would increase \$138/AC on \$40/cwt. Beans. This would amount to \$13,800 for 100 AC of production.

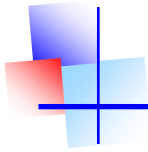






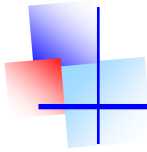
Pinto Beans

Vibrant



NEW!! High Yielding, Slow Darkening Pinto Bean!

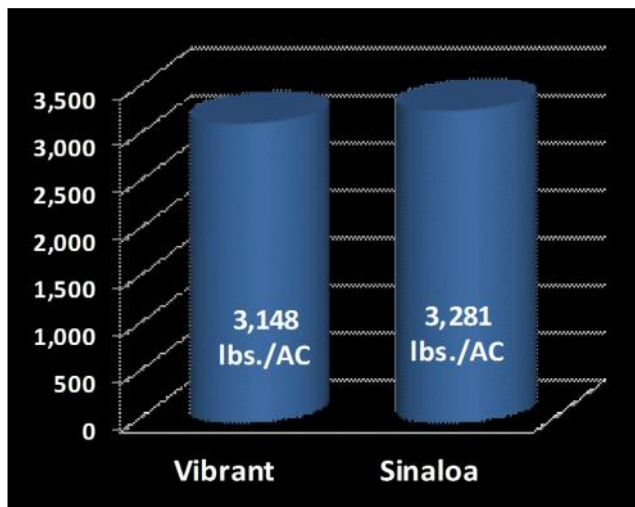
- Excellent upright architecture for direct harvest.
- Approximate seed count is 1,296 seeds/lb.
- Excellent seed color, color retention, appearance and shape.
- Resistant to Rust strains tested for at Colorado State University.



Vibrant has shown broad adaptability in trials throughout the High Plains, Idaho and in the MINDAK region. Vibrant is indeterminate, upright in it's architecture and provides great yield potential to the grower.

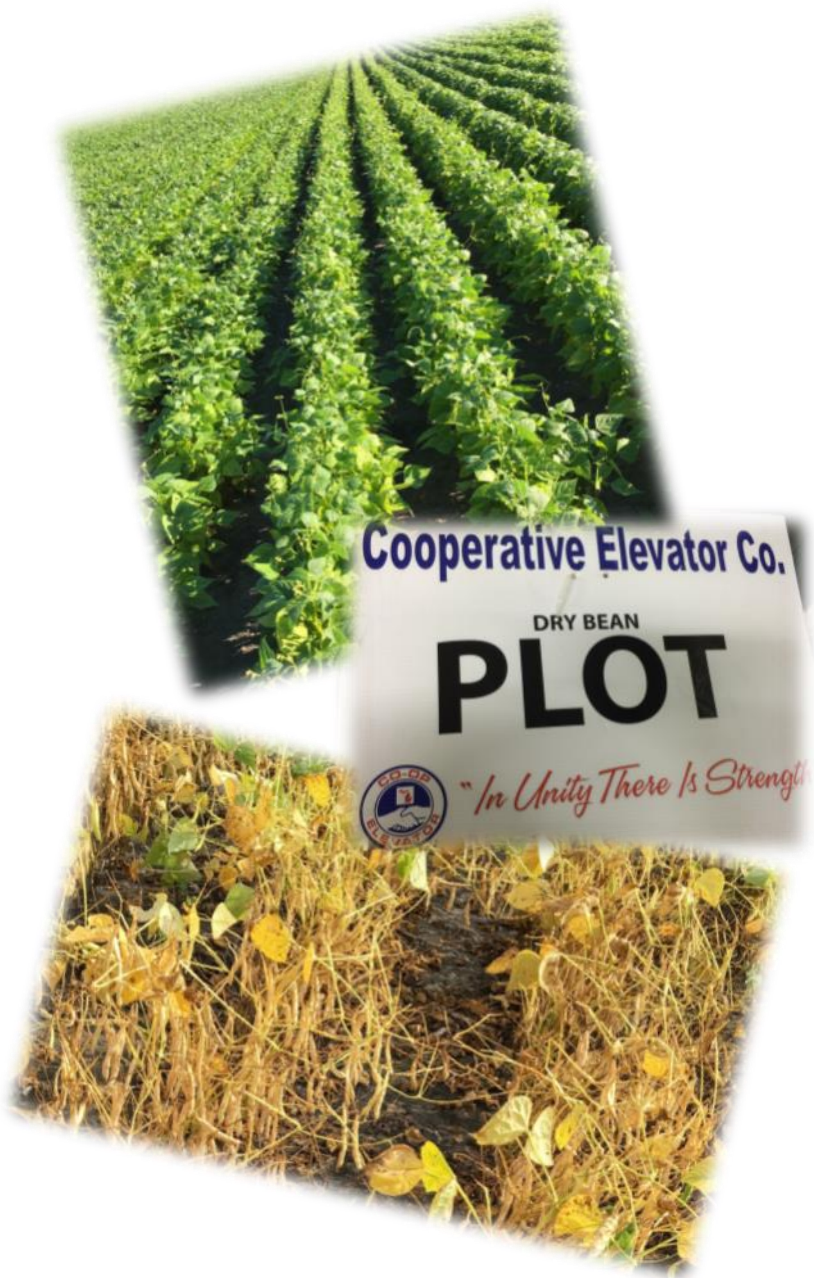
Vibrant has a slow darkening gene which maintains it's color through the natural aging process. The slow darkening gene also preserves the quality and value of Vibrant through adverse weather conditions, that normally darken and degrade traditional pintos.

Limited data shows Vibrant yielding competitively with Sinaloa in the MINDAK region, while maturing 2 days' earlier. This earlier maturity provides good harvest options for farmers seeking to spread out harvest, or re-plants after adverse weather conditions.



2017
COOPERATIVE
ELEVATOR CO.
DRY BEAN PLOTS





Cooperative Elevator Co. Strip Trials 2017

Ruth, MI		Yield
Variety	Lbs./ Acre	CWT/ Acre
Black Bear	3006	30.1
Zorro	2745	27.5
Zenith	2745	27.5
Black Cat	2876	28.8
Loreto	2614	26.1
Black Tails	3007	30.1
14497	3924	39.2
14506	3399	34.0
Blizzard	3052	30.5
Merlin	2907	29.1
Medalist	2907	29.1
Ruby	2907	29.1
Viper	3343	33.4
SR11511	3052	30.5
Radiant	2614	26.1
Vibrant	2745	27.5
32		

Cooperative Elevator Co. Strip Trials 2017

Pigeon, MI		Yield
Variety	Lbs./ Acre	CWT/ Acre
Black Bear	2876	28.8
Zorro	2745	27.5
Zenith	2876	28.8
Black Cat	2614	26.1
Loreto	2484	24.8
Black Tails	2745	27.5
14497	2876	28.8
14506	3137	31.4
Blizzard	2222	22.2
Merlin	2614	26.1
Medalist	2353	23.5
Ruby	2745	27.5
Viper	2745	27.5
SR11511	2875	28.8
Radiant	1830	18.3
Vibrant	1961	19.6

PLANTING DATES:

NAVY	DAYS	ORIGIN	BAY	GRATIOT	HURON	MONTCALM	SANILAC	TUSCOLA	2017 AVE 4-2 LOC	White Mold - Lodging Rating
HMS MEDALIST	100-108	COOP/ADM	1866	2733	2957	2940	2823	2088	2680-2523	2.4-2.0
MERLIN	100-108	COOP/ADM	2181	2756	2892	3119	2189	2449	2804-2671	2.4-2.5
HYLAND T9905	98-107	TVS	2340	2516	2737	2775	2864	2194	2543-2466	2.8-2.5
VIGILANT	98-103	PROVITA	1327	2921	2692	3375	2558	2584	2893-2638	3.2-1.5
ALPENA	98-106	MSU	1919	2557	2559	2277	2632	2236	2407-2398	3.2-2.0
DS105WO	100-106	TVS	2337	2555	3041	2884	2871	2641	2780-2841	2.0-3.0
VISTA	99-108	GTS	2104	3159	2686	3218	2462	2581	2914-2634	2.5-2.5
GTS OB-1723-03	101-108	GTS	2099		2597		2170	2130	2364	2.8-2.5
REXETER	102-106	OAC-HDC	1806		2806		2784	2790	2798	2.5-2.5
NAUTICA	102-105	OAC-HDC	2331		3184		2539	2562	2873	2.2-2.5
MIST	100-106	OAC-HDC	1967		3017		2041	2129	2573	1.7-2.5
ARGOSY	101-107	OAC-HDC	2909		3685		2592	2392	3039	2.5-2.5
BLIZZARD 08072	102-107	PROVITA	2220		2969		2125	1948	2459	2.7-2.5
PROVITA 06063	103-109	PROVITA	2220		3031		2098	2654	2843	3.2-2.5
PROVITA 12039	103-109	PROVITA	2461		3018		2871	2803	2911	3.0-3.0
PROVITA 12047	103-108	PROVITA	2376		3204		2138	2090	2647	2.4-2.0
PROVITA 12062	103-107	PROVITA	2610		3314		3686	2462	2888	2.5-2.0
PROVITA 12063	102-106	PROVITA	2435		3451		2954	2314	2883	2.8-2.5
PROVITA 12064	104-107	PROVITA	2204		3143		2995	2493	2818	2.0-2.0
PROVITA 13049	105-109	PROVITA	2089		3066		2514	2024	2545	2.5-2.5
PROVITA 13058	106-111	PROVITA	3006		2971		3332	2192	2582	3.0-2.5
PROVITA 13066	106-110	PROVITA	1967		3280		3305	1967	2624	2.0-1.5
PROVITA 13068	104-108	PROVITA	2299		3278		2648	2358	2818	2.5-2.0
PROVITA 14068	106-110	PROVITA	2697		3116		3029	3038	3077	3.0-2.0

PROVITA 14078	107-112	PROVITA	1948	3394	3292	2420	2907	3.0-2.0
PROVITA 14084	104-109	PROVITA	2594	3087	3463	2111	2599	2.0-2.0
MSU N14229	95-105	MSU	2792	3118	2722	3033	3076	2.5-3.0
MSU N15341	100-104	MSU	2642	2737	3128	2557	2647	3.0-2.5
MSU N16401	97-104	MSU	1525	2538	1961	2043	2291	2.0-2.5
MSU N16405	100-104	MSU	2309	2725	2818	2663	2694	2.0-2.5
			lsd=813	lsd=456	lsd=931	lsd=395		
			cv=25.7%	cv=11.2%	cv=21.4%	cv=11.7%		
White Mold -								
<u>SMALL RED/PINK</u>	<u>DAYS</u>	<u>ORIGIN</u>	<u>BAY</u>	<u>GRATIOT</u>	<u>HURON</u>	<u>SANILAC</u>	<u>TUSCOLA</u>	<u>2017 AVE</u>
MERLOT	95-108	USDAMSU	2526	2716	2842	1721	3386	5-4 LOC
VIPER SR 09303	94-108	PROVITA	3483	3488	3582	1415	4280	2638-2619
RUBY SR 09304	95-108	PROVITA	2838	3005	3068	1480	3660	3250-3190
SR 11511	108-112	PROVITA	3159		3785	1955	3983	2810-2761
CAYENNE	96-108	MSU	2789	3274	3312	1975	3547	3221
MSU R16503	105-108	MSU	2734		3538	1801	2894	2979-2906
ROSETTA PINK	97-108	MSU	2388		2746	1662	3218	2742
S16808 PINK	100-108	MSU	2117		2786	1090	3258	2504
			lsd=624	lsd=419	lsd=518	lsd=716	lsd=486	2313
			cv=15.4%	cv=8.4%	cv=11.0%	cv=29.7%	cv=9.4%	

<u>BLACK</u>	<u>DAYS</u>	<u>ORIGIN</u>	<u>BAY</u>	<u>GRATIOT</u>	<u>HURON</u>	<u>MONTCALM</u>	<u>SANILAC</u>	<u>TUSCOLA</u>	<u>4-2 LOC</u>	White Mold -	
										2017 AVE	Lodging Rating
ZORRO	99-108	MSU	1462	2383	3153	2223	1712	2519	2570-2836		2.4-2.0
ZENITH	99-109	MSU	1401	2360	3125	2690	1574	2587	2691-2856		2.8-2.0
LORETO	99-108	COOP-PRO	1800		3075		2237	3079	3077		2.8-2.5
SHANIA	104-108	ADM	2198		2918		2048	2928	2923		2.8-2.5
ECLIPSE	93-100	NDSU	1933		3138		2239	2768	2953		3.0-1.5
BLACK CAT	99-108	PROVITA	1531		2855		2434	2887	2871		3.5-2.5
BLACK BEAR 12576	105-110	PROVITA	2054		3227		1685	3019	3123		3.0-2.5
BL 13489	100-108	PROVITA	1844		3275		2185	3059	3167		3.3-2.5
BL 13490	100-108	PROVITA	2745		3465		2675	2478	2972		2.5-2.0
BL 13496	101-107	PROVITA	1896		2797		1918	2645	2721		2.0-2.0
BL 13503	99-105	PROVITA	1235		2809		1521	1683	2246		2.0-2.0
BL 13505	100-107	PROVITA	2566		3669		1963	2922	3296		2.0-2.0
BL 14496	102-110	PROVITA	2255		3352		2611	3289	3321		2.0-2.0
BL 14497	104-110	PROVITA	2464		3687		1812	3251	3469		2.0-2.0
BL 14498	102-106	PROVITA	2533		3425		2349	3297	3361		1.5-2.0
BL 14500	102-107	PROVITA	2443		3895		2779	3500	3698		2.0-2.0

BL 14504	104-108	PROVITA	2303	3453	2661	2699	3076	2.2-2.5
BL 14506	104-108	PROVITA	2738	3423	2249	2926	3175	2.5-2.0
BL 14510	104-109	PROVITA	1652	3071	2591	2150	2611	2.5-2.5
BL 14522	103-109	PROVITA	2402	3438	2127	2878	3158	2.0-2.0
MSU B15430	100-106	MSU	2436	3120	2403	3331	3226	2.0-2.5
MSU B15442	98-105	MSU	2443	3485	2892	3023	3254	2.0-2.0
MSU B16504	98-106	MSU	2799	3918	2599	3643	3781	2.0-2.0
MSU B16506	98-105	MSU	2251	3457	1741	3070	3264	2.0-2.0
MSU B16507	96-106	MSU	2166	3343	2687	2902	3123	2.0-2.0
ADM B8006282	101-106	ADM	1792		2144	2579		3.0-2.5
ADM B0040613	100-105	ADM	2324		2085	2739		2.5-2.0
ADM B1048276	101-104	ADM	2086		2180	2520		2.0-2.5
ADM B1048280	102-106	ADM	2024		2360	2675		
			lsd=606	lsd=456	lsd=612	lsd=905	lsd=458	
			cv=20.2%	cv=9.8%	cv=17.7%	cv=29.0%	cv=11.4%	

		2017 AVE		White Mold				
<u>PINTO</u>	<u>DAYS</u>	<u>ORIGIN</u>	<u>BAY</u>	<u>GRATIOT</u>	<u>MONTCALM</u>	<u>SANILAC</u>	<u>4 LOC</u>	<u>Lodging Rating</u>
ELDORADO	100-104	MSU	2773	2360	3305	2807	2811	2.5-3.0
LA PAZ	95-102	PROVITA	2195	2565	2269	2085	2279	3.5-2.5
MSU P14812	93-102	MSU	2119	2472	3063	1554	2302	3.0-3.0
MSU P14814	98-99	MSU	2114	2853	2257	2385	2402	4.0-3.0
MSU P16911	94-102	MSU	1877	3182	2269	2039	2342	4.0-3.0
WINDBREAKER	92-98	SEMINIS	1485	2050	2717	1406	1915	3.0-3.0
SV6139GR	95-98	SEMINIS	1310	1879	3123	1216	1882	2.5-2.5
RADIANT SD	92-102	PROVITA	1343	2990	3228	1534	2274	2.5-2.5
VIBRANT SD	93-99	PROVITA	1508			1573		0.0-2.5
			Isd=582	Isd=508	Isd=1059	Isd=930		
			cv=21.5%	cv=13.8%	cv=25.9%	cv=34.5%		

NAVY AND BLACK BEANS

<u>Row width</u>	<u>Seeds per acre</u>	<u>Seed spacing</u>
28" - 30"	90,000 – 100,000	2.25 in
22" - 20"	115,000	2.75 in
15"	135,000	3.33 in

SMALL RED

<u>Row width</u>	<u>Seeds per acre</u>	<u>Seed spacing</u>
28" – 30"	80,000 – 90,000	2.50 in
22"– 20"	105,000	2.875 in

Narrower **Not recommended**

Recommended Planting Cut off Dates

Medalist	June 25
Merlin	June 25
Loreto	June 28

The information provided in this guide is the opinion and expression of Cooperative Elevator Co.'s Staff and the only intention is to assist you in determining which varieties are best for your farm.

TABLE 5A -Weed Response to Herbicides in Dry Edible Beans*

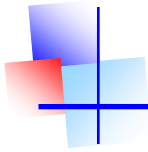
	SITE OF ACTION	CROP TOLERANCE**	ANNUAL BROADLEAVES	ANNUAL GRASSES	PERENNIALS
Preplant Incorporated DUAL MAGNUM/PARALLEL	15	2	COCKLEBUR JIMSONWEED LAMBSQUARTERS NIGHTSHADE (E. BLACK) PIGWEEED RAGWEED (COMMON) SMARTWEED VELVETLEAF WILD MUSTARD	BARNYARDGRASS CRABGRASS GIANT FOXTAIL GREEN FOXTAIL YELLOW FOXTAIL FALL PANICUM WITCHGRASS SANDBUR	BINDWEED (FIELD) BINDWEED (HEDGE) CANADA THISTLE QUACKGRASS YELLOW NUTSEDGE
	8	2			
	15	3 ^a			
	3	1			
	2	3			
	3	1			
	3	1			
Preemergence DUAL MAGNUM/PARALLEL	15	2			
	15	3 ^a			
	2	3			
	2	3			
	14	2			
	9/15	2			



NOTES

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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Plants	Name	Cell Phone#
Akron (989) 691-5711	Ron Will	691-5711
Bad Axe (989) 269-9929	Dutch Seley Tim Wilke	550-4167 551-4575
Elkton 28% (989) 375-2292	Brandon Swartzendruber	550-1087
Fairgrove (989) 693-6104	Jim Reithel David Ackerman	551-0093 550-4232
Gagetown (989) 665-9975	Shawn Dunn Erica Gremel	553-6679 751-7668
North Branch (810) 338-4086		
Pigeon (989) 453-4530	Randy Haag Canton Brissette	550-0500 553-0628
Pigeon Office (989) 453-4500	Dan Armbruster Diane Lowe	550-2533 Ext. 569
Ruth (989) 864-3391	Jim Terbrack Travis Tanton Katie Volmering	550-2136 975-1109 553-6680
Sebewaing (989) 883-3030	Joel Fischer	553-1080
Seed Plant –Pigeon (989) 453-4529	Kevin Roestel Dave Dunn	550-7869