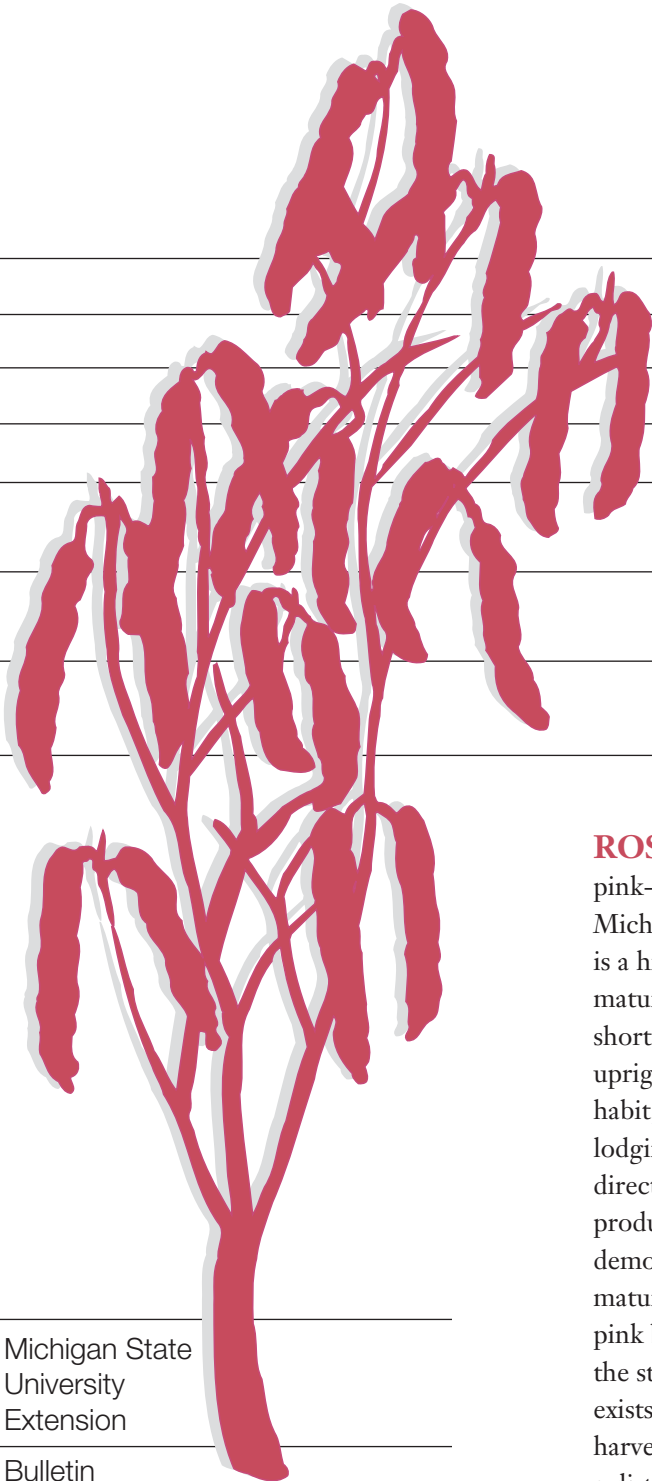


**NEW from
MSU**

Rosetta

NEW PINK BEAN
for Michigan



- New upright pink bean variety suited for direct harvest.
- Matures in 96 days, one day later than Sedona pink bean.
- Exhibits uniform maturity coupled with good dry-down.
- Exhibits white mold avoidance because of upright plant type.
- Does not exhibit the stem breakage problem that occurs with Sedona.
- Resistant to common strains of rust and mosaic virus in Michigan.
- Attractive pink bean seed possesses acceptable canning quality.

ROSETTA is a new erect pink-seeded bean variety from Michigan State University. Rosetta is a high-yielding, midseason-maturing variety with an upright, short vine growth habit. The upright, narrow profile plant habit, combined with resistance to lodging, makes Rosetta suitable for direct harvest under narrow-row production systems. Rosetta has demonstrated the similar uniform maturity and dry-down as Sedona pink bean, but it does not exhibit the stem breakage problem that exists in Sedona. As plants near harvest, the stems and pods have a distinctive pink pigmentation. Rosetta is resistant to strains of bean rust and bean common mosaic

virus present in Michigan. Seed is slightly smaller than the seed of Sedona, but it possesses acceptable canning quality equivalent to that of Sedona.

Origin and breeding history

Rosetta, tested as breeding line S08418, was developed as a high-yielding, midseason-maturing pink bean variety with enhanced disease resistance and acceptable canning quality. Rosetta was developed from the cross of two MSU pink bean breeding lines: S02754 and S04503. MSU breeding line S02754 was an upright pink-seeded line that carried resistance to common bacterial blight. MSU breeding line S04503 was a tall,

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erect pink-seeded line derived from a three-way cross with Matterhorn great northern that exhibited suitability for direct harvest. The purpose of the cross was to combine desirable agronomic traits from S04503 with the resistance to common bacterial blight in S02754 in future erect, high-yielding pink bean varieties suitable for direct harvest. The cross, made in 2005, was advanced to the F6 generation and was entered into yield trials in 2008 under the code number S08418.

Agronomic and disease information

Rosetta exhibits the type-II upright, indeterminate short vine growth habit combined with resistance to lodging (1.8 on a scale of 1= erect to 5= prostrate). Plants average 21 inches in height and are slightly more upright than those of Sedona (see table). Rosetta exhibits an overall upright appearance compared with the typical decumbent type-III vine varieties such as Roza, Yolano and UI 537. Rosetta is white-flowered; plants flower in 43 days, similar to Sedona. Rosetta is a midseason bean, maturing 96 days after planting. The range in maturity is from 88 to 103 days, depending on season and location. It matures one day later than Sedona and is similar in maturity to Merlot small red variety. Rosetta has demonstrated similar uniform maturity and dry-down as Sedona, but it does not exhibit the stem breakage problem that exists in Sedona. The plant stems appear more pliable and can lean at harvest but do not break off at the lowest node, which can occur in Sedona. Rosetta has a high agronomic acceptance rating because of its upright habit, resistance to lodging, and excellent pod load and favorable high pod placement in the plant canopy.

Rosetta was tested for four years (2008-11) in more than 21 locations by MSU in cooperation with colleagues in Michigan, North Dakota, Idaho and Washington. Yield averaged 25 cwt/acre over 21 locations and ranged from a high of 51 cwt/acre in Othello, Wash., in 2011 to a low of 13 cwt/acre under drought conditions at the Saginaw Valley Research and Extension Center (SVREC), near Richville, Mich., in 2010. Over the locations tested, Rosetta outyielded Sedona by 5 percent and Merlot small red variety by 3 percent. Planted in narrow rows (20 inches) and combined with direct harvest, Rosetta has produced competitive yields in excess of 25 cwt/acre. It appears well-suited to that production system. Growers should follow current recommended practices for fertility and weed control in growing Rosetta beans, found at: <http://agbioresearch.msu.edu/saginawvalley/index.html>; www.msuweeds.com.

Rosetta possesses the single dominant hypersensitive *I* gene, which conditions resistance to seed-borne bean common mosaic virus (BCMV). The *I* gene prevents any transmission of seed-borne virus, which could occur with the recessive *bc-1²* gene present in Sedona because it is not effective against all strains of BCMV that exist in the western United States where seed is produced. Rosetta is similar to other pink bean varieties in reaction to a number of pathogens. It is susceptible to race 73 of anthracnose and susceptible to common bacterial blight. Rosetta does possess resistance to some races of rust but is susceptible to rust race 22:2, now prevalent in Michigan. Rosetta exhibits higher levels of tolerance to white mold than Sedona and is equivalent in resistance levels to Merlot small red variety.

Quality characteristics

Rosetta has a typical medium-sized pink bean seed averaging 36 g/100 seeds; size ranges from 31 to 39 g/100 seeds. The seed is slightly smaller than that of Sedona, and it has a stronger pink color at harvest. In canning trials, Rosetta was subjectively rated by a team of panelists as being average in cooking quality. Rosetta rated 3.2 on a scale of 1 to 7, where 7 is best and 4 is midscale (neither acceptable nor unacceptable). Data on L-color (lightness scale) of cooked beans showed that Rosetta was slightly lighter in color than Sedona. No differences were observed for hydration ratio based on ratio of soak weight to dry weight prior to canning. The texture of 52 kg/100g was slightly firmer than that of Sedona (44 kg). Values are within the acceptable range of 45 to 75 kg/100g for processed pink beans. Rosetta exhibited acceptable color retention compared to Sedona on the basis of visual rating. Within the commercial pink bean class, Rosetta was rated slightly lower than Sedona in appearance. Sedona and Merlot demonstrate the best overall canning quality in their respective market classes.

Release and research fee

Rosetta was released by Michigan State University with the option that Rosetta be sold for seed by variety name only as a class of certified seed under the three-class system used in Michigan (breeder, foundation, certified). A royalty will be assessed on each hundredweight unit of either foundation seed or certified seed sold, depending on production location. Plant variety protection (PVP) is anticipated. Parties interested in licensing Rosetta may contact MSU Technologies by phone at (517) 355-2186 or on the Internet at <http://technologies.msu.edu>.

Table 1. Comparison of agronomic, disease and canning quality characteristics of Rosetta with Sedona pink and Merlot small red bean varieties.

Varieties	Rosetta	Sedona	Merlot
Agronomic traits			
Days to flower	43	43	44
Days to maturity	96	95	96
Height (inches)	22	21	22
Lodging score (1-5)	1.8	2.3	2.1
Agronomic index (1-7)	5.1	5.0	4.0
100 seed weight (g)	35.7	38.5	40.7
Mean yield (cwt/acre)	25.6	24.4	24.7
Percent yield	100	95	97
Disease resistance traits			
BCMV	R	R	R
Genes controlling BCMV	<i>I</i>	<i>bc-1²</i>	<i>bc-1²</i>
Anthraco	S	S	S
Rust, race 22:2	S	S	S
Common bacterial blight	S	S	S
Percent white mold	35	50	44
Canning quality traits			
Color L-scale	30.5	29.4	—
Hydration ratio	1.8	1.8	—
Texture (kg)	52	44	—
Visual rating	3.2	4.0	4.0

Lodging: 1 = erect, 5 = prostrate; 100 seed weight – grams.

Agronomic index: 1 = worst, 5 = average, 7 = excellent; texture – kg/100g.

Diseases: BCMV = bean common mosaic virus; R = resistant, S = susceptible.

White mold: percent disease incidence and severity.

Visual rating: 1 = very undesirable, 4 = neither desirable nor undesirable, 7 = very desirable.

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