Registration of ‘Sedona’ Pink Bean

‘Sedona’ pink bean (Phaseolus vulgaris L.) (Reg. no. CV-263, PI 642028) was developed cooperatively by the Michigan Agricultural Experiment Station and the USDA-ARS and released in 2005 as an upright, midseason, disease-resistant cultivar.

Sedona, tested as S00809, was developed from the cross: X94076/R94142 made in 1994 to develop an upright pink bean cultivar for Michigan. X94076 was a pink bean breeding line from the Michigan State University (MSU) bean breeding program lacking upright architecture. R94142 was an upright small red breeding line from the USDA-ARS program at MSU that had a similar upright architecture and breeding background. R94142 was an upright small red breeding line from the USDA-ARS program at MSU that had a similar upright architecture and breeding background to ‘Merlot’ (Hosfield et al., 2004). F1 plants were advanced in the greenhouse and F2 seed were space-planted in a nursery at the Saginaw Valley Bean and Sugarbeet Research Farm near Saginaw, MI, in 1995. A single F2 plant possessing the desired agronomic and pink bean seed traits was selected. Further single-plant selection was made in a F3 nursery in Michigan on the basis of agronomic and seed traits and resistance to bean rust [caused by Uromyces appendiculatus (Pers.:Pers.) Unger]. The F3:4, F3:5 and F3:6 progeny rows were advanced as plant rows in Michigan (1997–1999). The reaction to virus was confirmed by inoculating plants in the greenhouse for reaction to the NL 3 strain of Bean Common Mosaic Necrosis Virus (BCMNV).

The F3:7 breeding line, coded S00809, was tested for yield and agronomic traits at 30 locations in Michigan from 2000 to 2005 before release. Sedona was compared with small red cultivars because no commercial pink bean cultivars are grown in Michigan. Sedona averaged 2670 kg ha⁻¹ over all locations and yielded 170 kg ha⁻¹ less than Merlot at 26 locations. Sedona significantly out-yielded the commercial small red bean cultivars ‘Rufus’ and ‘Brooks’ by an average yield increase of 8% over 13 and 16 locations, respectively.

Sedona is the first upright pink bean cultivar to be developed at MSU. It averages 50 cm in height and exhibits the Type II upright indeterminate growth habit, with gives it moderate resistance to lodging. Sedona has white flowers and blooms 41 to 44 d after planting. Sedona is a midseason bean, maturing 93 d after planting and has a range in maturity from 90 to 95 d, depending on season and location. Sedona matures uniformly about 2 d earlier than Merlot and 5 d earlier than Brooks and Rufus. During pod fill, some plants have exhibited a tendency to break at ground level under conditions of strong winds and low planting densities.

Sedona possesses the bc-1² gene that conditions resistance to certain strains of Bean common mosaic virus ( BCMV ) and exhibits delayed mild mosaic symptoms to the temperature-insensitive necrosis-inducing strains of BCMNV such as NL 3. Sedona displays resistance to the indigenous bean rust races prevalent in Michigan but is susceptible to the common races (7 and 73) of Colletotrichum lindemuthianum (Sacc. & Magnus) Lams.-Scrib., the cause of bean anthracnose. Sedona is tolerant to Michigan isolates of root rot [caused by Fusarium solani (Mart.) Sacc. f. sp. phaseoli (Snyder & H.N. Hans)] but is susceptible to gray mold [caused by Xanthomonas axonopodis pv. phaseoli (Dye)]. Sedona exhibits similar levels of tolerance (46% incidence) to white mold [caused by Sclerotinia sclerotiorum (Lib.) de Bary] as Merlot (44%).

Sedona produces a medium-sized pink seed, 37 g 100 seed⁻¹ (range 33–37 g 100 seed⁻¹). It is similar in color and shape to ‘UI 537’. In canning trials, Sedona scores 5.4 on a seven-point hedonic scale (where 7 is most desirable). Sedona is the first upright pink bean cultivar to be released from the Michigan Agricultural Experiment Station, East Lansing, MI, and is available under license from the MSU Office of Intellectual Property, with the option that Sedona may be registered only under the Foundation and Certified Seed classes. U.S. Plant Variety Protection for Sedona is pending.


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References
