

UI 686 — An Upright Cranberry Bean Cultivar

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UI 686 is a new cranberry bean cultivar with upright vine growth habit and a large, oval seed. UI 686 has high yields and I gene resistance to Bean Common Mosaic Virus (BCMV).

Pedigree

UI 686 was developed by the University of Idaho Agricultural Experiment Station at Kimberly, Idaho, and was released in 1988. UI 686 is an F₇ selection made by John Kolar in 1983 from the 1977 UI 50 × HiLo Bean cross. UI 50 is a cranberry bean cultivar with upright growth habit, elongated seed, mid-season maturity, and medium seed yield. UI 50 has I gene resistance to Bean Common Mosaic Virus (BCMV), but is susceptible to sugarbeet curly top virus. HiLo Bean is an heirloom bean of unknown origin, with large, oval, white seed with a brown background, and black flecking surrounding the hilum. HiLo Bean is susceptible to BCMV.

UI 686 was tested in preliminary yield trials at Kimberly in 1985, and in advanced yield trials at Kimberly and Parma, Idaho, from 1986 through 1991. UI 686 was grown in yield trials in Michigan in 1986 and 1987, and in New York tests in 1989. UI 686 was previously tested under the experimental number 83:6868.

Disease reaction

UI 686 was tested for resistance to BCMV by Matt Silbernagel at Prosser, Washington, in 1988. UI 686 possesses I gene resistance to BCMV and is resistant to NY 15 and NL 4 strains of BCMV, but is susceptible to NL-3.

In 1989 UI 686 was entered into the Uniform Dry Bean Rust Nursery. UI 686 was moderately rust-susceptible [*Uromyces appendiculatus* (Pers.):

Pers.) Unger] at Beltsville, Maryland; Saginaw, Michigan; and North Platte, Nebraska. Like all other cranberry cultivars, UI 686 is susceptible to sugarbeet curly top virus.

Description

In comparison with most cranberry beans, which have either a determinate bush or a prostrate, vine growth habit, UI 686 has an upright indeterminate vine growth habit. UI 686 is much less susceptible to lodging than are other vine-type cranberry bean cultivars. UI 686 has pink blooms, dull green leaf color, and mottled ripe pods. UI 686 seed has a distinct oval shape, and is larger than that of all other cranberry bean seed with the exception of SVM Cranberry. Most cranberry bean seed is elongated.

Performance

UI 686 was tested in advanced yield trials at both Kimberly and Parma to determine maturity and seed size (Table 1), seed yield (Table 2), and seedfill efficiency (Table 3). Seedfill efficiency is equal to yield/seedfill duration (days to maturity — days to bloom), and is a measure of reproductive seed growth rates. UI 686 has a mean maturity of 87 days after planting in Idaho. This is 3 to 8 days later than for Taylor Cranberry and 1 to 3 days earlier than for Michigan Improved Cranberry. Seed size is larger in UI 686 than in other cranberry bean cultivars, with a mean of 882 seed/lb in Idaho trials.

UI 686 mean seed yield was 1,564 lb/acre at Parma and 1,945 lb/acre in Kimberly trials. At both locations, seed yield for UI 686 was similar to seed yield in Michigan Improved Cranberry and greater than seed yield of SVM Cranberry. Taylor Cran-

Table 1. Maturity and seed size of cranberry beans grown at Kimberly and Parma, Idaho.

Cultivar	Days to maturity	Seed size (seed/lb)						Combination mean
		Kimberly			Parma			
		1989	1990	1991	1989	1990	1991	
UI 686	87	799	1,052	914	808	792	925	882
SVM Cranberry	83	843	996	942	1,080	860	1,098	970
MI Improved	91	954	1,053	948	980	936	1,107	997
Taylor Cranberry	85	—	1,060	—	—	—	1,174	1,117

Table 2. Seed yields of cranberry beans grown at Kimberly and Parma, Idaho.

Cultivar	Seed yield (lb/acre)								Combination mean
	Kimberly				Parma				
	1989	1990	1991	Mean	1989	1990	1991	Mean	
UI 686	1,828	1,541	2,466	1,945	1,613	1,695	1,383	1,564	1,755
SVM Cranberry	464	541	2,038	1,014	574	1,071	824	823	919
MI Improved	1,633	1,776	2,410	1,940	1,743	1,528	1,380	1,550	1,745
Taylor Cranberry	—	—	1,989	—	—	—	1,333	—	1,661

Table 3. Seedfill efficiencies of cranberry beans grown at Kimberly and Parma, Idaho.

Cultivar	Seedfill efficiency (%)						Combination mean
	Kimberly			Parma			
	1990	1991	Mean	1990	1991	Mean	
UI 686	44.04	66.29	55.17	49.87	38.61	44.24	49.71
SVM Cranberry	13.42	47.63	30.53	25.73	23.93	24.83	27.68
MI Improved	45.98	62.60	54.29	33.80	32.96	33.38	43.84
Taylor Cranberry	—	43.43	—	—	33.56	—	38.50

berry was grown in 1991 advanced yield trials at Kimberly and Parma and yielded less seed than did UI 686 (Table 2).

Mean seedfill efficiency (yield/seedfill duration) of UI 686 was better than that of SVM Cranberry, Michigan Improved Cranberry, and Taylor Cranberry in both Kimberly and Parma trials. Combined data from both Idaho trials showed that mean seedfill efficiency of UI 686 is most similar to that of Michigan Improved Cranberry, and higher than that of either SVM Cranberry or Taylor Cranberry.

UI 686 is a good selection for cranberry bean production in Idaho. It has an upright growth habit, making it less susceptible to lodging and associated diseases. Seed size in UI 686 is larger than any other cranberry bean cultivar. Seed yield and seed growth rates (as measured by seedfill efficiency) in UI 686 is similar to that of Michigan Improved Cranberry, but better than that of either Taylor Cranberry or SVM Cranberry. UI 686 also possesses

I gene resistance to BCMV. Application for Plant Variety Protection, with the Title V option, currently is pending on UI 686. Under Title V, UI 686 may be sold only as a class of certified seed.

Foundation class seed is available through either the University of Idaho Foundation Seed Program, Moscow, or the Kimberly Research and Extension Center, Kimberly, Idaho.

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