UI 537 — A New Pink Bean for Idaho

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In 1989 and 1990, pink beans were grown on one-quarter of the total Idaho commercial bean acreage. Only the pinto market class exceeds pinks in total acres planted. UI 537 is a new pink cultivar that combines large seed size with high yields, has medium-early maturity, good canning characteristics, and *bc-12* resistance to Bean Common Mosaic Virus (BCMV).

Pedigree

UI 537 was developed by the Idaho Agricultural Experiment Station at Kimberly. It is an F_5 selection made by John Kolar in 1982 from the cross of UI 37 × Viva. UI 37 is an early-maturing red Mexican cultivar, while Viva is a popular pink cultivar released by Doug Burke, USDA Agricultural Research Station, Prosser, Washington, in 1974. Viva possesses agronomically desirable characteristics, with the exception of small seed size.

UI 537 was grown in preliminary trials in 1984 and 1985 and in advanced trials at Kimberly and Parma, Idaho, in 1986-91. It was tested for 3 years in the Cooperative Dry Bean Nursery at 16 locations in 1989, 18 locations in 1990, and 21 locations in 1991. UI 537 has been tested under experimental numbers 55037 and 6519.

Disease reaction

UI 537 was tested for resistance to BCMV at Prosser, by Matt Silbernagel in 1987, and at Kimberly in 1991. UI 537 possesses *bc-12* resistance to BCMV. It is resistance to NY-15 and NL-8 strains of BCMV, but susceptible to the Western, NL-3, and NL-4 strains. At this time, NL-3 and NL-4 strains are not present in the United States.

No symptoms for resistance to sugarbeet curly top virus has been observed. Reaction in UI 537 to common blight [*Xanthomonas campestri* pv. *phaseoli* (Smith) Dye], white mold [*Sclerotinia sclerotiorum* (Lib.) de Baryl], and bean rust [*Uromyces appendiculatus* (Pers.: Pers.) Unger] was similar to that of other pink cultivars. Pinks are normally susceptible to these diseases, but they are not usually grown in high disease areas.

Description

UI 537 has an indeterminate plant type, similar to other pink bean cultivars, with vines of short to intermediate length. UI 537 is most similar to Viva but is slightly taller, with an average height of 22 inches. Like most pinks, UI 537 plants do not grow upright and become prostrate as the growing season progresses. UI 537 has white blossoms and begins flowering about 45 days after planting in the Kimberly area and about 49 days after planting near Parma. Pods are set low on the plant, with the lower pods touching the soil surface. As with other pinks, low-set pods and prostrate growth habit make UI 537 a poor choice for direct machine harvest.

Performance

UI 537 was tested in advanced yield trials at both Kimberly and Parma to determine maturity and seed size (Table 1), seed yield (Table 2), seedfill efficiency (Table 3), and yield efficiency (Table 4). Seedfill efficiency is equal to yield/seedfill duration, while yield efficiency is calculated as yield/maturity. Both efficiency values are measures of reproductive seed growth rates. UI 537 matured 1 to 2 days earlier than Viva and 6 to 7 days earlier than Harold.

In Kimberly trials, UI 537 seed was comparable in size to Harold seed, but larger than both Viva and Sutter seed. At Parma, UI 537 seed was larger than that of Viva, Harold, and Sutter. Combined data from

Table 1. Maturity and seed size of pink beans growth at Kimberly and Parma, Idaho.

Cultivar	Days to maturity	Seed size (seed/lb)						Combined mean
		Kimberly			Parma			
		1989	1990	1991	1989	1990	1991	
UI 537	81	1,500	1,387	1,181	1,614	1,311	1,400	1,399
Viva	82	1,353	1,422	1,509	1,656	1,454	1,824	1,536
Harold	87	1,419	1,435	1,261	1,744	1,569	1,525	1,492
Sutter	80	1,512	1,536	1,375	2,094	1,593	1,686	1,633

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

	Seed yield (lb/acre)								
	Kimberly				Parma				Combined
Cultivar	1989	1990	1991	Mean	1989	1990	1991	Mean	mean
UI 537	2,612	3,526	3,276	3,138	1,694	2,846	3,326	2,622	2,880
Viva	3,521	3,446	3,857	3,608	2,011	2,690	3,111	2,604	3,106
Harold	3,290	3,372	3,530	3,397	1,819	2,925	3,054	2,599	2,998
Sutter	2,377	3,013	2,946	2,799	1,149	2,029	2,467	1,882	2,330

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

	Seedfill efficiency, %						
	Kimberly			Parma			Combined
Cultivar	1990	1991	Mean	1990	1991	Mean	mean
UI 537	86.39	86.21	83.30	60.54	90.12	75.33	80.82
Viva	79.25	97.16	88.21	57.97	78.80	68.38	78.30
Harold	78.24	85.09	81.67	57.97	73.48	65.73	73.70
Sutter	69.75	73.69	71.72	43.81	62.98	53.46	62.56

Table 4. Yield efficiencies of pink beans grown at Kimberly and Parma, Idaho.

	Yield efficiency, %						
	Kimberly			Parma			Combined
Cultivar	1990	1991	Mean	1990	1991	Mean	mean
UI 537	42.46	39.17	40.72	27.27	38.48	32.88	36.80
Viva	42.04	46.15	44.10	23.60	37.41	30.51	37.30
Harold	41.44	41.96	41.70	26.17	35.53	30.85	36.28
Sutter	36.97	35.59	36.28	18.27	29.72	38.86	30.14

both Idaho locations showed that UI 537 was larger than Harold by 100 seeds per pound and significantly larger than Viva and Sutter.

UI 537 seed yield was less than that of Viva and Harold cultivars, but greater than that for Sutter in the Kimberly trials. At Parma, seed yield from UI 537 was greater than those of Viva, Harold, and Sutter. Combined data from Kimberly and Parma showed results similar to those seen at Kimberly.

Seedfill efficiency of UI 537 was similar to that of Harold, and slightly less than that of Victor. UI 537 seedfill efficiency was much higher than that of Sutter at the Kimberly trials. Parma trials indicated that seedfill efficiency was higher in UI 537 than in any of the other pink cultivars listed there. Similar results for field efficiency were seen in Kimberly tests. At Parma, yield efficiency of UI 537 was similar to that of Harold. Both UI 537 and Harold had higher yield efficiencies than Sutter but lower than Victor.

UI 537 was tested in canning trials by American Home Foods of Vacaville, California, in 1988 and 1989 and by American Fine Foods in Payette, Idaho, in 1989. Canning quality was acceptable in all tests.

Conclusion

Because of its desirable agronomic qualities, including larger seed size and acceptable processing quality, UI 537 should be a good choice for bean producers in Idaho. It matures 1 to 2 days earlier than Viva and 6 to 7 days earlier than Harold. UI 537 seed yields are slightly less than those of Harold, but its seed size is significantly larger. UI 537 seed growth rates, as measured by seedfill and yield efficiencies, are very acceptable. UI 537 possesses *bc-12* resistance to BCMV and has desirable canning characteristics.

Plant Variety Protection (PVP), with the Title V option, is currently pending for UI 537. Under the Title V option, UI 537 may be sold only as a class of certified seed. Foundation class seed is available through the Foundation Seed Program at the University of Idaho in Moscow, or the Kimberly Research and Extension Center, Kimberly, Idaho.

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