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# UI 906 — A Shorter Season Black Bean

K. D. Stewart-Williams, R. E. Hayes, M. W. Lancaster, J. R. Myers, and J. J. Kolar

UI 906 is a new black bean cultivar requiring only 89 to 92 days to reach maturity in Idaho. Most black beans are grown in Michigan and New York, where longer growing seasons allow cultivars such as Midnight to reach full yield potentials. UI 906 provides Idaho growers with an early-maturing black bean, better suited to shorter growing seasons. UI 906 combines this early maturity with high yields, upright growth habit, and I gene resistance to Bean Common Mosaic Virus (BCMV).

## Pedigree

UI 906 black bean was developed by the Idaho Agricultural Experiment Station at Kimberly and was released in 1988. UI 906 is an F<sub>6</sub> selection made by John Kolar in 1984 from the 1981 cross Midnight × 07055 F<sub>3</sub>. The pedigree of 07055 is PI 209621/2/R75/RR27/797/3 F<sub>2</sub>/Aurora. Breeding lines used to develop 07055 had high levels of root rot tolerance [caused by *Rhizoctonia solani* Kuhn, *Fusarium solani* (Mart.) Sacc. f. sp. *phaseoli* (Burkholder) W. C. Snyder & H. N. Hans, and/or *Pythium* spp.]

UI 906 was tested at Kimberly in preliminary yield trials in 1985, and in advanced yield trials from 1986 through 1991. UI 906 was tested in advanced trials at Parma, Idaho, from 1988 through 1991, and has been tested in the Cooperative Dry Bean Nursery at 18 locations in 1990 and at 21 locations in 1991, for a total of 39 location-years of data. UI 906 was grown at one New York State location in 1986 and three in 1987, and at two Michigan locations in 1988. UI 906 was previously tested under the experimental numbers 84:2625 and 85B9.

## Disease reaction

UI 906 was tested for resistance to BCMV by Matt Silbernagel at Prosser, Washington, in 1987 and at Kimberly in 1989. UI 906 is resistant to NY-15 and NL-4 strains of BCMV, and shows a hypersensitive

reaction (necrotic tip kill) to NL-5 and NL-8 strains of BCMV. This reaction is caused by the presence of the I gene.

UI 906 is moderately susceptible to sugarbeet curly top virus. Disease reaction was intermediate between that of susceptible cranberry and resistant pinto beans, indicating that UI 906 is resistant to some strains of curly top virus. UI 906 was tested in the 1988 Uniform Dry Bean Rust Nursery in Maryland and Michigan, and was susceptible to bean rust [*Uromyces appendiculatus* (Pers.:Pers.) Unger] races in Maryland but highly resistant to races present in Michigan. In the 1989 Cooperative Dry Bean Nursery, UI 906 was moderately resistant to rust races found in Nebraska.

## Description

UI 906 grows upright (Type IIA) and has short vines. Foliage appears dull green in comparison to shiny green foliage found in other black bean cultivars. UI 906 has pink blossoms and a dull black seed coat color.

## Performance

UI 906 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 906 has a mean maturity of 89 days in Idaho, about 6 days ahead of Midnight. In New York state tests, UI 906 matured as much as 22 days before Midnight.

UI 906 has smaller seed than do other black bean cultivars. Seed size in Idaho averaged just over 2,700 seed/lb, about 200 seed/lb less than Midnight and 400 less than Black Turtle Soup.

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

Cultivar*	Days to maturity	Seed size (seed/lb)						Combined mean
		Kimberly			Parma			
		1989	1990	1991	1989	1990	1991	
UI 906	89	2,690	2,863	2,495	3,215	2,447	2,659	2,728
Midnight	96	2,305	2,666	2,274	2,875	2,245	2,500	2,478
Black Turtle Soup (BTS)	95	2,195	2,351	1,994	2,608	2,072	2,350	2,262



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

Cultivar	Seed yield (lb/acre)								Combined mean
	Kimberly				Parma				
	1989	1990	1991	Mean	1989	1990	1991	Mean	
UI 906	2,694	2,863	2,204	2,587	1,141	2,637	2,591	2,123	2,355
Midnight	2,147	2,666	2,131	2,315	1,288	1,364	2,526	1,726	2,021
Black Turtle Soup (BTS)	1,957	2,351	2,562	2,290	1,744	1,644	2,541	1,976	2,133

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

Cultivar	Seedfill efficiency, %							Combined mean
	Kimberly			Parma				
	1990	1991	Mean	1990	1991	Mean		
UI 906	57.02	56.45	56.74	75.97	81.35	78.66	67.70	
Midnight	57.94	48.27	53.11	32.31	64.06	48.19	50.65	
BI Turtle Soup (BTS)	62.23	60.05	61.14	35.74	45.34	40.54	50.84	

At both Kimberly and Parma, UI 906 seed yields were better than that for either Midnight or Black Turtle Soup, with a mean seed yield of 2,355 lb/acre. Seed yields for Midnight and Black Turtle Soup were 2,021 and 2,133 lb/acre, respectively.

Mean seedfill efficiency (yield/seedfill duration) of UI 906 was better than that of Midnight, but slightly less than that of Black Turtle Soup in Kimberly trials. At Parma, UI 906 showed higher seedfill efficiency values than did the other two black bean cultivars. Combined data from both Idaho locations showed that seedfill efficiency was higher in UI 906 than in either Midnight or Black Turtle Soup. Similar results were found for yield efficiency in UI 906. Kimberly trials indicated higher yield efficiency in UI 906 than in Midnight, but less than in Black Turtle Soup. At Parma, and in combined location data, yield efficiency was highest in UI 906.

UI 906 is well-suited for production in Idaho, as well as other regions with short growing seasons such as the North Central states and central Canada. UI 906 matures 6 to 7 days ahead of Midnight in these areas about 89 days after planting. UI 906, like most black bean cultivars, shows good upright growth habit

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

Cultivar	Yield efficiency, %						Combined mean
	Kimberly			Parma			
	1990	1991	Mean	1990	1991	Mean	
UI 906	25.55	24.60	25.08	30.77	30.05	30.41	27.75
Midnight	25.39	22.31	23.85	14.40	27.33	20.87	22.36
BI Turtle Soup (BTS)	27.97	26.93	27.45	16.33	16.91	16.62	22.04

and possesses a desirable dull seedcoat color. Seed size is smaller in UI 906 than in most other black cultivars. Seed yield and seed growth rates (as measured by yield and seedfill efficiencies) are better in UI 906 than in either Midnight or Black Turtle Soup. UI 906 possesses I gene resistance to BCMV.

Plant Variety Protection (PVP), with the Title V option, has been approved for UI 906. Under Title V, UI 906 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.

**The authors** — Kathryn D. Stewart-Williams is a research associate in bean breeding and genetics, Kimberly Research and Extension Center, Kimberly. Richard E. Hayes is the assistant superintendent of the Kimberly Research and Extension Center. Michael W. Lancaster is coordinator of the Idaho Agricultural Experiment Station Foundation Seed Program, Moscow. James R. Myers is assistant professor, bean breeding and genetics, Kimberly Research and Extension Center. John J. Kolar is professor emeritus, plant science, Twin Falls, Idaho.