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# UI 722 — A New Dark Red Kidney Bean Cultivar

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UI 722 is a recently released dark red kidney bean cultivar with upright growth habit and large, attractive seed. UI 722 has full season maturity in Idaho, acceptable canning quality, and possesses I gene resistance to Bean Common Mosaic Virus (BCMV).

## Pedigree

UI 722 was developed by the Idaho Agricultural Experiment Station at Kimberly, Idaho, and released in 1988. UI 722 is an F<sub>7</sub> selection made by John Kolar from the 1972 cross Mecosta//67-105/PI 226856. Mecosta, a Michigan State University release, is a late-maturing, light red kidney cultivar resistant to halo blight [*Pseudomonas syringae* pv. *phaseolicola* (Burk.)], BCVM, and is rust and ozone tolerant. Kidney bean line 67-105 was developed by Marshall LeBaron at the Kimberly Research Station. PI 226856 is a Spanish cultivar with viney growth habit and medium-large white seed. PI 226856 is reported to be resistant to both BCMV and bean common yellow mosaic virus.

UI 722 was tested in preliminary yield trials at Kimberly in 1985, and in advanced yield trials at Kimberly and Parma from 1987 through 1991. UI 722 also has been grown in New York State trials in 1987 and 1988, and in Michigan in 1989. UI 722 was previously tested under the experimental number 5722.

## Disease reaction

UI 722 was tested for BCMV resistance by Matt Silbernagel at Prosser, Washington, in 1988. UI 722 possesses the I gene and is resistant to NY-15 and NL-4 strains of BCMV.

UI 722 was entered in the 1989 Uniform Dry Bean Rust Nursery, and was susceptible with slow

rusting reaction at both Saginaw, Michigan, and Beltsville, Maryland. UI 722 shows a moderate susceptibility or immune rust reaction, along with a low incidence of common blight [*Xanthomonas campestris* pv. *phaseoli* (Smith) Dye] relative to other cultivars. UI 722 is also susceptible to sugar-beet curly top virus.

## Description

UI 722 plants have a determinate, upright growth habit. Plant height is usually about 17 inches at maturity. UI 722 has dull green leaves, white flowers, and slightly curved pods that are set fairly high on the plant and do not touch the soil surface. UI 722 demonstrates good resistance to lodging (and associated diseases such as white mold), and has potential for direct machine harvest. UI 722 has shiny dark red seed that are darker than Charlevoix and lighter than Montcalm seed. UI 722 seed are distinctively kidney-shaped in comparison to other dark red kidneys, which have a more elongated seed shape.

## Performance

UI 722 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 seed yield/seedfill duration, while yield efficiency is calculated as yield/maturity. Both efficiency values are measures of reproductive seed growth rates. UI 722 usually matures 91 days after planting in Idaho trials, 3 days after both Montcalm and Royal Red cultivars.

UI 722 has a larger seed size than either Montcalm or Royal Red, with an average seed size of 1,032 seed/lb in Idaho trials.

Table 1. Maturity and seed size of dark red kidney beans grown at Kimberly and Parma, Idaho.

Cultivar	Days to maturity	Seed size (seed/lb)						Combined mean
		Kimberly			Parma			
		1988	1989	1990	1988	1989	1990	
UI 722	91	982	924	1,021	1,163	1,086	1,013	1,032
Montcalm	88	1,079	982	1,096	1,304	1,295	1,041	1,313
Royal Red*	88	—	1,013	1,088	—	1,264	1,085	1,113

\*Royal Red was not grown in 1989 Idaho yield trials.



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**Table 2. Seed yields of dark red kidney beans grown at Kimberly and Parma, Idaho.**

Cultivar	Seed yield (lb/acre)								Combined mean
	Kimberly				Parma				
	1988	1989	1990	Mean	1988	1989	1990	Mean	
UI 722	1,266	2,138	1,277	1,561	1,624	1,114	1,784	1,507	1,534
Montcalm	1,483	1,053	995	1,117	1,386	922	1,499	1,269	1,193
Royal Red	—	2,029	1,578	1,804	—	1,390	1,879	1,635	1,720

**Table 3. Seedfill efficiencies of dark red kidney beans grown at Kimberly and Parma, Idaho.**

Cultivar	Seedfill efficiency, %						Combined mean
	Kimberly			Parma			
	1989	1990	Mean	1989	1990	Mean	
UI 722	36.80	26.61	31.71	37.36	35.70	36.53	34.12
Montcalm	39.30	21.56	30.43	32.16	29.98	31.07	30.75
Royal Red	—	36.11	—	38.21	—	—	—

**Table 4. Yield efficiencies of dark red kidney beans grown at Kimberly and Parma, Idaho.**

Cultivar	Yield efficiency, %						Combined mean
	Kimberly			Parma			
	1989	1990	Mean	1989	1990	Mean	
UI 722	13.50	14.20	13.85	17.94	35.70	26.82	20.34
Montcalm	16.50	11.37	13.94	15.82	29.98	22.90	18.42
Royal Red	—	18.77	—	38.21	—	—	—

In both Kimberly and Parma advanced yield trials, UI 722 mean seed yield was greater than seed yield of Montcalm, but less than mean seed yield for Royal Red. UI 722 mean seed yield was 1,534 lb/acre.

At Kimberly, UI 722 mean seedfill efficiency (seed yield/seedfill duration) was similar to that of Montcalm, but less than that of Royal Red. At Parma, and in data combined from both Idaho locations, UI 722 mean seedfill efficiency was greater than in Montcalm but less than in Royal Red. Mean yield efficiency (yield/maturity) of UI 722 was similar to that of Montcalm, but less than that of Royal Red at both Kimberly and Parma.

UI 722 was tested in canning trials by American Fine Foods, Payette, Idaho, and demonstrated satisfactory canning qualities when compared to other dark red kidney cultivars.

UI 722 is an acceptable selection for dark red kidney bean seed production in Idaho. UI 722 matures 3 days after either Montcalm or Royal Red cultivars, but has larger seed size than either culti-

var, with a desirable true kidney-shaped seed. In Idaho trials, UI 722 has shown higher yield than Montcalm. UI 722 has an upright growth habit, I gene resistance, and has demonstrated suitable canning qualities.

Plant Variety Protection (PVP), with the Title V option, has been approved for UI 722. Under the Title V option, UI 722 may be sold only as a class of certified seed. Foundation class seed is available through the Foundation Seed Program, Moscow, or the Kimberly Research and Extension Center, Kimberly, Idaho.

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