

California Early Light Red Kidney

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California Early Light Red Kidney (CELRK) is a cultivar with potential for Idaho seed bean producers. CELRK has early maturity, acceptable yields, and *I* gene resistance to bean common mosaic virus (BCMV).

Pedigree

CELRK was released by the University of California, Davis, in 1989. CELRK is from a bulked F_5 family originating from the cross Sacramento \times 2602, made by Ken Foster. Sacramento is a proprietary light red kidney cultivar with early maturity and good canning qualities. Sacramento plants are small, low yielding, and susceptible to BCMV. Line 2602 is an F_4 family bulked from the cross Red Kidney \times Redkote.

CELRK was tested in the National Cooperative Dry Bean Nursery in 1990 and 1991 and in advanced yield trials at Kimberly and Parma, Idaho, in 1991 and 1992.

Disease resistance

CELRK was tested for BCMV resistance by the University of California, Davis, Plant Pathology Department. CELRK plants inoculated in field trials showed no mottling or stunted virus symptoms. CELRK possesses the dominant *I* gene for BCMV resistance. In Idaho yield trials, CELRK was susceptible to sugarbeet curly top virus.

Description

Like many kidney cultivars, CELRK has large, determinate, upright plants. Flowers are light lavender,

and seedcoat color is very similar to that of Sacramento. When grown in Idaho, CELRK lodged less than other kidney cultivars.

Performance

CELRK was tested in advanced yield trials at Kimberly and Parma, Idaho, to determine maturity and seed size (Table 1), seed yield (Table 2), seedfill efficiency (Table 3), and yield efficiency (Table 4) under Idaho growing conditions. Seedfill efficiency is equal to yield/seedfill duration, and yield efficiency is calculated as yield/maturity. Both efficiency values are measures of reproductive seed growth rates.

CELRK matured 85 days after planting in Idaho trials, 1 day earlier than Sacramento and 3 days earlier than Isabella. Idaho-grown CELRK produced larger seed than Isabella and slightly larger seed than Sacramento.

CELRK seed yields at Kimberly were less than Isabella yields but higher than Sacramento yields. In Parma trials, CELRK yields were slightly lower than those of Isabella, and both cultivars had higher yields than did Sacramento. Combined data from both Idaho locations showed that CELRK seed yields were less than those of Isabella but higher than those of Sacramento.

Mean seedfill efficiency for CELRK was higher than that of either Isabella or Sacramento at both Kimberly and Parma. CELRK showed yield efficiencies similar to those of Isabella and slightly higher than those of Sacramento.

Table 1. Maturities and seed sizes of kidney beans grown at Kimberly and Parma, Idaho.

Cultivar	Days to maturity	Seed size (seed/lb)				Combined mean
		Kimberly		Parma		
		1991	1992	1991	1992	
CELRK	85	861	829	1,087	847	906
Isabella	84	979	950	1,000	995	981
Sacramento	88	876	881	961	947	916

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

Cultivar	Seed yield (lb/acre)						Combined mean
	Kimberly			Parma			
	1991	1992	Mean	1991	1992	Mean	
CELRK	2,481	2,313	2,397	1,398	1,493	1,446	1,921
Isabella	2,187	2,854	2,521	1,053	1,898	1,476	1,998
Sacramento	1,895	2,025	1,960	1,662	918	1,290	1,625

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

Cultivar	Seedfill efficiency (lb/acre/day)						Combined mean
	Kimberly			Parma			
	1991	1992	Mean	1992	1991	Mean	
CERLK	62.12	49.89	56.01	36.68	32.54	34.61	45.31
Isabella	45.31	59.85	52.58	25.69	38.32	32.01	42.29
Sacramento	46.50	44.37	45.44	40.50	23.25	31.88	38.66

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

Cultivar	Yield efficiency (lb/acre/day)						Combined mean
	Kimberly			Parma			
	1991	1992	Mean	1991	1992	Mean	
CERLK	30.00	26.09	28.05	16.26	17.79	17.03	22.54
Isabella	24.31	31.38	27.85	12.52	21.05	16.79	22.32
Sacramento	23.14	23.31	23.23	19.91	11.20	15.56	19.39

Conclusion

CELK combines early maturity, high yields, and good seed size and plant size with demonstrated canning qualities. In Idaho, CELK lodges less than other kidneys and has *I* gene resistance to BCMV. Lack of curly top resistance may limit CELK production in some areas of the state.

CELK has good potential for Idaho seed bean producers. Commercial bean growers may have more success with other light red kidney cultivars.

CELK breeder seed is maintained by the Department of Agronomy and Range Science, University of

California, Davis. Foundation seed is available through the Foundation Seed Program, University of Idaho, Kimberly, Idaho.

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