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Red Cloud: A New Red-Skinned Potato Cultivar from Nebraska

The description, characteristics and performance of Red Cloud potato are described. Its primary market is as a fresh table potato for boiling, mashing and baking.

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Figure 1. A field of Red Cloud potatoes grown in Bridgeport, Nebraska in 1992.



The Red Cloud potato cultivar is named after the great Sioux chief who lived in Nebraska and South Dakota. It was selected, developed and tested at the University of Nebraska's Panhandle Research and Extension Center under the pedigree number NE A143.70-2. The cross was made in Alliance, NE in 1970. The parents were a red-skinned selection from the Nebraska breeding program and Superior, a white-skinned cultivar chosen for its scab resistance. Red Cloud (*Figure 1*) was officially released by the University of Nebraska-Lincoln in 1992.

General and Disease Characteristics



Red Cloud is a mid-season potato (*Figure 2*) comparable in maturity to Red LaSoda and later than Red Norland. The skin color is darker red than either Red LaSoda or Dark Red Norland, and Red Cloud's color usually holds longer in storage than does the color of the other two.

Figure 2. A Red Cloud potato plant in the field, 11 to 12 weeks after planting.

In sandy, dry soil or when over-mature, the red skin of Red Cloud may tend to over-brown. This cultivar is less susceptible than Red LaSoda to heat damage in Arizona.

In nearly all trials, Red Cloud had the highest dry matter content or specific gravity of the red-skinned cultivars. The flesh texture after microwave cooking is mealier than most red cultivars. After storage for two months at 50°F, Red Cloud was lighter than Dark Red Norland or Red LaSoda when fried. Red Cloud is adapted to the irrigated areas of the Great Plains States; its major market is the tablestock market in the southern states.

Red Cloud is resistant to highly resistant to common scab (*Streptomyces scabies*). Red Cloud is resistant to early dying (*Verticillium dahliae*), dry rot (*Fusarium* spp.), and early blight (*Alternaria solani*). When compared with Red LaSoda or Red Norland, it had fewer tubers with vascular discoloration or hollow heart, and fewer tubers with any internal or external defects. No differences in tuber rot or heat necrosis were detected between the cultivars. Insect resistance was not observed.

Red Cloud's major tuber defects are off-type and second growths (bulged-eyes and knobs).

Red Cloud Uses and Characteristics

- Boil -- mash -- bake -- fries too
- Dark red skin
- Holding capacity of red color in storage
- High dry matter content
- Multiple disease resistance
- Average yields
- Medium maturity

Table I. Performance of Red Cloud in Nebraska and Colorado.

<i>Cultivar</i>	<i>Yield cwt/ac*</i> >2 in.	<i>% tubers</i> >2 in..	<i>Specific gravity</i>	<i>% >2 in.</i> <i>internal defects**</i>
Nebraska (Banner, Chase and Scotts Bluff counties, 1989-1991):				
Averages of Five Trials --				
Red Cloud	330	95	1.078	3.8
Dark Red Norland	290	91	1.066	7.4
Red LaSoda	445	96	1.071	6.4
	<i>Yield cwt/ac total</i>	<i>% tubers US # 1</i>	<i>Specific gravity</i>	
Nebraska (Box Butte and Merrick counties, 1977-1982):				
Averages of Four Trials --				
Red Cloud	280	65	1.075	
Red Norland	280	63	1.063	
Colorado (Weld County, 1979-1982):				
Averages of Three Trials --				
Red Cloud	330	76	1.068	

Red Norland	295	80	1.063	
* cwt/ac = hundredweights (100 lb) per acre. ** Internal defects include hollow heart, vascular discoloration, heat necrosis and rot.				

Performance

Red Cloud produced above-average yields in trials conducted in Nebraska, Colorado, Arizona, and Texas.

Yields of Red Cloud (*Table I*) were greater than Dark Red Norland and less than Red LaSoda in Nebraska from 1989 to 1991, similar to Red Norland in Nebraska and Colorado from 1977 to 1982, similar to Red LaSoda and Dark Red LaSoda in Arizona from 1978 to 1982, and similar to Dark Red Norland and less than Red LaSoda in Texas in 1982.



In the 14 participating states and provinces of the North Central Regional Potato Trial in 1982, Red Cloud produced the same yield as Red Norland but had more dry matter and fewer tuber defects than Red Norland and Red Pontiac (*Table II*). In this trial, it had less surface area affected by common scab than either Red Norland or Red Pontiac.

Red Cloud tubers tend to have more bulging eyes than the standard cultivars compared here. Red Cloud's specific gravity has been consistently greater than standard or other experimental red clones.

Table II. Performance and tuber defects of Red Cloud in the North Central Regional Potato Trial of 1982. Means of 14 locations (Colorado, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, Alberta and Manitoba).

Performance:					
<i>Cultivar</i>	<i>Yield cwt/ac total</i>	<i>Yield cwt/ac US # 1</i>	<i>% tubers US # 1</i>	<i>% dry matter</i>	<i>Specific gravity</i>
Red Cloud	265	220	81	18.2	1.073
Red Norland	260	225	81	16.8	1.067
Red Pontiac	420	350	81	17.1	1.068
Tuber Defects:					
<i>Cultivar</i>	<i>% tubers free of external defects</i>	<i>% tubers free of internal defects</i>	<i>% tubers with some scab</i>	<i>% tubers with hollow heart</i>	<i>% tubers with vascular discolor</i>
Red Cloud	93	80	7.3	0.2	6.2
Red Norland	89	78	6.7	2.0	8.5
Red Pontiac	82	71	6.7	3.5	7.7

Description



Figure 4. Tubers on Red Cloud plant 10 to 11 weeks after planting.

Plants are medium in size, dark green and spreading, with a determinate growth habit (*Figure 2*). Leaves are medium in size and closed with four pairs of lateral leaflets (*Figure 3*). Leaflets are ovate or egg-shaped, with acute tips, dark green and medium in size. Flowers are dark violet to purple, with deep yellow to orange anthers and abundant pollen (*Figure 3*). Tubers are round to slightly oval (*Figure 4*). The eyes are shallow and may bulge. The skin is dark red and thick. It maintains good color in storage and resists bruising during harvesting (*Figure 5*).

Tubers have a long dormancy period; special storage management is needed for seed tubers. The flesh is white and the texture is mealy. The glycoalkaloid level is low. The primary market for Red Cloud is for fresh table potatoes for use in boiling, mashing and baking.

For information on seed availability, please contact the Potato Certification Association of Nebraska at P.O. Box 90, Alliance, NE 69301; the telephone number is (308) 762-1674.



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