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## Potato Cultivar Trial

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# Potato Cultivar Trial

## **Disciplines**

Agricultural Science | Agriculture

## **Comments**

The trial was designed to compare and evaluate thirteen potato cultivars for their production capabilities and fresh market potential. This trial emphasized cultivars that would appeal to specialty markets with half of them having yellow flesh. Regional potato trials can be important since potatoes are very sensitive to their growing environment and not all cultivars are adapted to Iowa. A prominent example is Russet Burbank, which when grown in our warm sandy soils produces mostly knobby deformed tubers, even when irrigated. On the other hand, Russet Norkotah will produce a large yield of attractive tubers right next to it growing under the same conditions. Thus, cultivar selection is very important for growers trying to market quality product. This report identifies several cultivars having distinctive characteristics making them suitable for fresh marketing and it also reveals a few not adapted to this region.

## Potato Cultivar Trial

Vince Lawson, farm superintendent

### Introduction

The trial was designed to compare and evaluate thirteen potato cultivars for their production capabilities and fresh market potential. This trial emphasized cultivars that would appeal to specialty markets with half of them having yellow flesh. Regional potato trials can be important since potatoes are very sensitive to their growing environment and not all cultivars are adapted to Iowa. A prominent example is Russet Burbank, which when grown in our warm sandy soils produces mostly knobby deformed tubers, even when irrigated. On the other hand, Russet Norkotah will produce a large yield of attractive tubers right next to it growing under the same conditions. Thus, cultivar selection is very important for growers trying to market quality product. This report identifies several cultivars having distinctive characteristics making them suitable for fresh marketing and it also reveals a few not adapted to this region.

### Materials and Methods

*Planting.* Two to three ounce cut seed pieces were planted April 14 approximately 4 in. deep.

*Plot Design.* The trial was planted in a randomized complete block design with three replications. A plot consisted of twenty-two seed pieces spaced 11 in. apart.

*Culture.* The soil type was a loamy-sand and rainfall was supplemented with overhead irrigation as needed. Thirty-five lb nitrogen (N), 60 lb of phosphate ( $P_2O_5$ ), and 160 lb of potash ( $K_2O$ ) were applied preplant incorporated. Seventy lb of nitrogen was applied at emergence on May 10. Rows were ridged with disc hillers on June 13. Potatoes mature fairly quickly on our irrigated coarse sandy soils and plots were harvested on August 17 when tubers were of marketable size and vines senescing.

*Pest Control.* Dual II Magnum plus Lorox DF herbicide was applied April 22 preemergence. Capture insecticide used for leafhopper control and Provado insecticide for Colorado potato beetles.

### Results and Discussion

Potato cultivars were evaluated for tuber yield, uniformity, absence of defects, and overall appearance. After harvest and data collection, cultivars were placed in a walk-in cooler set at 50 to 55°F to see how they would handle short-term storage. The standards in this trial, Atlantic, Red Norland, and Norkotah Russet, produced good yields of attractive tubers. Atlantic, a widely grown cultivar for chip production, yielded 268 cwt/acre of large marketable tubers with a specific gravity reading of 1.079 (Table 1). This compares closely with its recorded performance in previous trials.

Yukon Gold is probably the best known of the yellow flesh cultivars and seems to be getting more popular in the garden and commercial industry every year. It produced a fair yield of round to flattish-round tubers with smooth shape and yellowish-tan skin that was free of defects. It also seemed to store well in the cooler. For specialty growers who haven't tried it, Yukon Gold is a good one to consider. It has name recognition among savvy consumers and while not being a heavy yielder it does seem to have consistently good quality.

Red Gold is another cultivar bred in Canada that exhibited favorable attributes. It produced a good yield of attractive round tubers with reddish brown skin, yellow flesh, and decent size. Like Red Norland though, it seemed best suited for the fresh-dug summer market as it became soft and sprouted in storage.

Carola was one of our highest yielding specialty entries. Tubers were a smooth oval shape with yellowish-tan skin and yellow flesh. In areas where irrigation water wasn't applied uniformly, tubers were misshapen and knobby. This indicates, like many potato cultivars, it is sensitive to moisture levels and cultural methods must be managed closely for best market quality. Carola stored reasonably well, although by early November there was sprouting and some shallow, sunken brown areas resembling fusarium dry rot.

Yellow Finn was another yellow-fleshed cultivar that performed well. The round to oval shape could be somewhat irregular. It produced a good yield of medium-sized marketable tubers that stored well and had an exceptionally good potato flavor.

All Blue is in a class by itself and would be sold as a novelty. The small, elongated, roughly shaped tubers had dark purplish-blue skin and when cut open the flesh was mottled or streaked with blue throughout. Tubers stored well in the cooler.

**Table 1. 2006 potato cultivar yield, average tuber weight, and specific gravity.**

	Large >1 7/8 in. (cwt/A)	Small <1 7/8 in. (cwt/A)	Average tuber weight (oz)	Specific gravity	Skin color	Flesh color
Carola	270.0	44.1	6.5	1.070	yellow	yellow
Atlantic	268.7	22.4	5.8	1.079	tan, flaky	white
Russet Norkotah	250.0	20.0	8.6	1.070	russet	white
Yellow Finn	241.9	57.2	4.4	1.072	yellow	yellow
Red Gold	237.6	35.8	5.3	1.078	reddish tan	yellow
Bintje	232.0	99.8	4.9	1.067	yellow tan	yellow
Yukon Gold	218.6	22.7	5.3	1.068	yellow	yellow
Red Norland	195.3	64.1	6.1	1.057	red	white
German Butterball	151.2	103.2	4.2	1.073	yellow tan	yellow
Cherry Red	138.1	30.8	4.6	1.065	red	white
All Blue	98.0	111.3	3.7	1.061	blue	blue
Cal Red	68.7	49.2	3.2	1.055	red	white
Caribe	60.3	33	4.2	1.061	purple	white
Average	190.3	54.2	5.1	1.067		

**Table 2. 2006 potato cultivar comments and storage observations.**

Cultivar	Comments
Carola	Needs uniform moisture or tubers get misshaped, some fusarium dry rot in storage
Atlantic	Nice uniform shape and almost russet skin, some hollow heart in large tubers
Russet Norkotah	Attractive russet potato, large tubers, stores well
Yellow Finn	Irregular, round to oblong shape, stores well
Red Gold	Nice uniform smooth round shape, sprouted in storage
Bintje	Knobby misshaped tubers at harvest, developed sprouts in storage
Yukon Gold	Smooth yellowish tan skin, attractive uniform shape, stores well
Red Norland	Nice attractive tubers, sprouted in storage
German Butterball	Yellow russet skin, dark yellow flesh, stores well, internal browning (dark spots) in flesh
Cherry Red	Scabby tubers with growth cracks and knobs, dark red skin, kept well in storage
All Blue	Bluish purple skin, bluish flesh, elongated "root-like" shape, a little scab, good storage
Cal Red	Lots of scab, some growth cracks, dark red skin, fair storage characteristics
Caribe	Poor yield and extremely scabby deformed tubers, not adapted!