

2010

# Effect of Harvest Timing on Atlantic, Dakota Crisp, and Snowden Potato

Vincent Lawson

*Iowa State University*, [vlawson@iastate.edu](mailto:vlawson@iastate.edu)

Follow this and additional works at: [http://lib.dr.iastate.edu/farms\\_reports](http://lib.dr.iastate.edu/farms_reports)



Part of the [Agricultural Science Commons](#), and the [Agriculture Commons](#)

---

## Recommended Citation

Lawson, Vincent, "Effect of Harvest Timing on Atlantic, Dakota Crisp, and Snowden Potato" (2010). *Iowa State Research Farm Progress Reports*. 372.

[http://lib.dr.iastate.edu/farms\\_reports/372](http://lib.dr.iastate.edu/farms_reports/372)

This report is brought to you for free and open access by Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State Research Farm Progress Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

---

# Effect of Harvest Timing on Atlantic, Dakota Crisp, and Snowden Potato

## **Abstract**

This study compared tuber yield of three potato cultivars (Atlantic, Dakota Crisp, and Snowden) on three harvest dates (July 14, 21, and August 5). Dakota Crisp is a relatively new chipping and table stock potato released by North Dakota Agricultural Experiment Station in 2005. It is reported to have good yield potential and chipping characteristics. Atlantic and Snowden are currently the preferred cultivars in the Muscatine area being grown for processing into potato chips. This market niche requires a cultivar with quick emergence after planting, tolerance to warm summer growing conditions, early harvest capabilities, and acceptable chipping characteristics.

## **Keywords**

RFR A9029

## **Disciplines**

Agricultural Science | Agriculture

# Effect of Harvest Timing on Atlantic, Dakota Crisp, and Snowden Potato

## RFR-A9029

Vince Lawson, superintendent

### Introduction

This study compared tuber yield of three potato cultivars (Atlantic, Dakota Crisp, and Snowden) on three harvest dates (July 14, 21, and August 5). Dakota Crisp is a relatively new chipping and table stock potato released by North Dakota Agricultural Experiment Station in 2005. It is reported to have good yield potential and chipping characteristics. Atlantic and Snowden are currently the preferred cultivars in the Muscatine area being grown for processing into potato chips. This market niche requires a cultivar with quick emergence after planting, tolerance to warm summer growing conditions, early harvest capabilities, and acceptable chipping characteristics.

### Materials and Methods

*Planting and plot design.* Potatoes were planted on April 9, 2009. There were three blocks for the three harvest dates. Each block consisted of four plots of each cultivar, twelve plots total. A plot consisted of one row of 25 seed pieces spaced 12 in. apart with rows spaced 42 in. apart.

*Fertility and irrigation.* Water was applied as needed by overhead irrigation to supplement rainfall. Fertilizer was applied preplant incorporated at rate of 50 lb nitrogen (N), 50 lb phosphate ( $P_2O_5$ ), and 200 lb potassium ( $K_2O$ ). After crop emergence, 60 lb nitrogen was sidedressed on May 11 and June 4.

*Pest control.* Weeds were controlled with Dual II Magnum and Lorox DF applied crop preemergence on April 15. Potatoes were

cultivated and hilled on June 4. Insect pests were controlled with Vydate L applied in furrow at planting and foliar sprays of Mustang Max and Radiant during growing season. Foliar diseases were controlled with Bravo Weather Stik fungicide.

### Results and Discussion

Soil temperatures were cold following planting on April 9—fluctuating in the mid forties and gradually rising to the mid fifties by early May. Snowden showed the quickest and strongest emergence. Ninety percent of Snowden's seed pieces had emerged by May 13 and Atlantic and Dakota Crisp showed only 74% and 70% emergence, respectively. By May 27 emergence had improved to 96% for Snowden, 91% for Atlantic, and 82% for Dakota Crisp.

The three potato cultivars were harvested on July 14, July 21, and August 5. Results are presented in Table 1 and show a steady increase in total and A size yield, average tuber weights, and specific gravities as harvest was delayed and the growing season lengthened. In fact, during the period of July 14 to August 5, total yield increased an average of 3.6 cwt/acre per day illustrating how rapidly tubers can grow at this time of the season and the importance of harvest timing for maximum yield.

Total and A size yields didn't differ significantly between cultivars at the first and second harvest dates, but by the third harvest on August 5, Snowden produced the largest total, A size, and B size yields. Because of its small tuber size, Snowden also produced the largest B size yield on all three harvest dates.

Overall, Dakota Crisp performed well developing medium-sized plants with semi-erect to sprawling vines and good tuber yield. It did have low specific gravity readings at the July 14 harvest compared with the other cultivars indicating it might not be suitable for first-early harvesting. However, its specific gravity readings improved at the later harvest dates. Tuber set for Dakota Crisp was similar to Atlantic's. On August 5, it averaged 4.6 A size tubers/plant, which was similar to Atlantic (4.7) but much less than

Snowden (8.8). Because Dakota Crisp had a low tuber set, they became fairly large, averaging 7.4 ounces on August 5. No hollow heart was detected in the large tubers of Dakota Crisp or Snowden but was found in large tubers of Atlantic. Seed pieces were planted 12 in. apart in this evaluation and closer seed spacing would probably result in higher yields and more uniform, smaller tuber size. We noted one potentially troublesome trait of Dakota Crisp—the stolons remained attached to the tubers at harvest and would not break off easily.

**Table 1. Tuber yield, average tuber weight, and specific gravity of Atlantic, Dakota Crisp, and Snowden harvested on July 14, 21, and August 5.**

	Total yield (cwt/A)	A size <sup>a</sup> (cwt/A)	Average tuber wt. <sup>b</sup> (oz)	B size <sup>a</sup> (cwt/A)	Specific gravity
<u>Harvest date<sup>c</sup></u>					
July 14	203.4	157.5	5.3	41.4	1.077
July 21	231.3	193.5	5.9	32.5	1.082
August 5	282.5	248.8	6.2	28.6	1.092
<u>July 14 harvest</u>					
Atlantic	189.0	162.9	5.6	41.4	1.080
Dakota Crisp	206.4	173.8	6.2	25.4	1.071
Snowden	214.9	136.0	4.0	75.0	1.079
<u>July 21 harvest</u>					
Atlantic	221.9	197.7	5.8	20.4	1.086
Dakota Crisp	230.8	199.7	7.2	24.7	1.076
Snowden	241.3	183.0	5.0	52.5	1.084
<u>August 5 harvest</u>					
Atlantic	243.5	220.6	6.2	12.5	1.094
Dakota Crisp	262.7	235.1	7.4	22.4	1.092
Snowden	341.4	290.8	5.0	50.8	1.090

<sup>a</sup>A size = tuber diameter 1-7/8 in. or greater, B size = tuber diameter 1-1/2 to 1-7/8 in.

<sup>b</sup>Average weight of A size tubers.

<sup>c</sup>Average of all cultivars by harvest date.