

STORAGE REQUIREMENTS FOR NEW VARIETIES

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Storage management recommendations several new potato varieties are outlined in this article. The information used to develop these recommendations came from a multi-year study funded by the Idaho Potato Commission for this purpose. The trial is conducted at the UI Kimberly Research and Extension Center in south-central Idaho. The potatoes were grown at the research farm and put into storage at the UI Potato Storage Research Facility.

PREMIER RUSSET (A93157-6LS)

Premier Russet was tested in 2002-03, 2003-04 and 2005-06. The three-year mean of Fusarium dry rot infection in bruised and inoculated potatoes was significantly higher in Premier Russet than Russet Burbank in both percent decay (12% vs. 6%, respectively) and percent incidence (30% vs. 16%, respectively) of infection. Therefore, Premier Russet is classified as susceptible to Fusarium dry rot. Dormancy length is shorter in Premier Russet than Russet Burbank when no sprout inhibitor is applied. Dormancy for Russet Burbank is 175, 155, and 130 days after harvest (DAH) when stored at 42, 45 and 48°F, respectively. The three-year mean dormancy for Premier Russet was 120, 100, and 85 DAH, respectively.

Premier Russet is exceptional at maintaining very low reducing sugar concentrations throughout long term storage- even at low temperatures. The highest glucose concentration observed for Premier Russet was 0.029% fresh weight (at 42°F and 105 DAH). This was far below the lowest observed glucose concentration of 0.04% for Russet Burbank stored at 48°F at 227 DAH. Glucose concentrations remained very low for Premier Russet at the three storage temperatures and this positive processing quality attribute corresponds to lighter fry color. Percent weight loss in storage appears to be significantly higher in Premier Russet compared to Russet Burbank. In 2005-06, mean weight losses of 11.1% at 42°F, 8.0% at 45°F, and 11.0% at 48 °F were observed. These values were about 4 to 5% higher than weight loss observed in Russet Burbank potatoes.

Storage Recommendations for Premier Russet: Manage harvest and handling to minimize Fusarium dry rot. Apply CIPC before 85 (if 48°F) to 120 (if 42°F) days after harvest – natural dormancy length is shorter than in Russet Burbank. After two weeks of curing above 50°F, ramp storage temperature down to 42°F, can be stored up to 258 days and still get USDA 1 or below fry color. Weight loss will be higher than typically observed in Russet Burbank.

ALTURAS

Alturas was tested in 2001-02, 2002-03, and 2003-04. The three-year mean of Fusarium dry rot percent decay in bruised and inoculated potatoes was significantly lower in Alturas than Russet Burbank in (2% and 9%, respectively). Percent incidence of dry rot was not significantly different between the two cultivars. Alturas is considered moderately resistant to Fusarium dry rot. Dormancy length in Alturas is short, 100, 90 and 75 DAH at 42, 45, and 48°F, respectively. Fry color is generally lighter in Alturas than Russet Burbank potatoes at the three storage temperatures. Fry color in Alturas is a USDA 1 or better coming out of 48 °F storage, at 45°F, fry color reached a USDA 2 on some sampling dates.

Storage recommendations for Alturas: Alturas is a very short dormancy potato. Be sure to apply CIPC prior to dormancy break (75-100 DAH, depending on storage temperature). If storing Alturas potatoes for dehydration processing, storage temperature of 42°F will result in acceptable glucose concentrations for that industry. When storing Alturas for frozen processing, select a storage temperature of 45-48°F. Use the warmer temperature for potatoes that experienced heat stress in the growing season.

WESTERN RUSSET

Western Russet was tested in 2004-05 and 2005-06. The two-year means for Fusarium dry rot decay and incidence were not significantly different between Western Russet and Russet Burbank. Mean dormancy length (in DAH) in Western Russet was 130 at 42°F, 100 at 45°F and 80 at 48°F, about 50 days shorter than Russet Burbank at those temperatures. Fry color in Western Russet was very similar to Russet Burbank at 42, 45 and 48°F in the two years of testing. Percent weight loss was also very similar to Russet Burbank in the 2005-06 storage season.

Storage Recommendations for Western Russet: Apply CIPC to long term storage potatoes before 80 - 130 DAH (depending on storage temperature). If storing for frozen processing, select temperatures of 45 - 48°F - store warmer if heat stress occurred in the field. If storing for fresh market but you may want to sell for dehydration processing, don't store less than 42°F in order to keep glucose concentrations acceptable.

BLAZER RUSSET

Blazer Russet was tested as A8893-1 in 2001-02, 2002-03, and 2003-04. The three-year means of Fusarium dry rot decay were significantly lower in Blazer Russet than Russet Burbank (8% vs. 11%, respectively). There was no significant difference in Fusarium dry rot incidence of infection between the two cultivars. Mean dormancy length in Blazer Russet was 135 days at 42°F, 115 days at 45°F, generally about 40 days shorter than in Russet Burbank. Fry color in Blazer Russet is acceptable (UDSA 2 or below) at both 45 and 48°F storage for 250 DAH, although fry color is better (mean of USDA 1) at 48°F. Fry color at 42°F became unacceptable dark at approximately 120 DAH in some testing years.

Storage Recommendations for Blazer Russet: Apply CIPC to long-term storage potatoes before 95 - 135 DAH (depending on storage temperature). If storing for frozen processing, select temperatures of 45-48°F - store warmer if heat stress occurred in the field. Blazer Russet is moderately resistant to Fusarium dry rot.

DEFENDER

Defender was tested as A90586 in 2002-03, 2003-04, and 2005-06. Mean Fusarium dry rot was not significantly different than Russet Burbank in both percent decay and incidence. Defender, like Russet Burbank, is classified as moderately resistant to Fusarium dry rot. Mean dormancy length in Defender was 125 days at 42°F, 110 days at 45°F, and 95 days at 48°F, about 50 days shorter than Russet Burbank. Fry color was similar to Russet Burbank when stored at 45 and 48°F. At 42°F, Defender was darker than Russet Burbank in one out of three years tested; the other two years it as similar to Russet Burbank. When fried, a higher level of mottling (dark thread-like discoloration) was observed in Defender fries stored at 42 and 45°F. Weight loss in Defender was similar to Russet Burbank in the 2004-05 test.

Storage Recommendations for Defender: Apply CIPC to long term storage potatoes before 95 - 125 DAH (depending on storage temperature). If storing for frozen processing, select a 48°F storage temperature in order to minimize mottling.

A95109-1

A95109-1 was tested in 2004-05, 2005-06 and is currently undergoing its third year of testing (2006-07). The two-year means of Fusarium dry rot disease showed there were no significant differences between A95109-1 and Russet Burbank. However, we observed a trend for more decay in A95109-1, and we are waiting on results of the third year of testing to draw a conclusion. The two-year means of dormancy indicate that it is about 20-25 days shorter than Russet Burbank. The mean dormancy lengths for A95109-1 are; 155, 130, 105 at 42, 45, and 48°F, respectively. Fry color in A95109-1 was slightly better than Russet Burbank when stored at 45 and 48°F. At 45°F, fry color was about a USDA 1, and at 48°F, fry color was even lighter for A95109-1. At 42°F, both A95109-1 and Russet Burbank fry unacceptably dark after two months in storage. Mottling is sometimes seen in A95109-1, but is minimized at the 48°F storage temperature.

Storage Recommendations for A95109-1: Apply CIPC to long term storage potatoes before 105 - 155 DAH (depending on storage temperature). If storing for frozen processing, select a 48°F storage temperature in order to minimize mottling. Initial data indicate that if storing for fresh market but you may want to sell for dehydration processing, don't store at less than 42°F in order to keep glucose concentrations acceptable. A third year of data is currently underway for this cultivar.