

**Storage Management:** Tubers of Clearwater Russet and Russet Burbank were evaluated for three years for their response to Fusarium dry rot. Clearwater Russet has a greater susceptibility to Fusarium dry rot than Russet Burbank. We recommend additional care for Clearwater during harvest and handling to minimize wounding that could allow Fusarium entry into tubers and infection.

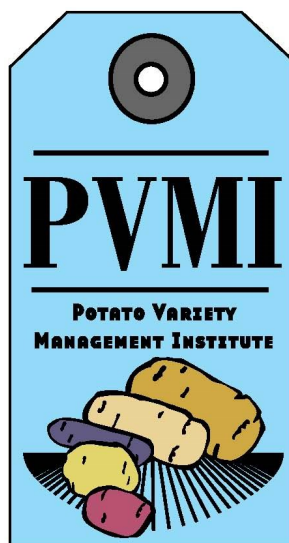
Tuber dormancy length of Clearwater Russet is ~58 days shorter than Russet Burbank when stored at 42°F to 48°F. This is similar to the natural dormancy length for Ranger Russet. Treat with CIPC for sprout inhibition within the first 2 months of storage if storing at 45°F to 48°F. Shrinkage throughout the storage is similar to Russet Burbank. Store Clearwater Russet for fresh market use at 42°F to 45°F. Clearwater Russet can be successfully stored for fresh market up to 9 months in the absence of disease development.

**Processing:** Clearwater Russet has excellent processing qualities. Percent glucose (fresh wt basis) is below 0.08% at 42°F through 9 months storage and below 0.05% at 45°F and 48°F. Sucrose concentration is similar to Russet Burbank at harvest and throughout 9 months of storage. Fry color is USDA 1 or lighter after storage at 45°F and 48°F; storage at 48°F ameliorates seasonal variability in sugar content and fry color. Mottling, a dark, uneven coloration which can occur in fried products, is occasionally seen after frying tubers stored at 42°F, but seldom seen in tubers stored at 45°F and 48°F. For optimum frozen processing quality use 45°F.

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## Clearwater Russet Management Recommendations



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Tri-States Potato Research & Breeding  
Program

In 2016, McDonald's accepted Clearwater Russet as one of the few 'Golden Standard' varieties acceptable for MacFries in the USA. As a result, the acreage of Clearwater Russet has increased tenfold since 2015. This brochure provides guidance to known management parameters for Pacific Northwest production of Clearwater Russet. Local growing conditions will vary by growing season, irrigation, soil type, and temperature range among other factors. These guidelines provide general recommendations for irrigated production in the Pacific Northwest. Please consider your local conditions when drafting your management plan.

**Seed and Pest Management:** Optimal seed size for Clearwater Russet is 2 to 3 oz. Near optimal soil temperatures at planting will minimize soft rot decay. Determine dry rot potential of seed lots and treat seed with an effective fungicide if indicated. Optimum planting depth places the top of the seed piece within 6 to 8 inches from the top of the hill. Seed piece spacing for 36 inch wide rows should be 10 to 12 inches for fresh market use, but spacing at 13 inches will produce larger tubers if desired for processing.

Clearwater Russet has exhibited good resistance to metribuzin when applied at labeled rates. Fumigate soils infested with root-knot nematodes or a history of severe early die problems. Routine fungicide applications will prevent serious early blight infections. Improve control of early blight for tubers scheduled for storage by minimizing tuber skinning and bruising during harvest and subsequent handling. Avoid harvesting in wet conditions.

**Nutrient Management:** Total seasonal nitrogen requirements for Clearwater Russet are about 25% less than Russet Burbank for similar yields. Apply 1/3 to 1/2 of the seasonal N requirement by row closure. Base subsequent in-season applications on petiole nitrate concentrations. Total soil plus fertilizer N recommendations for southern Idaho:

180 lb N/acre in areas with a 400 cwt/acre yield potential,

210 lb N/acre in areas with a 500 cwt/acre yield potential, and

240 lb N/acre in areas with a 600 cwt/acre yield potential.

Nitrogen uptake decreases significantly after early August. To ensure adequate tuber maturity and skin set, do not apply N after late July.

Nitrogen response studies conducted for two years at Aberdeen, Idaho indicate that optimal petiole nitrate concentrations for Clearwater Russet should be about 18,000 to 22,000 ppm at the end of tuber initiation, and about 15,000 to 18,000 ppm during mid-bulking. Allow petiole nitrate concentrations to decrease to 7,000 to 10,000 ppm during late bulking. Phosphorus, potassium and micronutrient requirements have not been established for Clearwater Russet. We recommend that growers follow local nutrient management recommendations for Russet Burbank until new guidelines for Clearwater Russet become available.

**Irrigation Management:** Seasonal irrigation requirements for Clearwater Russet are similar to those for Russet Burbank, although Clearwater Russet is significantly more resistant to tuber defects from water stress. Maintain available soil moisture (ASM) at 70 to 85% for optimal yield and quality. Plant water uptake decreases appreciably in late August; adjust irrigation application rates according to soil moisture measurements. Excessively soil moisture promotes disease and enlarged lenticels. Avoid available soil moisture levels <60% during tuber maturation and harvest to minimize tuber dehydration and blackspot bruise.

**Harvest Management:** Gradually reduce irrigation during the remaining few weeks prior to vine kill. You will avoid excessive soil moisture and allow tuber hydration to decrease to a moderate level during skin set. Follow standard practices to minimize tuber impact damage during harvest and transfer to storage. This will reduce the potential for shatter, blackspot bruise, and dry rot development.

**Curing:** Cure tubers at 55 °F and 95% relative humidity for 14 days.