# Fortress Russet

(Clonal Designation: AC99375-1RU)

**Parentage:** AWN86514-2 x A89384-10
**Developer(s):** Colorado State University and USDA-ARS
**Plant Variety Protection:** In Process

**Incentives for Production**

- ★ Yield potential
- ★ High percentage of US #1 tubers
- ★ Disease resistance (PVY, late blight, *Verticillium* wilt, early blight)
- ★ Processing potential
- ★ Low acrylamide content

**General Characteristics**

Usage: Dual purpose with fresh and processing potential
Plant: Large, medium erect with white flowers
Vine Maturity: Medium (similar to Centennial Russet and Rio Grande Russet)
Tubers: Oblong with a russet skin and white flesh. Tubers are resistant to hollow heart, second growth, blackspot bruise, and shatter bruise.
Yield Potential: High (avg. 500 cwt/acre) and a high percentage of US No. 1 tubers (avg. 83%, 415 cwt/acre)
Specific Gravity: High (avg. 1.099)
Tuber Dormancy: 94 days at 45F (similar to Centennial Russet and Rio Grande Russet)

**Field Management**

Pre-cut seed to a size of 2.5 to 3.5 oz. and allow to suberize before planting.

To obtain a maximum yield of marketable size tubers, seed tubers should be planted at in-row spacing of 14 inches, with a row spacing of 34 inches.

Available nitrogen (N) (residual soil N + well water N + applied N) rate required for optimum tuber yield and quality should be between 160-170 lb N/A. This recommendation does not include nitrate nitrogen mineralization from previous crop stubble and from soil organic matter.


**Field Management (continued)**

For optimum tuber yield and quality, apply 35-40% of the required seasonal N pre-plant or at planting.

Begin in-season N application after tuber formation. Apply the remaining seasonal N requirement in split applications after tuber formation. In-season N application should be completed by the end of July in the San Luis Valley. Finishing N application earlier in the season is preferred.

Vines should be killed at approximately 115 days after planting to allow tubers to mature and to avoid tuber skinning and bruising at harvest.

**Nutritional Characteristics**

Acrylamide levels in Fortress Russet are lower than most russet cultivars. Asparagine, which is responsible for acrylamide formation, is also lower.

Reducing sugars are at the same levels as most of the other russet cultivars which is medium low.

Chlorogenic acid and total phenolics are slightly lower than other popular russet cultivars. Chlorogenic acid is a major polyphenolic compound which is known for lowering blood glucose and blood pressure.

**Disease Considerations**

Fortress Russet is susceptible to PLRV but shows low spread levels in the field. It is resistant to all strains of PVY and highly resistant to PVY$^{o}$ strains. Fortress Russet is susceptible to bacterial ring rot with typical symptoms easily expressing within a 90 days after planting (75+ DAP) window and demonstrates all symptoms. Tubers are susceptible to symptoms, but generally not in high numbers. Fortress Russet is very resistant to powdery scab with no tuber symptoms and extremely low levels of root galling. Tubers are susceptible to *Fusarium* dry rot and moderately resistant to *Pectobacterium atrosepticum*, both seed piece decay and blackleg.

Results from the Western Regional Trials from 2009-2011 indicated that Fortress Russet had no notable weaknesses and had resistance to *Verticillium* wilt, early blight (both foliar and tuber lesion development) and moderate resistance to late blight.

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