

**WA Columbia Basin Cultural Management Recommendations
for Umatilla Russet**
MJ Pavek - WSU

Important Considerations: After planting, Umatilla Russet's emergence can be slow and non-uniform, largely due its genetics. Umatilla typically requires more heat units to emerge from the same planting depth than Russet Burbank or Ranger Russet. However, in a 3-year Columbia Basin planting depth study, the delayed emergence did not affect final yield or market value. It is believed that in the Columbia Basin, plants have ample time to "catch-up" after delayed emergence because the growing season provides enough long days to maximize Umatilla's marketable yield. However, it is important to plant healthy seed pieces of the right size into moist soil at the right depth and in-row spacing.

Because Umatilla is susceptible to dry-rot, seed cutting operations will benefit by employing extra people to pick out rotting seed pieces prior to planting. Seed pieces should be treated with one of the commonly used fungicides prior to/during planting. Seed pieces with small, peeping sprouts are ideal for quick emergence. Good soil moisture is essential for quick emergence and excessively dry fields should be pre-irrigated prior to planting.

Because Umatilla tubers continue to bulk late into the growing season, early senescence of Umatilla should be avoided through adequate nutrient, irrigation, and disease management. **One major issue with Umatilla is its disease susceptibility and the potential for early senescence or plant death. To reduce incidence of white mold, growers should consider applying a fungicide with activity on white mold when the majority of plants are flowering, in accordance with the label.** Insects should be controlled similar to the recommendations for R. Burbank.

Seed Size: 1.5 to 3 oz

Suggested Planting Date: Mid to late April

Row Spacing: 34 inches

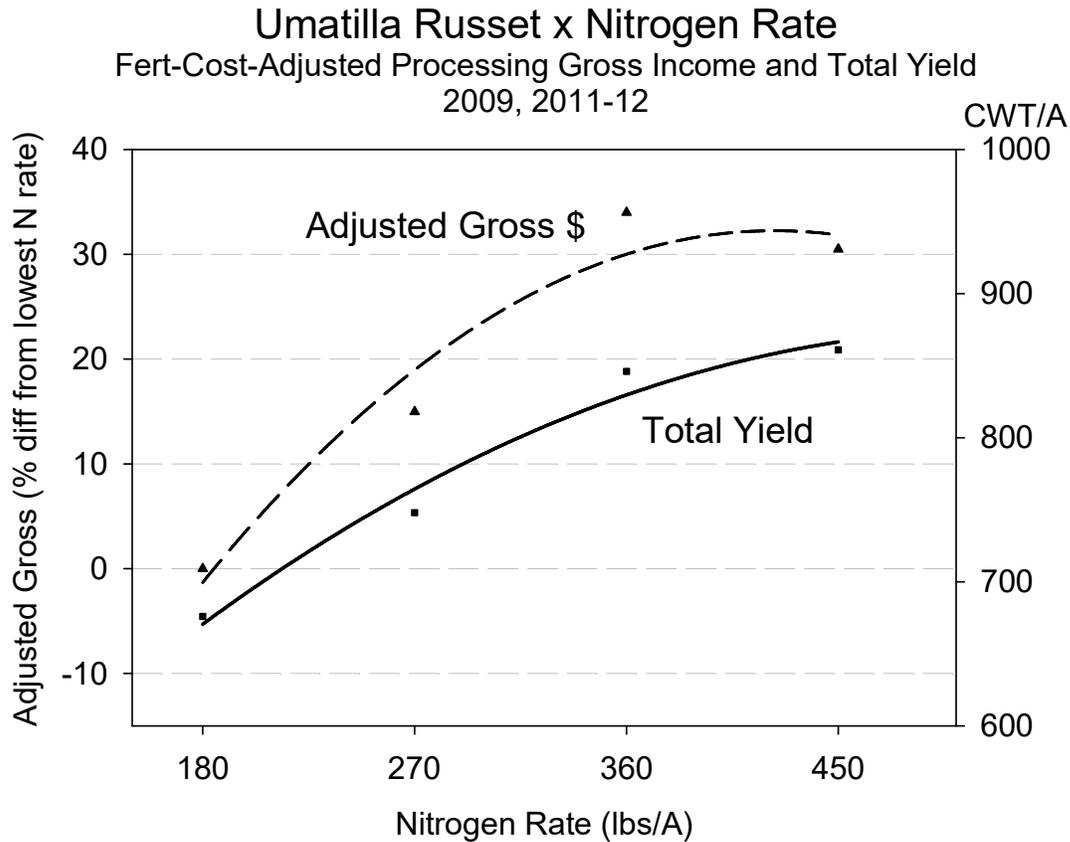
In-Row Spacing: 10 inches is ideal for most seasons and locations across the basin. With previous Umatilla growing experience, adjust in-row spacing plant to produce the most valuable size profile, which might be 6 to 12 oz potatoes, depending on your contract. In-row spacing should be reduced if growers have experienced a high yield of over-sized tubers (>14 oz), and visa versa.

Planting Depth: 8 inches – top of seed piece to top of hill.
Alternatively, 4 inches below level soil or 2 inches below furrow. Due to Umatilla's delayed emergence, do not plant deeper than 8 inches.

Nitrogen Management – Process Market:

Total season nitrogen (including soil residual) for Umatilla Russet should be between 375- and 400-lbs/A in a typical growing season with approximately two-thirds applied through the irrigation water between 60 and 115 DAP. Research indicates maximum economic gain is found between 375- and 400-lbs/A of nitrogen (Figure 1).

Figure 1

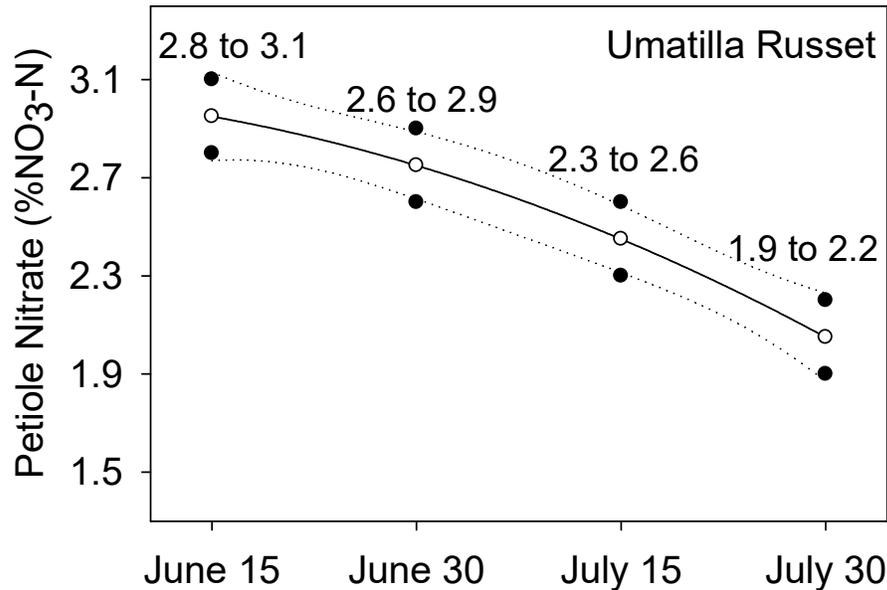


Umatilla Russet was tested in several Nitrogen rate trials at WSU-Othello over a 5-year period. Of all varieties in the N rate trials, Umatilla was one of the most sensitive to inadequate N. Growers may lose economic yield loss if they try to reduce N below what is typical for Russet Burbank. In-fact, the research indicates that Umatilla may require more N throughout the season than Russet Burbank.

Pre-plant or at-planting nitrogen of 125- to 150-lbs/A of available nitrogen (soil residual + applied) in the root zone at emergence is recommended. Apply the remaining N throughout June and July via overhead irrigation at rates of 30-40 lbs/A per week. As the canopy closes the row, double the weekly application rate for approximately two weeks, then return to 20-40 lbs/A per week until the end of July, while staying within the desired target of 375- to 400-lbs/A of nitrogen. Petiole and soils during the growing season should be used as a guide, however, growers should strive to hit the season total nitrogen target of 375- to 400-lbs/A. Petiole and soil samples should be collected prior to row closure and continue through the season until late bulking (once every 2 weeks is adequate, see figure 2 below) petiole NO₃% of 28,000 to 31,000 ppm and total soil nitrogen above 50 lbs/A should be maintained until the start of early bulking (approximately 90 DAP). Thereafter, allow depletion of soil nitrogen with a

corresponding decline in petiole reading between 23,000 and 26,000 ppm at mid-bulking (approximately 115 DAP), and then between 19,000 and 22,000 ppm at late bulking (approximately 125 DAP).

Figure 2



Water management:

Irrigate similar to Russet Burbank. 75% to 85% ASM from full emergence until late bulking, reduce to 60% to 65% as vines start to senesce.

Nutrient Management other than Nitrogen:

Recommended phosphorus (P₂O₅) rates are between 225- to 325-lbs/A, depending on soil pH and available phosphorus levels. Within WSU research, phosphorus rates above 400 lbs/A occasionally resulted in lower yields than the lower phosphorus rates and the non-treated control plots. For more details on phosphorus management and other nutrients consult the following publication on Russet Burbank management: Lang, N.S., R.G. Stevens, R.E. Thornton, W.L. Pan, and S. Victory. 1999. Nutrient Management Guide: Central Washington Irrigated Potatoes. Washington State University Experiment Station Extension Bulletin EB1882.

Organic Production:

Specific recommendations have not been established.