

Galena Russet Cultural Management Recommendations for the Columbia Basin of WA and OR

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Disclaimer: This may change slightly in near future as research and grower feedback increases.

Columbia Basin of WA and OR: Galena Russet (Galena) typically produces large tubers, especially when grown full season. Early harvest tuber size is like, or slightly smaller than, Shepody. The large tuber size can be attributed to the fact that Galena only produces 5 to 6 tubers per plant, approximately 2-3 less than Ranger Russet. Galena tubers tend to be shorter than Shepody, Ranger Russet, or Russet Burbank. Recommended seed-piece depth is 7-8 inches from top of hill to top of seed piece, after all post-planting tillage is finished. Like most varieties grown in the Columbia Basin, Galena Russet will produce up to 6% more net revenue when planted into 32-inch rows versus 34-inch rows. Due to a lack of eye-appeal, Galena should not be used on the fresh market.

Early Harvest Production – Process Market:

Galena Russet is not an early-maturing variety; however, its large tubers could be harvested early, similar to Shepody, especially if the vines were removed prior to natural maturity. For an early- to mid-season harvest between mid-July and mid-August, (100-120 days after planting (DAP)), seed pieces should be spaced approximately 11-12 inches apart in-row. Total seasonal N applications should be 250-280 lbs/A, including pre-plant and residual inorganic soil N (NO₃-N plus NH₄-N). See also “Nitrogen Management” section and figures below.

Late Harvest (Full Season) Production – Process Market:

For full season growth with a harvest between mid-August and October (>130 DAP), seed should be spaced 8-10 inches apart in-row. Total seasonal N applications should be 350-380 lbs/A, including pre-plant and residual inorganic soil N (NO₃-N plus NH₄-N). See also “Nitrogen Management” section and figures below.

Nitrogen Management

We recommend applying pre-plant or at-planting nitrogen so there is 125- to 150-lbs/A of available N (soil residual N + applied) in the root zone at emergence. Petiole and soils during the growing season should be used as a guide, however, growers should strive to hit the season total N targets. ***Petiole values alone should not drive in-season nutrient applications.*** Soil N should be at or below 50 lbs/A by mid-July and plants kept healthy via “spoon-feeding” of nitrogen. With low soil N and the cessation of N applications prior to mid-August, plants will be able to adequately mature during August and September. Full season rates do not account for N applications to aid in crop residue breakdown.

Nutrients other than Nitrogen:

Management guidelines for nutrients other than N have not been established for Galena Russet, however, preliminary research results indicate Galena Russet responds well to 250 lbs P₂O₅/A when soil phosphorus is between 10-20 ppm. Soil pH and phosphorus tie-up can alter results. For additional info, growers should follow local nutrient management recommendations for Russet Burbank (Lang et al. 1999) until new guidelines for Galena Russet become available. (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.)

Irrigation Management:

Available soil moisture (ASM) should be maintained at 75% to 85% from full emergence until late bulking, avoid excessive irrigation. As vines senesce, ASM should be reduced to 60% to 65%. Avoid excessive soil moisture from mid to late bulking to prevent disease, rot, and shatter bruising at harvest.

Harvesting and Handling Galena Russet

Galena Russet is susceptible to shatter and blackspot bruising at harvest. Shatter, mechanical cracking, thumbnail cracks, and air checks are terms that refer to hairline fractures in the tuber that typically result when turgid tubers collide with a solid surface. Susceptibility to shatter is often variety specific and heavily influenced by a variety's genetics. Genetic potential plus the environmental conditions conducive for shatter can be financially devastating. Shatter can reduce marketability and lead to excessive rot in storage. Turgid tubers (firm, well hydrated, high fluid content) are more susceptible to shatter bruise than flaccid tubers.

To prevent shatter:

- 1) Your goal should be to dehydrate (reduce turgor) the tubers to a level that will minimize shatter
- 2) Warm temperatures and dry soils facilitate dehydrating tubers
- 3) Best to harvest tubers when it is warm (pulp temp as warm as possible ~ 65F might be ideal)
- 4) Allow 14-21 days after vine kill
- 5) If possible, irrigate just prior to harvest to reduce bruising from clods, etc.
- 6) Follow steps outlined in the "Preventing Potato Bruise Damage" by Mike Thornton & Bill Bohl located at: www.cals.uidaho.edu/edcomm/pdf/BUL/BUL0725.pdf
- 7) Review also: "Thumbnail Cracks of Potato Tubers" By Bill Bohl & Mike Thornton, located at: www.cals.uidaho.edu/edcomm/pdf/CIS/CIS1129.pdf

Unfortunately, some of the things, like warmer temperatures and tuber turgidity, that help to prevent shatter bruising can exacerbate blackspot bruising and vice versa. Do your best to handle all tubers gently and minimize conveyor drop heights.

IMPORTANT PRODUCTION CONCERNS:

- Galena Russet may be susceptible to hollow heart. When grown near Othello, WA in 2013, 36% of harvested tubers had hollow heart; however, it was not seen in other years. Hollow heart tends to be more serious when planted early, before the middle of April, than later planting dates.
- Galena Russet is susceptible to shatter bruising, handle gently.