

## IRRIGATION TIPS FOR NEW VARIETIES

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Each potato variety has a unique growth pattern and production problems and thus, has its optimal irrigation requirements that are also unique. Presented here are brief tips on managing irrigation for each of several new potato varieties. The information presented is based on a combination of research, grower experience, and general knowledge of production principles. As new information becomes available, some of these recommendations may be updated.

### *Ranger Russet*

1. **Avoid water deficit stress at tuber set.** This causes lower tuber set, tubers with long, thin shape, increased incidence of common scab, and occasionally severe sugar ends. Ranger Russet is fairly resistant to stresses that occur at other times during the season.
2. **Plan for heavy water use early and late in the season.** Compared with Russet Burbank, Ranger Russet has a rapidly developing canopy which senesces late in the season. Total water use by Ranger Russet is relatively high.
3. **Maintain available soil moisture (ASM) > 60% during vine kill and maturation.** Tubers of Ranger Russet are susceptible to blackspot bruise. This is made worse by a tendency for the tubers to dehydrate prior to harvest. Rather than dry down Ranger Russet prior to vine kill, keep the soil moisture high. Then, use a supplemental irrigation if necessary, after vine kill to keep moisture high right up to harvest time.

### *Russet Norkotah*

1. **Plan for light water use season-long.** Russet Norkotah uses less water throughout the season, in comparison with Russet Burbank. This is especially evident after the first signs of senescence.
2. **Apply smaller amounts of water, more frequently.** Russet Norkotah develops a small and inefficient root system. To compensate, irrigate for a shallow (18 in) root zone.
3. **Avoid saturation of the base of the hill.** Russet Norkotah is very susceptible to pink rot and other rot problems that are made worse by over-watering. Deep, frequent irrigations that keep the lowest tubers too wet are one cause of storage problems.
4. **Monitor late season soil moisture and avoid over-application.** Water use for Russet Norkotah begins to fall off with the first signs of senescence. Late season over-watering increases incidence of pink rot.

- 5. Irrigate the Russet Norkotah line selections according to their own needs.** The Russet Norkotah line selections are later maturing and have larger vines than the standard variety. For intermediate types (CO8 and the Texas line selections), plan to use slightly more water, slightly later into the season, than for the standard variety. For CO3, plan to irrigate more like Russet Burbank, with a full-season high demand for water.

### *Shepody*

- 1. Plan for a moderate level of seasonal water use.** Shepody water use through the early season is similar to Russet Burbank, but early harvest may lessen season-long use.
- 2. Maintain ASM > 70% during early growth and tuber set.** High levels of moisture will enhance tuber set and minimize the incidence of common scab.
- 3. Apply less water more often than for Russet Burbank.** Research has shown that tuber quality and solids are maximized through frequent irrigation.
- 4. Avoid over-irrigation late in the season.** Shepody is very susceptible to pink rot. To minimize problems, soil moisture should be monitored late in the season and allowed to drop to 60% ASM between irrigations.

### *Umatilla Russet*

- 1. Plan for moderate to heavy water use.** Umatilla Russet uses about the same amount of water as Russet Burbank, except for slightly heavier use late in the season.
- 2. Avoid water deficit stress early and late in the season.** Umatilla Russet is prone to malformations such as pointed ends that can be made worse with water stress.
- 3. Allow some drying during vine kill and senescence.** There is a need to allow some drying to lessen problems with shatter bruise, while not allowing severe dehydration that make Umatilla Russet prone to pressure bruise in storage. The balance is to allow depletion of ASM to 55-60% at vine kill, then irrigate to condition the soil within 3 days of harvest.

### *Alturas*

- 1. Plan for heavy water use, season-long.** Alturas uses significantly more water than most other varieties. If evapotranspiration methods are used for scheduling, Alturas may require adjustment of water use tables.
- 2. Avoid severe water deficit stress throughout the season.** Alturas shows definite loss of yield potential under drought stress. Bulking occurs late in the season, so monitoring of soil moisture must continue until vine kill.
- 3. Maintain ASM > 60% until vine kill.**

### *Gem Russet*

1. **Plan for moderate to heavy water use.** Water use patterns for Gem Russet are similar to those of Russet Burbank.
2. **Do not irrigate prior to emergence.** Irrigation of planted seed pieces will result in decay. If soil is dry, irrigate prior to planting.
3. **Maintain adequate soil moisture during maturation and utilize preharvest irrigation for soil conditioning.** Gem Russet is prone to blackspot bruise and preharvest irrigation management should be used to reduce this problem.

### *Bannock Russet*

1. **Plan for heavy water use, season-long.** Bannock Russet begins emerges slowly and may not require early irrigation, but once the canopy begins to develop, it uses more water than Russet Burbank through the end of the season.
2. **Ensure adequate moisture at tuber set.** Adequate moisture (ASM > 70%) will encourage heavier tuber set, a desirable situation with Bannock Russet.
3. **Allow slight dehydration at vine kill and throughout maturation.** Bannock Russet is very susceptible to shatter bruising during harvest, and the soil should be allowed to dry (50 to 55% ASM) during maturation to reduce tuber turgidity.
4. **Time preharvest irrigation to minimize tuber rehydration.** To help minimize shatter bruise, irrigate within 3 days of harvest.

### *Summit Russet*

1. **Plan for heavy water use, season-long.** Summit Russet begins emerges slowly and may not require early irrigation, but once the canopy begins to develop, it uses more water than Russet Burbank through the end of the season.
2. **Avoid water deficit stress during tuber set and early bulking.** Summit Russet is prone to a delay in tuberization and early bulking as a result of stress. This can have a large impact on yield in short season areas.

### *Chipeta*

1. **Plan for heavy water use, season-long.** Chipeta uses more water than Russet Burbank at all stages of growth.
2. **Avoid planting into wet soils and do not irrigate prior to emergence.** Chipeta is susceptible to damage from rhizoctonia and from seed piece decay. Minimize these problems by ensuring (as closely as possible) ideal moisture conditions (60 to 70% ASM) prior to emergence.
3. **Maintain ASM >70% during tuber set.** Tuber set of Chipeta can be very low and high soil moisture can help encourage heavier set.
4. **Avoid over-irrigation late in the season or any irrigation just prior to or after vine kill (except for soil conditioning).** Chipeta is very susceptible to pink rot and excess late irrigation exacerbates the problem.