

Yukon Gem Management Recommendations – Idaho

Yukon Gem is a yellow-fleshed, medium-maturing cultivar suitable for fresh-pack or processing and is notable for its high level of resistance to potato virus Y^O and moderate resistance to foliar and tuber late blight. It produces uniform attractive tubers having a light yellow skin with prominent splashes of pink around the eyes; tuber flesh pigmentation is similar to that of Yukon Gold. Trials conducted over multiple years and sites demonstrate a higher yield potential than the yellow-fleshed, industry standard Yukon Gold.

A limited number of studies on the management of Yukon Gem have been conducted in southern Idaho. Results of these studies may provide growers in this and other production regions with the basis for developing appropriate management guidelines for their locale.

Seed and Pest management

Optimal seed size for Yukon Gem is about 2.5 to 3.0 oz. Seed should be planted near optimal temperatures (50-55°F) to minimize the potential for soft rot decay. Optimal seed piece spacing for 36 inch wide rows is 9 to 11 inches with a 5 to 6 inch planting depth. A 11 to 13 inch seed piece spacing should be used if an increased proportion of large tubers is desired. Adequate soil needs to be applied to the surface of the hill at final hilling to minimize the potential for tuber greening.

With the exception of soft rot, PVX, and PLRV foliar infection, Yukon Gem displays less susceptibility than Yukon Gold to the majority of the common potato diseases, indicating that Yukon Gem is potentially a better candidate for organic production than is Yukon Gold. Yukon Gem is resistant to PVY^O, but is susceptible to PVY necrotic strains such as PVY^{NTN} and PVY^{N-Wi}. Yukon Gem is resistant and moderately resistant to tuber and foliar late blight infection, respectively. It also displays moderate resistance to dry rot and PLRV net necrosis, but is more susceptible to *Pectobacterium* soft rot than Yukon Gold. While both cultivars are susceptible to pitted scab, the incidence of serious scab defects was significantly lower for Yukon Gem compared to Yukon Gold in two of three years of evaluations, with an overall three year average of 36.1% vs. 56.2%, respectively.

Yukon Gem has exhibited good resistance to metribuzin when applied at labeled rates. It has an erect, medium to small sized vine that matures relatively early in the growing season and competes reasonably well with weeds after row closure during early to mid-tuber bulking.

Soils infested with root-knot nematodes or a history of severe early die problems should be fumigated. Routine fungicide applications should also be made to prevent serious early blight infections. Early blight control for tubers in fields scheduled for storage can be facilitated by minimizing tuber skinning and bruising during harvest and subsequent handling and avoiding harvesting in wet weather conditions.

Total seasonal nitrogen requirements for Yukon Gem are about 85-90% of Russet Burbank per cwt of yield produced. Typically, 1/2 of the seasonal N requirement should

be applied by row closure, with subsequent in-season applications being based on petiole nitrate concentrations. For southern Idaho, total soil plus fertilizer N recommendations range from about 210 lb N/acre in areas with a 400 cwt/acre yield potential to 240 lb N/acre in areas with a 500 cwt/acre yield potential. Nitrogen uptake decreases significantly after August 1 so N applications should not be made after that time.

Phosphorus, potassium and micronutrient requirements have not been established for Yukon Gem. Therefore, it is recommended that growers follow local nutrient management recommendations for Russet Burbank until new guidelines for Yukon Gem become available.

Irrigation Management

Yukon Gem has good resistance to water stress-related tuber defects. Therefore, available soil moisture (ASM) should be maintained within the range of 65 to 80% for optimal yield and quality. This irrigation regime should minimize the potential for common scab development. Plant water uptake decreases appreciably in late August, so irrigation application rates need to be adjusted according to soil moisture measurements to avoid developing excessively wet soil conditions that promote disease and enlarged lenticels.

Harvest Management

Yukon Gem has good resistance to shatter bruise but is moderately susceptible to blackspot bruise. Therefore, low soil moisture (<60% ASM) conditions should be avoided during tuber maturation and harvest to minimize tuber dehydration. Vines should be killed 2-3 weeks before harvest to allow for proper skin maturation and chemical maturity.