

Field Management of Rocky Mountain Russet (CO05068-1RU): Nitrogen and Plant Population

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Nitrogen Fertilizer Management

Rocky Mountain Russet (CO05068-1RU) is a medium to late Russet cultivar. A two years study conducted indicated that a total of 200 to 220 lbs per acre of available nitrogen (N) (soil residual N + irrigation water N + applied N) was needed to produce maximum tuber yield and quality of commercial fresh market potatoes. To know how much nitrogen fertilizer to apply during the growing season, subtract residual soil and irrigation water N from the recommended total available N. Ammonium Thiosulfate (28-0-0-5) was used as source of N fertilizer in this study. With 200 lb available N rate per acre, one can harvest a total of 485 cwt/acre of tubers with 90% US #1s. Premium size (> 6 oz.) tuber yield was 364 cwt/acre. No external or internal tuber defects were observed in this cultivar. Tuber specific gravity ranged from 1.096 - 1.097. Timing of nitrogen fertilizer application is very important for maximum tuber production of Rocky Mountain Russet. To achieve maximum tuber yield, about 40% of the required seasonal nitrogen fertilizer should be applied either preplant or at planting. The remaining required seasonal nitrogen should be applied in split applications soon after tuber formation. Nitrogen fertilizer application should be completed early in the growing season to allow for tuber growth and maturation. Nitrogen fertilizer application should be completed by July 30, in the San Luis Valley.

Petiole Nitrate N concentration during the growing season

The sufficiency level for petiole nitrate N concentration during the growing season should range from 25,000 to 26,000 ppm at tuber initiation, 23,000 to 24,000 ppm during tuber bulking, and between 20,000 to 21,000 ppm at tuber maturity.

A total of 16 inches of irrigation water for the growing season is sufficient, while maintaining soil water content above 65 to 70%.

Vines can be desiccated between 115 to 120 days after planting for commercial fresh market potatoes.

Plant Population Management

In a two years study with row spacing of 34 inches, planting seed potatoes at in-row spacing of 14 inches produced maximum tuber yield and quality. With the recommended 14 inches in-row seed spacing, the cultivar Rocky Mountain Russet produced 444 and 420 cwt/acre of total and marketable (> 4 oz) tuber yields, respectively, with 95% US #1s. With the recommended in-row seed spacing, tuber specific gravity was observed to be 1.102, and tubers had less than 1% external or internal defects.