Title Tami G grape tomato response to nitrogen rates

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Abstract

Grape tomatoes (*Lycopersicon esculentum* Mill.) have recently gained in popularity among consumers because they can be eaten without being cut, they are deep red in color, and their flavor is intense and pleasant. Current N fertilization recommendations have been developed for determinate tomato varieties that have a 3-month long growing season, whereas that of the indeterminate grape cultivars may be up to six months. 'Tami G' grape tomatoes (previously identified as a suitable alternative to 'Santa') were grown on a Lakeland fine sand at the North Florida Research and Education Center-Suwannee Valley, near Live Oak, FL in the Spring of 2005 using standard plasticulture practices under 0%, 33%, 66%, 100%, 133%, and 166% of the current recommended rate for round tomato (224 kg/ha). Tomatoes were transplanted 24 Mar. and harvested, weighed and graded five times between 10 June and 15 July. Soluble solid concentrations (SSC) were also measured at each harvest. Season marketable (SMY, kg/ha) and total yield (TY, kg/ha) response to N rates were quadratic (SMY = -0.16 $Nrate^2$ + 140 Nrate + 11,821 R^2=0.56; CV=32%; TY = -0.18 $Nrate^2$ + 153 Nrate + 13949; R^2=0.54, CV=32%; both $p<0.01$). Highest SMY and TY occurred between 314 and 392 kg/ha N rates. N rate effect on SMY and TY was significant only for harvest 4 and 5. SSC ranged from 6.25 to 7.5ºBrix for harvests 1 to 4 and was not significantly affected by N rate. On harvest 5, SSC tended to be greater with higher N rates. These preliminary results suggest that N fertilization for grape tomato could be done by incorporating 56 to 78 kg/ha of N in the bed, followed by daily rates ranging from 0.5 to 3.5 kg/ha/day. Because the length of the growing season for grape tomato may vary, emphasis should be placed on daily N rates and irrigation management, rather than on seasonal N rate.