

Grafting with 'Maxifort' as an alternative to Methyl Bromide for Tomato Production

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The objective of this study is to continue our evaluation of a new alternative to methyl bromide for control of the major pests of tomatoes in NC. Verticillium wilt is a vascular wilt disease that causes stunting and wilting of the plant. Race 2 of the pathogen (*V. dahliae*) is particularly difficult, and the only current effective management strategy is fumigation.

Tomato grafting has been used for decades to manage other soilborne diseases worldwide, but only recently in the US. In 2006 and 2007, preliminary research showed that grafting with vigorous 'Maxifort' could be a viable alternative to chemical fumigants like methyl bromide. Utilizing this vigorous rootstock will not reduce the incidence of the disease, but may compensate for the damaging effects that verticillium wilt has on plant growth and yield.

Grafted transplants were produced on campus at the NCSU Phytotron using the tube grafting technique (<http://www4.ncsu.edu/~clrivard/TubeGraftingTechnique.pdf>). The three grafting treatments include: non-grafted 'Mountain Fresh', self-grafted 'Mountain Fresh', and 'Mountain Fresh' grafted onto 'Maxifort' rootstock. The field was laid out, and a shank application of methyl bromide was made on May 27, 2008. Grafted and non-grafted tomatoes were planted in all plots on June 18, 2008. Plant growth measurements including plant height and shoot biomass will be observed and all yields will be graded and recorded.

Treatments:

1. Untreated – NON-GRAFTED
2. Untreated – SELF-GRAFTED
3. Untreated – MAXIFORT
4. Methyl Bromide 240 lb/A - NON-GRAFTED
5. Methyl Bromide 240 lb/A – SELF-GRAFTED
6. Methyl Bromide 240 lb/A – MAXIFORT

Row Numbers:

- 6, 20, 35, 46
 - 12, 15, 26, 38
 - 10, 16, 25, 37
 - 3, 18, 32, 47
 - 9, 24, 31, 45
 - 1, 21, 33, 48
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Tomato variety: Mountain Fresh, 12 plants per plot, RCBD with 4 reps. All treatments are under Cadillac brand VIF.