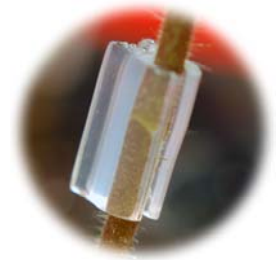


Grafting tomatoes in multi-bay high tunnels as a way to overcome soilborne diseases

Steve Groff ♦ Cedar Meadow Farm

Chris Powell ♦ Good Harvest Farms

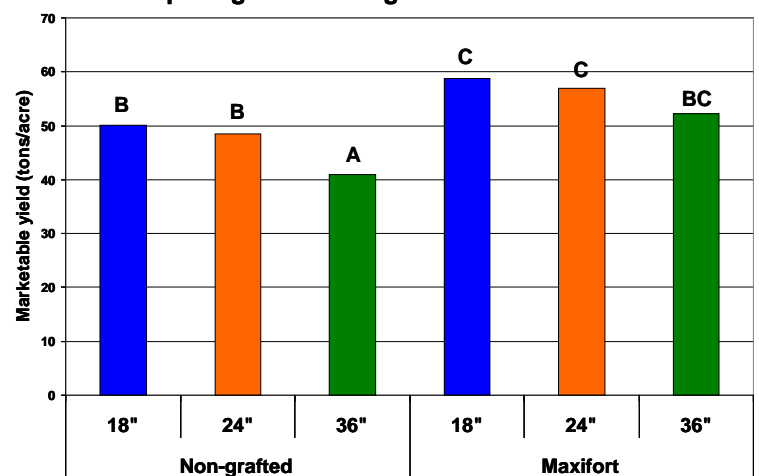
Cary Rivard ♦ NCSU Dept of Plant Pathology



High tunnel production is increasing in the Northeast as these structures provide a favorable growing environment for high-value crops like tomato. High tunnels can offer season extension and also play a pivotal role in reducing foliar and fruit diseases. One of the primary challenges of working in high tunnels is that reduced crop rotation intervals can lead to build-up of soilborne pathogen inoculum in the soil, resulting in severe annual disease epidemics. 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 in NC showed that grafting with vigorous 'Maxifort' rootstock may compensate for the yield reduction associated with verticillium wilt (race 2), and could therefore be a viable alternative to chemical fumigants.



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A research trial was initiated in 2008 and 2009 as the result of two Northeast Region SARE Producer Grants. The trials have three primary objectives: 1) To evaluate 'Maxifort' rootstock for its ability to manage verticillium wilt (race 2) and other soilborne diseases in fumigated and non-fumigated soils. 2) To determine the optimum planting density of grafted and non-grafted tomato for multi-bay tunnel production. 3) To carryout grafting on-farm and determine the economic costs associated with grafted transplant production.

One of the most important questions facing growers interested in grafting is the financial cost and benefit of using grafted plants. In 2008, grafted plants grown at 36" had similar per acre yield to non-grafted plants grown at 18". In 2009, 10,000 grafted transplants were produced at Good Harvest Farms in Strasburg, PA. Transplant costs will be determined based on the expenses and success rate of grafted transplants, and these costs will be utilized for a full economic analysis of utilized grafted transplants. The results of this study will highlight the benefit of grafted plants as well as address optimum cultural conditions for multi-bay tunnel production. For further questions, contact steve@cedar Meadow Farm.com or clrivard@ncsu.edu