

Sustaining Farming on the Urban Fringe



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Improving Quality & Competitiveness of Jersey Tomatoes

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While not our largest selling crop, the Jersey Tomato is a signature crop that helps sell other items when wholesale orders come in. Seventy-five years ago, 25-50% of shipped market tomatoes were lost before making it to market. Market pressures for improved shipability (firmness), lead to the development of a tomato that is visually appealing and free of defects but short on pleasing aroma, taste, and texture. Partnering with New Jersey growers, NJAES Specialists and Ag Agents are working toward producing the best Jersey Tomato possible.

Variety Development for Local Markets & Processing

Prof. Tom Orton is breeding and testing improved tomato lines at the Rutgers Ag Research and Extension Center farm. Tom's insight has led him to focus on creating improved new *open-pollinated tomato genotypes* instead of F-1 hybrids for two reasons. First, tomatoes in general exhibit a bit less hybrid vigor than some other vegetable crops. Second, with our smaller acreages, we can't maintain seed company interest in producing costly F-1 hybrid varieties. Generally, a seed company needs to sell enough seed to produce about 4,000 acres per variety to support profitable hybrid seed production.

Best Performing Early Grafted Tomatoes in High Tunnels

Tomato growers routinely get far higher prices for their earliest tomatoes. However, marginal weather conditions frequently leave growers with variable

fruit appearance and eating quality. Early varieties frequently compromise other horticultural attributes to provide earlier maturity.

High tunnels solve a lot of these problems and combined with grafting can offer higher disease free yields. County Agents Wes Kline and Peter Nitzsche are attacking this problem by evaluating recently introduced early varieties, grafted and ungrafted, in multiple high tunnels.

Seeds & Transplants of Rutgers Market Gardening Varieties

While not all of NJ's 3.2 million households can or want to garden, the market opportunity is large for commercial plant growers supplying gardeners. One good way to connect with gardeners passionate about tomatoes is offering signature Jersey Tomato garden varieties for transplanting. The link between professional plant growers, retail outlets, gardeners and successful Rutgers tested tomato varieties supports local vendors. For seed information see: <http://njfarmfresh.rutgers.edu/jerseytomato.html>

Grape Tomato Evaluation & Jersey Marketing Identity

The grape tomato marketing phenomenon began more than a decade ago. Grape tomatoes, and other small to medium size high quality greenhouse varieties seriously eroded the market share of field grown red round tomatoes, even as the overall sales of market tomatoes expanded at the same time.

It would be easy to offer anecdotes that the natural convenient package grape tomatoes present to consumers and institutional markets, from salad bars to deli trays, added to the situation. Moreover, consumer dissatisfaction with the lackluster culinary quality of *even local* field red round tomatoes contributed to market share losses of classic Jersey Tomatoes.

But, there is more science at work. It turns out that some grape tomato varieties offer higher Brix (a measure of sugar and sweetness), higher acidity (the gum stimulating tartness we like in classic tomatoes) and higher aromatic compounds that make the best tomatoes attractive. In other words, some grape tomatoes offer more of everything that attracts us to the best tomatoes.

From County Agent Peter Nitzsche's field testing at Snyder Research and Extension Farm, culinary evaluations by Prof. Bev Teppner in Food Science, evaluation of volatile chemical constituents in cooperation with Campbell Soup Co., and support from Monsanto Vegetable Seeds, we have a much better picture of consumer attraction and grower recommendations.

The Jersey Jems trademark, prepared by Peter Nitzsche, offers farmers a Jersey marketing identity for better grape tomatoes.



Sodium Fertilizer Supplements may Improve Consumer Attraction

Prof. Joe Heckman and colleagues are field testing natural sea salt crop fertilizer supplements on field grown tomatoes.

In the literature, trace amounts of sodium have long been reported to improve *consumer ratings* over the same tomatoes raised without additions. Hydroponic greenhouse tomato growers worldwide are known to add trace amounts of sodium to their nutrient solutions, monitored by electrical conductivity. Less is known about whether reliable tomato flavor improvement results from sodium applied as a soil fertilizer supplement. Less is known about whether sodium acts by improving flavor or by physiologically stressing the tomato - leading to earlier maturity.

Rutgers NJAES Tomato Quality & Competitiveness Action Plan

Today's market for shipped market tomatoes doesn't allow us to simply go back to growing the varieties of the 1930's. These projects, together with our work evaluating heirloom tomatoes, connecting with consumers at the Great Tomato Tasting, and identifying superior post-WWII hybrids, contribute to sustaining New Jersey's signature tomato crop. Our breeding program, variety evaluations, and conducting consumer tastings are the path to redesigning a Jersey Tomato to meet the needs of today's markets and consumer expectations.