

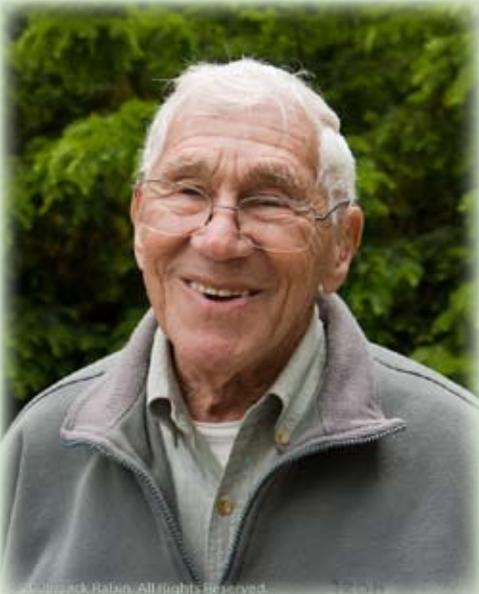
What's in Season from the Garden State

Biweekly Highlights from Cooperative Extension, a unit of Rutgers New Jersey Agricultural Experiment Station

August 4, 2008



Back by Popular Demand: the Ramapo Tomato



Dr. Bernard Pollack on a recent visit to Rutgers.

Where has all the (tomato) flavor gone...long time passing?

Well, the answer my friend is not blowin' in the wind.

Any one old enough to remember the song "Where have all the Flowers Gone" is old enough to remember when vine-ripe tomatoes were juicy, tangy and delicious. Where has all the flavor gone? Gone to firmness (but not every one). When will we ever learn? After 20 years of consumers claiming "I can't get no satisfaction," Rutgers New Jersey Agricultural Experiment Station (NJAES) is looking for answers and some of them lie not in further genetic manipulation, but in consumer's taste buds.

The mission of the Rutgers NJAES *Rediscovering the Jersey Tomato* initiative is to find that missing flavor. One of the first places to look is at the old time tomato varieties that farmers and gardeners associate with the old-fashioned Jersey Tomato taste. These traditionally flavorful varieties are being grown on Rutgers NJAES research farms and are being evaluated for growing performance and taste – with a chance for the public to partake in the taste testing – but more on that later. The part of the project that has been most noteworthy for resurrecting tomato flavor, however, has been the return of one of the varieties that was known and loved for its flavor, but was missing from the seed catalogues - the Ramapo tomato.

Rutgers professor emeritus of plant breeding Dr. Bernard Pollack released this hybrid variety tomato in 1968 and it soon became a favorite amongst gardeners and local growers. Not only was it flavorful, but it was resistant to cracking and common diseases. Despite a loyal following for this tasty and well performing tomato, eventually commercial seed companies stopped supplying the seed to make way for higher yielding modern varieties. Its disappearance left many disappointed gardeners in its wake, many of whom contacted Rutgers requesting Ramapo seeds. After complying for a number of years by producing small batches of Ramapo hybrid seed from the parent lines, Rutgers NJAES sought commercial companies to produce the seed. After several rejections from companies only interested in producing sizeable quantities, Rutgers finally found one willing to produce an amount suitable for its budget.

Forty years after its introduction, the Ramapo seed was re-released in spring 2008 and has been enthusiastically received by gardeners, local growers and tomato lovers alike.

In a recent interview with Dr. Pollack, now retired and residing in California, Dr. Pollack explained why many of today's commercial varieties of red round tomatoes don't carry the taste and texture of the old varieties. According to Dr. Pollack, "If you tasted Rutgers, Stokesdale, Earliana, Marglobe, Pritchard, Big Boy and Early Girl they would all taste very much like Ramapo. I would expect this since we plant breeders were all using germplasm from the same gene pool. We were looking for yield (disease resistance helped), maturity, quality and crack resistance and all of these varieties and hybrids met at least one of these criteria. (These were for the fresh market tomatoes, not processing tomatoes). Yet, trends change and shipping quality, shelf life and hardness became the vogue with genetic engineers. However, these modern plant breeders never got out in the field and tasted their product."

Continued on page 2

New Jersey Department of
Agriculture's Jersey Fresh &
Seafood Availability Report

Baby Arugula &	Parsley
Baby Spinach	Peaches
Basil	Peppers
Beets	Pickles
Blueberries	Potatoes
Cabbage	Squash - yellow and
Cantaloupes	zucchini
Collards	Sweet corn
Cucumbers	Tomatoes
Dandelions	Turnips
Dill	White Potatoes
Eggplant	
Kale	
Leeks & Green	
Onions	
Melons	
Mint	
Nectarines	



Butterfish	Farm Raised Hard
Flounder	Clams & Oysters
Ling	Little-necks/Middle-
Lobster	necks
Scup (Porgies)	Specials
Sea Scallops	Cherrystones,
(Day Boat)	Chowders, Top-
Squid	necks
Sword Fish	Cape May Salt Half-
Tuna	Shelled Oysters
Whiting	Delaware Bay
	Oysters



Since the Ramapo tomato is a hybrid tomato, many people wonder what the difference is between hybrid varieties and open-pollinated varieties. Unlike open-pollinated varieties, hybrids are produced by cross pollinating two parent lines. The resulting progeny, or F1 generation, has the desired characteristics of both parents, but if the seeds from the F1 are saved to produce more plants (F2), very few progeny will be similar to the F1, but most will be more like the parents that were crossed to make the hybrid. Seeds saved from open-pollinated varieties will remain true to the original variety because they are genetically stable.

Why do plant breeders prefer the development of hybrid varieties for certain crops? Hybrids exhibit plant vigor, or "heterosis" which is manifested in increased size, growth rate or other qualities resulting from the F1 generation crosses between inbred lines.

The process of inbreeding to develop parent lines is a long arduous process. As Dr. Pollack explains, it requires years of in-breeding the parent lines until they are "pure". Once the in-bred line is pure and no longer segregates (this usually takes seven years), then the breeder tests the crosses (between two parent lines) in the field and looks at the progeny (F1 hybrid).

The Ramapo's parents were KCA, a line from Campbell's Soup that was resistant to fusarium wilt, and Abbie, named for Dr. Pollack's daughter, which was resistant to verticillium. Abbie's origins were from an early maturing line from University of North Dakota, which was still segregating, until Dr. Pollack achieved a pure line, which in this case took longer than seven years.

So that's where plant breeding starts, but the bottom line is it ends with consumers' taste buds. Dr. Pollack explains that produce shippers and receivers are the ones who make the purchasing decisions that tell the farmers what type of tomato to grow. If produce shippers want a hard tomato, that is what growers have to grow to sell their product. Many dissatisfied consumers look for alternatives and seek local growers that provide more flavorful vine ripened varieties through direct market outlets such as farm markets or supermarkets that promote Jersey Fresh products. Dr. Pollack reminds us that unlike their hard shipping variety counterparts, these locally grown tomatoes won't last for weeks after purchase. They are best eaten fresh – within days of purchase.

Rutgers Tomato Taste Testings North and South Jersey

For several years the tomato variety trials at Rutgers research farms focused on heirloom tomatoes. Beginning in 2007, the older red round varieties are being evaluated for disease resistance, growth, yield – and *flavor*. Unfortunately, 2007 did not provide much data since one tasting was cancelled due to destruction of the tomato crop from a hail storm and the other event took place under temperatures in the 90's with windy conditions (perfect for blowing the flavor right out of fresh cut tomatoes). With high hopes for better weather, this year the tomato tastings are scheduled for August 12 at the Rutgers Agricultural Research and Extension Center in Upper Deerfield (Cumberland County) and August 27 at Rutgers Snyder Research Farm in Pittstown (Hunterdon County). The Ramapo, along with many other varieties will be available for tasting. Tasters can also go on tours of the research farms. For details, go to: <http://www.njfarmfresh.rutgers.edu/JerseyTomato.html>. Information on purchasing Ramapo tomatoes and seeds is also available on this web page.

Is that all it takes to rediscover the Jersey Tomato – just bring back the old varieties? While modern shipping varieties have been responsible for a crucial change in the quality of tomatoes over the past twenty years, that is not the only factor that changed. Further research needs to investigate other changes in farming practices that can affect flavor. Soil types and fertilization practices, ripeness when picked, handling conditions and other factors affect tomato flavor. In the mean time, shippers and receivers still determine what types of tomatoes are marketed, but consumers can vote their preferences with their purchasing dollars.

Where to find Jersey Fresh? Ask for it where you shop or dine or go to: <http://www.jerseyfresh.nj.gov>

To receive these reports by e-mail: njfarmfresh@njaes.rutgers.edu
Web: <http://www.njfarmfresh.rutgers.edu>
For your county Rutgers Cooperative Extension office go to: <http://www.njaes.rutgers.edu/county>