

# Sustaining Farming on the Urban Fringe



Monthly Highlights from the New Jersey Agricultural Experiment Station

May 2007

## Publicly Supported Plant Breeding Matters at NJAES

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Innovative plant breeding releases from NJAES scientists frequently start with inauspicious names, but result in **world-class** products sustaining local agriculture, processors, landscape ornamental, and turf industry needs.

Take nectarine NJN-100, for example. NJN-100 is a new NJAES nectarine with knock-your-socks-off great tasting white-fleshed fruit, beautiful red skin and high sweetness combined with juicy tartness. Most new stone fruit selections focus on fruit size, appearance, and on “sub-acid” flavor high in sweetness, but low in tartness, which are preferred by aging, western, and Asian consumers. New Jersey consumers find sub-acid fruits bland, preferring a balance of tree-ripened sweetness and tartness.

### ***Better taste, quality & fewer pesticide inputs***

Nectarine NJN-100 benefits farmers and agricultural environmental quality. NJN-100 was bred in New Jersey. It is less susceptible to devastating bacterial spot disease common to stone fruits from other regions, which require repeated pesticide applications. NJN-100 also suffers less from low temperature chilling damage than trees selected for Mediterranean climates.

Ultimately, the marketplace decides if NJN-100 achieves success. In the mean time, NJN-100’s breeder NJAES, Professor Joe Goffreda, has at least 10 selections of apples, peaches, nectarines, and ornamentals undergoing release, with more on the horizon. These trees are targeted to commercial farms, small market farms, homeowner fruit growing, and ornamental landscape uses.

Beach plum is a native New Jersey coastal fruit tree with potential to create local value-added small

*At the NJAES Turf Center, turf breeders and technicians custom built a “fine turf wear simulator;” subjecting turf lines to wear experienced on sports fields and golf courses. This improves breeding efficiency and leads to more competitive varieties.*



farm products in Cape May and other locations. While Extension Agent Jenny Carleo and cooperators evaluate native beach plums, Professor Goffreda maintained beach plum tree BP-1. BP-1 fruits assayed positive for compounds which reduce bacterial adhesion of urinary tract bacteria, similar to cranberry juice. Goffreda also crossed native beach plums, and has sterile trees wonderful as native species for environmentally friendly low maintenance landscapes.

### ***NJAES - a small experiment station but a plant breeding powerhouse***

A partial list of recent contributing releases includes:

- The “Stellar” series of ornamental dogwoods and hollies from Professor Elwin Orton.
- An array of award winning world-class fine turf varieties by breeders Reed Funk, Bill Meyer, and Stacy Bonos.
- New cranberry varieties Crimson Queen and Mullica Queen with superior color and yield potential from Professor Nick Vorsa and Jennifer Johnson-Cicalese.



World leading asparagus varieties bred by NJAES find their way to consumers. Left-to-right: From new crosses made by asparagus breeding technician John Kinelski, to growing young crowns for sale to farmers at Walker Bros. Jersey Asparagus Farms of Salem County, to harvested, trimmed asparagus from Sheppard Farms, Inc. of Cedarville in Kings Supermarkets.

- A range of new all-male hybrid asparagus varieties like 956 and 978 with tighter higher quality spears, better yields, and increased warm climate potential that leverage on previous NJAES hybrids like Jersey Giant, Supreme, Deluxe, and other proven winners.

### ***Farm-to-fork benefits of variety releases***

1. Locally adapted varieties support local and regional farm and food system sustainability because they tolerate variable local weather and climate stresses, pests, and diseases with fewer chemical inputs.
2. Performance improvements are “built-in” to the product, so once long-term research investments succeed, the costs of producing seeds or plants is the same as producing mediocre ones. Everyone benefits.
3. Locally adapted higher yielding varieties provide quality yields on a smaller land base, sustaining increased sales and profits on fewer expensive acres. In New Jersey, every acre counts.
4. Plant breeding provides new and renewed crops for new markets near and far.
5. NJAES variety releases create tangible products in the marketplace, complementing NJAES farming practices research, extension education, and pest management contributions.

### ***What does NJAES need to breed improved crops?***

1. Plant breeding must be conducted in the area we want plants successfully adapted. We can't do the work somewhere else.
2. Stable long-term public funding. Plant breeding is expensive, requires career-long commitments, requires travel to identify new sources of genetic variation, space and time to observe and quarantine material, but has fewer sources of grant funds. In response, other states reduced their commitment to plant breeding while NJAES has not.
3. A strong companion variety evaluation program. Rutgers Cooperative Extension performs replicated trials, rigorously identifying varieties released in other regions. This includes soybean trials, exotic specialty potatoes for smaller farms, specialty Cole crops, heirloom and market tomatoes to help restore great tasting fresh market tomatoes as a signature crop for New Jersey farmers and consumers, ethnic horticultural crops, and others.
4. A well-defined patent and royalty licensing process, supported by industry, generating funds to continue breeding. While some stakeholders voice concern, a royalty stream is an essential companion to public investment.
5. A renewed national USDA commitment to public variety development and releases.

**Our work benefiting farming sustainability and quality of life in New Jersey depends on gifts from people sharing our NJAES vision for a vibrant, healthy, profitable urban fringe farming community. We invite you to join us. Please contact Jack Rabin at (732) 932-5000 X 610 or [rabin@aesop.rutgers.edu](mailto:rabin@aesop.rutgers.edu).**