An Update on the Rutgers New Jersey Agricultural Experiment Station Strawberry Breeding Program

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Rutgers University professor, Dr. Gojko Jelenkovic has been working for over 35 years to breed improved strawberry cultivars for production in eastern North America. Dr. Jelenkovic has utilized traditional breeding techniques with the aim of improving strawberry fruit quality, yields, disease resistance and most importantly flavor. Dr. Jelenkovic's work has resulted in four advanced selections worthy of consideration for commercial production. Supported by a generous grant from the New Jersey Small Fruits Council a team of Agricultural Agents, Specialists, and researchers have been conducting further evaluations of these selections with a goal of releasing some of them to farmers and gardeners.

Figure 1. Tissue Cultured Strawberry Plants, Rutgers University.

In 2009 the selections were virus tested and put into tissue culture to create clean disease free stock material (Figure 1). This clean stock was then propagated and utilized to generate plug plants for replicated field trials at three locations, Snyder Research and Extension, Pittstown, NJ, the Earth Center, North Brunswick, NJ and the Piedmont Research Station, Salisbury, NC in cooperation with Dr. Jeremy Pattison the Strawberry breeder at North Carolina State (Figure 2). In cooperation with a Kube-Pak Corp., Allentown, NJ a strawberry tip plug producer plants were also generated for grower trials on several New Jersey farms (Figure 3, 4)

At least two of the selections have performed very well in the replicated trials and in grower fields. While in some of the replicated trials yields have been somewhat lower than the commercial standard 'Chandler', fruit size, shape, color, and flavor have been much improved (Table 1, Figure 4, 5)

Table 1. Field performance of NJAES strawberry selections, Pittstown, NJ 2010.[z]

Genotype	Marketable yield (lb/A)	Average fruit size (g)[x]	Average °Brix [y]
Chandler	11,372 b	17.1 c	8.4de
NJAES – A	9,719 b	19.2 b	9.4 bc
NJAES – B	12,273 b	20.4 a	9.7 ab
NJAES – C	19,886 a	16.9 c	8.2 e
NJAES – D	6,740 b	17.2 c	10.0 a

[x]Twenty representative fruit/plot.

[y]Mean of fruit samples from eight harvest dates.

[z]Mean separation within columns by Fisher's Protected LSD ($P = 0.05$).

Figure 2. Replicated Field Trial Plots, Rutgers Snyder Farm, Pittstown, NJ April 4, 2010.

Figure 3. Rutgers NJAES Strawberry Selections Grower Trial, Hackettstown, NJ.

Figure 4. Strawberry Runner Tip Production at Kube-Pak Corp., Allentown, NJ.

Figure 5. Rutgers NJAES – An Advanced Strawberry Selection.

Currently patent applications and release papers are being prepared for these promising advanced selections. At the same time discussions are occurring with a commercial nursery about propagating these selections in larger quantities. Hopefully commercial growers will be able to buy these selections as varieties in the near future and take advantage of the improved fruit qualities they offer.

Dr. Jelenkovic has also made additional crosses and these new selections have exceptional size and flavor and are currently being cleaned up and propagated for replicated trials.

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