Fifteen Years of Peach and Nectarine Variety Evaluation at the UMass Cold Spring Orchard

Jon M. Clements
University of Massachusetts Amherst

Shortly after arriving at the University of Massachusetts Amherst as Extension Tree Fruit Specialist in 2000, I began planting peach variety and planting system evaluation trials at the UMass Cold Spring Orchard in Belchertown, MA. Impetus for this activity was my familiarity with high-density peach systems and varieties while working for Michigan State University from 1998-2000 as Berrien County Extension, MI Horticulture Agent. In that county, there were two major peach breeders, Annette and Randy Bjorge, breeders of the Fruit Acres (FA) series of peaches, and Paul Friday, breeder of the PF series of peaches.

These plantings I made fell into three peach/nectarine blocks: first, a perpendicular-V block, planted beginning in 2000, with mostly named and numbered peach varieties from the Fruit Acres (FA) "Stellar" breeding program (International Plant Management cooperating); second, another perpendicular-V block planted beginning in 2002 with varieties added through 2015 that are mostly sourced from Adams County Nursery, including test selections from the Rutgers University breeding program (Joe Goffreda) and the USDA/Kearneysville breeding program, with Adams County Nursery having exclusive marketing rights; and third, a Paul Friday (PF) "Flaming Fury" block with some of his more recent and exciting peach introductions planted in 2014, and also including some new, named varieties (including nectarines) from Adams County Nursery.

Over the past 15 years beginning in 2002 through 2017, I made many (both casual and more rigorous, including entering multiple fruit quality parameters into a database) observations on tree hardiness, fruit quality at harvest, and training systems on all three blocks. Let me tell you about all three of the plantings individually, highlighting what I feel are some of the important lessons coming out of them.

First, the FA block planted beginning in 2000 with more trees added in 2001 was spaced initially 8 by 15 feet. Then, it was inter-planted such that there was only 4-5 feet between trees. Over 54 different named and numbered selections were eventually included in this one-quarter-acre planting, which was trained to a perpendicular-V:

- Named FA "Stellar" varieties (https://www.fruitacresfarm.com/stellar-peaches) -- just about all of them were planted (except Autumn Star and Sweetstar). Earlystar and Brightstar were planted when they were numbered FA-101 and FA-102, respectively. Rootstocks were Lovell and Bailey. Also, Summer Beauty nectarine was included in this planting, but I was never particularly impressed with the yield on those nectarine trees.
- Noteworthy varieties and selections included Earlystar, Risingstar (a vigorous tree), Blazingstar, and most of the others, except Redstar and Allstar which I was not that impressed with. Blushingstar is a nice white-flesh peach.
- Yields on these perpendicular-V trees varied quite a bit from year to year. Again, Earlystar and Risingstar were predictably good, as was Blazingstar. The rest were more variable. All suffered significant flower bud injury during January 2004 when the temperature dipped to -12°F.
- Many, many numbered FA selections were inter-planted in this block; however, to my knowledge, none of them have become named. Some were very late harvest, into early September. Quality and productivity was all over the place, but it is a moot point as I do not suspect any of them will ever be released as named varieties.
- One interesting note was the variety MSU 26, which is now named 'Beaumont,' introduced by my friend out of Michigan State University,

Bill Shane. A nice, freestone peach, perhaps more suitable for the processing market. But I would plant it for retail too.

- If you planted all of the FA named peach varieties in a block, it would span the harvest season from very early (Earlystar) to rather late (Sweetstar in particular).
- This block of trees was completely removed several years ago.
- Publication: "New Peach Variety/Selection Plantings and Evaluation When Grown to the Perpendicular-V" http://umassfruitnotes.com/v70n3/703-a4.pdf

Second, the Adams County Nursery block planted beginning in 2002 and 2003, with ongoing removal and planting until just recently:

- This one-quarter-acre block was initially planted as a perpendicular-V and included many Redhaven trees. I have been given lots of grief over the years about high-density peaches planted to perpendicular-V, but I am convinced it is a good way to go, with high early yields because it is quick to fill space. No large limbs can be tolerated, and trees have to be picked with a ladder. I think that the perpendicular-V orchard is good for about 10 years, and then it is time to think about replacing. Inter-tree shading is a bit of an issue. Redhaven trees included in this block are still productive with fruiting wood to the bottom of the trees.
- Initially planted was with HoneyKist, HoneyBlaze, CountrySweet, and Johnasweet. These are sub-acid varieties from the Zaiger breeding program in California and supplied by Adams County Nursery. Only CountrySweet (yellow peach) and HoneyKist (yellow nectarine) cropped regularly. HoneyBlaze and Johnasweet were removed after a few years of light or no cropping. CountrySweet was a very nice peach, good yields, good flavor, and was popular with the harvest crew and the farm stand at the UMass Orchard. HoneyKist was a nice nectarine, with good yields and some fruit finish issues (but not too bad). Remember that these are both sub-acid, which is a flavor many customers might not be accustomed to. The downfall of these two varieties is susceptibility to bacterial spot which was a constant battle! I have come to the conclusion it is not worth fighting bacterial spot and cannot recommend any susceptible varieties (from California) that will be grown in this region. The CountySweet and HoneyKist trees are completely gone now, and replaced with numbered test selections. Jade, a white nectarine from France was also included, and was interesting; however, I cannot recommend it because of light cropping.
- This block has been subsequently planted with many numbered selections from Adams County Nursery and Rutgers or USDA/Kearneysville breeding programs, beginning in 2008 and ongoing. These trees are planted very close together and trained to a tight (4 feet between trees) central-leader. Of note here are NJF-16 and NJF-17 "donut" peaches, which have been named TangOs-I and Tangos-II respectively. TangOs-I seems easier to grow, and I liked it better. These donut peaches are quite vigorous, need heavy hand thinning, and are particularly susceptible to brown rot. I am not aware that any of the other test selections planted, and there are many, have been named and introduced by Adams County Nursery. Most of the Kearneysville (KV) selections have been poor croppers, suffer from bacterial spot, and are columnar/upright/vigorous. I cannot find much redeeming with them at this point, but I have heard Sweet-N-Up which is from KV is very nice once you figure out how to prune it. There are some interesting and good peaches in here, so stay tuned, since we are still actively evaluating this block of numbered selections.

Third, and most interestingly now, is a half-acre block of some of the latest Paul Friday "Flaming Fury" peaches (http://www.flaminfury.com/) planted in 2014. These trees, sourced from Stark Bros. Nursery, are being trained to a quad-V (4, steep leaders), spaced at 8 by 18 feet, and are mostly on Lovell rootstock. There are thirteen PF varieties planted here, along with a few new named varieties from Adams County Nursery. This orchard only first cropped in 2017; in 2016 fruit buds were killed during the Valentine's Day "massacre freeze."

- PF varieties included in this block, most with 10 trees per variety: PF 5D Big (-24 days from Redhaven harvest); PF 8 Ball White (-10); PF 9A-007 (0); PF Lucky 13 (+5); PF Super Duper

(+13); PF 19-007 (+17); PF 22-007 (+20); PF 24C Cold Hardy (+22); PF Paramount 24 (+22); PF 28-007 (+32); Fat Lady (+40); PF Legendary (+40); Big George (+50); Ka Ching nectarine (+50); and Fashionable Late (+54).

- Adams County Nursery/Rutgers new named varieties included in the block are: July Rose (NJ 354, -6); Scarlet Rose (NJ 355, -4); Silver Gem nectarine (NJN 100, -13); Avalon nectarine (NJN 101, -11); and August Rose (NJ 356, white peach, +24). These are on Bailey rootstock.
- Initial harvest observations suggest that most all the PF peaches are very good, in particular the early-mid season varieties, which included: PF 5D Big, PF 8 Ball White, PF 9A-007, PF Lucky 13, PF 19-007, PF 22-007, and PF 24C Cold Hardy. The later harvested varieties I thought were largely ho-hum, but maybe I was just peach-weary by then?
- Wow, most of the Adams County Nursery named selections were very nice. Although I only have seen fruit for one year, I already would not hesitate to recommend them.

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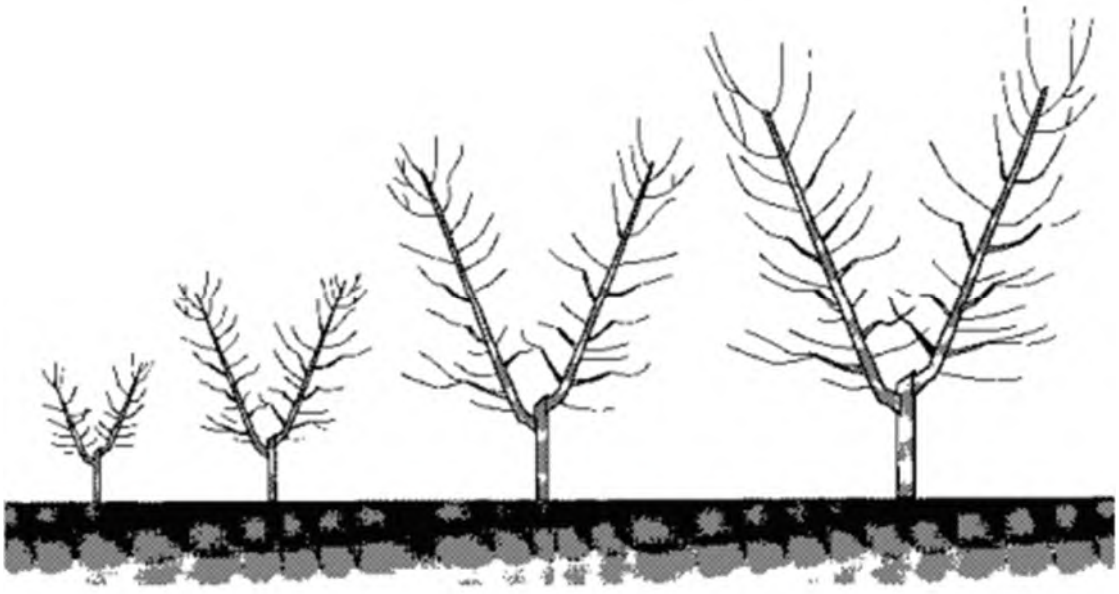

Perpendicular-V peaches (http://ucce.ucdavis.edu/files/datastore/391-540.pdf)

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