# Rutgers, The State University, Tree Fruit IPM State Report for 2015

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Tree phenology in 2015 started out late but by midsummer had returned to about normal. In North Jersey, Rutgers Sndyer Farm peach full bloom was 10 days later than 2014. Cropping was very good in both pome and stone fruit despite several cold nights in late April and a very short apple bloom in Northern NJ. At Snyder Farm apple bloom was very compressed moving from full bloom to petal fall in just four days due to warm temperatures.

In southern NJ, monthly temperatures s and rainfall were near normal for the year except for June The Office of the State Climatologist recorded a preliminary average of 8.29", more than 4" inches above the 4.02" normal rainfall. In June 2015 a farm in Gloucester County recorded 21 rain events totaling 10.4" for the month. Five of those rain events totaled an inch or more.

In Northern NJ we had a very dry April and May, running irrigation from late April to the last day of May. In June and early July rain was double normal rates. The balance of July, August and early September we went into a drought, at one point being 8 inches below normal. Peach and apple fruit quality were extremely high as a result with great brix.

Disease pressure is increasing in southern counties, primarily due to weather extremes. Fruit rots, especially Colletotrichum spp. (bitter rot in apples, anthracnose in peaches), are difficult to control in summers with frequent heavy rainfall. In apple, Empire appears highly susceptible. In peach, Klondike, White Lady, Sugar Giant, Harrow Beauty, PF Lucky 13, and PF 23 are among the varieties that frequently display anthracnose symptoms. Apple Scab is also becoming more difficult as DMI resistance is suspected in some orchards and QoI resistance has been confirmed in one Northern New Jersey Orchard in 2014. Fall or late winter applications of urea along with leaf chopping have helped to greatly reduce inoculum in infected orchards. We have also noted slight increases in brown rot and peach scab incidence in southern counties.

**NEWA** Fireblight forecasts, http://newa.cornell.edu/ for apple and pear were extreme for this season, more than double than in past years. The word got out to growers via newsletter and personal visits and much increased utilization of the NEWA website and forecasts. Many growers in Northern NJ made more than 5 Strep applications. Growers also did a good job of protection on young apple plantings using double applications of copper on newly planted apple and our recommended Apogee program on other blocks (2-3 applications of low rate Apogee). The several growers who failed to do this had extreme tree loss due to shoot blight fireblight. Brown marmorated stink bug populations, while still present at very low levels, have been trending lower during the past several years. The BMSB populations

Dogwood borer adult in pheromone trap May 31, 2015. Insecticide trunk sprays and/or mating disruption are indicated for control of dogwood borer, particularly in M.9 dwarf rootstock plantings

were significantly reduced statewide as indicated by research and field observations. However populations of native stinkbug species were very high in 2015, and summer damage was significant in apple and some vegetable crops.

Spraying for BMSB in northern NJ was almost non-existent. **The question begs, what happened to the BMSB in Northern NJ?**

Internal worm damage in apple continues to be a challenge as more farms in southern counties experience significant damage. Again frequent heavy rainfall appeared to be a factor, making it difficult to maintain insecticide coverage. Codling moth populations and trap captures have increased on a number of farms. Two growers in northern counties had up to 5 percent fruit injury, but these orchards were not adequately treated. Populations on some other farms have still been problematic regardless of management practices. Growers have not widely adopted mating disruption for codling moth control because of high costs and lack of production blocks in adequate shapes and sizes. Mating disruption for oriental fruit moth (OFM) has been more widely adopted and has been very successful in orchards employing this technique. We have four generations of OFM in NJ. The first and forth generation flights are the highest, with the mid summer generations being the lowest due to management tactics. Under standard management practices we use a trap threshold of 6-8 moths per trap to initiate insecticide treatments. This rarely occurred during the summer months.

**At the Rutgers Snyder Farm** (14 Acres tree fruit plots), in Hunterdon County, NJ, mating disruption was used for CM, OFM, DWB and Peach Borers. All traps had complete shutdown, no damage of any of these species was observed. We also bated for female CM to check and see if any mated females came into the orchard, none were trapped. Due to the dry weather we had to make two insecticide applications for thrips on peaches. This was the first season in 20 years thrips were an issue on peach at Rutgers Snyder. Our only other insect that needed control was TABM.

Statewide, tufted apple budmoth (TABM) trap captures have been on the increase for several years. In many orchards pheromone trap captures exceeded 100 moths per trap per week. In most orchards treatments for TABM overlapped with CM or OFM treatments. Neither the seasonal observation nor postharvest fruit assessment revealed TABM injury in northern counties, but slight injury was noted this year in southern counties. Spotted tentiform leafminer (STLM) trap captures also increased this year and one southern county farm had significant injury. We have not seen this pest at these levels for many years. Biological control is still observed at high numbers so it is unclear what caused the outbreak. The return of these traditional pests raises questions about possible mortality of our biological control species and potential insecticide resistance. This is troubling due to the lack of effective alternatives.

About a third of our peach growers have been using mating disruption of peach tree borers in recent years. Most of them are following the scheme 2+1, or two consecutive years mating disruption with no mating disruption or using chemical control of the third year.

New Jersey Tree Phenology – 2015.

| Pest Event or Growth Stage | Approximate Date | 2015 Observed Date South Jersey | 2015 Observed Date North Jersey |
|---|---|---|---|
| 1/4" Green Tip Delicious | March 31 +/- 13 Days | April 14 | McIntosh April 14 |
| Tight Cluster Delicious | April 9 +/- 13 Days | April 19 | McIntosh April 19 |
| Pink Peach (Redhaven) | April 4 +/- 15 Days | April 19 | April 21 |
| Pink Apple (Delicious) | April 14 +/- 12 Days | April 22 | McIntosh April 30 |
| Full Bloom Peach (Redhaven) | April 9 +/- 14 Days | April 27 | May 3 |
| Full Bloom Apple (Delicious) | April 22 +/- 11 Days | April 30 | May 5 |
| Petal Fall (Redhaven) | April 22 +/- 10 Days | May 4 | May 15 |
| Petal Fall (Delicious) | April 27 +/- 14 Days | May 6 | May 9 |
| Shuck Split (Redhaven) | April 30+/- 11 Days | May 11 | May 20 |
| Pit Hardening - Peach | June 15 +/- 9 Days | June 13 | June 20 |
| Asian Pear Green Bud | | | April 10 |
| Asian Pear Tight Cluster | | | April 14 |
| Asian Pear white bud | | | April 18 |
| Asian pear full bloom | | | April 22 |
| Asian pear petal fall | | | May 5 |

This strategy works well because traditional postharvest chemical treatments of tree trunks and scaffold limbs are excluded from the program. Although MD is a little more expensive than chemical control, growers who use it prefer the practice compared to spraying, since it can be more effective, saves time during early September, and can help promote good public relations.

Growers will need to adopt mating disruption for peach tree borers completely in 2016, as EPA is proposing banning Loresban (Chlorpyrifos) by 2016, see http://www.growingproduce.com/vegetables/epa-proposes-to-ban-chlorpyrifos/

In 2015, Comstock Mealybug was observed in southern and central NJ infesting Asian pear and apple in in September. Injury was significant in Asian pears that were bagged. High levels of parasitism were observed in the field, however nymphs were able to enter the bags and feed on the stems. This is the first observation of this pest at economic injury levels in NJ.

Ambrosia beetle was a problem in one orchard in southern NJ again in 2015, although to a lesser extent than 2014. In 2015 the insect was found infesting peach, however damage was limited since peach does not appear to be a good host because of the tendency to exude thick sap in wounds. Growers in other regions of the state have reported damage from this pest after the outbreak last year. Prior to 2014 it was a long known pest of nursery stock but had not been identified as a significant pest in fruit production.

In pears, pear psylla populations were difficult to control in southern counties due to high populations of adults persisting into September. Heavy leaf feeding was observed through late summer, but overall growers treated aggressively and had reasonably clean fruit at harvest. High populations were also noted in northern counties but control was reported to be better.

In Northern NJ some growers had trouble with Pear Psylla. However pear psylla was non-existent on a ½ acre block of Asian Pears at Rutgers Snyder Farm. Two applications of Dormant Oil were made, the first a 3% solution at bud swell and one a 1% solution at tight cluster. No other insecticide treatment was necessary.