

**75<sup>th</sup> Annual New England, New York and Canadian  
Fruit Pest Management Workshop  
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**IPM Report:" Factors Contributing To The 2013 Hudson Valley Insect Pest Management**

The start of the 2013 season the driest spring season in recent history (March-April) with rainfall accumulations of 2.54" in March (3.6" Ave.), 1.85" in April (3.8" Ave.), and 2.90" in May (4.4" Ave.), requiring irrigation for newly planted trees. The month of June saw a dramatic increase in rain events totaling 9.14" (4.4" Ave.), with 4 of those days producing 6.7" of rainfall scattered throughout the month. The first week of July had over 2" of rain with only two weeks of relatively dry conditions requiring irrigation during the mid and latter half of the month, amounting to a near average rainfall of 4.21" (4.7" Ave.). August also had higher than average rainfall accumulating 6.33" (4.2" Ave.). Total rainfall for the March 1<sup>st</sup> through September 1<sup>st</sup> growing season totaled 24.7" of rain, slightly below the seasonal average of 25.1".

Hudson Valley mean temperatures and tree advancement was later during the early season and 'normal' in development stages by bloom with green tip (13 April) occurring 8 days later than the mean for the past 25 years (see McIntosh phenology). The 2013 petal fall date of the 13<sup>th</sup> of May is the mean PF date for McIntosh at the Hudson Valley Laboratory. The degree-day accumulations were about 17.1 DD higher than the average with petal fall accumulations of 510 degree-days<sub>43</sub>. Bloom lasted 6 days in McIntosh, 3 days less than the mean, with ample sunlight and good pollination conditions. By the 20<sup>th</sup> of May, McIntosh king fruit had sized to 9.5mm.

The onset of bloom saw temperatures ranging between 63 and 80°F followed by 10 days of mean highs of 58 to 88°F after petal fall. Timely petal fall applications for managing Plum curculio (PC) and Tarnished Plant Bug (TPB) were needed by 80% PF for most varieties as PC damage began shortly after fruit set. PC movement into orchards and oviposition was predicted to end on 4<sup>th</sup> of June using predictive modeling of 308 DD<sub>50</sub> from petal fall of McIntosh.

European apple sawfly activity occurred in very low numbers due to the early bloom this season with early varieties showing 2.5% injury in untreated Ginger Gold and 1.5% in McIntosh cluster fruit evaluations. PC injury was also moderate with 9.8% and 8.0% injury in untreated Ginger Gold and McIntosh respectively, in early 'June Drop' evaluations. TPB injury with 2.5 and 0.0% injury observed in Ginger Gold and McIntosh respectively on 6 June in untreated plots with increasing damage noted in these plots at harvest.

The 1<sup>st</sup> generation codling moth adult flight occurred on 20 May with larval emergence predicted for 2 June using 220 DD<sub>50</sub>. The internal lepidopteran complex (OFM and CM) showed low levels of damage to apple, with CM frass appearing during mid June through early July. Relatively low levels of damage from the internal lepidopteran complex was observed with 7.5% and 6.5% damage from 1<sup>st</sup> generation evaluated on 9 July.

San Jose scale (SJS) crawler emergence was predicted to occur on 5 June using the 1 March 500 DD<sub>50</sub> model. However, first crawler was observed to occur 20 June, more than two weeks after the predicted date. In general SJS scale levels were modest in infested trees with less than 5% injury observed in research plots.

Growers again monitored Obliquebanded leafroller closely this season, successfully managing the insect using Altacor Belt, or Delegate in Hudson Valley orchards. Most applications were made using insect phenology predictions for early emergence, using 340 DD<sub>50</sub> from 3<sup>rd</sup> of June biofix to manage the 1<sup>st</sup> emergence of OBLR, predicted to occur on 19<sup>th</sup> of June. In general, moderate damage levels of external

lepidopteran injury, including OBLR were observed this season during the pre-bloom and fruit set periods from the overwintering OBLR populations. Trap captures were moderate for 1<sup>st</sup> generation averaging 2.7 / day during the peak periods while the 2<sup>nd</sup> generation flight was quite low of OBLR during August and September. For the second year, very high levels of RBLR were observed during the season and may have contributed significantly to the overall leafroller damage this season.

Apple maggot (AM) emergence was later this season than in the past 5 years with first emergence on 8 July. AM density was moderate throughout the region with significantly higher late emergence due to late season rainfall. Low populations of adults were noted in the mid-Hudson Valley with seasonal accumulation totals near 21 flies per trap (mean n=4) where rainfall provided ideal emergence conditions.

The brown marmorated stink (BMSB), *Halyomorpha halys*, has been observed throughout the southern Hudson Valley for the past 5 years with the first BMSB confirmation in December 2008. Since that time increasing populations have been documented in urban environments and present on many farms throughout the season in the lower to mid-Hudson Valley region. It was easily found from mid-season through harvest on pome fruit in lower mid-Hudson Valley with increasing northern observations and fruit injury in Columbia County. It has been found reproducing in deciduous trees such as Sugar Maple, *Acer saccharum*, White Ash, *Fraxinus americana*, Tree of Heaven, *Ailanthus altissima*, and eastern black walnut *Juglans nigra* in high numbers with lower numbers observed in Staghorn Sumac, *Rhus typhina*, and wild grape, *V. vinifera*. Late season nymphs and adult trap captures of BMSB using Tedders traps employing traditional black light traps, the USDA #10 lure and the *Plaudi stali* aggregation pheromone lure, methyl (E,E,Z)-2,4,6-decatrienoate, was observed along the orchard edges in Orange, Ulster, Dutchess and Columbia Counties throughout the season. No economic injury was observed or reported in 2013 through 15 October.

Spotted wing drosophila (SWD), *Drosophila suzukii*, (Matsumura) (Diptera: Drosophilidae), were first observed in NY in late August, 2011. We monitored SWD throughout the lower to mid-Hudson Valley this season using apple cider vinegar and brewers or baking yeast-baited traps in 15 locations across small fruit, grape and tree fruit. The first SWD trap captures were found in Warwick, Orange County, NY on 17 June (1<sup>st</sup> capture on 3 August in 2012). By 9 July, evaluations of sweet cherry in Orange and Dutchess Counties showed 70% injury (no SWD emergence), treated raspberry fruit in Ulster County with 8% SWD ovipositional injury and confirmed SWD adult emergence. By late late July small fruit growers of blackberry and raspberry had abandoned berry patches as attempts to control the SWD were ineffective using commercial insecticide materials, rates and timings. Growers who harvested daily, keeping berries on a 3-7 day spray program were able to maintain infestations levels to 18-20%. During weeks in which applications could not be made, levels of injury increased to over 40% with 100% infestation levels in untreated raspberry. Trap captures continued through 15 October.