University of Massachusetts Amherst Fruit IPM Report for 2015

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Most specific observations made at the UMass Cold Spring Orchard in Belchertown, MA.

Winter will be remembered for the amount of snow and length of sub-freezing temperatures. A low of -9 F. was recorded on 16-February. Low temperatures flirted with stone fruit bud damage, however, come spring bloom was OK. The deep snow allowed for more rodent (vole and rabbit) damage than usual. Pruning was slow and delayed, going well into the spring.

Spring was a bit late in arrival for the second year in a row, but progressed about on schedule. Apple green tip was 18-April, full bloom app. 10- May. McIntosh petals were off by 18-May. Pictures of bud stages are archived on the **UMass Fruit Advisor** (http://www.umassfruit.com). There was definitely some stone fruit bud damage, however, most growers ended up with a good peach crop. (Some mid-winter thinning of fruit buds is welcome.) No frost/freeze damage to apple flowers was reported. The April-early May period was on the dry side in many locations.

Apple fruit skin surface temperatures exceeding 112°F may result in sunburn. The problem is exacerbated as fruit approach harvest.

Summer temperatures were at first seasonal, with abundant sun and near average rainfall. Hail hit a few unfortunate orchards, with reports of up to 100,000 bushels damaged in the Sterling area. August into September became warm to hot and dry. September had near record heat for the month, and apple red color development was lacking during this time. In fact, a summer high temperature of 94 was recorded on 8-September.

The **peach** crop was generally very good, with some more cold-sensitive varieties on the light side. Quality was excellent. Similarly, the small sweet cherry harvest was one of the best in years.

Apple harvest started about right on schedule, but as previously mentioned, red color was wanton into late September. The crop was generally heavy, and everyone commented on how large in size individual apples were this year. September heat kept customer traffic on the lighter side, but picking up in October. The heavy crop meant there were still plenty of apples around come Columbus Day. If not for the loss of apples to hail, the apple crop would have been one of the largest in years. Little pre-harvest drop was reported (except in a few Honeycrisp blocks), and no particular quality problems have been reported. ReTain applications seem to have worked very well. The growing season ended 18-October with a hard freeze in most spots.

A dry spell from mid-April into early May resulted in a relatively easy **apple scab** control season. In some orchards there may have been as few as three scab infection periods, with most orchards likely having four to five infection periods. Virtually no scab come harvest time was seen.

Fire blight was largely a no-show despite several dire warnings from the models for high infection risk. This has been a little puzzling, but most growers applied streptomycin religiously in 2015 following the outbreak of 2014. That practice, combined with fairly

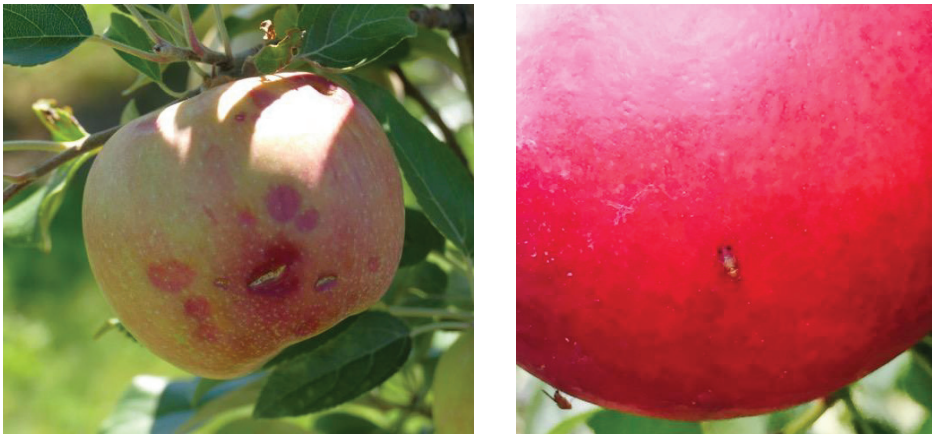
dry conditions, are likely the major factors that resulted in virtually no fire blight. We collaborated with Quan Zeng from the CT Agricultural Experiment station by submitting fire blight strikes (where we could find them) for streptomycin resistance testing. All samples came back negative for streptomycin resistance.

The Massachusetts **NEWA** network (http://newa.cornell.edu) includes 21 on-site weather station/orchards (plus 23 airports, total 44 locations) providing fruit and vegetable growers with daily developmental models (including forecasts) to aid in decision-making for management of insect and disease pests. Some of these locations were centerpieces for providing Extension team-based IPM recommendations on diversified fruit & vegetable farms via the **Extension Implementation Program (EIP,** NIFA), which also provided training in monitoring and management of key pests to 10 mentor growers and 15 partner growers across Massachusetts. Mentor growers worked on 2-3 key IPM issues over the course of 5 months of farm visits and were involved with twilight meetings and project guidance. Partner growers were involved with one research/ extension project.

Overall **insect** pressure was average, with a few exceptions. One observed exception was significant pre-bloom and into bloom foliar and flower bud feeding injury from green fruit worms. This was reported to be the case throughout the Northeast.

The **UMass EIP** team, with the assistance of growers and independent scouts around the state, maintained and monitored fifteen **brown marmorated stink bug (BMSB)** traps. Small green/yellow/clear plastic rocket traps were placed in fruiting trees; large, free standing, black pyramid traps were placed at the bases of fruiting trees. In 2015 both of the pheromones (the more specific one from USDA and the more general one) were available commercially and were used together. Trapping began in late June and ended in mid-October. The first confirmed sighting was August 12, in Worcester County. Confirmed trap catches and observation of BMSB amounted to only 31 in 2015 compared to 27 in 2014 (MDAR numbers). While trap captures were not at all high, this pest remains of concern to growers in MA. We suspect there are small resident populations developing in and around farms and it's just a matter of time

Green fruitworm on apple foliage and frost damage to Honeycrisp apple



Hail damage to Honeycrisp apple and SWD on sound nectarine

before economic damage to fruit crops is documented. A dedicated BMSB information page was maintained on the UMass Fruit Advisor.

In 2015 the UMass Fruit Program set up a **Spotted Wing Drosophila (SWD)** monitoring network with 10 locations across the state. Each location was set up with paired traps with one trap using a standard Apple Cider Vinegar plus yeast and whole wheat dough bait/drowning solution combination and the second trap using a commercially available lure from Trece with a soapy water drowning solution. The first SWD capture occurred in Essex county with a single female caught in late June. This turned out to be somewhat of an anomaly as several weeks passed before any additional captures were recorded at that location and no other captures occurred in the state until mid-July. Numbers of captures varied between the two trap types so no consistent benefit was found to recommend one over the other based on efficacy. The main benefit of the commercial product was ease of use compared to the messy ACV+yeast+ww flour combination. SWD populations were somewhat slow to escalate but by late August pressure on commercial berry operations was very high. Late season blueberry varieties and primocane raspberries were the most severely affected. The impact of crop canopy management for open air flow and good sunlight/spray penetration was highlighted in several cases. Where canopies were open effective SWD suppression was maintained longer. Where canopies were dense, even rigorous spray programs were not enough to keep SWD under adequate control. Although not generally considered a problem in sound peach/nectarine orchards, SWD male and female activity (egg laying) was observed in a sound nectarine orchard in western Massachusetts in September. (And the grower reported significant infestation in some of their peach/nectarine blocks.) A dedicated SWD web page was maintained on the UMass Fruit Advisor.

A Northeast SARE-funded study, **Towards Sustainable Disease Management in Northeastern Apples using Risk Forecasts and Cultural Controls** is nearing completion at 19 commercial orchards in New England and University/extension research facilities in MA, NH, and ME. Collaborating scientists are William MacHardy, Cheryl Smith, and George Hamilton of NH and Glen Koehler and Renae Moran of ME. Scab sanitation strategies, advances in the delayed first scab spray strategy, PAD counts, and spring ascospore trapping and maturation are the foci of the study. Results are being summarized and reported.

The UMass Fruit Team participated in an SCRI-funded study, **Manipulating Host- and Mate-finding Behavior of Plum Curculio: Development of a Multi-Life Stage Management Strategy for a Key Fruit Pest**. We helped create a colony of PC from June-dropped apples and participated in a nematode bio-control study. Tracy Leskey, USDA-ARS Kearneysville is the PI/project director.

There were approx. 30 research/data-collection/demonstration trials/plots conducted at the **UMass Cold Spring Orchard** in 2015. Research focused on: the use of plant growth regulators for crop load management, growth control, and stop-drop; using Decision Aid Systems for managing apple scab; apple and peach NC-140 rootstock plantings; apple, peach, cherry, Asian pear, and NE1020 cold climate wine grape variety and planting system evaluation; improving young apple tree growth and branching with fertigation and hormones; and managing Honeycrisp apple production problems with fertigation and hormones.

Seven growing season **Twilight Meetings** for commercial tree fruit growers were held in Massachusetts, Rhode Island (in cooperation with Rhode Island Fruit Growers' Assoc.), and New Hampshire (in cooperation with U. of New Hampshire) during April, May and June. **Healthy Fruit** (healthyfruit.info) was published 19 times from April-September with timely integrated pest management information for pome and stone fruit. **Berry Notes** (12 issues) and **IPM Berry Blast** (13 issues) were published providing information on pest alerts and other timely topics. The **Massachusetts Fruit Growers' Association** Summer Meeting was held at Red Apple Farm in Phillipston, MA. Guest speaker Quan Zeng from the CT Agricultural Experiment Station gave an update on the status of fire blight resistance to streptomycin in New England.

European apple sawfly damage on apple fruitlet May 24, 2015. Often a pre-bloom insecticide spray is the only effective control of this pest where it is prevalent.