Peach and Plum

Moderator: Kyle Weber, MSHS Board, Watervliet, MI

9:00 am	Contribution of Cover Sprays to Effective Management of Peach Brown Rot (OH 2B, 0.5 hrs) • Dr. Norman Lalancette, Rutgers Agricultural Research & Extension Center
9:40 am	New Peach Varieties • Hemant Gohil, Rutgers University
10:05 am	Best Practices in Prolonging the Quality of Peaches After Harvest • Dr. Jennifer DeEll, OMAFRA
10:45 am	Peach Hardiness -- What we Learned from the Polar Vortex of January 2019 • Bill Shane, Michigan State University

PEACH HARDINESS – WHAT WE LEARNED FROM THE POLAR VORTEX OF JANUARY 2019

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The end of January 2019 was marked by two cold events in southwest lower Michigan that had impact on peaches. On Martin Luther King Day, January 21st, temperatures reached -5 F to -23 F, depending on the site, in a still air, classic radiation freeze. On January 31, temperatures of approximately -15 F accompanied by a 7-8 hour wind, the so-called polar vortex, were experienced by much of the southwest region, impacting much of the peach crop that had survived the earlier freeze. Fortunately, peaches north of this area were generally untouched by these events.

Damage to the Michigan peach crop is most often due to mid-winter low temperatures, often associated with clear still nights or nights with wind coming from a direction that misses the warming influence of the Great Lakes. In general, when temperatures reach -13 F, damage to the relatively tender peach bud is expected. There is some evidence that a rapid drop in temperature is tougher on fruit buds than a slow decline, because a slow decline allow time the buds to acclimate.

Fruit bud survival. Each cold event allows us to learn about the hardiness of new peach varieties and of how peaches acclimate. Observations in the SW Michigan Research and Extension Center (SWMREC) peach and nectarine variety block near Benton Harbor and neighboring grower observations have hinted at some differences in fruit bud hardiness following the January 2019 cold events. At SWMREC, most varieties had no fruit bud survival. Harrow Diamond was the best at SWMREC with 16% fruit bud survival. Other varieties with some fruit bud survival included Saturn, TangOs, Madison, BuenOs II, Virgil, Brightstar, Contender, Scarlet Rose, and HW 272. Varieties that showed better than average fruit bud survival offstation included Sweetstar, Desiree, Gloria, Earlystar, and PF15A. Of these, Sweetstar was the most impressive. Summer Serenade produced fruit in 2019 but these were generally nubbins.

Damage to twigs and branches. Experience has shown that cold damage to peach and nectarine branches usually occurs with mid-winter temperatures below approximately -15 F, with some varieties more sensitive than others. Injury is seen in the cambium and young xylem layers below the bark, ranging from slight discolored to the dark cinnamon brown of severely injured tissue. Significant mid-winter damage to peach trees can shorten their productive life. Trees with dark brown cambium lose the ability to grow and reduces ability of the outer layers to protect the heartwood from fungal and insect attack.

Trees with severely damaged cambium are prone to bark splitting when growth resumes in spring. Sites that experienced temperatures below -15 F on January 21, 2019 showed the most extreme peach trunk splitting during the 2019 growing season. Ratings were made in November 2019 of a SW Michigan commercial peach block planted in spring 2015. This block experienced temperatures below 20 F in January 2019. Fifteen varieties, with 10 to 23 trees per selection, were rated for trunk damage / tree death attributed to cold damage. Of the varieties only Fantasia and PF Lucky 13 had little or no apparent tree splitting/damage or mortality. Varieties with significant tree decline/mortality included Autumnstar, John Boy, and PF 5D-Big.

Figures. Damage to peaches following January 2019 low temperatures. Left: 5th leaf Johnboy peach showing extreme trunk split. Right: 5th leaf Cresthaven peach with rootsuckers. Photo credits: Bill Shane

Table 1. Cold damage ratings for 5 leaf peach and nectarine following 2019 low temperature events.

Variety	Number trees evaluated	% trees cold damaged	% trees dead / dying
Allstar	20	15.0	0.0
Autumnstar	16	62.4	43.7
Contender	22	18.1	4.5
Cresthaven	20	50.0	5.0
Desiree	20	35.0	0.0
Early Redhaven	20	20.0	0.0
Fantasia	10	0.0	0.0
Glowingstar	17	29.4	5.9
John Boy	20	80.0	20.0
PF 5D-Big	10	80.0	50.0
PF 11 Nectarine	10	40.0	0.0
PF 9A-007	18	22.2	0.0
PF Lucky 13	20	0.0	0.0
Redhaven	20	20.0	0.0
Starfire	20	30.0	0.0