



Great Lakes Fruit, Vegetable & Farm Market EXPO

Michigan Greenhouse Growers EXPO

December 9 - 11, 2014

DeVos Place Convention Center, Grand Rapids, MI



Peach and Plum

Wednesday morning 9:00 am

Where: Grand Gallery (main level) Room C

MI Recertification credits: 2 (1C, COMM CORE, PRIV CORE)

OH Recertification credits: 1 (presentations as marked)

CCA Credits: PM(1.5) CM(0.5)

Moderator: Will Bristol, MSHS Board, Romeo, MI

- 9:00 am How to Manage Brown Marmorated Stink Bug and Not Abandon IPM (OH: 2B, 0.5 hr)
- Anne Nielsen, Entomology Dept., Rutgers Univ.
- 9:40 am Managing Bacterial Spot of Stone Fruit (OH: 2B, 0.5 hr)
- Norm Lalancette, Plant Biology & Pathology Dept., Rutgers Univ.
- 10:20 am The New Michigan Tree Fruit Commission – Supporting the Tree Fruit Industry
- Fred Koenigshof, K and K Farms, Coloma, MI
- 10:35 am Cold-Hardiness and Disease Resistance of Old and New Peach Varieties
- Bill Shane, Extension Fruit Specialist, MSU Extension, Benton Harbor, MI
- 11:00 am Session Ends

Cold-Hardiness and Disease Resistance of Old and New Peach Varieties

William Shane
Senior Extension Fruit Specialist, Michigan State University
Southwest Michigan Research and Extension Center
1791 Hillandale Rd
Benton Harbor, MI 49022
269-944-1477 x 205
shane@msu.edu

Peaches grown in the Michigan and similar climates need good cold-hardiness and disease resistance for productivity and tree health. In Michigan, peach varieties not adapted to the area are more prone to cold damage to trunks, limbs and fruit buds, and weakened trees can be attacked by the fungal pathogen *Leucostoma canker*. Most other diseases of peaches such as brown rot and rusty spot can be controlled satisfactorily with routine chemical application. The exception is bacterial spot (*Xanthomonas arboricola* pv. *pruni*) which can cause significant leaf and fruit quality losses on susceptible varieties grown on sandy sites in years favorable to the disease in spite of the best chemicals available. A problem faced by growers deciding what peach varieties to plant is that information is scanty on susceptibility of new peach varieties to cold damage and bacterial spot.

Many new peach varieties have been released and made available to Michigan growers over the last few decades (Table 1). Most of the newer varieties have not been tested under severe winter conditions such as the winter of 1993/1994 that injured or killed over 25% of the peach trees in Michigan. The winter of 2013/2014 provided a test of cold hardiness of peach varieties due to a series of low temperatures in January and February 2014. A series of winds following bloom in 2014 provided conditions favorable for bacterial spot development.

Information is provided here for ratings of peaches and nectarines for winter hardiness and bacterial spot resistance at the SW Michigan Research and Extension Center of Michigan State University near Benton Harbor in 2014. The site is sandy, relatively uniform, with good air drainage. Trees were maintained with standard cultural practices, trickle irrigation, fertilizer, fungicides and insecticides, but no chemical treatment for management of bacterial spot. A low temperature of -13.2 F was recorded for the site January 7, 2014 for a Campbell automatic weather station approximately 200 meters away. Ratings of fruit bud hardiness, limb dieback were made for 3 to 6 trees per variety, 4 to 5th leaf in age. Ratings for trees younger than 4th leaf were not included in the results presented here.

A wide range of fruit bud hardiness, branch dieback, and bacterial spot resistance were recorded in this trial. There appears to be a good number of new selections with relatively good fruit bud survival (Table 2), limb hardiness (Table 3), and resistance to bacterial spot infection (Table 4). These results are based on only one year and should be considered only an indication of the performance of these varieties.

Bacterial spot severity was relatively high at this site in this year. These same varieties grown in a site with better protection from wind, heavier soils, and use of bactericides will likely show much less disease problems.

Table 1. Typical yellow melting flesh peach variety harvest windows for the Michigan climate. *Revised November 2014.*

Older peach varieties	Newer varieties with significant production	Newest peach varieties
Harbinger = -33*	PF-1 = -30	Rich May = -28
Harrow Diamond = -25	PF-5B = -25	Desiree = -26 ^^ PF-5D Big = -22 ^^ Earlstar = -18 ^ PF Early 8 Ball = -17 ^^
Garnet Beauty = -10 Early Red Haven = -10 GaLa = -8 Sentry = -8	Glenglo = -13 PF-7 = -10 Summer Serenade = -10 PF 8 Ball = -10 PF-7A Freestone = -10 Rising Star = -8	Brightstar = -12 ^ PF Late 8 Ball = -5 ^^
Redhaven = 0 Reliance = 0 Vivid = +2 Bellaire = +3 PF-12A = +3 John Boy = +3	PF 9A-007 = -2 PF 11 Peach = -2 PF 15A = +2 Blazing Star = +2 Starfire = +3 Redstar = +3 PF 14 New Jersey = +4	PF Lucky 13 = +6 ^
Glohaven = +8 Canadian Harmony = +10 Loring = +12 Suncrest = +12	Blaze Prince = +8 Bounty = +10 PF 17 = +12	PF Super Duper = +8 ^^ John Boy II = +8 ^ Gloria = +13 ^^ LA SweetStar = +14 ^
Contender = +18	PF 19-007 = +14 Allstar = +16 Coralstar = +16 Beaumont = +19	Messina = +17 ^^
Cresthaven = +24 Redskin = +26	PF 23 = +20 PF 24-007 = +22 Glowingstar = +22 PF 24C Cold Hardy = +24 PF 25 = +26	PF 22-007 = +20 ^^ July Prince = +24 ^^ PF Paramount = +24 ^^
Madison = +28 Harcrest = +28 Fayette = +28 Encore = +31	PF 27A = +30 PF 28-007 = +32 Autumn Star = +37 ^ PF 35-007 Fat Lady = +40 ^^ Lauro = +41 PF Big George = +50 ^^	Flame Prince = +38 ^^ PF Legendary = +41 ^^ Victoria = +47 ^^ PF Fashionably Late = +54 ^^

* = estimated harvest days before (-) or after Redhaven. Harvest order can change depending on the warm/cool characteristics of a season. A cooler year will delay harvest dates, a warmer season will compress the harvest dates closer together. ^ = little experience with this variety to date, ^^ = very little experience to date. LA = low acid type. Harvest order numbers are more tentative with newer selections.

Table 2. Relative fruit bud winter hardiness rating for peach and nectarine varieties following 2013/2014 winter, SW Michigan Research and Extension Center.

Fruit bud hardiness rating	Peach	Nectarine	PeenTo
Low (poor bud survival)	Crimson Rocket, Flavrburst, PF11 Peach, PF7A-Freestone, Sweet Breeze	Ambre, Emeraude*, Honey Blaze	Tangos I (NJF16), BuenOs I (NJF18)
Intermediate	Autumnstar, Beaumont, Canadian Harmony, Coralstar, Cresthaven, Desiree, Early Redhaven, Glenglo, Gloria, Harrow Diamond, Halehaven, Loring, Messina, PF24C-Cold Hardy, PF35-007, Redstar, Risingstar, PF19-007, Vinegold#	Easternglo, Fantasia Zephyr	Galaxy, Tangos II (NJF17)*
High (good fruit bud survival)	Allstar, Blushingstar*, Brightstar, Catherina#, Contender, Earlystar, Ernies Choice, Flameprince, Glowingstar, Madison, McKay, PF Early 8 Ball, PF-25, Redhaven, PF9A-007, PF8 Ball, PF23, PF27A, PF28-007, Richhaven, Starfire, Veteran, Victoria, Virgil#		Saturn*

* = white flesh, # = non-melting flesh canning type. Ratings of % live fruit buds were made by counting % viable fruit per foot of limb, for 3 limbs per tree, counts taken May 27 & 28, 2014

Table 3. Branch tip dieback rating for peach and nectarine varieties following 2013/2014 winter, SW Michigan Research and Extension Center.

Limb dieback rating	Peach	Nectarine	PeenTo
6 = severe			BuenOs I (NJF18)
5	Flavrburst, Crimson Rocket, Vinegold,		TangOs I (NJF16), Tangos II (NJF17)*, BuenOs II (NJF15)
4	Halehaven, Glowingstar, Gloria, Glenglo, Desiree, Ernies Choices, PF11 Peach		
3	Honey Blaze, Sweet Breeze, PF-7A Freestone		
2	Redhaven, PF Early 8 Ball, PF-23, PF-9A-007, Newhaven, Messina, Beaumont, PF-27A, Blushingstar*, Flameprince, PF-25, Catherina, Autumn Star, Victoria, Virgil, Redstar, Cresthaven, PF-28-007, Summerfest, Risingstar, PF-24C Cold Hardy	Easternglo, Emeraude*, Zephyr*, Ambre,	
1 = no damage	Brightstar, Coralstar, Allstar, Canadian Harmony, Early Redhaven, Glohaven, Madison, McKay, Contender, Harrow Diamond, PF-19-007, Earlystar, PF35-007, PF5D Big, Loring, Starfire, Veteran	Fantasia, PF11 Nectarine, Silver Gem*	Saturn*

* = white flesh, # = non-melting flesh canning type. Limb tip dieback ratings made June 17, 2014.

Table 4. Relative bacterial spot disease ratings for peach and nectarine varieties, SW Michigan Research and Extension Center.

Bacterial spot resistance rating	Peach	Nectarine	PeenTo
Little to no leaf symptoms	Sweet Breeze, Veteran, Madison, Glenglo, PF-25, PF35-007, Brightstar, McKay, Risingstar, Gloria	Nectafest	Tangos (NJF16), Saturn
Up to 10% leaf area affected	Messina, Blushingstar*, Harrow Diamond, Sunhaven, PF-9A-007, Richhaven, Catherina, Redstar, Ernies Choice, Loring, Beamont, Allstar, Canadian Harmony, Contender, Halehaven, Glowingstar, July Rose*, Flameprince, Victoria#, Glohaven, Virgil#,	Carene, Emeraude*, PF11 Nectarine	BuenOs II (NJF15)
10 to 25% leaf area affected, some leaf drop	PF-8 Ball, Starfire, Autumn Star, PF23, Desiree, Summerfest, PF 5D Big, Early Redhaven, PF-27A, Flavrburst, Newhaven, PF-7A Freestone, PF28-007, Vinegold#, PF-24C Coldhardy, Earlystar, PF11 Peach, Cresthaven, Coralstar	Fantasia, Zephyr*, Silver Gem*	BuenOs I (NJF18)
25% or more leaf area affected, significant defoliation	PF Early 8 Ball, Crimson Rocket	Easternglo, Ambre	Tangos II (NJF17)

* = white flesh, # = non-melting flesh canning type. Ratings were made July 15, 2014