Ohio Fruit ICM News

Editor: Shawn R. Wright
Ohio State University South Centers
1864 Shyville Rd., Piketon, OH 45661
Phone (740) 289-2071 extension 120
E-mail: wright.705@osu.edu
http://southcenters.osu.edu/hort/icmnews/index.htm

Volume 10 (18) July 5, 2006

In This Issue

Calendar - Newly added in ***Bold***

July 8, Holmes County Farm Field Day, Millersburg, OH. Family farm field day with keynote speaker Jerry Brunetti. David Schlabach will cover backyard orchards, composting and gardening. For more information, contact: Jerry Miller at the Small Farm Institute (740) 545-6349. Free all-day event.

July 8-9, North Market Food and Ohio Wine Festival, 59 Spruce Street, Columbus. Approximately 12 Ohio wineries will have booths outside to offer wine tastings and wine by the glass. The event also will feature the outdoor farmers market, food demonstrations, children's activities and music. Tickets sold to taste wines. Presented by the North Market and the Ohio Grape Industry. For more information, (614) 463-9664

July 17, Twilight Tour at Lynd Fruit Farm. 7PM 9303 Morse Road Pataskala, OH Sponsored by the Direct Agricultural Marketing Association and OSU Extension-Licking County. For more information contact Howard Siegrist at 740.670-5315.

July 18, OSU Field Crops Day, Northwest Agricultural Research Center, Custar. Contact Matt Davis at (419) 257-2060 or davis.1095@osu.edu for more information.

July 20, Crop, Soil & Water Field Night, OSU South Centers Piketon. Registration begins at 5:45 PM. OSU Extension Educators will present sun safety information and use the Dermascan for screening prior to the program. Dinner provided. For more information contact Rafiq Islam islam.27@osu.edu or phone (740)-289-2071 ext. 147.

Aug. 1 UK Horticultural Research Farm Twilight Tour, Horticultural Research Farm, Lexington, KY. Contact John Strang 859-257-5685; e-mail: jstrang@uky.edu

August 22-23, North American Strawberry Growers Association Summer Tour, Portland Maine. For more information, http://www.nasga.org/

Aug. 30-Sept.1 North American Fruit, Explorers (NAFEX) and SFF Annual Meeting, Holiday Inn North, Lexington, KY. Contact John Strang 859-257-5685; e-mail: jstrang@uky.edu

September 19-21, Farm Science Review, Molly Caren Agricultural Center, London. http://fsr.osu.edu/

September 21, Grape and Pawpaw Field Day KSU Research Farm, Mills Lane, Frankfort, KY. For more information contact Kirk Pomper at 502-597-5942

November 9-11, Southeast Strawberry Expo, Sunset Beach, NC (near Wilmington). Farm tour, intensive workshops on Strawberry Plasticulture ABCs and High Tunnel Production, tradeshow, many educational sessions on production and marketing. For more information, contact the NC Strawberry Association, 919-542-3687 or ncstrawberry@mindspring.com

December 5-7, Great Lakes Fruit, Vegetable and Farm Market EXPO. DeVos Place, Grand Rapids, Mich., www.glexpo.com..

January 7-9, 2007, Wisconsin Fresh Fruit and Vegetable Conference, Olympia Resort and Conference Center, Oconomowoc, www.wisconsinfreshproduce.org

Jan. 8-9, 2007, Kentucky Fruit and Vegetable Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact John Strang 859-257-5685; e-mail jstrang@uky.edu

February 9-12, 2007, North American Strawberry Growers Association Strawberry Symposium. Ventura, California. For more information, http://www.nasga.org/

Comments from the Editor

It was nice seeing so many growers at the Summer Fruit Tour. I only wish I hadn't lost my voice and could have talked to more of you. My grandmother always said after the Fourth of July we were going towards Autumn, but there are still plenty of tasks to do. Lets hope the weather cooperates a little better than it has so far. Black raspberry harvest will be finishing as soon at Piketon and our blueberry harvest is under way. I am starting to get the annual calls about floricanes on blackberries collapsing and most of that is related to winter injury.

Controlling Flyspeck on Apples by Dave Rosenberger, Plant Pathology, Highland
(Source: SCAFFOLDS Fruit Journal Volume 15, #15)

Flyspeck has caused more commercial losses in New York and New England over the past few years than during most of the previous decade. What has contributed to those losses? How can we prevent them from re-occurring this year? Let's start by enumerating what we know about flyspeck biology:

1 - Flyspeck infects a wide range of host plants. That means that the flyspeck fungi can grow on the waxy cuticle of most bushes and trees in orchard perimeters, and these hosts can produce inoculum that blows into orchards. (Recent work in Iowa suggests multiple species may be involved in causing flyspeck, so in this article I will refer to the causal organisms as flyspeck "fungi.")

2 - After a spore from one of the flyspeck fungi lands on an apple, the apple must be exposed to 270 hr of accumulated wetting (hrAW) before the flyspeck colonies become visible on the fruit. Brown and Sutton in North Carolina were the first to identify the incubation period for flyspeck, and they found the best correlations when they ignored wetting periods of less than 3 hr duration. I have since found good correlations with the 270 hrAW over several years in the Hudson Valley when we included all measurable wetting periods. Variability among types and locations of wetness sensors is so great that quibbling about the details of whether to include or dismiss short wetting periods is probably meaningless.

3 - In Massachusetts, Cooley and Lerner showed that ascospores for flyspeck are released around petal fall. Therefore, flyspeck colonies initiated by ascospores may begin appearing on unsprayed fruit at 270 hrAW after petal fall (hrAWPF). However, scab sprays usually control the ascospores, so ascosporic infections are not common in commercial orchards.

4 - Infections initiated by ascospores in wild hosts begin releasing conidia as soon as those infections become visible (after 270 hrAWPF). Once those infections produce conidia, orchards in the northeast are exposed to a continuous supply of conidia blowing throughout the remainder of the summer and fall. If fungicide residues on fruit drop below effective levels, then the conidia will initiate flyspeck infections on fruit.

5 - Where trees are left unsprayed after 2nd cover (i.e., they are protected from flyspeck ascospores but not from conidia), flyspeck incidence and severity on fruit increases dramatically around 540 hrAWPF. Thus, flyspeck requires 270 hrAWPF to produce conidia on wild hosts and another 270 hrAW to infect and produce visible colonies on apples.

Results of two recent trials that indicate limitations of current fungicides:
1 - Two inches of heavy rain may be enough to eliminate fungicide residues. In an experiment at the Hudson Valley Lab in 2004, we applied all of the common summer fungicides to test plots on 17 Aug. We received 2.15 inches of rain on 20-22 Aug. We

had 270 hr of accumulated wetting between 22 Aug and 26 Sept. Incidence of flyspeck on Golden Delicious fruit on 27 Sep was 64, 50, 31, 27 and 8%, respectively, for plots treated with Captan alone (30 oz of 80W/A), Flint, Sovran, Topsin-plus-Captan, and Pristine. Pristine had the best residual activity, but none of the fungicides had adequate residue to completely protect against flyspeck after 2.15 inches rain.

2 - Fungicides applied after flyspeck infections have been initiated can arrest growth of the flyspeck fungus temporarily, but they do NOT eradicate the infections. In a 2005 experiment, summer fungicide sprays were initiated at either 337 or 450 hrAWPF to determine if these fungicides could provide post-infection activity that would reach back through either 67 hrAW (i.e., 337 hr minus the 270 hr threshold for conidial infections) or through 180 hrAW from the start of infections. None of the postinfection treatments provided satisfactory disease control. By 26 Sep, flyspeck incidence exceeded 19% in all treatments, even though we maintained fungicide coverage up until harvest (i.e., <2 inches of rain between sprays and between the last spray and harvest). Sovran was significantly better than Pristine or Flint for suppressing infections but it was not significantly better than the Topsin-plus-Captan standard. Thus, Pristine provides the best residual protection, but Sovran and Topsin M provide the best post-infection activity, even though the post-infection suppression is less than we had hoped for.

Results from these recent trials have caused me to re-evaluate earlier hypotheses. The long incubation period required for flyspeck coupled with our inability to accurately predict or monitor fungicide residues on fruits makes it difficult to interpret results of fungicide trials in dry years. Did fungicides applied in July or August really eradicate earlier infections, or did they just slow fungal growth enough to allow fruit to be harvested before flyspeck appeared on fruit? Wet years such as we have had in the Hudson Valley in 2004 and 2005 provided more definitive evidence concerning the limitations of our fungicides.

Combining all that we know about flyspeck along with some working hypotheses, I've compiled the following statements to help formulate options for controlling flyspeck.

1 - The period of least risk for significant flyspeck infection occurs between petal fall and 270 hrAWPF for reasons noted above.

2 - After 270 hrAWPF, fruit should be continuously protected with fungicides. Any gaps in protection after 270 hrAWPF may allow flyspeck infections to be initiated.

3 - Two inches of rain can remove virtually all fungicide protection.

4 - Fungicides applied after infections are initiated do not eradicate all infections. Post-infection sprays will arrest incubating infections for varying (and at this point, unpredictable) periods of time. When the fungicide residues drop below inhibitory levels, the surviving flyspeck infections begin growing again. Predicting when suppressed lesions resume growth is difficult because we can't accurately predict when fungicide residues are exhausted.

5 - The 270-hrAW incubation period for flyspeck can perhaps be viewed as a "grace period" for lapses in fungicide coverage. If apples are consistently protected from infection during summer and fungicide residues are removed by heavy rains on September 1st, then flyspeck will not appear on fruit so long as fruit are harvested AND

COOLED before they are exposed to 270 hr of wetting. However, if apples are left unprotected through 90 hr of wetting in July and/or August after conidia are being released, then part of the grace period will have been used in July-August and flyspeck may appear on fruit more quickly than otherwise expected in September.

6 - In real life, the total grace period for lack of fungicide protection during the growing season is probably less than 270 hrAW because flyspeck can continue to grow on wet fruit surfaces after harvest until fruit are cooled below roughly 45 F. Fluctuations in air temperatures as storage rooms are filled can cause condensation on surfaces of cold fruit already in the room, and that moisture can allow continued growth of flyspeck. I don't know how much of a 270 hr incubation period can be completed after harvest, but I suspect that up to 70 hr of the required 270 hr incubation period could occur after harvest if fruit a are not cooled rapidly. Application of a postharvest fungicide drench might suppress growth during the cool-down period after harvest, but I am not aware of any data that addresses this question.

7 - Given all of the above, the safest approach for controlling flyspeck will be to maintain fungicide coverage throughout summer after the 270-hrAWPF threshold has been reached. If extended rainy periods preclude timely respraying of blocks after heavy rains, then that lapse in coverage may use up part of the preharvest "grace period."

8 - Wet autumn weather such as we have had in recent years may be contributing to elevated inoculum levels in hedgerows and woodlots. Thus, extra caution (i.e., extra sprays in September and perhaps even in early October for late varieties) may be warranted until we get a dry summer-fall combination to break the current high inoculum cycle.

9 - Late summer sprays for flyspeck can be compromised by incomplete coverage of fruit surfaces. Including a surfactant with the fungicide during late summer may be helpful, but an excess of surfactant will only cause excessive run-off, thereby leaving less residue on fruit than a spray applied with no surfactant. Probably the best way to improve coverage in late summer sprays is to reduce tractor speed and increase the volume of water applied per acre.

Plasticulture Strawberry Production System Paying Off by Brad Bergefurd, Extension Educator, OSU South Centers

In 2000, the OSU South Centers Horticulture Program began to pursue a new strawberry field production technique for Ohio, the annual plasticulture strawberry production system.

Traditionally, Ohio growers have produced strawberries using the matted row or ribbon row methods. The annual plasticulture strawberry production system is the predominant growing system used in North Carolina. With the support of Dr. Barclay Poling, Horticulturist from North Carolina State University, Carl Cantaluppi Extension Agent with the North Carolina State University Extension, Industry sponsors, the Ohio Fruit Growers Society, the Ohio Vegetable and Small fruit Research and Development Program, and cooperating growers throughout Ohio, the first annual plasticulture strawberry production research and demonstration plantings went in at the OSU South Centers. Research has continued since that time and the 2006 harvest season was one of

the best so far in terms of fruit quality and yields. For example, our 2006 cultivar harvest yields for Camerosa variety ranged from 17,714 to 21,836 pounds of marketable fruit per acre. Growers also report that the 2006 season was one of the best strawberry seasons they have had with high average yields around 20,000 pounds being reported. As many as 30 growers throughout Ohio have reported they have adopted this production technology on their farms using the results obtained from the OSU South Centers research and demonstration trials.

Research results are available on our website http://southcenters.osu.edu/hort/ or by contacting Brad Bergefurd, Bergefurd.1@osu.edu 1-800-860-7232 or 740-289-3727.

Growing Degree Days Across Ohio - Data through July 5 from OSU Phenology Garden Network (not all locations) OSU Phenology Garden Network

OSU South Centers Piketon	1480
Wilmington	1377
Chillicothe	1375
Athens	1361
Xenia	1282
Marietta	1278
Washington Court House	1262
Findlay	1244
Toledo	1223
Wooster	1186
Canton	1178
Norwalk	1172
Mansfield	1171
Shinrock	1157
Stow	1141
Canfield	1137
Mt. Sterling	1098
Cortland	1084
Willoughby	1077
Kingsville	1018
Coshocton	896
Delaware	752
Newark	695
Columbus	544

Coming Events -Art Agnello SCAFFOLDS Fruit Journal, Volume 15, No. 16

COMING EVENTS Ranges (Normal +/- Std Dev):	43F	50F
American plum borer 2nd flight begins	1411-1893	1020-1232
Apple maggot first catch	1191-1597	750-1034
Codling moth 1st flight subsides	1296-1946	808-1252
Comstock mealybug 1st flight peak	1505-1731	931-1143
Lesser appleworm 1st flight subsides	950-1436	570-920
Lesser appleworm 2nd flight begins	1365-1979	889-1305

Obliquebanded leafroller summer larvae hatch	1038-1460	625-957
Oriental fruit moth 2nd flight begins	1272-1564	784-1020
Pandemis leafroller flight subsides	1390-1644	861-1053
Redbanded leafroller 2nd flight begins	1247-1651	770-1070
Redbanded leafroller 2nd flight peak	1524-2018	965-1353
San Jose scale 2nd flight begins	1564-1934	1013-1309
Spotted tentiform leafminer 2nd flight peak	1377-1841	861-1217

Fruit Observations and Trap Reports Trap reports for Columbus are posted at least once per week on the internet at http://bugs.osu.edu/welty/tree-traps.html

Wayne, Holmes, Medina County Report by Ron Becker (OSU Extension Wayne County)
Scab is still increasing in several of the apple blocks as we have had several weeks with above normal rain fall and high scab pressure. Aphids are starting to go over threshold in several apple blocks as are European red mites. Other insects being found in apples include potato leafhopper, white apple leafhopper, wooly apple aphid and spotted tentiform leafminer.

	June 19-23	June 26-30
Site: Wayne County		
Coddling Moth	8.8	2.8
Site Holmes County:		
Coddling Moth	1.1	0
Oriental Fruit Moth	41	30
Peachtree Borer	2	4
Lesser Peachtree Borer	0	0
Site Medina County:		
Coddling Moth	1.25	1.8
Peachtree Borer	0	0
Lesser Peachtree Borer	0	0

Site: Waterman Lab Apple Orchards, Columbus
Dates: 6/22/06 to 6/28/06

Pests: Redbanded leafroller:	43 (down 86 last week)
Spotted tentiform leafminer:	249 (up from 186 last week)
San José scale:	0 (same as last week)
Codling moth (mean of 3):	5.3 (down from 16.3 last week)
Lesser appleworm:	7 (down from 11 last week)
Tufted apple budmoth:	2 (down from 6 last week)
Variegated leafroller:	1 (down from 5 last week)
Obliquebanded leafroller:	0 (down from 6 last week)
Apple maggot (mean of 3):	7 (down from 1 last week)

North Central Tree Fruit IPM Program
Report Prepared By Zachary Rinkes - Erie County Extension Educator

Jim Mutchler - East District IPM Scout (Erie and Lorain Counties)

Dates - 6/26/06 and 6/27/06

Apples
Redbanded leafroller - 7.4 (up from 4)
Oriental Fruit Moth - 2.0 (up from 0.6)
San Jose Scale - 0 (same as last week)
Codling Moth (mean of 3) - 4.1 (down from 5.4)

Peaches
Redbanded leafroller - 5.3
Oriental Fruit Moth - 0.5 (down from 0.7)
Lesser peachtree borer - 26.3 (down from 33.7)
Peachtree borer - 4.3 (up from 1.3)

Ted Gastier - West District IPM Scout (Sandusky, Ottawa and Richland Counties)

Date - 6/26/06

Apples
Spotted tentiform leafminer - 556 (up from 550)
Redbanded leafroller - 23 (up from 13)
Oriental Fruit Moth - 0.5 (up from 0.3)
San Jose Scale - 0 (same as last week)
Codling Moth (mean of 3) - 0.44 (down from 0.76)
Lesser appleworm - 8.8 (down from 12.3)
Apple maggot - 0 (first report)

Peaches
Redbanded leafroller - 22.7 (up from 17.6)
Oriental Fruit Moth - 0.1 (up from 0)
Lesser peachtree borer - 17.0 (up from 14.4)
Peachtree borer - 0.2 (up from 0)

Preliminary Monthly Climatologic Data for Selected Ohio Locations - June 2006

	June		**Average Temperatures**			
	Precip.	Normal	High	Low	Monthly	Normal
Akron-Canton	5.30	3.55	76.4	55.5	65.9	66.5
Cincinnati	3.67		80.1	60.0	70.0	72.0
Cleveland	4.84	3.69	75.5	56.7	66.1	67.5
Columbus	4.30	4.48	78.9	59.6	69.2	70.4
Dayton	3.64		78.0	59.0	68.5	70.2
Kingsville	2.25	4.16	74.2	54.8	65.0	66.8

Mansfield	4.06	4.52	76.3	55.4	65.8	66.8
Miami Univ.	6.34	3.25	83.4	62.4	72.5	70.2
Piketon	1.38	3.89	80.4	57.1	68.9	72.4
Toledo	3.91	3.80	80.1	57.7	68.9	68.8
Wooster	4.08	3.94	78.2	54.1	66.2	67.6
Youngstown	5.97	3.91	75.6	53.2	64.4	65.9

This data is from several sources including OARDC, NOAA, and local records. Temperature is Fahrenheit and precipitation is in inches.

Ohio Poison Control Number

(800) 222-1222
TDD # is (614) 228-2272