



Newsletter

Extension

Fruit ICM News

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Calendar

April 28: Modern Tree Fruit Production, Grimm's Green Acres, St. Rte. 26, Marietta, OH. See later article for agenda and directions.

June 9: Plasticulture Strawberry, Blueberry, Blackberry, Raspberry Twilight Meeting; OSU South Centers, 1864 Shyville Road, Piketon, Ohio 45661. Field tours are from 5:00-7:00 p.m.; supper will be served from 7:00-8:00. Contact Brad Bergfurd, at 740-289-3727, 1-800-297-2072 (in Ohio only). E-mail: bergfurd.1@osu.edu. Web site: <http://www.southcenters.osu.edu>.

June 25: Ohio Fruit Growers Society Summer Tour, Glen Hill Orchard, 17156 Glen Road, Mt. Vernon, OH.

OFGS Summer Tour

Maureen and Jim Buchwald of Glen Hill Orchards, Mount Vernon, Ohio will host the annual Ohio Fruit Growers Society (OFGS) Summer Tour on Wednesday, June 25, 2003. The Summer Tour will be of interest to Midwest fruit growers that enjoy touring a modern, progressive orchard and interacting with exhibitors, educators, and other industry participants. The original orchard was started in 1912. Maureen and partner Rich Ridenbaugh began updating the orchard in 1976 and currently market 23 apple varieties, such as Jonathon, McIntosh, Red Delicious, Empire, Law Rome, Ginger Gold, and specializing in Golden Delicious. There are 106 production acres of mainly apples with ten acres of peaches and some pick your own Montmorency tart cherries. Annual apple production is estimated at 60,000 to 65,000 bushels and peach production at 2,800 bushels. The apples are primarily marketed through Fruit Growers Marketing Association (FGMA) and an on-farm retail market. Glen Hill also

packs and sells gift boxes through the winter holidays.

In addition to touring the orchard and farm market, participants will observe modern migrant labor housing facilities, 20,000 bushel refrigerated storage, and 21,000 bushel controlled atmosphere apple storage. The orchard wagon tour will feature Maureen and Rich discussing farm operations, cultural practices, variety selection, labor management, packing line operations, marketing, and more. A major management focus utilizes computerized records to track labor productivity and production results to assist in future management decisions. They will also discuss their commitment to providing a safe and healthy worker environment. Ohio State University's Celeste Welty will also showcase a codling moth control demonstration project, and Dave Gress, General Manager of FGMA will discuss the wholesale apple market. The final tour stop will address Good Agricultural Practices and Good Handling Practices in the packinghouse. Shari Plimpton, food safety educator with the Ohio Specialty Crop Food Safety Initiative will address issues such as worker hygiene and health, wash water quality, sanitation, refrigeration, and transportation.

Apple industry exhibitors will also be present to help serve the needs of growers and marketers. Past exhibitors have included equipment dealers, nursery and farm market suppliers, chemical companies, service agencies, etc. The OSU Fruit team will also participate as an exhibitor to provide research and education resources.

Registration for the Summer Tour begins at 8:00 a.m. Member registration fees are \$15 per family and \$10 per individual. Nonmember fees are \$20 per family and \$15 per individual. Orchard tours will begin as soon as the first tour wagon is full. Registrants will be able to purchase morning refreshments and a noontime meal. There will be a short Ohio Fruit Growers Society meeting after lunch.

For those interested in arriving the night before, the OFGS has set aside a block of rooms at the Mount Vernon AmeriHost, 150 Howard Street, at an overnight rate (tax included) of \$60/single or \$64/double. To guarantee this rate, reservations must be made by June 3, 2003 at 800-480-8221 or 740-392-6886, fax: 740-392-3194. Email reservations may be sent to Colleen McPeck at: cmcpeek@bright.net.

The Ohio Fruit Growers Society and Glen Hill Orchards look forward to your participation on June 25. More information about Mount Vernon and Knox County may be found at web address: <http://www.knoxchamber.com>. Driving directions and maps may be found at the OFGS web site: <http://www.ohiofruit.org>. Or contact the OFGS office at 614-246-8292 or email at: growohio@ofbf.org.

Modern Tree Fruit Production Twilight Tour

Source: Eric Barrett, Washington County Agent, Agriculture and Natural Resources

This is not your grandfather's orchard. Tree fruit production has come a long way since Johnny Appleseed planted his way through Ohio. One of the most modern examples decorates a peaceful Washington County hillside with a sea of colorful blooms each spring.

This serene setting will be the location of a twilight tour focused on modern tree fruit production. OSU Extension is sponsoring this twilight tour to share some new ideas from production methods to marketing. The host orchard is Grimm's Green Acres, just five miles from downtown Marietta, OH on St. Rte. 26.

The tour will be held on Monday, April 28th, at 6:00 PM, at the orchard. Grimm's Green Acres is a trellis system orchard comprised of all true dwarf trees. There are 6,000 trees on the farm, including

some peaches. Apples are marketed primarily by pick-your-own and direct marketing. Andy and Kate Grimm, owners of the orchard, have worked long, hard hours since planting their first trees in 1999. Some of the trellis system bends the trees at an angle and is in a "V" shape for added production possibilities.

True dwarf trees are becoming more of the norm in orchard production for many reasons. One of the biggest reasons is the higher production potential on an acre of land; it is significantly higher with dwarf root-stock varieties. Also, you don't need a ladder to get an apple to wet your appetite!

The twilight tour will begin at 6:00 PM with gathering and refreshments. Owners Kate and Andy will then give a short presentation on modern tree fruit production at their farm. At 7:00 the orchard tour will begin with tree fruit specialist, Dave Ferree, from OARDC in Wooster, OH. Washington County Agricultural Agent Eric Barrett will sum the evening up with some basics about pick-your-own operations and tips on direct marketing.

The orchard is located in beautiful Washington County. From Interstate-77, take Exit #1. Make a right at the end of the ramp. Turn right at the first light onto Acme Street. At the third light on this street, make a right on SR 26. The farm is five miles from here on the right -- you can't miss us in the middle of the hill curves! Look for mailbox #213B & the sign with the Grimm's Green Acres logo.

For more information, see <http://washington.osu.edu> or call the OSU Extension office in Marietta at 740-376-7431. Douglas & Betty Yeary, VanWell Nursery, will be providing refreshments.

Apple Scab: SI Fungicides and Strobilurins

Source: Bill Turechek & Wolfram Koeller, Plant Pathology, Geneva

In the March 31 edition of *Scaffolds*, Dave Rosenberger covered the basic strategies for managing apple scab in 2003. His article emphasized the need for early scab protection because of the potential for high disease pressure in orchards that had foliar scab last year and because of poor scab control caused by SI fungicide resistance.

There are several reasons for concern about SI resistance in New York. Let us go back in history. The SI fungicides Rubigan and Nova were introduced in 1988; Procure was added later. It had been noticed early that the SI's had excellent post-infection performance in the control of scab. These post-infection activities allowed the development of a delayed four-spray program for scab, with applications made at tight cluster, pink, petal fall, and first cover. But it was clearly emphasized from the start that the delayed four-spray program should only be used in orchards with a low potential ascospore dose (PAD), and that the SI's should be mixed with a protectant at least for the last two of the four applications. There were two reasons for the recommendation to mix. One was to provide additional protection of fruits, because the SI's had shown some weaknesses in the control of fruit scab. The other reason was to add an anti-resistance component to the equation. The delayed four-spray program worked well for many growers and for many years.

Over the years, we have kept track of SI resistance through both research in experimental orchards at the Geneva Experiment Station and periodic testing of SI resistance in commercial orchards. We found that the protectant mixed with an SI did not delay resistance in strict post-infection programs. SI resistance developed slowly but steadily, putting more and more pressure on the protectant partner. We also found that SI resistance developed faster in orchards where SI's were used at low doses, a statement deserving of a comment. Low doses are not only determined by low application rates. Low doses are also reached

when spray intervals are long and when spray coverage is poor to begin with.

Where do we stand in 2003 with regard to SI resistance? We have monitored the development of SI resistance over the many years growers have used the SI's. We found that full-blown SI resistance could develop after a total of 30 applications in orchards where the PAD was high and where SI's were not always used in mixture with a protectant. On the other hand, we found orchards that have seen over 40 SI-plus-protectant sprays without any sign of resistance developing. Not surprisingly, we found that most of the orchards we tested were in between these two extremes: they were not fully resistant to SI's, but they also were no longer at baseline. This in-between status prompted us last year to make the statement that the "party for the original four-spray SI program is over" in the majority of our orchards. This warning does not imply that SI's are used up entirely. It means that more emphasis needs to be placed on using protectants in mixture with the SI's and on protection early in the season because the "delayed" part of the four-spray SI program is worn out.

In 2002, we were fortunate to have complete spray records as well as assessments of fruit scab at harvest for 17 commercial orchards located throughout the state. These growers were participants in the so-called "RAMP" project; a large, multi-state, federally funded project looking at the efficacy and economics of reduced-risk programs for insect and mite control. In NY, the RAMP project involves apple scab. Participating growers were asked to apply their standard scab programs, and the incidence of fruit scab was evaluated at harvest. Analyses of the 2002 data provided by Harvey Reissig and Art Agnello were revealing:

- The 17 apple growers participating applied an average of eight scab fungicides, with a range of five to 11 applications. The table below summarizes the pattern of fungicide usage by the growers. The protectant fungicides mancozeb and captan, applied alone or in mixture, were the most widely used. Apparently, many growers trust the conventional protectants most. This is not a bad decision, because mancozeb and captan are quite reliable, if they are applied on a protective calendar schedule. We must remember, though, that they are quite unforgiving whenever post-infection activities are needed.
- Three of the seventeen growers applied exclusively mancozeb or captan, with eight to 11 treatments made on a standard schedule. Three growers continued to apply the reduced-SI spray program. Scab control was excellent in 2 of these orchards. In the third, over 20% fruit scab was encountered; a failure most likely attributed to SI resistance. We will test this orchard in 2003.
- The benzimidazole Topsin M, dodine, and the anilinopyrimidine Vanguard were part of the scab management equation. Avoidance of Topsin M is a good choice, because benzimidazole resistance persists in most of our orchards. The situation with dodine resistance is not as clear cut, and the value of Vanguard is still debatable.
- Seven growers replaced some or all of their former SI-plus-protectant applications with a strobilurin fungicide. Three of these seven growers experienced more fruit scab than commercially acceptable (5-20%).

Fungicide Class	% Usage
Mancozeb (Dithane, Penncozeb, Manzate)	34.6
Captan	29.4
SI's (Nova, Rubigan, Procure) mixed with protectant	18.4
SI's alone	5.1

Strobilurin (Sovran or Flint)	11.8
Benzimidazoles (Topsin M)	0.7
Dodine (Syllit)	0.0*
Anilinopyrimidines (Vanguard)	1.0

* Two applications in mixture with a DMI

There are several concerns relating to the use of SI's and the strobilurins. One concern is that some growers still use SI's alone without a protectant added. This has become very risky because of SI resistance. The data also show that the SI's are still very reliable in some of the orchards. This underscores our results that the level of SI resistance is by now very different from orchard to orchard, but almost impossible to predict. One of our major concerns is that the strobilurins didn't fare too well. Why was this so? We should first answer the following question: Can we use the strobilurins in post-infection programs as we used the SI's in their good old days? We might be able to provide an answer.

The strobilurins are better protectants than the SI's ever were, but their post-infection performance is not as good as that of the SI's when SI's were first introduced. Just replacing post-infection SI's with a strobilurin is risky, in particular if the decision was made because of declining SI performance. First, the strobilurins will not have the same reach-back activity the SI's once had. Secondly, just replacing SI's with a strobilurin in a delayed four-spray SI program will undoubtedly drive strobilurin resistance. For example, we tested a Michigan orchard in 2001 where the grower had full-blown SI resistance and had used strobilurins instead of SI's without changing the application schedule. After only two seasons with four applications each season, scab became a problem. Our tests showed that strobilurin resistance was clearly on the march in that orchard.

We know by now how strobilurin resistance will develop. First, the strobilurins will succumb to the gradual emergence of SI-type resistance and a gradual loss of activity. This aspect of resistance can be managed with higher doses of strobilurins. Higher doses can be achieved using either higher application rates or shortened spray intervals or both. But this initial SI-type resistance will then be followed by the "all-or-nothing" benomyl-type of resistance. At that stage, high doses of strobilurins will have no impact whatsoever and scab will not be affected by strobilurin sprays.

Are the SI's used up? The answer is that they are not in many orchards. Will the strobilurins help out? Yes, they will. But we have to keep in mind that they will not provide the same reach-back activity the SI's once had and still have in sensitive orchards. The strobilurins are very potent protectants, and they provide powdery mildew control in addition. But if we use them in the same post-infection programs as we used the SI's before resistance was on the rise, we will drive strobilurin resistance and will lose these fungicides.

What are our recommendations? Most growers will still be able to use the SI's, but in many orchards, the "party" of the delayed four-spray SI program is over. Early protection and less reliance on post-infection programs will be the key. The strobilurins will be very effective, but we must keep in mind that they are less active in post-infection programs than the SI's were at the time we started to use them. We are currently working on an affordable test to determine orchard levels of resistance to all of our modern scab fungicides. This will help to design scab programs without the risk of being burned by fungicide resistance. In the meantime, we should play it safe.

Fruit scab has never been cheap. In a Cornell Bulletin published in 1946 and entitled *Apple Quality and*

Its Effect on Price and Rate of Sales, it said that "In New York, apple scab is probably the most serious defect resulting from disease or insect." It also said, "These discounts are highly important to growers. One or two serious defects could reduce the value of marketable fruit by \$100 or more per acre. Such an amount would have amply covered any ordinary costs of spraying." Although the dollar figures are much higher now for both the potential loss and the fungicides, the basic message has not changed much. The difference is that resistance was not an issue in 1946. Now we have to factor resistance in.

If the performance of SI's has noticeably declined over the past years, this was most likely caused by resistance. In many cases, the SI's will not be used up entirely, but it will be risky to continue with their post-infection use. The strobilurins will help out, but in strict post-infection programs they are just not as good as the SI's once were. They do have some post-infection activity, but this should be reserved for emergency situations. Just replacing a SI with a strobilurin without changing spray schedules will be risky, and it will drive strobilurin resistance. Has good scab control become more expensive? Perhaps it has, but the above 1946 statement is still true. If we look at the potential "discount" losses, then this "amount would have amply covered any ordinary costs of spraying."

Changes to Apogee Label

Source: PennState Fruit Times, April 22, 2003, Vol. 22, No. 5

Apogee has been available to Pennsylvania growers for two full growing seasons, and many growers have been learning about the nuances of how to utilize this material for both growth and fire blight control. BASF has modified and updated the Apogee label. The first is the change to recommend any non-ionic surfactant instead of a specific brand. The restriction on tank mixing with calcium has been softened to a warning about potential lower effectiveness of Apogee, and a caution was also added about tank mixing with boron materials. The label also does not restrict subsequent applications to a 10 to 17 day period; rather, subsequent applications can be made at 1-4 week intervals before or immediately after shoots show signs of regrowth. Remember growth control the timing of the first application is the most important first step. The first application should occur when shoot growth is 1-3 inches. This period in Pennsylvania orchards usually coincides with petal fall. It is better to apply the material earlier than later. Apogee may cause cracking of fruit on Empire or Stayman.

Last year in a small trial at Rock Springs we looked at the application of Apogee on six different cultivars and on two rootstocks. Treatments were:

1. A single application of Apogee at 3oz/acre applied on May 10
2. 3 oz Apogee/acre May 10 and 4 oz/acre on May 24
3. 3 oz Apogee/acre May 10, 4 oz/acre on May 24, and 3 oz/acre on June 7

There were five individual tree replications. All applications also included an equal amount of ammonium sulfate and a surfactant. Results in the table below show the average shoot length of 10 shoots per tree as measured in the fall of 2002. In general shoot growth was greater on M.26 than the same cultivar on B.9.

In nearly all instances three applications or a total of 11 oz of Apogee per acre was needed for cultivars on M.26 to show any significant shoot reduction. In all likelihood either a higher rate per application or additional applications would probably have been needed for trees on M.26. Empire, Jonagold, and York Imperial on B.9 apparently did not need a total of three applications, as shoot growth was reduced too much. Growth reduction on McIntosh on B.9 was not reduced by successive applications of Apogee.

Since the applications were based upon a calendar date for all cultivars, it is likely that the first application of Apogee was past the optimum timing of 1-3 inches of shoot growth. Full bloom varied from April 28 for Empire to May 6 for Rome Beauty and York Imperial. It is therefore important that timing of the use of Apogee be matched to the stage of development for individual cultivars. Failure to apply Apogee early enough in the season will not give the results for shoot growth that is desired.

Treatment	Cultivar	Rootstock	Avg. Shoot Length (in.)	Rootstock	Avg. Shoot Length (in.)
1	Empire	B.9	7.4	M.26	17.3
2	Empire	B.9	11.0	M.26	15.5
3	Empire	B.9	2.6	M.26	19.8
		B.9 Average	7.0	M.26 Average	17.5
1	Golden Delicious	B.9	14.7	M.26	27.0
2	Golden Delicious	B.9	6.7	M.26	24.9
3	Golden Delicious	B.9	8.8	M.26	18.6
		B.9 Average	10.1	M.26 Average	23.5
1	Jonagold	B.9	15.6	M.26	30.4
2	Jonagold	B.9	12.7	M.26	31.1
3	Jonagold	B.9	5.8	M.26	15.0
		B.9 Average	11.4	M.26 Average	25.5
1	McIntosh	B.9	13.5	M.26	27.4
2	McIntosh	B.9	18.1	M.26	21.6
3	McIntosh	B.9	17.0	M.26	16.7
		B.9 Average	16.2	M.26 Average	21.9
1	Rome	B.9	8.7	M.26	19.7
2	Rome	B.9	8.4	M.26	17.8
3	Rome	B.9	13.2	M.26	8.8
		B.9 Average	10.1	M.26 Average	15.4
1	Stayman	B.9	18.8	M.26	22.5
2	Stayman	B.9	8.1	M.26	24.0
3	Stayman	B.9	8.0	M.26	16.8
		B.9 Average	11.6	M.26 Average	21.1
1	York	B.9	24.8	M.26	27.9
2	York	B.9	22.7	M.26	21.9
3	York	B.9	4.0	M.26	17.0
		B.9 Average	17.2	M.26 Average	22.3

Degree Day Accumulations for Ohio Sites April 23, 2003

Location	Degree Day Accumulations Base 43 F	
	Actual	Normal
Akron-Canton	307	237
Cincinnati	486	426
Cleveland	267	223
Columbus	456	307
Dayton	411	310
Kingsville Grape Branch	197	177
Mansfield	291	230
Norwalk	252	204
Piketon	520	448
Toledo	238	192
Wooster	358	215
Youngstown	267	207

Pest Phenology

Coming Event	Degree Day Accum. Base 43 F
Pear psylla 1 st egg hatch - nymphs present	111 - 402
Oriental fruit moth 1 st adult catch	129 - 587
Lesser appleworm 1 st flight	135 - 651
Apple grain aphids present	137 - 496
Spotted tentiform leafminer 1 st oviposition	141 - 319
European red mite egg hatch	157 - 358
San Jose scale 1 st catch	189 - 704
Lesser peachtree borer 1 st catch	224 - 946

Thanks to Scaffold Fruit Journal (Art Agnello)

Fruit Observations & Trap Reports

Insect Key

AM: apple maggot
CM: codling moth
ESBM: eye-spotted budmoth
LAW: lesser apple worm
LPTB: lesser peachtree borer
OBLR: obliquebanded leafroller
OFM: oriental fruit moth
PTB: peachtree borer
RBLR: redbanded leafroller
SJS: San Jose scale
STLM: spotted tentiform leafminer
TABM: tufted apple budmoth
VLR: variegated leafroller

Site: Waterman Lab, Columbus
Dr. Celeste Welty, OSU Extension Entomologist

Apple: 4/16/03 to 4/23/03 (bloom stage on 4/23)

CM: 0 (first report)
RBLR: 5 (down from 13)
SJS: 0 (first report)
STLM: 21 (down from 166)
TABM: 0 (first report)

Peach: 4/16 to 4/23/03 (petal fall stage on 4/23)

OFM: 3 (up from 0)
LPTB: 0 (first report)

Site: Medina, Wayne & Holmes Counties

Ron Becker, IPM Program Assistant

Apple: 4/16 to 4/23/03 (early to full bloom)

STLM: Holmes: 960 (up from 640)

Medina: 560 (up from 75)

Wayne: 1688 (up from
920)

RBLR: Holmes: 118 (up from 27)

Medina: 43 (up from 6)

Wayne: 65 (down from 80)

Peaches vary from full bloom to blossom drop. As of Apr. 23, no frost damaged blossoms have been found.

Site: East District: Erie & Lorain Counties

Sources: Jim Mutchler, IPM Scout and Ted Gastier, Huron County Ag. Agent

Erie County

Apple: 4/16 to 4/23/03 (early pink)

STLM: 692 (up from 75)

OFM: 1 (same as last week)

RBLR: 31 (first report)

Peach: 4/16 to 4/23/03 (pink to early bloom)

RBLR: 76 (up from 33)

OFM: 1 (up from 0)

Lorain County

Apple: 4/16 to 4/23/03 (¼ to ½ bloom on Ida Reds)

STLM: 425 (first report)

OFM: 0 (first report)

RBLR: 5 (first report)

Apricots in full bloom, cherries past bloom, peaches in bloom with some varieties past bloom

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