



Newsletter

Extension

Volume 3, No. 10
April 2, 1999

In This Issue:

[Calendar](#)
[Considering Beekeeping?](#)
[Apple Scab Management](#)
[Control of European Red Mite in Apples](#)
[Strawberry IPM Update](#)
[Fruit Farm Website of the Week](#)
[Improving Apple Fruit Quality](#)
[March Climatological Data](#)

Calendar

April 7: North Central Ohio Fruit Crops Breakfast, Vanson's Restaurant, Intersection of St. Rte. 99 and U.S. Rte. 20, Monroeville. Breakfast at 8:00 AM; discussion at 8:45, featuring Dr. Celeste Welty, Extension Entomologist, OSU.

Consider Beekeeping?

Source: Dr. James Tew, OARDC Entomology, Wooster, OH

In some ways, beekeeping has changed immeasurably, while in other ways it is still the craft practiced by our great grandparents. Parasitic mites, pesticides, and attitudinal changes have caused beekeeping to evolve from being a common pursuit to being a specialized endeavor. Fifty years ago there were an estimated 14,000 beekeepers in Ohio, while we now boast about 2500 - 3000. This decline is not solely a reflection on beekeeping so much as it is global changes within US agriculture. Does that decline in beekeeper numbers indicate a declining importance in beekeeping? No. In fact, the remaining beekeepers are proportionally more important than beekeepers past. Ohio's wild honey bee population is essentially non-existent. Now, people who manage bees provide the reservoir for honey bee biology, honey bee population management, and pollination.

Though there is only one species of true honey bee within the US (*Apis mellifera* L.) and while the honey bee is kept within standard hives, there is not a standard beekeeper as such. Some common reasons that people keep bees are: honey production, pollination services, personal enjoyment, diversified gardening, medical treatments, and educational programs. Within the US, individual beekeepers manage from 1 to 60,000 colonies. Individual beekeeping interests vary widely from a few hives near the back of the property to semi-loads of bees headed for California almond pollination. Nearly anyone can keep bees in some way.

Though controlling parasitic mites is of paramount importance to the modern beekeeper, beekeeping is still enjoyable and reasonably simple. If you have an inclination toward bee management and bees' support of the natural scheme of things, honey bees could be an enjoyable diversion for you. If you have an interest in beekeeping, contact Dr. James Tew, OARDC Entomology, Wooster, OH 44691 (330) 263-3684, Tew.1@osu.edu.

Apple Scab Management

Mike Ellis sent along the following to emphasize the importance apple scab management in your orchards. Also check out Dr. Ellis's apple scab article in the March 1999 American Fruit Grower.

The following note from Dr. Dave Rosenberger is from the "Scaffolds" newsletter. This note should be a good reminder for Ohio growers that had a scab problem last year. The situation described by Dr. Rosenberger for New York is very similar to what happened in Ohio last year, and what is probably happening in Ohio apple orchards this spring. **Remember**, if you had a problem with scab last year, you need to get on top of it this year. Start your fungicide program no later than half inch green. If it is wet and warm this spring, you may need to start at green tip.

Apple Scab Management

Source: Dave Rosenberger & Fritz Meyer, Plant Pathology, Highland, Cornell University, NY

Apple scab ascospore maturity count:

Hudson Valley Lab, March 29: 99.7% immature spores, 0.3% mature spores, no discharge in the shooting tower.

Apple trees are at Silver Tip. Spore maturity this year is much closer to "average" than it was last year. Ascospore maturity counts performed when trees were at Silver Tip last year (26 March 1998) showed 22.7% mature spores compared to only 0.3% for a similar growth stage this year.

However, the delayed spore maturity compared to last year should not be used as an excuse for delaying preparations for the apple scab season. Growers who had scab problems in 1998 must be prepared to start their fungicide program at Green Tip this year because of the high levels of scab inoculum present in the orchard. So check out those sprayers and have everything ready to go! The first scab sprays might be needed by the end of the week in the Hudson Valley.

A Retrospective on Apple Scab in 98 and Suggestions for 99

Source: Dave Rosenberger, Plant Pathology, Highland

What Happened Last Year?

Apple scab was unusually severe throughout New York State in 1998. Several growers in the Hudson Valley said it was the worst scab year since 1945. What factors contributed to the severe scab epidemic in 1998, and what is the best approach for controlling apple scab in 1999? Scab problems in 1998 resulted from a series of unusual weather-related events. Problems started with a mild and wet winter that favored early maturation of apple scab ascospores. Trees reached Green Tip in the lower Hudson Valley on March 26. Both tree phenology and spore maturity advanced very rapidly between March 26-31, when maximum daily temperatures were 82, 82, 79, 87, and 88. An infection period occurred April 1-2, about a week before most growers were ready to begin spraying for scab. Extended rains and wetting from May 1 to May 11 (5.5 inches rain, 163 hrs wetting) favored severe secondary infection and precluded effective fungicide protection during the critical period around petal fall. Cool and wet weather during late May and June kept scab active. Heavy rains June 12-17 (5.0 inches of rain, 120 hrs wetting) removed fungicide protection and favored fruit infection. On June 30, 2.9 inches rain again removed fungicide protection and left fruit susceptible to more infections during wetting period on July 4-5 and 7-9.

The earliness of the 1998 season can be illustrated by comparing calendar date and predicted apple scab ascospore maturity at the Hudson Valley over the past 14 years. Ascospore maturity predictions were derived from the degree-day model developed by Gadoury and MacHardy in the mid-1980's. The model uses accumulated degree-days (base 32 F) to predict the percentage of the total season's ascospore load that is ready to discharge. Spore maturation and early-season tree growth were roughly 15 days ahead of "normal" in 1998. Before that, 1987 was the earliest year. Green Tip occurred earlier in 1990 than in 1998, but cold weather following bud-break in 1990 delayed development.

Ascospore development for the five years from 1992 through 1997 all tended toward late April to mid-May. The relative "lateness" of the five seasons preceding 1998 may have contributed to problems last year because problems associated with an early, wet season had become only faded memories.

What To Do In '99

Clues for controlling scab in 1999 can be gleaned from the success stories of 1998 and by reviewing research on fungicide efficacy.

1.) Start Early. The first scab spray must be applied before the first infection period. In 1998, growers who applied contact fungicides prior to the infection period on April 1-2 had relatively little scab throughout the rest of the season. Growers who applied SI fungicides (Rubigan, Nova, Procure) within 96 hours after the first infection period also had good scab control. However, those who delayed SI applications for more than four days beyond the start of the infection period had to fight secondary scab for the remainder of the season. (Remember that a copper spray applied at green tip to control fire blight also provides about 7 days of protection against apple scab.)

2.) Use a Protectant Program on a 5-8 day schedule from Green Tip until Pink. This is not a good year to use the four-spray SI program in which the first application is delayed until tight cluster. The only appropriate use for the four-spray SI program in 1999 is in orchards where detailed leaf counts were made at the end of last year to document the absence of scab in the block. Many growers discovered last year that SI fungicides do not perform well in a wet year if scab is well established before the first SI sprays are applied. Using protectant fungicides during the early part of the season is also a good resistance-management strategy. In orchards where SI-resistant strains of scab may already be present, potential losses to these SI-resistant strains will be minimized if the prebloom scab control program is based on contact fungicides.

SI fungicides may still be needed at pink, bloom, petal fall, and first cover to control mildew. (As has always been the case, the SI fungicides should be used in combination with a contact fungicide.) When used beginning at pink, the SI fungicides will provide added protection against scab during the period of peak susceptibility fruit scab. If SI-resistant strains of apple scab are present in the orchard, infections of these strains will be delayed by the pre-bloom schedule of contact fungicides, and risks of fruit infection will be significantly reduced.

3.) Review What We All Knew about contact fungicides in the time before SI fungicides were available:

* Captan is considerably stronger against apple scab than is mancozeb. In research trials, Captan 50W at 1 lb/100 gallons dilute spray has provided better scab control than any of the mancozeb formulations applied at 1 lb/100 gallons. (Captan 80W and Captan 4L work as well as Captan 50W; adjust the rates accordingly.)

* Full rates (Mancozeb at 2 lb/100 gallons or Captan 50W at 5-6 lb/100 gal) provide excellent scab control when used on a 7-day program. Half rates (1 lb of Captan 50W or mancozeb) may provide control for only 4-7 days during wet weather.

* Half rates of contact fungicides may work prior to Tight Cluster or when sprays are consistently timed to go on just ahead of infection periods. However, recovery may be needed 4 days later if rain wash-off has occurred.

* Remember that if mancozeb is used at more than 3 lb/A in any spray, then label restrictions require that no mancozeb be applied after petal fall. If more than 3 lb/A of mancozeb is needed to control scab, as may be the case with large trees or exceptionally high scab inoculum, consider using mancozeb/captan combinations. For example, using 3 lb/A of mancozeb in combination with 1.5 lb of Captan 50W/A will provide improved control of both scab and black rot as compared to mancozeb used alone.

* Captan and mancozeb can be applied in the rain to control an on-going infection period, but they will not work if applied more than 18 hours from the start of the wetting event. Growers who applied a contact fungicide in the middle of the May 1-11 infection period last year had less scab than those who didn't spray because it was raining.

4.) Consider the limitations of your sprayer. Even the best fungicides will not control scab if they are not applied properly. Over the past 15 years, many big, old orchard sprayers have been replaced with smaller PTO-driven sprayers. At the same time, many farms have become larger and therefore need to cover more acres per sprayer. This often results in more sprays being applied under windy conditions, because there is insufficient time to cover all the acreage during short windows of ideal spray conditions. However, the small sprayers may not be capable of pushing the sprays against the wind. Imperfect coverage may be "good enough" in a light scab year, but it won't provide adequate control when scab pressure is high. Similarly, proper calibration is important for maximizing effectiveness of scab sprays and other pesticides.

In summary, apple scab could be extremely severe in 1999 because of the high levels of inoculum that exist in many orchards. Probably the most important thing than anyone can do to prevent a repeat of scab problems in 1999 is to have sprayers and orchards ready to go when the first fungicide spray will be needed shortly after bud-break. If early-season infections can be prevented, then the remainder of the season should be much easier than it was in 1998.

Control of European Red Mite in Apples

Celeste Welty confirmed that the manufacturer of Agrimek (Novartis) suggests the following when using their product. "Agrimek is most effective with the addition of 1 gallon of paraffinic spray oil per acre, and the application is between petal fall and first cover (14 days past petal fall). Recent trials indicated that Agrimek will provide better performance with the addition of Ultra Fine Oils like SUN UFO, and secondarily with the organosilicants like Sylwet and Sylgard. Celeste believes Novartis is working on a packaged formulation that will include an Ultra Fine Oil. Additional ERM information is available on pages 39-41 in the new *Midwest Tree Fruit Pest Management Handbook*, http://www.ca.uky.edu/agc/pubs/id/id93/ch_1.htm and on page 12 of the *1999 Ohio Commercial Tree Fruit Spray Guide*. Both are available at your local Extension office.

Strawberry IPM Update

Mark Gleason of the Department of Plant Pathology at Iowa State University publishes the *Strawberry IPM Update*. You can find it on the Web at: <http://www.exnet.iastate.edu/pages/plantpath/strawber.html>

Fruit Farm Website of the Week

<http://www.PhillipsFruit.com>

Included are :

- History of the Farm
- Apple Varieties
- Calendar
- Local Weather
- Directions to the Farm

Fruit Recipes
 Other Products
 Fruit Ready Now
 Healthy Fruit

Improving Apple Fruit Quality

This is the first of a series of articles promoting the improvement of apple fruit quality. Dave Gress, Fruit Growers Marketing Association, believes that producing good tasting apples with extended shelf-life will be an important factor in the future of Ohio apple production.

Apple marketing has changed dramatically through the years. At the turn of the century the "Ben Davis" was an important variety in the east. It was a useful apple because of its extraordinary handling characteristics and long storage life. Here was an apple that you could dump into a barrel, screw the lid down tight, roll onto a cart, and transport by horse-drawn wagon over primitive roads to the nearest port or rail dising. Ben Davis could survive the trip in an unrefrigerated boxcar or ship's hold to a distant market, and it provided a fresh apple that otherwise would have been unavailable to the consumer. (Source: Jim Schupp, University of Maine)

Spoiled apples, however, were a great loss, particularly after shipment across the nation. Records of rot were made at eastern shipping terminals. During the 1922-1925 period an average of 21.3% of the car loads rejected at the eastern terminals were rejected because of fruit decay, mostly blue mold (*Penicillium expansum*).

Blue mold, also known as soft rot or wet rot, is still considered the most important postharvest disease of apples, even with the advent of controlled atmosphere storages and post-harvest fungicides. The incidence of blue mold is often less than 1% in modern storages.

Preliminary Monthly Climatological Data for Selected Ohio Locations March 1999

Weather Station Location	Monthly Precip.	Normal Monthly Precip.	Year-to-Date Precip.	Normal Year-to-Date Precip.	Average High	Normal High	Average Low	Normal Low	Mean Temp.	Normal Mean
Akron-Canton	2.15	3.33	8.45	7.72	43.4	47.3	24.5	28.5	33.9	38.0
Cincinnati	1.89	4.24	10.31	9.2	48.4	53.0	28.0	33.1	38.2	43.0
Cleveland	1.65	2.91	7.65	7.14	42.7	46.3	25.9	28.2	34.3	37.2
Columbus	1.88	3.27	7.51	7.69	47.5	50.5	27.4	31.2	37.5	40.8
Dayton	1.61	3.42	9.51	7.72	45.7	50.0	25.5	31.0	35.6	40.5
Elyria	1.91	2.76	7.22	6.85	44.3	48.8	25.1	28.8	34.7	38.8
Fremont	1.03	2.69	5.22	6.14	44.3	45.2	19.2	27.0	31.1	36.1
Mansfield	1.56	3.30	7.70	7.30	42.4	46.6	23.3	28.6	32.9	37.6

Norwalk	2.30	2.77	7.21	6.40	43.1	45.4	23.3	26.9	33.2	36.1
Toledo	1.42	2.66	6.24	6.14	44.3	45.5	24.5	26.8	34.4	36.1
Wooster	1.53	2.92	6.34	6.84	45.5	47.7	24.7	27.7	35.1	37.7
Youngstown	2.18	3.11	9.63	7.27	42.5	45.3	23.5	27.3	33.0	36.3

Temperatures in degrees F, Precipitation in inches

Table Created by Ted W. Gastier, OSU Extension from National Weather Service, OARDC & Local Data

Website <http://iwin.nws.noaa.gov/iwin/oh/climate.html>

The Ohio Fruit ICM News is edited by:

Ted W. Gastier
 Extension Agent, Agriculture
 Tree Fruit Team Coordinator
 Ohio State University Extension Huron County
 180 Milan Avenue
 Norwalk, OH 44857
 Phone: (419)668-8210
 FAX: (419)663-4233
 E-mail: gastier.1@osu.edu

Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Keith L. Smith, Director, Ohio State University Extension.

TDD # 1 (800) 589-8292 (Ohio only) or (614) 292-1868

| [Back](#) |