



Newsletter Extension

Fruit ICM News

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Calendar

September 19-21: Farm Science Review, Ohio State University brings the top agricultural experts together in one place at the Molly Caren Agricultural Center west of Columbus near London, Ohio in Madison County. Twenty-one hundred acres showcase 600 commercial exhibitors and over 700 acres of field demonstrations. For more information call (800) 644-6377 or visit the Farm Science Review Homepage at <http://www.ag.ohio-state.edu/~farmshow>

February 19 to March 4, 2001: New Zealand Tour.

Dr. Peter Hirst, extension fruit specialist in Indiana, will be leading a tour to New Zealand from Feb. 19 to March 4, 2001. Cost of the tour is \$3000. More information regarding the tour can be obtained by calling Peter Hirst at 765-494-1323 or by e-mailing him at hirst@hort.purdue.edu.

Plant Pathology: Year 2000 Survey Results

Source: Fruit Times, Penn State University, Vo. 19, No. 15

In 2000, the Pennsylvania Department of Agriculture began sampling and testing all stone fruit orchards in Pennsylvania. Within the infected areas, a door-to-door survey is being conducted to identify

backyard stone fruit trees that may require testing. In addition, weed species are being tested in the quarantine area for the presence of Plum Pox Virus (PPV). Quarantine areas currently include Latimore, Huntington, Dickinson, and South Middletown Townships in Adams County and portions of Menallen and Tyrone Townships in Cumberland County. Sampling of commercial stone fruit trees continues in Berks, Franklin, Lancaster, Juniata, Perry, Northumberland, and York counties of Pennsylvania. Team members assisted with homeowner surveys in Latimore and Huntington Townships, Adams County. Advance teams contacted growers and mapped stone fruit sites in Dauphin, Juniata, and Perry counties.

So far this year, 38,434 field samples have been processed by the PDA lab; 398 have tested positive, which has remained the same since July. The positive samples were detected early on from 39 blocks belonging to 9 different growers in Adams and Cumberland counties. In addition, about 294 homeowner and fruit tree nursery samples were processed by the PDA Virology Laboratory in Harrisburg. All of these samples were negative. Of the 523 properties visited in Huntington and Latimore Townships, Adams County, and Dickinson Township, Cumberland County, 105 had Prunus species that were sampled. Thus, more than half of the residential properties in the original two quarantined townships have been visited.

The Fruit Research and Extension Center in Biglerville has been sampling backyard home orchards and weed species within the quarantine area, but so far all are negative.

Controlling PPV: The only way to control the virus at this time is to eliminate the infected trees by burning, and to keep the aphids (which spread the disease) under control by using chemical pesticides. New information from France indicates that aphids (under laboratory conditions) can spread PPV from infected fruit to healthy trees. Growers and fruit handlers are being urged not to dispose of imported stone fruit that could expose infected fruit to aphids. Burning or burying fruit imported from PPV areas (Europe, Chile) will keep the virus spreading into new areas.

Eradicating Infected Stone Fruit Orchards in 2000:

All stone fruit orchard blocks that tested positive for PPV are in the process of being removed. If additional PPV-infected orchards are identified, they will be removed if more than five percent of the trees are infected with the virus. If fewer than five percent of the trees are infected, a USDA risk assessment team will evaluate the situation and make a recommendation about tree removal. To date, nine growers within the quarantine zone of Adams and Cumberland counties have received State Treatment and Federal Destruction Orders for a combined total of 39 orchard blocks, comprising approximately 653.6 acres. Including acreage destroyed earlier in the year as determined by the Fall 1999 PPV Survey, the grand total of acres removed from stone fruit production within the quarantine zone is approximately 875 acres.

Commercial Orchard & Fruit Tree Nursery Indemnity Program: The Pennsylvania Drought, Orchard, and Nursery Indemnity and Flood Relief Act took effect on December 13, 1999. The act establishes the Commercial Orchard and Fruit Tree Nursery Indemnity Program and describes the circumstances under which grants are to be awarded. The program is intended to provide some financial relief to owners of commercial orchards and commercial tree fruit nurseries who incur costs related to controlling PPV.

A \$5.1 million Indemnity Program for PPV (combined PA and federal programs) is now in place. People who wish to apply for a grant under the program may download an application form from the PDA website, <http://www.pda.state.pa.us>. Grant application forms also can be requested by calling (717) 772-5203 or by writing to the Pennsylvania Department of Agriculture, Bureau of Plant Industry, 2301

North Cameron Street, Harrisburg, PA 17110-9408.

PPV in Canada: Early in the year, three trees tested positive for PPV. These were in a shipment of Fantasia nectarines imported from Pennsylvania in 1997. Now there are over 300 positive samples in other orchards about in Niagara-on-the-Lake Township in the Niagara Peninsula of Ontario. They are infected with the D strain. Since finding these positive trees, eradication has been ordered for all 1100 Fantasia trees imported in the 1997 shipment, plus all susceptible Prunus trees within a 200 meter radius of the infected trees in St. Catherines. Surveys within 200 meters of the eradication zone are being conducted. Unfortunately, 20 additional composite samples tested positive to the virus in June. These were found within the survey zones surrounding the established eradication zones. The strain of the virus in the latter samples has not been determined to date. Survey operations are continuing. Because additional positive findings have been obtained on older trees that were not imported from Pennsylvania, the seriousness of the problem in Ontario has dramatically increased. The location in which the positive samples were found is an intense stone fruit production area. The disease can easily spread from orchard to orchard. The Canadian Food Inspection Agency (CFIA), the federal agency with the authority, mandate, and responsibility for this problem, has been devoting full resources and energies to the PPV issue. For more information, their web address is: <http://www.cfia-acia.agr.ca/english/plaveg/hort/ppve.shtml>.

In addition, there has been full cooperation from the provincial ministry, the University of Guelph, Agriculture and Agri-Food Canada and the industry itself. A total of 13,342 samples have been taken in Canada and are waiting to be tested in provincial laboratories. To date, a total of 120 acres have been removed.

To stay current with this new threat to stone fruit orchards, please check the Penn State University website for more information: <http://sharka.cas.psu.edu/>.

Focus on Apple Varieties: "Arlet"

Source: Dr. Diane Miller, Associate Professor, Horticulture & Crop Science, OSU

Arlet is an intriguing apple to me. I saw it in Switzerland in the late 1980's, and it was a fall/winter apple that kept well, although the skin got greasy (which is not a crime in Europe), with fairly crisp texture and mild, pleasant flavor. It was predominately yellow skin with some red stripes, Delicious-shaped. Arlet is from the Swiss Federal Fruit Research Institute in Wadenswil, and I enjoyed tasting it at the place it originated. When Arlet came along in the NE-183 planting, I had from my memory an expectation of what it would be like. Surprise! Arlet grown in our conditions is really a different apple than the Swiss-grown Arlet.

I doubt if Arlet will be a successful apple for us. It is in the same harvest window as Gala, and Arlet is not nearly as pretty or flavorful. Arlet has an unattractive green background color and, where the green blends with the red overcolor, it looks almost brown. Not good. There is a russet in the stem end which is okay (looks like it was meant to be there) but we also see a rough russet on the calyx end. Fruit shape is Delicious-type without the calyx lobes. From a distance customers may shake this variety off as a pink, flat Delicious. The texture is crisp but not as crisp as its new competition (Ginger Gold, Honeycrisp, Gala). The fruit flavor is good, perhaps too complex for some. The flesh browns when sliced.

The Arlet tree is horticulturally friendly like its parent, Golden Delicious (other parent Idared). It is an annual producer and has been a very productive variety in our trial. The fruit tend to drop, but research in Massachusetts has shown Retain to be effective. The fruit store well but do eventually get greasy (why store it?). Arlet did not receive a rousing endorsement in NE-183 committee comments so it doesn't look like it performs better south or north in the U.S.

Of consequence to us in Ohio, Arlet is an early bloomer, only slightly behind Braeburn. However, so far this has not reduced its productivity, but when mixed with other characteristics makes it an "at risk" apple for us. Although Arlet offers no specific disease resistance, it showed very little fireblight in the big fireblight year of 2000. Arlet is sold as Swiss Gourmet (TM). It has a U.S plant patent assigned to TRECO.

Focus on Apple Varieties: "Ginger Gold"

First the bad news: Ginger Gold suffered the most fireblight damage of any variety in year 2000 in the NE-183 new variety trial. Technician John Schmid counted over 50 strikes per tree with over 50% of each tree killed. There are 5 trees of each variety in this planting, 21 different varieties, and each tree randomly located. All 5 scattered Ginger Gold trees were seriously infected by fireblight. Now, if fireblight isn't a concern in your orchard (and this may be true for southern Ohio), Ginger Gold has some excellent horticultural characteristics.

Ginger Gold originated in Nelson County, Virginia, as a seedling growing in a Winesap orchard planted in 1980 by Clyde and Ginger Harvey, Lovingson, VA. It first cropped in 1984 and was introduced as a variety in 1989. It has a plant patent and has been propagated by Adams County Nursery, Aspers, PA.

Ginger Gold somewhat resembles Golden Delicious but is more broad at the shoulders and has a more coarse appearance. Although predominately a yellow-green apple, it can have a red blush. The only russet we've seen on the fruit has been in the stem cavity. The apple has an excellent crisp texture with a slightly tough skin. The texture will ensure satisfied customers. The flavor is mild and sweet and should be acceptable to a wide range of consumers.

Ginger Gold was harvested this year at Wooster the last week of August, and the trees probably could have been first picked the week before that. To me, it is a transition apple between summer and fall; good quality for its ripening window but not the quality to compete with the fall varieties. In other words, it fills a niche for a late summer yellow apple, but definitely market Ginger Gold before it has to compete with higher quality fall apples.

Until 2000 (with yield loss due to fireblight), Ginger Gold was a vigorous, productive tree, ranking in the upper third of the NE-183 varieties. It has that desirable terminal bearing trait.

Some of the comments on Ginger Gold from the NE-183 research committee are interesting. New York commented that a problem with Ginger Gold was that it was getting picked when everything else was getting sprayed, and that growers want to pick it too early with the consequence of poor flavor development. Massachusetts found that Ginger Gold acts like a summer variety, in that differential softening will occur. It is also variable in flavor from year to year. Several states found that Ginger Gold will self-thin somewhat, and getting enough fruit on the tree can be a problem. Many states reported that crows like it! Besides fireblight susceptibility, Ginger Gold is also mildew susceptible (and scab and rust susceptible). Ginger Gold has a long harvest window (maybe 3 weeks) and hangs well on the tree.

Several states reported Ginger Gold being used as the early market "golden" to go with Gala.

Focus on Apple Varieties: "Golden Supreme"

Golden Supreme is a chance seedling from Idaho, discovered in 1960 by Warren Carnefix, Fruitland, Idaho. The Golden Supreme name is trademarked (TM) and licensed to Hilltop Nurseries (MI) and Willow Drive Nursery (WA). We harvested Golden Supreme the last week of August this season, and the apple is a beautiful yellow with a pretty pink blush. In appearance, only the most discriminating could tell it from Golden Delicious, and with all the strains of Golden Delicious, it would be difficult to be positive. In the straw poll of NE-183 evaluators, 9 states voted in favor of the potential of this variety, 1 against (North Carolina).

The fruit are medium to large. Our fruit are slightly more rounded and flat than Golden Delicious. The skin is smooth but has russeted lenticels so the "smooth" finish actually appears more rough to the eye than it is to the touch. To me, the flavor is more "flowery" than Golden Delicious but others have rated it as good flavor. The texture is no more crisp than our usual fall varieties. Even though this variety is very pretty, the taste of it doesn't draw me back to the crate for more.

Golden Supreme has been on the low yielding end of the 21 varieties in the NE-183 planting. The tree itself is very spur-type. It has been the least precocious of those in the NE-183 planting and biennial. Even older trees are reported to be shy bearers. The fruit are reported to ripen unevenly and to drop. Storage life is excellent with little shriveling. The time of bloom is later than many varieties and overlap with a variety providing good pollen is essential.

Golden Supreme showed little fireblight during our intense blight season of 2000, perhaps because of its later bloom time. Of five trees, only one showed any blight, rated at five strikes and five percent of the tree infected. Golden Supreme has no specific disease resistances and has been reported to be very susceptible to *Alternaria* leaf blotch (by Virginia researchers).

This variety can be an early Golden, but in my opinion we should look for higher quality and/or easier to grow varieties to fill this early niche.

Focus on Apple Varieties: "Honeycrisp"

On one hand: I have looked forward to writing this description; however, if you are not interested in my blubbing on about how terrific this apple is then skip to the "**on the other hand**" paragraphs where I describe the problems with Honeycrisp! I have been *eating* apple varieties my entire life, and there are two varieties that have captivated me: A "good" Golden Delicious (one that is allowed to turn yellow on the tree before it is harvested) and Honeycrisp.

Honeycrisp is from the University of Minnesota apple breeding program. Their main objectives are to develop winter hardy varieties with high fruit quality. Honeycrisp is from a cross between Macoun and Honeygold made in 1960. It was selected for further evaluation in 1974. It was released in 1991. It is now patented and may only be propagated by licensed parties (many commercial nurseries). Great Lakes Fruit Growers News has had articles on plans of marketers for unified marketing of Honeycrisp under an

"Explosively Crisp" label.

The truly unique aspect of Honeycrisp is its flesh texture. Electron microscope studies have shown that the flesh cells of Honeycrisp are in fact laid down differently than other varieties. Chewing Honeycrisp is a different "mouth-feel" experience. The texture is light and very crisp with lots of juice. This makes the skin (although it is not thick) the last thing that remains in your mouth!

The flavor of Honeycrisp changes with time of harvest. The apple can be picked over a 3 week harvest window, although we did see some drop with it last year. This year we harvested Honeycrisp the last week of August. The longer the fruit is on the tree the stronger the flavor becomes and the more aromatic the apple. To me the extra flavor development is not an Ohio Fruit ICM News asset (it becomes more "honey-like" and almost water-cored) and the earlier picking highlights the texture.

The appearance of the apple is rather marginal from our traditional standpoint. It is a mottled red coloration over a yellow/green background. Lenticels are small and numerous with a white appearance. The fruit surface has shallow dimples and green russeting at the stem end. The apple tends toward large size but is not uniformly large.

In my opinion Honeycrisp is an apple for the consumer! They will love a good Honeycrisp and demand more! They will pay more for Honeycrisp!

Honeycrisp is a low ethylene producing apple and demonstrates a long storage life even in conventional storage. This is another aspect consumers are sure to love.

Honeycrisp, although it has no specific disease resistances, showed very little fireblight during the summer of 2000. In fact, Honeycrisp under intense blight pressure in a planting alternated with Gala, showed limited fireblight. Although disease resistance was not criteria for selection, Honeycrisp only shows slight susceptibility to apple scab and cedar apple rust.

On the other hand: I look at Honeycrisp and cannot imagine wholesaling this apple. If we had trouble wholesaling Melrose because of non-uniform color and size, Honeycrisp is even worse. The buyers will have to be educated about this apple, but it looks like there is enough marketing power behind Honeycrisp that that might happen.

We're also going to have to readjust our orchard thinking to grow this apple. The tree is not vigorous and is precocious so it is hard to get the tree to fill the space. The solution probably is to make the space to fill smaller. Trees will have to be planted closer together and a more vigorous rootstock (e.g. EMLA 7) will have to be used. Our NE-183 trees at Wooster are on M9. The other younger planting of mixed Honeycrisp and Gala is on B9 - we'll see how these trees perform. The fruit were removed in 2000. In the NE-183 planting Honeycrisp has been a very low yielding variety through 1999 (pretty much an indication of small tree size).

The trees seem to have some bizarre leaf problem that is reported from around the country. There are those who will argue that it is leaf hopper damage and those that will argue back that it is certainly not. Jim Schupp has some data that it is a carbohydrate overloading (translocation) problem and that the symptoms become apparent the first hot week of the summer. This problem we can likely live with as the consumer won't see it.

The more serious problem is a fruit problem. Last year we saw internal browning on Honeycrisp that had been stored in our cooler. Many of you know our coolers are not great, but your coolers probably

have some temperature swings to them too. Our cooler went down to 32 or slightly lower. We had apples in crates on shelves all around the Honeycrisp and saw no damage in any variety except Honeycrisp. The damage that was seen in Honeycrisp was scary - nothing visible from the outside, but upon slicing, the fruit had browned in the lower quarter (or half) - calyx end. I repeat, nothing visible from the outside. This problem was also reported from New York State by a commercial grower and by their fruit researchers (they are calling it a soft scald). The solution is to store Honeycrisp at 38 degrees F or higher.

We also are seeing internal corking of Honeycrisp, which may or may not be visible from the outside. New York reports that corking will double in storage. Dave Ferree and I hope to do some calcium studies on the young Honeycrisp/Gala planting. Other states also have calcium studies in progress.

Honeycrisp appears to perform better in cooler climates and in our NE-183 group both Arkansas and North Carolina declared it to have little potential for them.

The bottom line: Honeycrisp sets a new standard of excellence for crisp texture in apples. Consumers are likely to demand this excellence once they become aware of it (consider how crisp texture in grapes boosted fresh grape consumption). Breeding programs are looking for these crisp texture, low ethylene apples. It's possible that Honeycrisp is an "interim" apple - one that will be replaced by even better tasting, hopefully more grower-friendly, crisp apples. Until those improvements become selected, Honeycrisp is the apple. We can grow it in Ohio but it is a horticultural challenge to grow and store. I anticipate the economic reward for doing that will be worth it, in the short term. In the long term, the consumer will expect such excellence.

Terminal Market Wholesale Fruit Prices

| Chicago http://www.ams.usda.gov/mnreports/HX_FV010.txt | | | |
|---|-------|---|---|
| Apples: market about steady | Pears | Peaches | Prune Plums |
| Regular storage Cartons cellpack Wisconsin US ExFancy Paula Red 96's 11.00 Cartons 12 3-lb filmbags Wisconsin US ExFancy Paula Red 2 1/2" min 8.00 | | 25 lb cartons loose Michigan US One various yellow flesh varieties 2 3/4" min 12.00-14.00 2 1/2" min 11.00-12.00 2 1/4" up 8.00-9.00 | 30-lb cartons Michigan US One Stanley 1 1/4" min 9.00- 10.00 |
| Detroit http://www.ams.usda.gov/mnreports/DU_FV010.txt | | | |
| Apples: market about steady | Pears | Peaches | Plums |
| Regular Storage Cartons 12 3-lb filmbags Michigan US Fancy Gala 2 1/2" min 11.50-12.00 Earligold 2 1/2" min 11.50- | | 25 lb cartons New Jersey No Grade Marks various yellow flesh varieties 2 3/4" up 11.00-12.00 2 1/2" up 11.00-12.00 | 30-lb cartons Michigan US One Stanley 1 1/4" min 11.50- 12.50 |

| | | | |
|---|-------|--|---|
| 12.00 Ginger Gold 2 1/2" min 10.00-12.00 Paula Red 2 1/2" min 11.50-12.00 | | | |
| Bushel cartons loose Michigan US Fancy Gala 2 3/4" up 15.00 Early McIntosh 2 3/4" up 15.00 Ginger Gold 2 3/4" up 12.00 Ginger Gold 3" min 12.00 | | | |
| Pittsburgh http://www.ams.usda.gov/mnreports/PS_FV010.txt | | | |
| Apples | Pears | Peaches | Plums |
| | | <u>25 lb cartons loose</u> Various yellow flesh varieties Pennsylvania 2 1/2" up 8.00-10.00 2 3/4" up 8.00-10.00 <u>38 lb cartons</u> NJ - No grade marks various yellow flesh varieties 2 1/2" up 6.00-7.50 | <u>30 lb cartons</u> Michigan US One Stanley 1 1/4" min 9.50-10.50 |

Fruit Observations

| |
|--|
| <p>Insect Key</p> <p>AM: Apple maggot CM: Codling moth DWB: Dogwood borer LPTB: Lesser peachtree borer OBLR: Oblique banded leafroller OFM: Oriental fruit moth PC: Plum curculio PTB: Peachtree borer RBLR: Redbanded leafroller SJS: San Jose scale STLM: Spotted tentiform leafminer TABM: Tufted apple budmoth VLR: Variegated leafroller</p> |
|--|

Site: Waterman Lab, Columbus (8/31-09/06)

Source: Dr. Celeste Welty, OSU Extension Entomologist

Traps used: STLM=wing traps, SJS=Pherocom-V, Others=Multiplier-1® traps

Apple

RBLR: 17 (down from 18)
 STLM: 377 (down from 494)
 DWB: 1.0 (up from 0)
 SJS: 4 (up from 0)
 CM: 3.3 (down from 6.3)
 OBLR: 0 (unchanged)
 TABM: 0 (unchanged)
 VLR: 0 (unchanged)
 AM: 0.7 (down from 1.7)

Peach

OFM: 15 (down from 25)
 LPTB: 1.0 (down from 3.0)
 PTB: 5.0 (down from 16.0)

Site: East District; Erie & Lorain Counties (8/30-9/5)

Source: Jim Mutchler, IPM Scout

Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=Multipher® traps

Apple

RBLR: 9.1 (up from 7.4)
 CM: 3.5 (down from 7.8)
 SJS: 0 (down from 33.9)
 AM: 0 (down from 2.6)

Peach

OFM: 19.7 (down from 34.7)
 RBLR: 24.3 (unchanged)
 LPTB: 16.0 (down from 23.3)
 PTB: 0.3 (down from 1.3)

Other pests: lilac borer

Site: West District; Huron, Ottawa, & Sandusky (8/31-9/6)

Source: Gene Horner, IPM Scout

Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=Multipher® traps

Apple

RBLR: 11.5 (down from 18.2)
 SJS: 2.3 (up from 0)
 CM: 0.7 (down from 0.9)
 AM: 0.3 (up from 1.0)
 PC: 0 (unchanged)
 OBLR: 3 (up from 0.67)

Peach

OFM: 3.3 (down from 5.3)
 RBLR: 29.7 (down from 33.0)
 LPTB: 13.3 (down from 33.3)
 PTB: 3.0 (up from 2.3)

Other pests: potato leafhopper, white apple leafhopper

Beneficials at work: banded thrips, brown lacewing, green lacewing adults

Site: Wayne County (9/1-9/7)

Source: Ron Becker, Extension Program Assistant

Traps used: STLM=Wing traps, PC=Circle trunk trap, Others=Multiplier® traps

| | Apple | | | |
|-------|-------|-------|------|------|
| | North | South | East | West |
| RBLR: | 14.3 | 48.5 | 19 | 17 |
| STLM: | 927 | 188 | 10 | 174 |
| CM: | 1.8 | 3.0 | 0 | 12.3 |
| AM: | 0.2 | 0 | 0 | 0.3 |

| | Peach | | |
|-------|-------|-------|------|
| | North | South | West |
| OFM: | 0 | 34 | 67 |
| LPTB: | 0 | 0 | 0 |
| PTB: | 0 | 0 | 0 |

European red mite is starting to show up in a few blocks as are light aphid populations and white apple leafhopper. Light fruit damage is being found with both codling moth and European corn borer larvae found inside the fruit. Other significant fruit defects being found as picking continues include plum curculio damage, blister spot, cork spot, scab, and russetting from frost damage in the spring and spray damage. Xmas disease was also found on one apple tree (labels being used to put "Merry Christmas" on the fruit!)

Degree Day Accumulations for Selected Ohio Sites January 1, 2000 to date indicated

| Location | Actual DD Accumulations September 6, 2000 | | Forecasted Degree Day Accumulations September 13, 2000 | | | |
|----------------|--|------------|---|--------|------------|--------|
| | Base 43° F | Base 50° F | Base 43° F | Normal | Base 50° F | Normal |
| Akron - Canton | 3395 | 2198 | 3550 | 3628 | 2301 | 2492 |
| Cincinnati | 4113 | 2883 | 4301 | 4496 | 3019 | 3231 |
| Cleveland | 3434 | 2303 | 3590 | 3575 | 2408 | 2455 |
| Columbus | 4040 | 2824 | 4209 | 3981 | 2941 | 2794 |
| Dayton | 3944 | 2731 | 4115 | 4065 | 2850 | 2877 |
| Mansfield | 3421 | 2283 | 3576 | 3600 | 2387 | 2471 |
| Norwalk | 3523 | 2387 | 3676 | 3547 | 2489 | 2441 |
| Toledo | 3590 | 2432 | 3740 | 3536 | 2530 | 2433 |
| Wooster | 3478 | 2312 | 3624 | 3433 | 2406 | 2314 |

| | | | | | | |
|------------|------|------|------|------|------|------|
| Youngstown | 3300 | 2156 | 3444 | 3365 | 2248 | 2262 |
|------------|------|------|------|------|------|------|

Phenology

| Coming Events | Range of Degree Day Accumulations | |
|---|-----------------------------------|------------|
| | Base 43° F | Base 50° F |
| San Jose scale 2 nd flight subsides | 2494-3257 | 1662-2302 |
| Obliquebanded leafroller 2 nd flight peak | 2634-3267 | 1789-2231 |
| Apple maggot flight subsides | 2764-3656 | 1904-2573 |
| Lesser peachtree borer flight subsiding | 2782-3474 | 1796-2513 |
| Codling moth 2 nd flight subsides | 2782-3693 | 1796-2635 |
| Oriental fruit moth 3 rd flight subsides | 2987-3522 | 2018-2377 |
| Redbanded leafroller 3 rd flight subsides | 3103-3433 | 2013-2359 |
| Spotted tentiform leafminer 3 rd flight subsides | 3245-3471 | 2228-2472 |

Thanks to Scaffolds Fruit Journal (Art Agnello)

Preliminary Monthly Climatological Data for Selected Ohio Locations August 2000

| 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 | 4.01 | 3.32 | 34.41 | 25.19 | 77.5 | 80.4 | 58.7 | 60.0 | 68.1 | 70.2 |
| Cincinnati | 2.90 | 3.35 | 34.15 | 28.98 | 81.7 | 84.1 | 62.9 | 62.9 | 72.3 | 73.5 |
| Cleveland | 4.72 | 3.40 | 28.44 | 24.39 | 77.7 | 80.5 | 60.0 | 60.3 | 68.9 | 70.4 |
| Columbus | 4.10 | 3.72 | 30.25 | 26.90 | 80.7 | 82.1 | 61.8 | 60.8 | 71.4 | 71.5 |
| Dayton | 2.56 | 3.20 | 23.24 | 25.62 | 80.7 | 83.1 | 61.4 | 61.3 | 71.0 | 72.2 |
| Mansfield | 5.37 | 4.08 | 30.75 | 27.36 | 77.8 | 80.1 | 58.6 | 60.4 | 68.2 | 70.3 |
| Norwalk | 3.62 | 3.46 | 34.74 | 24.59 | 78.5 | 80.7 | 60.1 | 58.8 | 69.3 | 69.8 |
| Toledo | 4.14 | 3.25 | 26.91 | 22.28 | 80.0 | 81.3 | 60.4 | 58.4 | 70.2 | 69.9 |
| Wooster | 3.38 | 3.72 | 23.71 | 25.15 | 79.9 | 82.0 | 55.8 | 57.9 | 68.9 | 70.0 |
| Youngstown | 2.76 | 3.32 | 26.38 | 25.18 | 77.8 | 79.6 | 56.9 | 57.9 | 67.4 | 68.8 |

Temperatures in degrees F, Precipitation in inches

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

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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.

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

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