http://ipm.osu.edu/fruit/index.html

THE OHIO STATE UNIVERSITY Newsletter Extension

# Fruit ICM News

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**In This Issue:**



## Calendar

**August 13:** The USDA has announced that farmers can sign up for the Quality Loss Program (QLP) beginning Aug. 13. Signup also begins for a separate quality loss program that will provide up to $38 million for apple and potato growers. Both programs compensate farmers who suffered at least a 20% loss in the quality of their crop. To qualify for a QLP payment, farmers must provide USDA proof of quality for their harvested crop. Examples of acceptable documentation include grading receipts, sales receipts, or university lab tests showing quality losses.

Apple and potato farmers can file for a quality loss payment for both the 1999 and 2000 crops. Payments are calculated by multiplying 65% of the affected production by 100% of the loss in value due to quality. This program also provides payments for losses due to unharvested production. The new programs help farmers who lost income due to weather-related disasters that caused loss of crop quality. Some specialty crops are not eligible, such as ornamental nursery, Christmas trees, aquaculture, honey, turf grass sod, maple sap, and ginseng. For more information, contact your local USDA Service Center or Farm Service Agency office.

*Source:* http://www.fruitgrowers.news.com

**August 20: Ohio Fruit & Vegetable Young Grower Tour,** beginning at Hillsboro. The tour includes retail, wholesale, and auction marketing operations in addition to a wagon tour of fruit and vegetable

research plots. Registration begins at 8:00 a.m. at the Southern State Community College just north of Hillsboro. For more information contact Ohio Fruit and Vegetable Growers at (614) 249-2424 or growohio@ofbf.org. Complete information with registration form is available at http://www.ofbf.org by clicking on "Upcoming Events."

**September 18-20: Farm Science Review -** ***Pesticide credit can be earned at 2001 Farm Science Review!*** Applicators with a pesticide license can receive recertification credit at this year's Ohio Farm Science Review. Pesticide recertification credit for core will be given to applicators during a hands-on demonstration about managing drift. Taught by Ohio State University Extension, the demonstration will be at the Pesticide Education Program display, number 1005 in the exhibit area. Pre-registration for the credit will be at the display area during the Farm Science Review. Each demonstration will be limited to the first 12 people who register. The sessions will be held every day of the review, at 11:00 a.m. and again at 2:00 p.m. Demonstrations will be one hour in length, and each applicator will be given core credit toward recertification. For more information about the recertification credit at Farm Science Review, contact the Pesticide Education Program, OSU Extension, at (614) 292-4070 or visit the website at http://www.ag.ohio-state.edu/~pested

# Final Rule for Juice and Cider HACCP July 2001

*Source: John Wargowsky, Ohio Fruit Growers*

How is your Hazard Analysis Critical Control Point (HACCP) program coming along for juice and cider processing? Hopefully, each producer is moving forward in establishing an HACCP program for his or her operation, if one does not already exist. Small operations (less than 500 employees) have approximately one and one half years from now to have an HACCP program in place by January 18, 2003. Very small operations (total sales less than $500,000, or if total sales are greater than $500,000 the total food sales are less than $50,000; or person claiming exemption employs fewer than an average of 100 full-time employees and fewer than 100,000 units of juice were sold in the United States) have approximately two and one half years from now to have an HACCP program in place by January 18, 2004.

The HACCP program calls for a science-based analysis of potential hazards, determination of where the hazards can occur in processing, implementation of control measures at points where hazards can occur to prevent problems, and rapid corrective action if a problem does occur. Firms will be required to maintain records associated with the implementation of their HACCP plans and verification of those plans. The juice HACCP plan applies to juice and cider products in both interstate and intrastate commerce. Processors are required to evaluate their manufacturing process to determine whether there are any microbiological, chemical, or physical hazards that could contaminate their products.

Within the stated time frames above for size of operation, producers are also required to use a process or combination of processes that achieve a 5-log reduction (100,000- fold reduction) in the most resistant pathogenic microorganisms in their finished juice products. These numbers are compared to levels that may be found in untreated juice. Two methods approved by FDA to achieve the required microbial reduction are pasteurization and ultra-violet (UV) light radiation. The ozonation process for treating cider and other juices for microbial reduction looks promising but is still pending approval by FDA.

The Ohio Department of Agriculture (ODA), Division of Food Safety, has processing specialists available to assist you in establishing your juice and cider HACCP program. In addition, the food safety

processing specialists can assist with the "timing" of pasteurizers prior to production start-up this fall. There is no charge for this service. Food Safety Specialists will also be checking with owners during their audits this fall, to ensure that water sources used in processing, especially non-municipal sources, are tested annually for potability. Prior to the beginning of processing this fall, you may contact ODA's Division of Food Safety to arrange to have your water tested.

If you have any questions or comments regarding these or other processing issues, please contact Charles Kirchner or Terri Gerhardt of ODA's Division of Food Safety at 614-728-6250 for assistance.

# Phytophthora Root and Crown Rot

*Source: Bill Turechek, Plant Pathology, Geneva, NY, Scaffolds #18, July 16, 2001*

Last year's particularly wet season set the stage for the appearance of Phytophthora root and crown rot this year. Unseasonably wet weather last year created conditions that were very suitable for the development of *Phytophthora spp.*, the fungal pathogen responsible for causing the disease. This allowed for the initiation of several new infections and the progression of established infections. The disease is now becoming apparent as the summer progresses and temperatures heat up, and plants become stressed as a result of their maturing fruit load.

Apple, cherry, peach, and apricot trees are usually more susceptible to infection than are pear and plum trees. The symptoms on trees usually develop over several seasons, becoming progressively worse over time. The rate of disease development is dependent upon the inherent susceptibility of the variety/rootstock, environmental conditions, the degree of fungal infection, and the overall physiological and nutritional health of the tree. Disease symptoms may become noticeable in early spring as delayed bud break and possibly tip dieback. These symptoms are not a result of direct infection at these points, but are characteristic of a plant under stress. Often these early symptoms may not appear or simply pass unnoticed. Infected trees often have a normal bloom, giving a false impression of good health. However, developing fruits typically remain small, leaves begin to wilt and drop, and the tree shows a general decline. The decline generally progresses until the trunk is girdled and the tree dies.

It should be noted that the general decline and wilting of trees associated with Phytophthora infection can be associated with a variety of causes other than Phytophthora. Rootstock blight (caused by fire blight), "wet feet" (root asphyxiation), borers, winter injury, graft union necrosis (tomato ringspot virus), etc. are often misdiagnosed as Phytophthora. To distinguish Phytophthora from these other possibilities is not always so simple. Diseased tissue often shows a characteristic reddish-brown discoloration of the inner bark several inches below the soil line (where the fungus first enters the tree). Also characteristic is a clear-cut margin of diseased as opposed to healthy tissue. Aside from the diagnostic symptoms, the only other means of positively diagnosing the disease is to isolate and culture the pathogen in the laboratory; this may take several weeks.

**Disease Management:** Successful control of Phytophthora can be accomplished through a combination of cultural and, when necessary, chemical practices. The most important factor in disease management is choosing and preparing your planting site. Sites that drain poorly, are slow to dry, and/or experience periodic flooding should be avoided. In many cases, marginal planting sites can be greatly improved with the installation of drain tiles and water-management ditches. The fungus needs standing water to infect. Planting trees on berms or ridges, particularly stone fruits, is highly recommended because it raises the crowns of the tree above the portion of soil where pathogen activity is the greatest. For

example, in a berm that stands 4 inches above a flooded orchard floor, fungal activity is reduced 90%; at 10 inches above the flooded floor the fungus is virtually inactive.

The proper selection of rootstock and variety is perhaps as important as proper site selection and preparation. Apple rootstocks, as well as plum, peach, and cherry rootstock, vary tremendously in their susceptibility to Phytophthtora. Among the apple rootstocks, seedlings, M.9, M.2, M.4, and M.111 are the most resistant; M.7, M.26, and MM.111 are moderately susceptible; and MM.106 and MM.104 are very susceptible.

Among the stone fruit rootstocks, the plum rootstocks 'Myrobalan' and 'Marianna' are relatively resistant. Most peach rootstocks used in production are seedling rootstocks and are therefore genetically variable and lack uniformity in their performance for many traits, including disease resistance. 'Lovell' and 'Halford' are commercially available seedling rootstocks and are considered susceptible to Phytophthora. Little information is available about 'Bailey', an increasingly popular peach stock in the Great Lakes region. 'Myrobalan' and 'Marianna' are also used in peach propagation, and although they may confer Phytophthora resistance to the tree, the grafts do not always produce a horticulturally desirable tree. Among the cherry rootstocks, 'Mahaleb' is the most susceptible. 'Mazzard' and 'Colt' are more resistant and would be recommended for heavier soils. The Gisela series rootstocks (Gisela 5, Gisela 6, Gisela 7, and Gisela 12) are semi-dwarfing to dwarfing rootstocks and have only recently become commercially available. In test plantings, the rootstocks appear to be relatively resistant to Phytophthora. The MxM series rootstocks like MxM2, MxM60, and MxM14 are becoming more important as a rootstock for both sweet and tart cherries in the Finger Lakes region, especially where greater tree vigor is sought. Better knowledge of their susceptibility or resistance to Phytophthora will be obtained as they become more widely planted.

The effectiveness of chemical control is dependent on how far the disease has advanced, the condition of the planting site, and the inherent susceptibility of the tree. Trees that show marked symptoms or are in a severe state of decline typically cannot be revived and should be removed. Trees that are planted in sub-optimal sites, i.e., where disease pressure is likely to occur every year, may be good candidates for chemical treatment, depending on the rootstock. Trees, however, that show mild symptoms, or healthy trees that neighbor declining trees **AND** are planted in a good site will most likely benefit from fungicide treatment. These trees may be saved or protected from infection when fungicide is applied according to label instructions. The most effective fungicide for the management of Phytophthora crown and root rot is Ridomil EC. Apply Ridomil EC where crown rot has been a problem or in areas of the orchard where marginal drainage and rootstock susceptibility is likely to be a problem. For apples, make a solution containing 1/2 pt (8 fl oz) of Ridomil EC in 100 gallons of water and apply the solution at the rate indicated in the table below. Applications are made just as growth begins in the spring and immediately after harvest. On new apple plantings, delay the first application until 2 weeks after planting.

| **Trunk diameter (in.) at 1 ft. above soil line** | **Solution (qt.)** |
|---|---|
| 1 | 1 |
| 1-3 | 2 |
| 3-5 | 3 |
| 5 | 4 |

On stone fruit, Ridomil applications should be made just before growth starts in the spring and at 2-3-month intervals thereafter if soil conditions are very wet. Apply 2 qts. per treated acre (1.5 fl oz/1000 sq. ft.) in sufficient water carrier to obtain thorough coverage of the soil under the canopy of the trees (material is moved into the soil by subsequent rains or irrigation). Up to three applications can be made per year. On new plantings, delay the first application until 2 weeks after planting and continue at 2-3-month intervals as described above.

**References**

Biggs, A.R., Hickey, K.D., and Yoder, K.S. Crown or Collar Rot, *Phytophthora cactorum*. http://www.caf.wvu.edu/kearneysville/

Wilcox, W.F. 1992. Phytophthora Root and Crown Rots. *IPM Fruit Crops Disease Identification Sheet No. 7*. New York State Agricultural Experiment Station, Cornell Cooperative Extension.

# Preliminary Results of Apple Rootstock Trials

*Source: Fruit Times Newsletter, Vol. 20, No. 12, Penn State*

In 1994 a planting of Gala was established at the Horticulture Research Farm at Rock Springs to evaluate rootstocks that were similar to M.9 in size or were different clones of M.9. The planting was part of a sanctioned planting for the NC-140 Regional Research Project. At the end of the seventh growing season the smallest trees based on trunk cross sectional area were on M.27 EMLA, Poland 22, and Poland 16. The largest trees were on Vineland.1 and M.26 EMLA. Within the M.9 clones there was quite a range of sizes. The largest M.9 clones were the French clones Pajam2 and Pajam1. The annual growth increment was similar to the ultimate tree size, with the smallest trees having the least amount of trunk area increase.

Suckering was variable by rootstock with M.26 EMLA and Poland 2 having the least number of root suckers, while Ottawa 3 and Poland 16 had the greatest amount of suckers.

All the fruit on each tree was counted and weighed to obtain an average yield by rootstock. Yields per acre are based upon a tree spacing of eight feet in the row and sixteen feet between trees in adjacent rows for a density of 340 trees per acre. The cumulative yield is the sum of yields from 1995 through 2000. Yields in 1995 were included in this analysis, although in a commercial orchard the fruit may not have been harvested due to the small amount in the orchard. As would be expected, small trees had lower yields because they did not have the canopy volume of the larger trees. On the larger trees, however, there was very little difference in the yield in 2000. Cumulative yields for the six cropping seasons shows that trees on Vineland 1 produced the most fruit.

Efficiency can be determined by taking total cumulative yield and dividing by the current trunk cross sectional area. In many rootstock studies it is usually shown that, although the smaller trees produced less on a per tree basis, their efficiency is often better than large trees. In this study however, the smallest trees were the least efficient. There was, however, a specific impact by rootstock. M.26 EMLA, which was one of the largest trees, also had a lower efficiency than all the M.9 clones. Pajam 1 and NAKB clones of M.9 had the highest efficiency. This is probably due to the fact that the larger trees were taller, resulting in overall larger canopy volumes.

The study will be continued for another three years, but there are certain observations that can be made at this point.

- M.27, P.22 and probably P.16 induce too much dwarfing for our conventionally spaced orchards.
- Trees on Mark rootstock are starting to show signs of ground line swelling and tree decline.
- V.1 is as large as M.26, but is more productive
- B.9 in this planting with Gala is 14-18% smaller than M.9 EMLA or M.9 NAKB

Supporting data is available from this web site:

http://fruittimes.cas.psu.edu/FT2012.html

# Senate Agriculture Committee Approves Apple Assistance

*Source: John Wargowsky, Ohio Fruit Growers Society; and The Fruit Growers News, July 26, 2001*

The U.S. Senate Agriculture Committee today approved legislation to provide the nation's apple growers with $150 million for devastating losses growers sustained in marketing the 2000 apple crop. The action would be a part of the $7.4 billion fiscal 2001 supplemental farm aid bill.

The House overwhelmingly adopted $150 million in apple market loss assistance as part of the fiscal 2002 agricultural appropriations bill in early July.

The full Senate was expected to consider the fiscal 2001 supplemental farm aid bill next week, with the hope of hammering out an agreement with the House on a final version of that legislation prior to the August congressional recess. The Senate is not expected to consider its version of the fiscal 2002 agriculture appropriations bill until after the August congressional recess, which ends September 4. Any differences between the House and Senate versions of that legislation also will need to be reconciled before the spending measure can be sent to President Bush for his signature.

"While we are thankful to have prevailed in both the House and the Senate Agriculture Committee, we still have a long row to hoe," said U.S. Apple Association (USApple) President and CEO Kraig Naasz, whose group spearheaded the Senate Agriculture Committee's approval of the apple assistance measure. "USApple will be working with our apples in both the House and Senate to ensure the apple market loss assistance measure is included in the first available farm aid legislation presented to President George W. Bush for his signature."

# 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

**Waterman Lab, Columbus**, Dr. Celeste Welty, OSU Extension Entomologist

*Traps used: STLM = Wing trap, SJS = Pherocon V, Codling Moth = mean of 3 MultiPher® traps, Others = MultiPher*

**Apple:** 7/18 to 7/25
- STLM: 77 (up from 64)
- RBLR: 15 (up from 2)
- CM (mean of 3 traps): 7.3 (up from 4.0)
- SJS: 18 (up from 10)
- OFM: 2 (down from 3)
- DWB: 0 (unchanged)
- TABM: 0 (down from 1)
- VLR: 1 (up from 0)
- OBLR: 5 (up from 3)
- AM(sum of 3 traps): 1 (up from 0)

**Peach:** 7/18 to 7/25
- OFM: 3 (unchanged)
- LPTB: 2 (down from 4)
- PTB: 8 (up from 2)

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**Site: East District; Erie & Lorain Counties**
Source: Jim Mutchler, IPM Scout
*Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=MultiPher®*

**Apple:** 7/18 to 7/24
- STLM: 105 (down from 335)
- CM: 1.9 (up from 0.8)
- SJS: 56.3 (up from 0.1)
- OBLR: 0.3 (down from 7.0)
- RBLR: 1.0 (down from 8)
- AM: 0.8 (up from 0.1)

**Peach:** 7/18 to 7/24
OFM: 3.0 (unchanged)
LPTB: 5.3 (up from 5.0)
PTB: 10.7 (up from 8.7)
RBLR: 1.7 (down from 12.0)

**Other pests** include white apple leafhopper, green apple aphid, Japanese beetle, wooly apple aphid, potato leafhopper, apple rust mite

**Beneficials include:** lacewings everywhere (all stages), orange maggots, lady beetles, *Stethorus punctum*.

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**Site: West District; Huron, Ottawa, & Sandusky**
Source: Gene Horner, IPM Scout
*Traps Used: STLM=wing traps, SJS=Pherocon-V, PC = circle traps, Others=MultiPher*® traps

**Apple:** 7/18 to 7/25
CM: 0.5 (up from 0.2)
RBLR: 0.0 (down from 5.3)
SJS: 13.4 (up from 0.0)
STLM: 45 (down from 75)
PC: 0.0 (unchanged)
AM: 2.4 (up from 0.8)

**Peach:** 7/18 to 7/25
OFM: 4.8 (up from 1.2)
LPTB: 5.0 (down from 6.6)
PTB: 4.2 (unchanged)
RBLR: 0.2 (down from 8.4)
TPB: 0.0 (unchanged)

**Other pests** include green apple aphid, apple rust mite, Japanese beetle, potato leafhopper, oriental fruit moth flagging,

**Beneficials include:** lacewings (all stages), banded thrips

# Phenology

| Coming Events | Range of Degree Day Accumulations | |
|---|---|---|
| | Base 43° F | Base 50° F |
| Codling moth 2nd flight begins | 1355-2302 | 864-1549 |
| Obliquebanded leafroller 1st flight subsides | 1420-2452 | 899-1790 |
| San Jose scale 2nd flight begins | 1449-1995 | 893-1407 |

| | | |
|---|---|---|
| Redbanded leafroller 2nd flight peaks | 1479-2443 | 952-1698 |
| Spotted tentiform leafminer 2nd generation tissue feeders present | 1504-2086 | 952-1201 |
| Apple maggot 1st oviposition punctures | 1566-2200 | 1001-1575 |
| Codling moth 2nd flight peak | 1587-3103 | 1061-2212 |
| Spotted tentiform leafminer 2nd flight subsides | 1773-2514 | 1148-1818 |
| Oriental fruit moth 2nd flight subsides | 1806-2783 | 1164-1963 |
| Redbanded leafroller 2nd flight subsides | 1927-3045 | 1291-2160 |
| Apple maggot flight peak | 2033-2688 | 1387-1804 |

Thanks to *Scaffolds Fruit Journal* (Art Agnello)

## Northern Ohio Sooty Blotch Activity from SkyBit®

| | **Dates** | **Level of Disease Activity** |
|---|---|---|
| Observed | July 1-25 | Possible **sooty blotch** infection & damage |
| Forecast | July 26-31, August 1 | Possible **sooty blotch** infection & damage |

## Fly Speck and Sooty Blotch

*Source: Dr. Mike Ellis, Integrated Pest Management (IPM) Disease Management Guidelines for Apples in Ohio*

Weather conditions present this summer may be encouraging development of fly speck and sooty blotch.

Both diseases are favored by temperatures between 65 and 80F and by very high humidity (greater than 90% relative humidity for sooty blotch and greater than 95% relative humidity for fly speck.) Conditions such as these are most frequent when nighttime temperatures remain above 65 to 70 F during the summer, or during extended warm, rainy periods. Sooty blotch and fly speck symptoms can develop within 14 days from infection under ideal conditions, but symptom development is arrested by high temperatures and low relative humidity. Thus the period between infection and symptom development ranges from 25 to more than 60 days. **Sooty blotch and fly speck infections not yet visible at harvest can develop during cold storage.**

## Degree Day Accumulations for Selected Ohio Sites January 1,

## 2001 to Date Indicated

| Location | Reported Degree Day Accumulations | | | | | | Forecasted Degree Day Accumulations August 1 | |
|---|---|---|---|---|---|---|---|---|
| | July 11 | | July 18 | | July 25 | | | |
| | Base 45° F | Base 50° F | Base 45° F | Base 50° F | Base 45° F | Base 50° F | Base 45° F | Base 50° F |
| Akron - Canton | 1630 | 1172 | 1804 | 1311 | 2031 | 1502 | 2223 | 1659 |
| Cincinnati | 2079 | 1557 | 2266 | 1709 | 2503 | 1910 | 2728 | 2101 |
| Cleveland | 1655 | 1206 | 1832 | 1348 | 2071 | 1553 | 2255 | 1702 |
| Columbus | 2059 | 1554 | 2250 | 1710 | 2492 | 1918 | 2706 | 2097 |
| Dayton | 1955 | 1467 | 2139 | 1616 | 2376 | 1818 | 2588 | 1995 |
| Mansfield | 1642 | 1188 | 1816 | 1326 | 2043 | 1518 | 2230 | 1671 |
| Norwalk | 1680 | 1230 | 1862 | 1378 | 2097 | 1577 | 2251 | 1701 |
| Piketon | 2068 | 1539 | 2242 | 1678 | 2468 | 1869 | 2674 | 2040 |
| Toledo | 1722 | 1268 | 1909 | 1420 | 2144 | 1620 | 2325 | 1767 |
| Wooster | 1688 | 1229 | 1859 | 1364 | 2085 | 1556 | 2277 | 1713 |
| Youngstown | 1550 | 1098 | 1716 | 1229 | 1941 | 1419 | 2121 | 1564 |

## Ohio Drought Conditions

Conditions in Ohio as of July 21, 2001 according to Long Term Palmer Drought Severity Index

*Source:* http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif(1)

| Region | (1) Category of Drought | (2) Category of Drought |
|---|---|---|
| Northeast Ohio | Severe | Abnormally Dry |
| Northeast Hills | Moderate | Abnormally Dry |
| Central Hills | Moderate | Abnormally Dry |
| North Central | Moderate | Abnormally Dry |
| Rest of State | Near Normal | Normal |

Thanks to Maurus Brown, Richland County Ag Agent, here is a USDA website for monitoring drought conditions in the United States. http://enso.unl.edu/monitor/monitor.html (2)

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