



Newsletter Extension

Fruit ICM News

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The Ohio Fruit Team wishes to express our sympathy for the victims and families of the tragedies that occurred on September 11, 2001. The outpouring of support shown by the following article and the "Show Your Support" event held at the Ohio Stadium last Saturday are examples of our Nation's peoples coming together.

Apple Industry Relief Efforts Underway

Source: <http://www.fruitgrowersnews.com> and *Healthy Fruit*, Volume 9, Issue 23.

The apple industry is continuing its efforts to support the relief efforts underway in New York City and Washington, D.C. USApple said today that apple growers from coast to coast are mobilizing to contribute apples and apple juice in the wake of last week's tragic events. The New York Apple Association (NYAA), Fishers, N.Y., is coordinating industry donations of apples and apple juice in New York, in partnership with America's Second Harvest and the American Red Cross affiliates in Manhattan. NYAA President Jim Allen reports that they are in the process of sending several trailer loads of apples to the scene, and that "we plan to keep them coming until someone tells us to stop." Meanwhile, USApple is overseeing offers of apples and apple juice to relief operations in the nation's capital.

However, in an update from USApple, America's Second Harvest has temporarily suspended deliveries of perishable food items, such as apples, to New York City and Washington, D.C. While expressing appreciation for the products they have received, organization officials report that their warehouses are fully stocked and an oversupply of produce items currently exists at both sites.

The U.S. Apple Association (USApple) and the New York Apple Association will continue to monitor the situation with the assistance of America's Second Harvest, and we will contact those groups and

individual suppliers who have offered apples and apple juice in support of the relief efforts as soon as we learn of a need for additional donations. For more information about our industry's efforts to support the relief work underway in New York and the nation's capital, please contact Julia Daly or Kraig Naasz at (800) 781-4443.

Uncovering the Mysteries of Gray Mold

Source: Kathryn Barry Stelljes, Agricultural Research Service Information Staff, <http://www.ars.usda.gov/is/AR/archive/sep01/mold0901.htm>. (Thanks go to Gary Graham for forwarding)

If you love strawberries, you've probably seen it. You pick out a luscious, ripe berry from the basket, only to turn it over and see a mound of yucky gray fuzz. The fuzz, caused by gray mold (*Botrytis sp.*), ruins more than just strawberries. Over 23 species of *Botrytis* reduce yield, soften fruit, or affect color in a wide range of small fruits and nursery crops. In the Pacific Northwest alone, the mold causes up to \$125 million per year in crop losses.

Researchers at ARS' Horticultural Crops Laboratory in Corvallis, Oregon, have discovered new characteristics of the mold and powerful new control approaches that may help growers reduce *Botrytis* infection. "Diseases caused by gray mold are among the most difficult to control," says ARS plant pathologist Walter F. Mahaffee. That's because the mold can remain dormant for long waiting for environmental conditions to turn favorable. *Botrytis* grows well on dead or dying plant tissue, such as leaves, then spreads to live parts of the plant. It reproduces prolifically and produces spores at all stages of its life.

Recently, Mahaffee and colleagues at Oregon State University (OSU) in Corvallis discovered a new clue about *Botrytis*' success: The mold can also live as an epiphyte. That means mold spores germinate and grow unnoticed on the surface of leaves and other plant parts. That allows it to be present constantly until the perfect conditions arise for it to infect the plant and cause disease. This epiphytic growth appears to be why the disease spreads so rapidly.

"I'd look at a leaf before going home in the evening and it would look pretty healthy," says Mahaffee. "Then I'd come in the next day and two-thirds of the leaf would show signs of infection. That's a lot of area to be covered very fast."

He discovered that, in reality, *Botrytis* had completely colonized the leaf surface epiphytically. Then, when the time was right, the mold infected the leaf at multiple sites simultaneously. Mahaffee found that the mold could move from one leaf hair to the next without actually touching the leaf tissue itself. "That type of spreading could reduce the efficacy of pesticides," he says, "because it would reduce the mold's contact with the residues on the leaves."

This finding was made possible by green fluorescent protein (GFP) technology. (See "Jellyfish Gene Lights Up E. Coli," *Agricultural Research*, March 2000, p. 15.) "By using this technology, we could watch the development of a single mold spore over time under the microscope," says Mahaffee. "We can also use a different GFP to mark a biological control agent and watch how the two organisms interact in real time. That's a first."

Taking Different Tacks

This work suggests new avenues for *Botrytis* control. "If we can determine the conditions that allow the mold to live in this epiphytic state, we may be able to make it harder for it to survive," says Mahaffee. Growers use fungicides and biological control agents to keep the mold in check. But *Botrytis* quickly develops resistance to pesticides. Available biocontrols can help prevent infection, but they don't get rid of *Botrytis* once it is established.

Mahaffee's team recently found a new bacterium that may lead them to better biocontrols. A strain of Burkholderia, the bacterium eradicates even established gray mold on geranium leaves in the laboratory. Unfortunately, the bacterium is related to bacteria that can cause health concerns for cystic fibrosis patients. Although that is likely to preclude its development into a commercial biological control agent, it still gives the scientists new strategies to pursue.

"We may be able to identify the genes responsible for the bacterium's effectiveness and search for other bacteria that have similar genes. Or we may be able to move the genes into a harmless biocontrol organism," says Mahaffee. Another option: The researchers might be able to harvest the active compounds produced by the bacteria and use them to develop a pesticide.

But the most exciting discovery about the bacterium is that it forms a filmlike cluster of cells as it grows. "This film seems to protect the bacterium from adverse conditions, like rapid or extreme changes in moisture or temperature," says Mahaffee. He and OSU plant pathologist Caroline Press found they could enhance this biofilm production by spraying the organisms onto the plant in a mixture of natural polymers already used as food additives.

"Adding polymers to the Burkholderia gives the same biological control of *Botrytis*, but at a much lower bacterial concentration," Mahaffee says. And the polymer mixture helps with other biocontrols, too. "Adding the polymer to some existing biological control agents gave us *Botrytis* control in the greenhouse where there was none without the polymers, or it improved control of other agents," he says. Mahaffee suspects that the polymers help organisms colonize a leaf surface better, giving them a higher, more constant population to stave off gray mold.

While this technology is just now being developed, Mahaffee hopes it could find commercial application with growers in 5 to 7 years, giving consumers firmer fruit and brighter flowers.

This research is part of *Plant Diseases, an ARS National Program (#303)* described on the World Wide Web at <<http://www.nps.ars.usda.gov>>. Walter F. Mahaffee is with the USDA-ARS Horticultural Crops Laboratory, 3420 N.W. Orchard Ave., Corvallis, OR 97330; phone (541) 752-9455, fax (541) 750-8764.

Plum Pox Virus Update

Source: *Facts for Fancy Fruit 2001-12* <http://www.hort.purdue.edu/fff/fff.html>

Not only did we not find any trace of the virus in Indiana this year, but other surveyed states also appear to have come up clean. Over 50,000 samples have been analyzed this year, and all tested negative for the antibodies to the virus. The outbreak in Ontario, Canada found last year has been quarantined, and all trees ordered to be removed have been destroyed. More than 300 new positive samples were found in the Niagara region, and as a result the quarantine zone has been expanded. Canadian officials were not surprised to find more infected trees due to the more intensive sampling this year, and they still feel they are on track with their eradication program.

Additional plum pox virus news is available at <http://sharka.cas.psu.edu>.

2001 Ohio Tree Fruit Trap Report

Online users can find summaries of insect trap reports for three locations in Ohio apples and peaches for the 2001 growing season. The locations include Waterman Lab on the Columbus campus of The Ohio State University, and the east and west districts in the north-central Ohio IPM program. The east district includes Erie and Lorain Counties; the west district includes the counties of Huron, Ottawa, Richland, and Sandusky. The web site: <http://www.ag.ohio-state.edu/~ipm/fruit/01frpest.htm>

In addition to the online charts, printed graphs are available from Huron County Extension, 180 Milan Avenue, Norwalk, Ohio 44857 upon receipt of a self-addressed stamped business-size envelope.

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: 9/12 to 9/19

RBLR: 4 (down from 29)
CM (mean of 3 traps): 3.0 (down from 15.0)
SJS: 0 (down from 1)
OFM: 2 (up from 1)
AM(sum of 3 traps): 1 (same as last week)

Peach: 9/5 to 9/12

OFM: 2 (down from 11)

LPTB: 0 (down from 2)
 PTB: 2 (up from 0 last week)

Terminal Market Wholesale Fruit Prices September 19, 2001

Sources:

Chicago http://www.ams.usda.gov/mnreports/HX_FV010.txt

Detroit http://www.ams.usda.gov/mnreports/DU_FV010.txt

Pittsburgh http://www.ams.usda.gov/mnreports/PS_FV010.txt

	Chicago	Detroit	Pittsburgh
Apples, cartons, traypack			
U.S. ExFancy Gala		NY 100s 15.50-16.00	
Apples, cartons, 12 3-lb filmbags			
U.S. Fancy Earligold		MI 2½" min 12 - 12.50	
U.S. Fancy Gala		MI 2½" min 11.50-12.00	
U.S. Fancy Ginger Gold		MI 2½" min 10.00	
U.S. Fancy Gold Supreme		MI 2½" min 10.00	
U.S. Fancy Jonamac		MI 2½" min 10.00	
U.S. Fancy Paula Red	WI 2½" min 10.50	MI 2½" min 11.00-12.50	
U.S. Fancy Jersey Mac	WI 2½" min 10.50-11.00		
U.S. Fancy McIntosh			NY 2½" min 10.50-11.50
U.S. Fancy Red Delicious			PA 2½" min 12.00-12.50
U.S. ExFancy Royal Gala			PA 2¼" min 10.00-13.00
U.S. ExFancy Jonagold			PA 2¼" min 10.00-12.00
Apples, bushel cartons, loose			
U.S. Fancy Cortland		MI 2½" min 11.50-12.00	

U.S. Fancy Gala	MI 2¼" up 12.00	MI 2¾" up 14.50-15.00 3" min 14.50-15.00 2½" up 11.50- 12.00	PA 2¼" min 10.00-12.00
U.S. Fancy Ginger Gold		MI 2¾" up 10.00-12.00 3" min 14.50-15.00 2½" up 10.00-12.00	
U.S. Fancy Gold Supreme		MI 3" min 13.50-14.00	
U.S. Fancy Golden Delicious	IL 2¼" up 12.00 MI 2¼" up 14.00		
U.S. Fancy Jonagold			PA 2¼" min 10.00-12.00
U.S. Fancy Jonamac		MI 2¾" up 13.50-14.00	
U.S. Fancy Jonathan	MI 2¼" up 12.00		
U.S. Fancy McIntosh		MI 2¾" up 11.50-12.00 3" min 11.50-12.00 2½" up 10.00	
U.S. Fancy Paula Red	IL 2¼" up 12.00		
U.S. Fancy Red Delicious		MI 2¾" up 11.50-12.00 2½" up 9.50-10.00	
Apples, cartons cellpack			
U.S. Fancy Paula Red 112s	WI 15.00		
U.S. Fancy McIntosh 80s 100s 120s			NY 10.00 - 12.00 10.00 - 12.00 10.00 - 12.00
U.S. ExFancy McIntosh 100s			NY 20.00 - 22.00
Blueberries, 12 1-pt cups	MI 22.00-22.50	MI Elliots med 22 - 23.00	MI med-lg 20.00-21.50
12 ½-pint cups	MI 15.00-17.00	MI Elliots sm-med 12.00	
Peaches, 25 lb cartons, loose, no grade marks, various yellow flesh varieties		IL 2½" up 12.00	
Peaches, 25 lb cartons, U.S. ExOne various yellow flesh varieties		MI 2½" up 12.00-12.50 2¼" up 8.50-9.00	

Peaches , ½ bu cartons, no grade marks, various yellow flesh varieties	NJ 2½" up 12.00		
Peaches , ½ bu cartons, U.S. One various yellow flesh varieties		MI 2¾" up 14-14.50 NJ 2¾" up 9.00-12.00 2½" up 8.00-10.00 2¼" up 6.00-8.00	
Peaches , ½ bu cartons, various yellow flesh varieties			NJ 2½" up 11.50-12.50
Peaches , ½ bu cartons, Blakes			PA 2½" up 11.50-12.50
Peaches , 38 lb ctns, no size marked, various yellow flesh varieties			NJ 8.00-8.50
Prune Plums , 30-lb cartons U.S. One Stanley		MI 1¼" min 10.00	MI 1¼" min 11-12.25
U.S. One Bluefire		MI 1¼" min 11.50-12.00	

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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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