



WASHINGTON STATE
UNIVERSITY
EXTENSION

FIRE BLIGHT CONTROL IN ORGANIC APPLES AND PEARS

BY THE NUMBERS

- More than \$1 million in grant support (WSU and partners) from USDA-NIFA, Washington Tree Fruit Research Commission, and The Organic Center.
- 18 presentations at grower meetings.
- 2 national webinars (eOrganic; CCOF).
- 17,000 acres of certified organic apples and pears affected in Washington.
- More than 1,000 participants at meetings and webinars.
- 480 hard copies and 886 downloaded copies of the grower guide distributed.
- More than 16,000 individuals have visited the organic fire blight web page, <http://www.tfrec.wsu.edu/pages/organic/fireblight>.
- An estimated 5,000 acres of apples in transition to organic in Washington.



2016

ISSUE

Fire blight is a serious disease of apples and pears in the state. If not controlled, it can infect entire orchards, killing flowers, limbs, and entire trees. Orchardists have used a number of strategies to control fire blight, including antibiotic sprays when predictive disease models indicate high infection risk. Antibiotics in organic production were allowed only for fire blight control, until recently. In 2012, the National Organics Standards Board voted to remove antibiotics from the national list of allowed materials, with an effective date of October 2014. Washington orchardists produce nearly 80% of the organic apples and pears in the U.S., with demand growing, and thus there is an immediate need for effective fire blight control alternatives.

RESPONSE

WSU Extension has provided ongoing new knowledge and education on fire blight. Tim Smith, regional Extension fruit specialist, developed the COUGARBLIGHT predictive disease model widely used by the industry, and worked with other key fire blight researchers to upgrade it as new results became available. He also tested many new control products over 20 years, and recently included potential organic compliant products. For example, Blossom Protect™, a new biocontrol product, provided an average of 85% infection control across 23 different trials Smith conducted using inoculated blossoms, slightly less than streptomycin (the antibiotic 'gold standard') and more than oxytetracycline (the commonly used antibiotic in the field). Cueva™, a new soluble copper product, performed nearly as well, providing the basis for developing a control program with different materials and modes of action. Results have been presented at grower meetings and in industry reports and popular publications, as well as at scientific meetings.

David Granatstein, sustainable agriculture specialist, convened a national organic tree fruit work group to address the issue of loss of antibiotics by gathering the current state of knowledge on organic control, providing input to the USDA, reaching out to stakeholders on the issue, publishing several fact sheets, creating an organic fire blight web page, <http://www.tfrec.wsu.edu/pages/organic/fireblight>, and surveying growers on their intentions and responses to the rule change. He partnered with The Organic Center to publish an interim grower guide on organic management options. His program also tracks the organic sector in the state and was able to provide data on potential acres impacted and economic losses. WSU has partnered on two major USDA organic grants to help find viable alternatives.



QUOTES

"The research results look good but I don't have enough experience in my orchards yet to know how reliable the alternatives will be." - Washington organic grower

"I have heard of major losses in California due to fire blight. One of our growers only harvested 1,000 boxes of fruit from a block that normally produces 50,000 boxes. So more work is needed to figure out how to use the new controls in different areas." - Washington fruit company executive

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Photos courtesy of Tim Smith.



IMPACTS

The organic fire blight work group was instrumental in postponing the antibiotic phase-out by the National Organic Standards Board from October 2012 to October 2014, allowing time for ongoing research to generate alternatives and get them to growers. This also led to fire blight alternatives research being ranked a top priority for funding by USDA.

Several hundred fruit growers have learned about the new fire blight control materials and strategies at meetings and through online webinars. Based on surveys at meetings, Washington State growers are aware of alternatives and are actively trying them, with 88% of respondents saying that ongoing university research has led to a change in fire blight management.

Grower expectations about the new rules led 92% to plan a reduction in their organic fruit acreage in January 2012. By January 2015, only 28% planned a reduction. In 2012, about 70% of respondents had tried a non-antibiotic control approach, but only 33% reported success. By January 2015, the reported success had climbed to 78%, and 65% of respondents were planning to expand their organic apple acres in the next two to three years to meet growing market demand. Without new fire blight control options being developed and tested, it is almost certain that Washington organic apple acres would have declined, especially for the fire blight susceptible "Gala," the most popular organic variety. About 2.5 million boxes of organic Gala apples were shipped in 2012, at a \$6.94 per box premium worth more than \$17 million to the state economy. If this production had been reduced by 25% (plausible given the 92% of respondents considering a reduction), it would have cost the state more than \$4 million. In 2013, a loss of a quarter of the organic Gala apple production would have cost the state \$8.7 million in foregone premium prices, and this would have risen to \$15 million for the record 2014 crop (3 million boxes). Thus, significant economic losses would have occurred annually until growers were comfortable with fire blight alternatives.

Organic apples and pears together were worth more than \$300 million in both 2012 and 2013. In addition to lost income from loss of organic status, those who remained in organic production would have faced increased labor costs for cutting out infected fire blight limbs. This can cost as much as \$1,000 per acre in a year with a heavy infection of trees. Given that growers are now more confident about non-antibiotic fire blight control, they are considering a 60-70% increase in organic apple and pear acres over the next two to three years, based on surveys done in January 2015. This would boost the additional income from organic price premiums by more than \$40 million per year based on prices of the last three years.