Are You in the Know?
Resources that You Should be Utilizing

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Advice

Consider the information source...

1. Academic/Gov’t.:
   a. Unbiased, research-based, peer-reviewed (Land-Grant, USDA, etc.)
2. Commercial:
   a. Service to provide or product to sell
3. Public (e.g., Wikipedia)
4. Peers

Also: Geographic source and local applicability?
   WA; PNW; USA; World

“Don’t believe everything you read on the Internet just because there’s a picture with a quote next to it.”
—Abraham Lincoln
Outline

Information overload in the information age...

1. Search Helps (e.g., Google Alerts)
2. Trade Journals
3. Technical Journals
4. University Websites
5. WSU – DAS
6. WSU – AWN
7. Government Websites
8. Private Company Websites
9. Online Newsletters (FreshPlaza)
10. E-mail lists (Irrigated Ag.)
11. Smart phone Apps/tools
12. Webinars (eOrganic)
13. YouTube (WSU CAHNRS channel)
14. WSU Tree Fruit Web Portal (future)

Google Alerts

Emails sent directly to you when new results are found

1. Visit Alerts site (https://www.google.com/alerts)
2. Create Alert (e.g., apple, fire blight)
3. Choose Options:
   a. How often to receive messages (e.g., as it happens)
   b. Sources (e.g., automatic)
   c. Language (e.g., English, Spanish, etc.)
   d. Region (e.g., any, USA, European Union, etc.)
   e. How many (e.g., all results, etc.)
   f. Deliver to (choose your preferred e-mail address)
Actual e-mail from Google with specific alert

Google Alerts

Organic fruit attracts customers

Good Fruit Grower
The new orchards contain all apple scab-resistant varieties—Liberty, Jonafree, Enterprise, ... And they are planted on fire blight-resistant rootstocks.
Steve Tennes, who operates the Country Mill orchard and farm market at Charlotte, Michigan, became convinced several years ago that there was a future in organic fruit production. Today, some of his customers will come a hundred miles or more from Detroit and Chicago specially to buy his organic apples.

But Tennes also realized he needed to know a lot more about horticulture to do it. So he went back to Michigan State University and spent four years, part-time, from 2004 to 2007 working on a master’s degree in horticulture.

He was encouraged and helped in his organic plan by Drs. Ron Perry and Jim Flore. He was also helped financially with two different scholarships administered by the Michigan State Horticulture Society. “It is ironic that now I am the president,” he said. “I came full circle.”

Tennes began the process of converting existing orchards to organic production, and also began planting trees at higher densities. His new orchards are on trellis wire with trees 4 feet apart, compared to the older orchards on 10 by 14 spacing.
Complimentary Website

http://www.goodfruit.com/

Trade Journals - print
Complimentary Website

http://www.growingproduce.com/

Fruits Stories

Apple & Pears

New Technology Tested In Europe As Bird Repellent
Automated randomized laser system configured to keep birds away. Read More

Trade Journals - print

FGN
November 2014
Volume 53
Number 13

Next big thing?
Stemilt gets license to latest Minnesota variety

Inside
Vacuum harvester redesigned............ pg. 26
FSMA revisions released................ pg. 58
Climate change an opportunity? .......... pg. 64
Lawsuit risks blueberry fields........... pg. 46
Complimentary Website
http://fruitgrowersnews.com/

Trade Journals - print
European Fruitgrowers magazine

Science of pruning
FGN recently asked Jim Schupp, an associate professor of pomology at Penn State University, and Peter Hirst, a professor of horticulture at Purdue University, to answer a few questions about winter pruning. > Read more

Effects of the Russian boycott on the market

$220 USD
Complimentary Website

http://www.fruitmagazine.eu/

Trade Journals
Controlled-atmosphere Storage of ‘Honeycrip’ Apples

Christopher R. Watkins1 and Jacqueline F. Nork

Abstract

‘Honeycrip’ is an apple (Malus × sytrensis (L.) Mill. var. demissiva (Borkh.) Mansf.) that can be stored in air for several months, but the flavor becomes bland with prolonged storage. Controlled-atmosphere (CA) storage recommendations have not been made in some growing regions, however, because of the susceptibility of fruit to physiological disorders. In the first year of this study, we stored fruit from six orchards in O2 partial pressures (pO2) of 1.5, 3.0, and 4.5 kPa with 1.5 and 3.0% pCO2. In the second year, we stored fruit from three orchards in three storage regimes (0.0/0.0, 3.0/1.5, 3.0/0.5 kPa O2/CO2) with and without treatment of fruit with 1-methylcyclopropene (1-MCP) at the beginning and end of the conditioning regime (10°C for 7 days) that is commercially used for ‘Honeycrip’. CA storage had little effect on flesh firmness, soluble solids concentration (SSC), and titratable acidity (TA) over the range of pO2 and pCO2 tested. storability was generally lower in fruit stored in lower pO2 and higher pCO2. Susceptibility of fruit to core breaking and sunken-pit breakdown varied between years, but a high incidence of internal CO2 injury in fruit from some orchards occurred in both years. 1-MCP treatment decreased internal ethylene concentration (IEC) and sometimes maintained TA but had little effect on firmness and SSC. Bacterial breakdown and core breaking incidences were reduced by 1-MCP treatment where orchard susceptibility to these disorders was high. However, 1-MCP treatment sometimes increased internal CO2 injury, especially if treatment occurred at the beginning of the conditioning period. CA storage cannot be recommended for storage of New York-grown ‘Honeycrip’ apples until management of CO2 injury can be assured.
WSU AgWeatherNet
http://weather.wsu.edu/

Other University Websites
Sites with good tree fruit information

UC-Davis Fruit & Nut Information
http://fruitsandnuts.ucdavis.edu/
UC-Davis Postharvest Technology
http://postharvest.ucdavis.edu/
UC-IPM Online
http://www.ipm.ucdavis.edu/PMG/crops-agriculture.html
UC-Fruit Report
http://ucanr.org/sites/fruitreport/
Oregon State Tree Fruit and Nuts
http://horticulture.oregonstate.edu/group/tree-fruits-and-nuts
Cornell Fruit
http://www.fruit.cornell.edu/tree_fruit/
MSU Extension Fruits & Nuts
http://msue.anr.msu.edu/topic/info/fruit
Penn State Extension Tree Fruit Production
http://extension.psu.edu/plants/tree-fruit
Clemson University Peach Site
http://www.clemson.edu/extension/peach/
eXtension - Apples

http://www.extension.org/apples

Government Websites

E-mail Updates – a free subscription service

FDA

FSMA Update

U.S. Food & Drug Administration (FDA)

Updated Guidance on Food Facility Registration Addresses Proposed Change to Farm Definition

For more information on FDA’s Food Safety Modernization Act, visit http://www.fda.gov/fsh.

FDA

Subscriber Services:

Updated Guidance on Food Facility Registration Addresses Proposed Change to Farm Definition

For more information on FDA’s Food Safety Modernization Act, visit http://www.fda.gov/fsh.

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For more information on FDA’s Food Safety Modernization Act, visit http://www.fda.gov/fsh.

FDA

Subscriber Services:
**Private Company**

Not an endorsement – just an example


Electronic Newsletters
Electronic Newsletters

Electronic Newsletters

Electronic Newsletters

E-mail Lists

WSU, WSHA (future WSTFA)

Tree Fruit Updates — November 13, 2014

The following are quick links to relevant topics in this email:

1. FSMA Proposed Rules
2. Update FSMA Proposed Rules
3. Supplemental Information
4. Update Supplemental Information
5. E-mail List
6. Update E-mail List
7. Tree Fruit Updates
8. Update Tree Fruit Updates
9. Hort Newsletter
10. Update Hort Newsletter
11. WSU Irrigated Agriculture
12. Update WSU Irrigated Agriculture

FSMA Proposed Rules Overview

Tree Fruit Updates

Hort Newsletter

WSU Irrigated Agriculture

Hort Headlines

October 27, 2014

1. Download WSHA’s New App: The WSHA App is now available to download! The App has numerous features including the Annual Meeting schedule, exhibitor list, interactive map, updates and more all at your fingertips. There are two ways that you can download the App:
   a) Visit the App Store on your mobile smartphone and search “WA Hort 14”
   b) On your computer, by clicking on the link [link to download page], enter your phone number and the App will be sent to you. Upon receipt of your phone number, the App will be sent to you.

Important: When prompted to allow Push Notifications, please allow. This will allow you to receive important updates throughout the convention.

Washington State Horticultural Association
To be removed from Washington State Horticultural Association News, click here.
Smart Phone Apps
Not an endorsement – just an example

Smart Phone Remote Monitoring
Not an endorsement – just an example
eOrganic Webinars

Biologically Based Organic Management Strategies for Spotted Wing Drosophila

Hannah Burrack and Vaughn Walton

February 11, 2014

Published on Feb 14, 2014
The webinar will cover the biology and management of spotted wing drosophila, a recent pest of berries and cherry crops across the United States, and the unique challenges and approaches that have evolved for organic producers.

YouTube Videos

WSU CAHNRS Channel; “WSU Tree Fruit” playlist

The Hows and Whys of Soil Testing

121 views

Dr. Kate Evans
WSU Apple Breeder

Fruit Testing at the WSU Apple Breeding Program

31 views
YouTube Videos
Being Edited, “Pruning Bartlett Pears” with Dr. Stefano Musacchi
The WSU Tree Fruit Website Project: Development of a "one-stop-shop" for the WA tree fruit industry

WSU Tree Fruit Portal
Resource for the future in 2015!
WSU Tree Fruit Portal

Crop Specific Landing Page

{ Apple Resources }

Overview

Apple Varieties
Orchard Establishment
Post Management
Disease Management
Weeds & Other Pests
Labor Management
Pest Control & Storage
Export & Quarantine
Food Safety

Related Topics: WSU Breeding Program, Apple Physiology, View All Related Topics...

Robust Search Features Within Site

Site Search

Your search for codling moth returned.

New Search: codling moth

WSU Trade Articles WWDC Reports Technical Articles

Sort by

Codling moth
http://jenny.fhrec.wsu.edu/spmalldisplayspecies.php?sp=6

Codling moth belongs to the family Tineidae. This is one of the largest families of moths, with about 900 North American species. It includes a number of...

Codling Moth Identification Guide
http://insectology.fhrec.wsu.edu/Collage_Cpm/guide.html

Oct 6, 2014... Codling moth is one of the most serious pests of apples. The bina cause two types of damage: stings and deep entries (tunnels = wormholes).

Codling Moth & Management

Codling moth has been the key insect pest of apples in Washington since the early 1900's. Damage was constant and caused tremendous economic losses.
Robust Search Features Within Site

Site Search

Your search for **codling moth** returned.

**New Search:** codling moth

### Options for codling moth control | Good Fruit Grower
- **Source:** [http://www.goodfruit.com/options-for-codling-moth-control/] (http://www.goodfruit.com/options-for-codling-moth-control/)
- **Date:** Mar 5, 2014
- Summary: Three years of research found little difference between hand-applied and canister-released pheromone dispensers for disrupting codling moth.

### Watch out, codling moth! | Good Fruit Grower
- **Source:** [http://www.goodfruit.com/watch-out-codling-moth/] (http://www.goodfruit.com/watch-out-codling-moth/)
- **Date:** May 1, 2012
- Summary: Gut-content analysis has shown evidence of feeding on codling moth in Central Washington. *C. mildi* is the species most commonly found.

### Codling Moth 101: Managing the New Tools and Methods
- **Date:** Feb 10, 2009
- Summary: EPA isn’t the only force at work. Increasingly, Guthion has been losing its effectiveness. Codling moths in many areas are showing resistance.

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### Optimizing the use of the codling moth (CM) granulovirus
- **Source:** [http://jenney.trec.wsu.edu/wftrc/core.php?rout=dsp1txt&start=1&cid=14](http://jenney.trec.wsu.edu/wftrc/core.php?rout=dsp1txt&start=1&cid=14)
- Season-long treatments of CpGV (Cyd-X) at 3 rates (1, 3 and 6 oz acre) and 3 application intervals (7, 10 and 14 days) resulted in significantly fewer deep entries to fruit.

### Field testing of multi-component host plant kairomones for the codling moth
- **Source:** [http://jenney.trec.wsu.edu/wftrc/core.php?rout=dsp1txt&start=1&cid=15](http://jenney.trec.wsu.edu/wftrc/core.php?rout=dsp1txt&start=1&cid=15)
- 1. A new GC-EAD study of wild codling moth antenatal responses to diluted apple volatiles revealed significant antenatal responses to a small number of compounds.
WSU Tree Fruit Portal

Robust Search Features Within Site

Site Search

Your search for codling moth returned.

New Search:

- development of an alternative pheromone mating system
- baseline susceptibility of codling moth to two reduced-risk neonicotinoids
- the potential for using insect viruses for pest control in...
Honey Bees

Factors Affecting Bee Pollination of Tree Fruits

Some 18,000 species of bees occur in the Pacific Northwest, but only a small number of species are useful in the pollination of ornamental crops. Pollinators use and loss of appropriate existing habitat have reduced the numbers of wild bee pollinators, leaving much of the pollination for commercial orchard dependant on honeybees. The success of the honey bee pollination in tree fruits is affected by a number of factors, which in turn can be manipulated by orchardists and beekeepers.

Foraging Behavior of Honey Bees

As you grow trees approximately 3-3.5 feet tall, you will see the bees moving around the tree in clusters, which are often accompanied by some pollinators. However, it is important to note that not all of the bees will be pollinating the tree. The bees will typically move around the tree in a series of flights, which are sometimes referred to as “honey bees.” These bees are attracted to the tree by a variety of factors, including the temperature and humidity. The bees will typically move around the tree in a series of flights, which are sometimes referred to as “honey bees.”

Temperature

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Foraging</th>
</tr>
</thead>
<tbody>
<tr>
<td>60°F</td>
<td>10%</td>
</tr>
<tr>
<td>65°F</td>
<td>20%</td>
</tr>
<tr>
<td>67°F</td>
<td>40%</td>
</tr>
<tr>
<td>74°F</td>
<td>70%</td>
</tr>
<tr>
<td>82°F</td>
<td>100%</td>
</tr>
</tbody>
</table>

Weather

Honey bees are affected by weather conditions. They will fly when temperatures are below 60°F. Honey bees do not fly in full force until temperatures are above 60°F and while they are less than 10°F they will generally stay in clusters. If temperatures fall below 60°F or if it also is not flying bees and the temperature is above 80°F, honey bees will not fly and will also not be flying bees.

Field Force

The field force is the number of bees working the fruit tree in a particular area. You can determine the field force by counting the number of bees working the tree and checking the number of bees working the tree by counting the number of bees working the tree. This is based on the number of bees working the tree and the number of bees working the tree. This is based on the number of bees working the tree.

WSU Tree Fruit Portal

WSU Program Based Information

WSU Breeding

Washington State University’s new tree fruit breeding program targets the development of new cultivars that are suitable for Washington’s climate. In addition to conventional breeding techniques, both programs use DNA information generated in-house to improve the breeding efficiency. DNA information from thousands of trees is used to identify genes that contribute to desirable traits. The apple breeding program, led by Dr. Kate Downs, is based at the WSU Tree Fruit Research and Extension Center in Wenatchee, WA (http://breeding.wsu.edu/). The cherry breeding program, led by Dr. Anthony Hoskins, is based at the WSU Tree Fruit Research and Extension Center in Yakima, WA (http://breeding.wsu.edu/). Information about both programs and all complementary genomic research efforts can be found below.

Apple Breeding Program

Overview

The Washington State University apple breeding program began in 1944 to develop new varieties suited to the unique climate of eastern Washington and that are available to Washington growers. Washington is the leading apple producing state with over 15 percent of U.S. production. Unfortunately, many of the new varieties developed in the world are not well adapted to growing conditions in central Washington or available to the majority of Washington growers.

The goal is to produce apples of improved eating quality, particularly focusing on establishment, structure, and color. The WSA apple breeding program is conventional breeding program, hybrids of parent trees are selected from large populations and their fruit is evaluated for eating quality and suitability for long-term storage. This program was one of the 12 core UC breeding programs of the EU’s coordinated program, enabling, developing and breeding breeding in Europe.

The first release from the program, WA 2, was released in Washington State growers for evaluation in December 2000 because of its outstanding eating quality, appearance and extremely long storage life. We have named this variety as WA 2.

Following on the heels of WA 2 was WA 2-1 in 2013. We are now testing a new variety named W2. W2. It has yielded excellent results in commercial trials in central Washington.

The principle investigator for the WSA apple breeding program is Dr. Kate Downs, located at the Tree Fruit Research and Extension Center in Wenatchee, WA. To learn more about this program and more WSA apple varieties visit the apple breeding website.
WSU Tree Fruit Portal

Team Members

WSU – Pullman
Bleile, Kilgore, Paulsen, Piaskowski, Steffen

WSU – TFREC Wenatchee
Brunner, Canales, Granatstein, Jones, Kahn, Kalcsits, Layne, Musacchi, Tangren

WSU – IAREC Prosser
Dickson, Hoheisel, Hoogenboom, Whiting, Woodbury