



Features:

- **Page 1:**
Phyllody on Strawberry
- **Page 2:**
Sprayers 101
- **Page 3:**
Cornell Pest Management Guide for Berry Crops
- **Page 4:**
Free app helps diagnose leaf-or-death situations
- **Page 5:**
Extending Local Strawberry Production Using Low Tunnel Technology
- **Page 6:**
Resources for Monitoring and Control of Spotted Wing Drosophila
- **Page 7:**
Berry Bulletin
- **Page 8:**
New app Helps Strawberry Growers Manage Pests
- **Page 9:**
Lygus in Berry Plants
- **Page 10:**
Resource for Organic Farmers
- **Page 11:**
Editor's Note

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Phyllody on Strawberry

Mark Bolda and Steven Koike

Phyllody, or the abnormal development of floral parts into leafy structures, can occur in a variety of plant species. This abnormality can affect the flower and flower parts in strawberries which can cause problems for potential growers. There are two main ways that phyllody can occur:

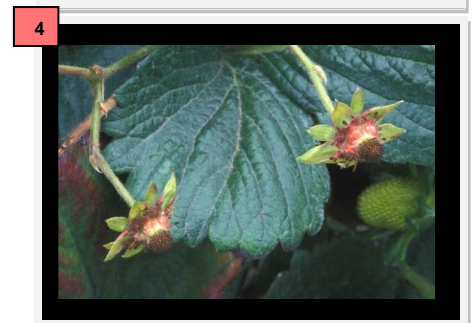
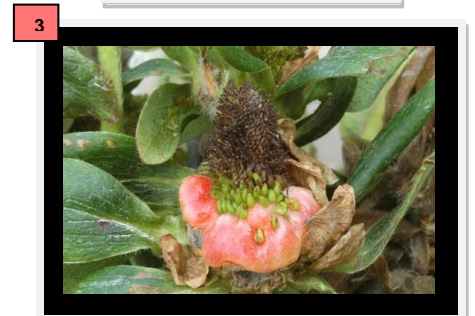
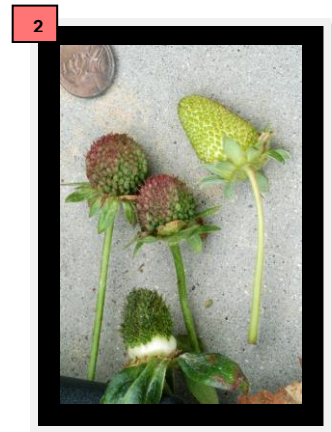
1) Non-infectious phyllody:

Non-infectious phyllody seems to be associated with an excess of supplemental chilling of the transplants while in storage. Our experience in the field is that these symptoms, alarming as they are, will go away after showing up in a spring flush of fruit. Therefore the condition is not persistent. Figure 1 shows a spectacular example of this disorder.

2) Infectious phyllody:

This category of phyllody occurs due to infection by a phytoplasma. Phytoplasmas are bacteria-like organisms that are pathogenic to plants and are vectored by leafhoppers. Leafhoppers carry the phytoplasmas in their bodies and inject them while feeding on plants. Two diseases that cause phyllody are aster yellows and green petal. Strawberry plants infected with phytoplasmas often continue to bear deformed fruit as seen in Figures 2, 3, and 4.

Adapted from an article presented on:
<http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=17588>



Sprayers 101

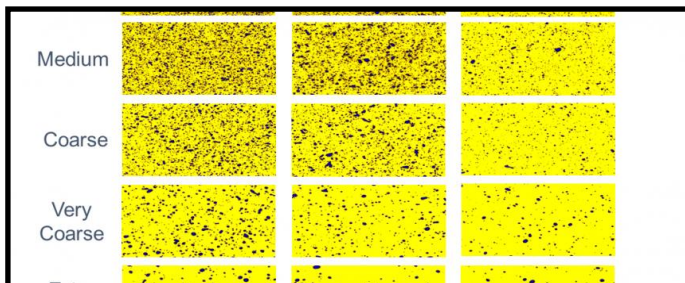
In any current agricultural environment, new spray techniques and information are always welcome. On the website Sprayers101.com, a number of new ideas and spray techniques are displayed in an easy to navigate setting. Some of the most recent headlines include:

- *How to Calibrate an Airblast Sprayer Operator*
- *If I had a Low Drift Nozzle*
- *Do Labels Help us Apply Pesticides Properly?*

Other articles included on this website look at various other ideas such as:

- Greenhouse Foggers
- Top Five Tips for #Spray15
- Water Sensitive Paper for Assessing Spray Coverage
- Advances in Hort Sprayer Technology

This website also contains various tools that may be useful to anyone spraying, including dilution and productivity calculators as well as various videos. Information on horticulture and field crop sprayers are readily available to those exploring the drop-down boxes on the main page as well.

The logo for Sprayers101, featuring the text "Sprayers101" in white on a blue rectangular background, with a stylized white spray nozzle icon to the right.

All pictures, labels, and information attributed to the Sprayers101 website

Cornell Pest Management Guidelines for Berry Crops



The **2015 edition** of the *Cornell Pest Management Guidelines for Berry Crops* is now available. This annual publication provides up-to-date pest management and crop production information for blueberry, bramble (raspberry and blackberry), strawberry, ribes (currant and gooseberry), cranberry, elderberry, and Juneberry (Saskatoon) production in New York State.

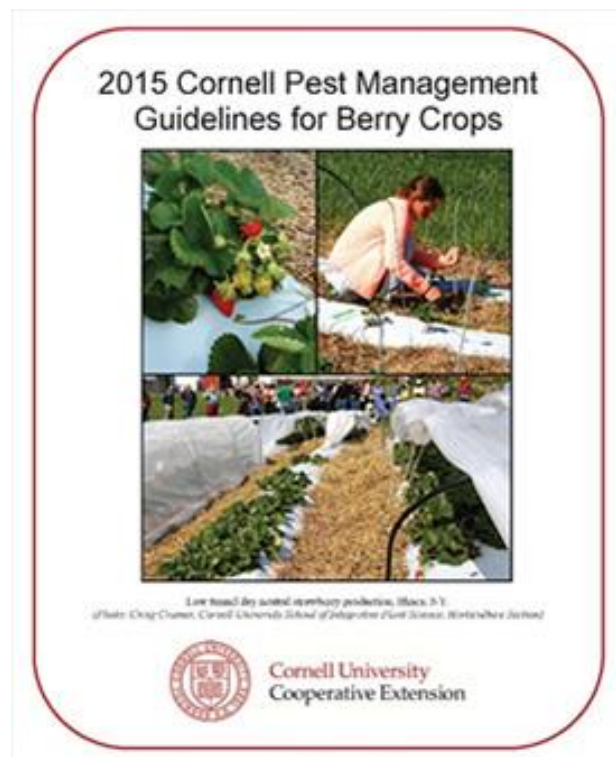
Information on wildlife management and harvesting, handling, and transporting berry crops is also included. This publication has been designed as a practical guide for berry crop producers, crop consultants, Ag chemical dealers, and others who advise berry crop producers.

In addition to the annually revised pesticide and crop production information, the following highlighted changes in this 2015 edition of the *Berry Guidelines* that will benefit berry producers include:

- Revised food safety and berry crops section.
- Updated information on spotted wing drosophila control.
- A new weed control section on herbicide active ingredients and the weeds controlled.
- Strawberry nutrient management guidelines split between day-neutral and June bearing varieties.
- Revised agricultural plastics recycling information.

New for 2015 are three different product options for the Cornell Guidelines. Users can obtain a **print copy, online-only access, or a package that combines print and online access**. The print edition of the 2015 *Berry Crops Guide* Cost is \$28 plus shipping. Online-only access is \$28. A combination of print and online access costs \$39.00 plus shipping costs for the printed book.

Order the [2015 Guidelines from The Cornell Store](#).



Original post displayed on SWD Blog by Julie Carroll

<http://blogs.cornell.edu/swd1/>

Free app helps diagnose leaf-or-death situations

Krishna Ramanujan

A new app, called Leaf Doctor, lets users practice eMedicine on plants.

Leaf Doctor analyzes a photograph of a damaged leaf and quantifies the percentage and severity of disease on that leaf, an important measure for researchers and extension agents in the field.

This free app is available for iPhones, iPads and iPods, with an Android version in development.

Researchers, extension agents and growers seeking to eradicate a disease will have a tool in the palm of their hands: Leaf Doctor provides quick access to information to determine whether a treatment is reliable.

For example, a plant pathologist looking at the effects of different fungicides and doses may now simply take a photo of a diseased leaf and accurately calculate the percentage of disease severity based on different treatments.

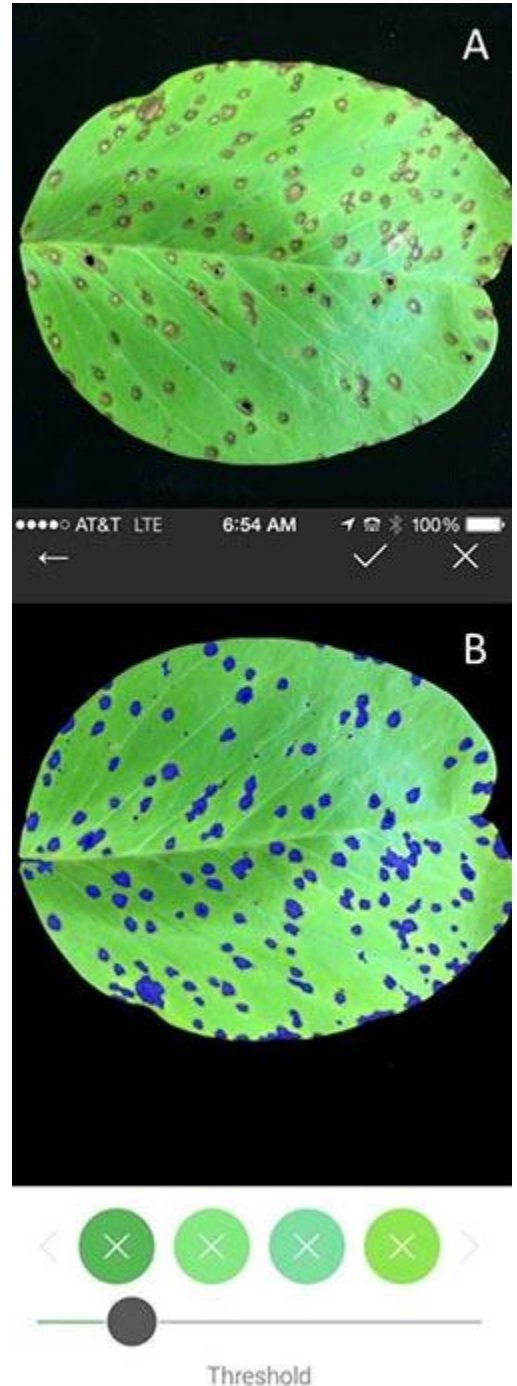
“It distinguishes all diseases that have a different color than healthy areas” on a leaf or plant surface, said Sarah Pethybridge, Cornell assistant professor of plant pathology, who tested the app with the developer, co-author Scot Nelson, a specialist in plant and environmental protection sciences at the University of Hawaii at Manoa.

Compared with the industry standard, an \$800 program called Assess that runs on a laptop or desktop, the Leaf Doctor app is 10 times faster, easier to use and free, said Pethybridge.

To use Leaf Doctor, users take a photo of a leaf or part of a diseased plant, then use software to put a black background behind the image and import the photo into the app. The user then interactively selects up to eight healthy areas on the leaf. The app finds and clearly distinguishes diseased areas in blue and can provide an accurate percentage of the surface area that is diseased and rate disease severity on a scale of one to 10.

“This is a reliable way to get actual percentages of disease severity,” by comparing pixels covered by disease and pixels covered by healthy tissue, Pethybridge said.

The app study was funded by two United States Department of Agriculture Hatch projects, one managed by the College of Tropical Agriculture and Human Resources at the University of Hawaii at Manoa, and the other managed by the New York Agricultural Experiment Station at Cornell University in Geneva.



All pictures, labels, and information originated from The Cornell Chronicle. The original article can be found at: <http://news.cornell.edu/stories/2015/06/free-app-helps-diagnose-leaf-or-death-situations>

Extending Local Strawberry Production Using Low Tunnel Technology

Kaspar Kuehn

New York Farm Viability Institute (NYFVI) awarded a grant for demonstrations of day neutral strawberries under low tunnels.

Strawberries planted under lows tunnels can produce fruit into the fall season and have been shown to reduce disease problems. *Three New York fruit growers* have planted demonstration plots and are inviting the public for *open house* discussions of this new production method.

Cornell Professor and Berry Specialist, Marvin Pritts will be attendance to answer questions. Look for signs along the road.

Please contact Kaspar Kuehn at KJK232@Cornell.edu with questions.



Monroe County

Tuesday, August 25th, 2:00-4:00pm
Green Acre & West Wind Fruit Farm

**930 Manitou Rd.
Hilton, NY 14612**

Tioga County

Friday, September 11th, 2:00-4:00pm

Terry's Berry Farm

**284 Church St
Barton NY 13734**

Albany County

Thursday, September 16th, 3:00-5:00pm

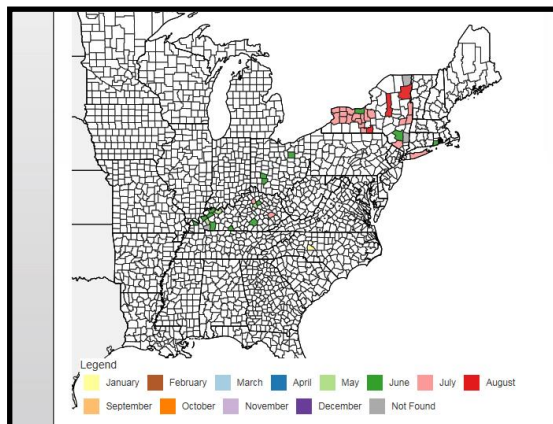
Feura Farm

**210 Onesquethaw Creek Road
Feura Bush NY 12067**

Resources for Monitoring and Control of Spotted Wing Drosophila



Female SWD



Male SWD

As the population of spotted wing Drosophila (SWD) continues to increase over the season, it's important to understand how to control these pests as well as monitor where they are in New York.

One resource in tracking SWD is through EDDMapS (Early Detection & Distribution Mapping System). This website provides a map of county locations where spotted wing have been reported. Various Cornell Extension workers as well as others are able to document when and where they have found SWD. This is beneficial to anyone that may want to know if this insect is within their county.

<http://www.eddmaps.org/swd/index.cfm>



There are also other resources that help describe the overall control of SWD. Through the Cornell Fruit Page there are a variety of options and links that describe new ideas on how to control SWD. One example is through a PDF that you can find at:

<http://www.fruit.cornell.edu/spottedwing/pdfs/SWDgarden.pdf> which describes controlling SWD in your garden.

Through this link: <http://www.fruit.cornell.edu/spottedwing/pdfs/BerrySWDinsecticidemanagement.pdf> you can find a complete list of insecticides that are being used to help control spotted wing.

Many other links such as: <http://www.raspberryblackberry.com/webdocs/2013-Early%20Detection%20and%20Management%20of%20SWD%20in%20Raspberry%20In%20NY.pdf> describes the importance of early detection and control. Each of these articles were co-written by various Cornell scientists that are currently researching new ways of control as well.

The main spotted wing Drosophila page through Cornell Fruit can be found at: <http://www.fruit.cornell.edu/spottedwing/> where more information is also provided.

Berry Bulletin

Through the Ministry of Agriculture, Food, and Rural Affairs a berry bulletin is posted routinely throughout the year. This website is offered through Ontario and offers various articles that may be beneficial to berry growers anywhere. The Berry Bulletin includes events and new information on strawberries, blueberries, and raspberries. Other topics such as IPM information and outside workshops are also included within this bulletin.

Outside of the Berry Bulletin there is also the main website provided through the homepage. This includes a variety of topics including field crops, specialty crops, food safety, and other information on new research topics.

Under "Agriculture" you are able to look further into deeper topics, including the crops category which includes articles on berries.

New grower information is offered to anyone new to the berry community or for any farmer that wants to learn some new tricks of the trade.

Information regarding Spotted Wing Drosophila is also available which may be beneficial to understand the progression of this pest over the entirety of the Northern continent.

<http://www.omafra.gov.on.ca/english/crops/insects/drosophila.html>

Various other topics of interest are available such as discussions on Global Warming and the effects it has on agriculture as a whole.

This website is available through the following link:

<http://www.omafra.gov.on.ca/english/crops/updates/berry/index.html>



New app Helps Strawberry Growers Manage Pests

Surendra Dara

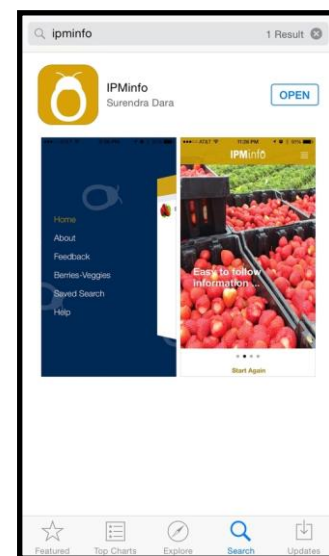
IPMinfo is the first app that provides Integrated Pest Management (IPM) information. The current version of the app contains information on invertebrate pests and diseases of strawberries and gives agricultural professionals easy one-touch access to quick summaries of various pests, pictures to help identify symptoms, and links to additional resources.

Extending research information is an important part of Cooperative Extension. As communication technology is advancing every day, using modern channels of communication are important for successfully reaching out to growers, Pest Control Advisers (PCAs), and other key players of the agriculture industry. Traditional newsletters ([Central Coast Agriculture Highlights](#)), Blogs ([Strawberries and Vegetables](#) and [Pest News](#)), [Facebook](#), Twitter ([@calstrawberries](#) and [@calveggies](#)), [Tumblr](#), and online repositories of meeting [handouts](#) and [presentations](#) are some of the tools that play a critical role in making important information about my strawberry and vegetable extension program readily available to the agricultural industry. The popularity of smartphones has made this information even easier to access.

Smartphone applications are becoming popular in agriculture to provide information and for decision-making. However, because there were no such applications to help California strawberry and vegetable growers, **IPMinfo** was developed. It is currently available for free download for iPhones on the App Store. The first version was released in December 2014 and an updated version was released in April 2015.

Growers can find information on invertebrate pests such as aphids, cyclamen mite, greenhouse whitefly, lygus bug, spider mite, and western flower thrips. Diseases include angular leaf spot, anthracnose, botrytis fruit rot, charcoal rot, common leaf spot, fusarium wilt, leaf blotch and petiole blight, leather rot, mucor fruit rot, phytophthora crown rot, powdery mildew, red stele, rhizopus fruit rot, verticillium wilt, and viral decline. Each pest entry includes information on biology, damage symptoms, and management options with associated photos. Links provided in the management section will take the user to [UC IPM website](#) for more detailed information, especially about various control options.

To download the app on iPhones, go to the App Store and search for **IPMinfo**.



All information and pictures originated from:
<http://ucanr.edu/blogs/blogcor/postdetail.cfm?postnum=18052>

Lygus in Berry Plants

A couple of pictures below originated from a farm call concerning unusual damage on the tips of growing raspberry plants. Some of the leaves are affected as in Photo #1, but others were pretty well aborted and not growing at all. Incidence wasn't more than 5%, but still this is disconcerting. No flowers or fruit were on the plants yet. No signs of frass or webbing that would be associated with leafrollers (some like to feed at the nitrogen rich tips) was there either.

But, in Photo #2 there were lygus present, which may have identified the cause. While some lygus were to be found wandering around on leaves, others were nestled in the growing point of the plant, which on the very young leaf can show up as a lot of damage later on when it fully expands. It's quite possible that this insect activity could be causing the tip to die entirely in a situation reminiscent of "black flagging" in cotton, which is the death of terminals in cotton caused by lygus feeding. Photo #3 shows a close up of a single lygus insect.

A fact sheet found through: <http://nysipm.cornell.edu/factsheets/berries/tpb.pdf> describes in detail how to manage and control these pests in strawberries and brambles as well as describes their overall life span and when to look for these pests.



Pictures and some information originated from:
<http://ucanr.edu/blogs/blogcor/e/postdetail.cfm?postnum=18171>

Resource for Organic Farmers

On the Northeast Organic Farming Association of New York website, there are various resources for organic growers and potential customers. This website offers various topics such as events, fact sheets, and links to other helpful sites. Drop down boxes include “Organic Farming”, “Organic Certification”, “Organic Gardening”, and “Organic Living”.

Anyone interested in supporting or finding an organic farm are also able to so through this website.

To find out more visit their homepage: <http://www.nofany.org/>

The screenshot shows the NOFA-NY website homepage. At the top right, there are links for 'about', 'classifieds', 'news magazine', and 'contact', along with a search bar. The main header features the NOFA-NY logo and the tagline 'Promoting local, organic food and farming.' Below this is a green navigation bar with icons and labels for 'ORGANIC FARMING', 'ORGANIC CERTIFICATION', 'ORGANIC GARDENING', and 'ORGANIC LIVING'. Underneath these are sub-links: 'EVENTS', 'REGISTRATION', 'POLICY', 'FIND A FARM', and 'SUPPORT'. The main content area is divided into three columns. The left column, titled 'UPCOMING EVENTS', lists several events for August 2015, including a Summer Conference, a Pasturing Alternative Forages event, a Dry Beans Production event, and an Annual Buckwheat Field Day. The middle column features a large banner for '2015 Organic Field Days' with a photo of people at a farm and a link to the full schedule. The right column contains social media icons for Facebook, Twitter, and Instagram, a 'Like Page' button, and a 'Subscribe to E-News' form with fields for 'Email*' and 'Name*'. At the bottom right, there is a circular logo for 'NOFA-NY Certified Organic' and a 'CLICK HERE FOR ORGANIC CERTIFICATION' button.

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We're on the Web!

See us at:

<http://hort.cals.cornell.edu/>

New York Berry News (**NYBN**) is a seasonal commercial berry production newsletter provided by Cornell berry team members. It is designed to help promote and strengthen commercial berry crop production in New York State. NYBN is available free of charge in pdf format at: <http://www.fruit.cornell.edu/nybn/>.

Visit the NYBN web site to view back issues or to subscribe to monthly e-mail notices with table of contents and a link to the most current issue.

More on individual team members and their areas of expertise may be found at: <http://www.fruit.cornell.edu/berry/berryteam.htm>.

Questions or comments about the New York Berry News?

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