



Vol. 3, Issue 13  
October 8, 2015

## Berry News

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### Final Berry Update of 2015 season

Fall raspberry season is winding down and from all reports has been pretty good. Growers attention to cane density, weed control, clean picking the crop and timing of sprays continue to result in improved SWD control.

In this last newsletter there is information about late season tasks such as mulching strawberries and spraying for blueberry canker diseases in the fall as well as an article to ponder about – labor management. This year the big problem seemed that there wasn't labor to manage until almost too late. Look for information on mechanization or at the very least improving efficiency in this winter's *Produce Pages*.

If you are considering a new planting, hopefully you've already done your soil testing and plan on placing plant orders EARLY! Last season many growers were closed out of the varieties they wanted because their order got in too late. Order before Thanksgiving – and hopefully this won't happen.



Growers at Low Tunnel Grower Workshop at Feura Farm in Feura Bush, NY

On behalf of the entire Eastern NY Commercial Horticulture team we'd like

to thank all of you for allowing us to monitor traps in your fields, or do some periodic scouting or host meetings this season. We look forward to seeing you at winter meetings that are just around the corner.

*Laura and Jim*

### Berry "To Do" list—All crops:

- Focus on weed management – great time to identify problem weeds.
- Apply lime, dolomite, gypsum and/or fall fertilizer as indicated by your foliar test.
- Scout for vole damage and evidence of tunneling. Poison baits should be placed in a few weeks.
- Seed winter rye as cover crop if you have bare ground. Too late for most other options.

### Blueberries

- If your soil pH is above 5.0, plan to add 200#/acre of elemental sulfur to help push pH down. This can be done at any point this fall.
- Dormant sprays of lime sulfur (5 gallons in 100 gallons water) also help to reduce inoculum of the pathogen. A fall application can be made when most of the leaves have dropped.
- Scout for weevils and weevil notching.
- Sinbar, Devrinol, Solicam, Surflan, Princep or Stinger can all be used into October on various problem weeds.
- Casuron 4G can be applied on established plants with no root zone cultivation from November 15- February 15 and is a good way to control broadleaves and grasses. For perennial weeds use 150 lb/acre.

### Bramble Crops

- Since the fall raspberry crop is winding now, SWD sprays can be stopped or for those Hudson Valley growers at least lessened.
- Sinbar, Devrinol, Solicam, Surflan and Princep can all be used into October on various problem weeds. Note that there are seasonal limits on a few of these materials, so if you used them in the spring you may not be able to use them now.

### Strawberries

- Scout weak areas for root weevil larvae, root disease or soil problems. This is a good time to sub-soil if you can get your hands on that equipment. Sub-soiling breaks the hard pan that almost all continually used soils develop. Doing this every few years will really help alleviate root disease issues.
- Scout for leaf notching caused by strawberry root weevil.

## How to Build a Highly Skilled and Committed Spanish-Speaking Fruit Team

By: Mario Miranda Sazo, CCE Lake Ontario Fruit Team

Over the past five years or so, many fruit farm operations have undergone significant growth. Orchards that used to employ only a handful of people with low-skill horticultural talent now look for more help to meet this demand. Why does one fruit grower always have highly-efficient labor, while other similar farm operations do not? Why are some Spanish-speaking crews so efficient, hard-working, motivated, and committed, while other similar crews at other places aren't?

Today, many fruit growers have found that their horticultural or machinery skills don't always translate to Spanish-speaking people skills. Despite their search for horticultural talent to support their recent plantings and new investments, some fruit growers still lack a reliable, skillful, and committed horticultural team to fuel potential growth in the next 5 to 10 years. The competitive challenge for growers is to find, attract, and retain the right people (whether Spanish-speaking employees or not) from within the farm operation, assuming that full-time Spanish-speaking employees are legally employed, satisfied, engaged, and waiting for a new job opportunity inside the farm. Finding the right people that can support the development of new business opportunities won't be easy. Assembling the wrong horticultural team and staffing up prematurely could become costly and catastrophic.



<https://newsela.com/articles/immigration.1>

**The Horticultural Team:** Creating a high-functioning horticultural team is challenging under any circumstances. But when the team you are trying to build crosses different cultures, how do you meld individuals' talents, cultural expectations, and communication barriers into a super-performing team? For example, if you manage a Spanish-speaking harvest team (where only one or two people can

*How to Build a Highly Skilled and Committed Spanish-Speaking Fruit Team, continued from previous page*

barely communicate in English), you face greater communication challenges than those who lead a Jamaican harvest team (where the majority can speak English). Complicating your communication task is the probability that this growing season you will incorporate the use of some type of new technology or a motorized platform for higher labor efficiency and won't be fully able to explain the benefits of the technology to your Spanish-speaking employees.

In this complicated and rapidly evolving labor situation for fruit growing, you have to take action to capitalize on new opportunities and execute them efficiently. But it is also essential for you and your teams to learn quickly, to keep up with developing events, and stay ahead of the competition. That will happen only if you foster strong working relationships with your most talented Spanish-speaking employees and assemble skilled horticultural teams inside your farm.

### **The Orchard Skills for the Fruit Grower, the Spanish-speaking Orchard Worker and the Orchard Manager**

While there is no single secret to success when building the perfect horticultural team, there are some common traits I recognize in the most successful fruit growers who employ Spanish-speaking employees at their operations.

One of the single greatest changes you can make is to build basic Spanish-speaking relations in the orchard. No matter how good or poor your Spanish pronunciation is, you must learn to say “Buenos Dias” (Good Morning), “Como Está Hoy” (How Are You Doing Today). You can also say a few words in Spanish and smile – and mean it! When you or I smile sincerely, the warmth becomes self-reinforcing.

When I am asked to serve as a translator for a meeting between a grower and the Spanish-speaking orchard workers, frequently the first question that the employees will ask their “patron” (boss in Spanish) is, “How am I doing in my job?” Though the grower may have just finished going through a list of things that have been done well and some that need improvement, Spanish-speaking employees crave one-on-one contact, horticultural coaching, and constructive feedback – positive or negative – from their boss or orchard manager. Some growers do a good job of addressing this question, if not on a daily basis, then at least when they have a translator like me available.

You, the grower, must show real interest in the well-being of your orchard workers and regularly ask some of the questions mentioned above. This sort of attention to Spanish-speaking communication creates a “relationship” between you and your orchard worker, with the result of the labor task receiving maximum attention. Your workers’

commitment to the fruit farm is also increased. If you work hard at this aspect of communication with your Spanish-speaking employees, you will create better, trusted, longer-lasting relationships and avoid having to look for and train new people every year.

Most successful Spanish-speaking orchard managers are smart, have good people skills, can build confidence and generate enthusiasm, enjoy interacting with other growers, know the horticultural details of pruning, hand thinning, and harvest, and reliably make their budgets and deliver results.

But in addition to all this, the best Spanish-speaking orchard managers have something more – they are curious, walk the orchard regularly, and can look at a problem through multiple lenses. They excel at mobilizing and exciting Spanish-speaking workers and are clear about the tasks to be accomplished (i.e. number of fruit buds to leave per tree when conducting precision pruning) but know when to change direction. They can see when a new pruning practice will be profitable and convert it to a new horticultural management tool. They can spot an unmet need (e.g., picking apples efficiently without the use of ladders) and change course to go after a bigger profit and more comfortable working conditions for Spanish-speaking orchard workers.

As their teams pursue new labor goals (more bins of high quality fruit per person per day when harvesting and clipping apples with motorized platforms) and strive to achieve this or other milestones, they have a clear view of what is in or out of alignment in terms of skills and capabilities, compensation, communication, how workers are collaborating and behaving, and so on.

Every Spanish-speaking orchard labor story is different. But every story begins somewhere, somehow. When it comes to producing good horticultural research or high yields of high quality fruit, a smarter, committed, and motivated Spanish-speaking labor force is key, in my opinion, for the success of the NY fruit industry the following years.



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## For Your Information:

- **Cornell Berry Pages Nursery Guide** - To help you compare nurseries selection and prices, visit this two-part nursery guide for berry growers. The nurseries page contains an alphabetized listing of businesses throughout the United States and Canada that have requested inclusion in our listing. Cultivar pages for each crop list specific cultivars followed by the nurseries that sell them. This includes sources for minor berries like saskatoons, cranberries, currants etc. Use this resource this fall when placing berry orders: <http://www.fruit.cornell.edu/berry/nurseries/index.html>
- **The New York State Department of Environmental Conservation recently issued amended Special Local Need (SLN) labeling for Dual Magnum (EPA Reg. No. 100-816).** This allows use of Dual Magnum on caneberry subgroup 13a (blackberry, red raspberry, and black raspberry), broccoli (direct seeded and transplanted), melon crop subgroup 9a (cantaloupe, muskmelon, and watermelon), cucumber, garlic, highbush blueberry, and leafy brassica greens crop subgroup 5b. In addition to continuing use on these crops, the amended labeling: Rolls SLN No. NY-090004 (pre-harvest intervals for tomatoes) and SLN No. NY-050001 (use on asparagus, transplanted bell pepper, cabbage, carrots, garden beets, dry bulb and green onions, spinach, Swiss chard, pumpkins, and winter squash) into SLN No. NY-110004. Allows use on five additional crops – Brussels sprouts (transplanted), cauliflower (transplanted), lettuce (head and leaf), summer squash, and strawberry.

Note that Syngenta requires those who use Dual Magnum under this SLN registration to sign a waiver and indemnification document on Syngenta's website.

More details on this waiver/indemnification are found on the on the SLN label. A copy of the revised label will be available in the "Special Registrations" section of the PIMS website under "Special Local Needs Products."

Remember that when using Dual Magnum under this SLN registration, users must have a copy of the SLN and primary product labels in their possession at the time of use.

## Strawberry Root and Crown Rot

By: Kelly Ivors, Cal Poly-SLO, and Lisa DeVetter, Washington State University

Strawberry is plagued by several pathogens that cause root and crown rot (abbreviated RCR), which can lead to reductions in plant vigor as well as yield loss and even plant death. The responsible organisms vary regionally in the United States and depend on climate, soils, and presence of pathogen inoculum. In California, *Verticillium dahliae*, *Fusarium oxysporum* f. sp. *fragariae* and *Macrophomina phaseolina* are the primary organisms contributing to RCR. In contrast, the primary causal organisms of RCR in Florida include *Phytophthora cactorum*, *Colletotrichum* spp., and *Macrophomina phaseolina*. Regardless of the specific microorganism, the

symptoms are similar and the impact of root and crown rot can be equally devastating. California and Florida are the

leading national producers of strawberry and struggle with management of RCR, mainly due to the recent loss of methyl bromide and additional restrictions on the use of other soil fumigants. Improved disease resistance through targeted breeding approaches will be a significant contribution to integrated disease management strategies less reliant on fumigants.

The symptoms of RCR on strawberry are similar for all of these pathogens. Growers may first notice discoloration of foliage, stunting, production of small leaves, and reduced vigor. Symptoms become more apparent as the growing season progresses, especially when plants start producing fruit. At this stage, plants may wilt rapidly,



Figure 1. Collapse and decline of strawberry due to root and crown rot. Photo: J. Mangandi and V. Whitaker

collapse and then die (Fig. 1). Examination of the crown and roots often reveals discoloration, internal

*Strawberry Root and Crown Rot, continued from previous page*

browning (Fig. 2), and poor root growth. Fruit rot may also occur in some cases. Although knowledge of the field history and cultivar susceptibility can be helpful, accurate diagnosis of the causal organism(s) is best done through laboratory isolation, culture, and microscopic examination. Identification of the pathogen(s) is required for mitigating further disease damage, as different RCR pathogens respond differently to chemical and cultural control.

While all root and crown rots are potentially devastating, RosBREED 2 will be focusing particularly on *Phytophthora* root and crown rot. This disease is particularly problematic in Florida, where rainfall, saturated soils, and warm temperatures favor the development of *Phytophthora*. Symptoms of this disease are usually most readily observed in low, poorly drained areas of a field and extend to other areas as the season progresses. The disease cycle begins when overwintering spores (oospores) of the pathogen, *Phytophthora cactorum*, germinate to form structures that subsequently produce motile spores (zoospores) capable of swimming through wet areas towards host tissue. Once infection of host tissue occurs, the pathogen can reproduce and infect neighboring plants.



Figure 2. Internal browning due to root and crown rot. Photo: J. Mangandi and V. Whitaker

Several features of *P. cactorum* make it particularly challenging to control, including production of mobile zoospores capable of spreading in water in the soil and the ability to produce overwintering oospores that are long-lived and persist in the soil for many years, rendering short crop rotation relatively ineffective. Furthermore, suitable land for growing strawberry is limited and crop rotation is not economically viable for strawberry growers.

Current management techniques are not very effective at limiting losses caused by *P. cactorum*. Soil fumigation and fungicide applications are also facing increasing scrutiny and regulatory pressure. New cultivars that combine disease resistance with high fruit quality would be a powerful tool in integrated disease management programs. Breeders and pathologists are making progress in this endeavor and RosBREED 2 will help foster continued work as we collectively combat these important Rosaceae nemeses.

For more information about RosBREED, visit <https://www.rosbreed.org/home>.

## Mulch Strawberries as Late as Possible

Straw from wheat or other grains are applied as mulch when soil temperature has consistently dropped below 40° F. This usually happens in late November, although southern locations might not see these temperatures until early-mid-December. This winter cover prevents winter heaving and crown desiccation.

Level plantings with no raised beds, require 2.5 to 3 tons of straw per acre – about 150 40 lb. small square bales. This will result in a 2-3" layer across the planting. Raised beds could require twice as

much mulch because of the tendency for the straw to drift into the alleys. If you have small acreage, then applying



Bales of straw mulch being applied after dormancy has set in. Photo source: <http://www.gov.mb.ca/agriculture/crops/production/fruit-crops/print.when-to-apply-winter-protection-to-strawberry-fields.html>

mulch by hand is the way to go – just shake it out evenly over the plants. If you have large acreage, you will want to use a bale chopper. Keep an eye on the most windswept areas of your field and replace the mulch if it has blown off.

Mulch should be removed in the spring when new green tissue just begins to show. Rake the mulch

*continued on next page*



*Mulch strawberries late, continued from previous page*

into the rows. If you want to move your production back, you can do this by delaying mulch removal, but your yield may be compromised. We definitely saw that this spring as some people delayed their mulch removal for almost a month later than normal because of the sustained cold through March. In the spring of 2013 that delay helped growers avoid some blossom freeze damage – so this decision requires looking at long term forecasts and a bit of luck!

After straw mulch is removed many growers use floating row covers as spring frost protection strategy. These spun-

bonded materials allow light and water to pass through but provide several degrees of temperature buffer – depending upon their weight. Heavy weight row covers (1.25 oz/yd<sup>2</sup> or 42 g/m<sup>2</sup>) can also be useful for winter protection of strawberry plantings. Anchor the row cover with rocks or other weights. Many growers are using a combination of straw and floating row covers, particularly those that are trying to winter a day neutral strawberry planting. You will want plenty of help and a still day to apply this mulch effectively.

–LGM

### ***Phomopsis* Twig Blight (*Phomopsis vaccinii*)**

Source: The Ohio State University, <http://www.oardc.ohiostate.edu/fruitpathology/organic/Blueberry/foiar.html>

This disease may be the most prevalent of the canker diseases. The fungus *Phomopsis* causes stem damage similar to that caused by *Fusicoccum*.

Spores from old cankers are released in the spring and, to a limited extent, in summer. Most spores are released from bud swell to petal fall. None are released after September 1. Rain is necessary for spore release; temperatures ranging from 70-80°F encourage infections. The disease is most severe after winters in which mild spells are interspersed with cold periods. Periods of hot, dry weather during the growing season probably predispose the plants to infection. The fungus overwinters in infected plant parts.

Symptoms first appear on smaller twigs. The disease then spreads into larger branches and may affect the crown. It is possible for *Phomopsis* to spread downward in injured canes to the crown and then progress upward on new canes. This is rare and usually only occurs where the crown itself has been injured, after a particularly severe winter, or in highly susceptible cultivars. Young tissue initially shows no symptoms, then exhibit rapid wilting and dieback.

Lesions, somewhat similar to those caused by *Fusicoccum*, but generally lacking the bull's-eye pattern, may appear on the stems. Leaf spots also have been observed where disease is particularly severe. The disease will cause premature ripening of the berries. "Earliblue", "Coville", "Bluecrop", "Blueray", "Jersey", and "Berkeley" are susceptible to the disease. "Weymouth" may be the most susceptible cultivar.



Photo Credit: University of Minnesota

#### **Management**

Since mechanical damage and cold stress seem to be necessary for *Phomopsis* infection, avoid careless pruning and cultivating, and do not fertilize late in the summer. Pruning the weakest canes to the ground is best for long-term production of the bush. Keep the plants well-watered through prolonged periods of dry weather in the summer. Avoiding stress will help prevent this disease.

**Dormant sprays of lime sulfur (5 gallons in 100 gallons water) also help to reduce inoculum of the pathogen. A fall application can be made when most of the leaves have**

**dropped.** Spring applications should be applied early, before warm weather occurs, or injury may result.

<b>2015 Weekly &amp; Seasonal Weather Information</b>					
<b>Growing Degree Information Base 50<sup>o</sup> F</b>			<b>Rainfall Accumulations</b>		
<b>Site</b>	<b>2015 Season Total 3/1 - 10/5</b>	<b>2014 Season Total 3/1 - 10/5</b>	<b>2015 Weekly Rainfall (inches) 9/21-10/5</b>	<b>2015 Total Rainfall (inches) 3/1 - 10/5</b>	<b>2014 Total Rainfall (inches) 3/1-10/5</b>
<b>Albany</b>	<b>3071.6</b>	<b>2704.5</b>	<b>3.85</b>	<b>23.6</b>	<b>20.9</b>
<b>Castleton</b>	<b>3540.5</b>	<b>2554.5</b>	<b>4.85</b>	<b>25.73</b>	<b>21.86</b>
<b>Clifton Park</b>	<b>2964.8</b>	<b>2439.8</b>	<b>0.1</b>	<b>18.09</b>	<b>21.13</b>
<b>Fishkill</b>	<b>2936.6</b>	<b>Na</b>	<b>0.1</b>	<b>6.24</b>	<b>Na<sup>1</sup></b>
<b>Glens Falls</b>	<b>2630.6</b>	<b>23830</b>	<b>2.59</b>	<b>17.27</b>	<b>25.96</b>
<b>Griffiss</b>	<b>2494.5</b>	<b>2263.5</b>	<b>2.57</b>	<b>27.17</b>	<b>30.52</b>
<b>Guilderland</b>	<b>2762.0</b>	<b>2482.5</b>	<b>2.56</b>	<b>26.94</b>	<b>Na<sup>2</sup></b>
<b>Highland</b>	<b>3080.6</b>	<b>2759.7</b>	<b>7.25</b>	<b>27.96</b>	<b>24.42</b>
<b>Hudson</b>	<b>3060.1</b>	<b>2750.5</b>	<b>2.94</b>	<b>20.3</b>	<b>27.6</b>
<b>Marlboro</b>	<b>2968.3</b>	<b>2645.0</b>	<b>2.94</b>	<b>20.3</b>	<b>22.52</b>
<b>Montgomery</b>	<b>3008.0</b>	<b>2671.0</b>	<b>3.14</b>	<b>24.22</b>	<b>20.8</b>
<b>Monticello</b>	<b>2358.0</b>	<b>2086.0</b>	<b>0.18</b>	<b>1443</b>	<b>7.41</b>
<b>Peru</b>	<b>2506.3</b>	<b>2293.6</b>	<b>2.33</b>	<b>20.93</b>	<b>20.96</b>
<b>Red Hook</b>	<b>2920.4</b>	<b>2657.5</b>	<b>3.55</b>	<b>25.03</b>	<b>13.18<sup>3</sup></b>
<b>Willsboro</b>	<b>2460.6</b>	<b>2230.7</b>	<b>3.64</b>	<b>25.91</b>	<b>11.13</b>
<b>South Hero, VT</b>	<b>2653.5</b>	<b>2439.3</b>	<b>Na</b>	<b>Na</b>	<b>23.37</b>
<b>N. Adams, MA</b>	<b>2383.5</b>	<b>2152.0</b>	<b>3.29</b>	<b>24.45</b>	<b>21.93</b>
<b>Danbury, CT</b>	<b>2836.5</b>	<b>2493.0</b>	<b>2.38</b>	<b>22.23</b>	<b>25.3</b>

Na<sup>1</sup>: The Fishkill site is new for 2015 so there is no historical data to report.

Na<sup>2</sup>: The Guilderland weather station was not properly reporting precipitation data in 2014 so no data will be shown for this site.

\*: Precipitation data for this site did not began until May of 2014.

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any products is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension.

## Calendar of Events:

- **Tuesdays, Nov. 10-Dec. 15<sup>th</sup>, 2015**, evenings from 6:30-8:00pm - ***Berry Production (BF 122) - Getting Started with Production and Marketing*** – One of the Northeast Beginning Farmer On-line courses. If you're exploring the idea of adding berries and bramble fruits to your farm, this course will help you consider all the aspects of this decision, from varieties and site selection all the way through profit potential and marketing. Register on-line at: <http://www.nebeginningfarmers.org/online-courses/all-courses/bf-122-berry-production/>.
- **December 8-10, 2015. *Great Lakes Fruit, Vegetable, and Farm Market EXPO and Michigan Greenhouse Growers Expo.*** More information: <http://www.glexpo.com/#>
- **December 15-17, 2015. *New England Vegetable and Fruit Conference.*** More information: <http://www.newenglandvfc.org/>
- **January 7-9, 2016. *North American Strawberry Growers Conference***, Savannah, Georgia. Held in conjunction with the Southeast Regional Fruit and Vegetable Conference. More information: <http://www.seregionalconference.com/>.
- **January 19-21, 2016. *Empire State Producers EXPO.*** More information: <http://nysvga.org/expo/information/>
- **February 2-4, 2016. *Mid-Atlantic Fruit and Vegetable Convention***, Hershey, PA. More information: <http://www.mafvc.org/>
- **February 16-18, 2016. *Ontario Berry Growers Annual Conference*** at the Ontario Fruit and Vegetable Convention, Niagara Falls, Ontario. More information: <http://www.ofvc.ca/index.html>.
- **February 18, 2016. *Hudson Valley Fruit School – Berry and Grape session.*** Information to follow in Produce Pages or on the website: <http://enych.cce.cornell.edu/>.
- **March 2-4, 2016. *North American Raspberry and Blackberry Conference***, Colonial Williamsburg in Williamsburg, VA. More information: <http://www.raspberryblackberry.com/>



Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide. This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension.

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.