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Eastern NY Commercial Horticulture Program

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Berry News

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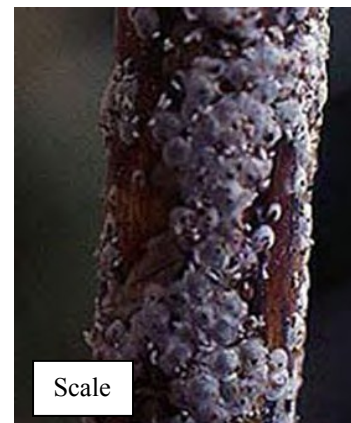
Layout: Carrie Anne Doyle

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Berry "To Do" List:

All crops

- We are several weeks behind the average growing season in terms of Growing Degree Days and crop phenology. As a matter of fact the amounts recorded at most weather stations were so low (dismal!) that we are not reporting them this week.
- Early season weed control is still possible – check the article in this issue for details.
- Attend a Spring Berry Workshop near you! See the Calendar of Events for details.
- An update from other parts of the country indicate that the Pacific NW is seeing high SWD numbers already. That is likely due to the mild winter and very warm spring they are experiencing. There is an up-side to the wicked winter and slow start here in the northeast!



Scale

Blueberries

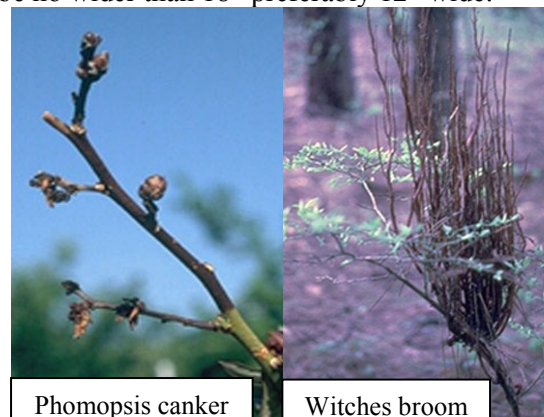
- There is still time to prune – so if you can get at least some of it done, now is the time to work at it.
- Prune out winter injured dead wood to prevent canker.
- Check buds for winter injury which may inform your pruning.
- Look for signs of scale which has been on the increase in recent years. Also look for things like witches broom, insect stem gall and evidence of botrytis twig blight. All of these can be pruned out now.
- Check for rodent activity in the planting – burrowing holes, chewing etc.

Raspberries/Blackberries

- Perfect window to get pruning done! Make sure to prune to the proper density – 4-6 canes per square foot of row. Rows should be no wider than 18" preferably 12" wide.
- Minimum temperatures don't bode well for blackberries in most locations. Aggressive pruning may be warranted.

Strawberries

- Straw should be removed from strawberries now, if it hasn't already been pulled back. Most farms are reporting excellent looking growth despite the long time under snow cover. The only places where some crown death may be seen is in low lying areas where ice may have built up.



Phomopsis canker

Witches broom

All images courtesy of Cornell Berry Diagnostic Tool
available online: <http://www.fruit.cornell.edu/berrytool/>

*Serving the educational and research needs of the commercial small fruit, vegetable and tree fruit industries in
Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Putnam, Rensselaer,
Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties*

Early Season Weed Control Options for Berry Crops

Bush and Caneberries - One of the earliest herbicides that can be used is Casoron which has two different formulations. Casoron 4G (granular) can be used in bushberries, caneberries, and cranberries. The granular material should be applied before May 1st but the earlier the better. If you are applying it in April, make sure to apply before soil temperatures exceed 45 degree F and before any annual weed seeds germinate. Casoron CS (not labeled for Ribes) can be applied a bit later but still needs to be incorporated by rainfall before weed germination; it is labeled for 1 year old blueberries, as well as blackberry and raspberries if applied before new shoot emergence. Casoron controls annual grasses and broadleaves, as well as some perennial grasses. Follow Casoron with a post-emergent such as Paraquat to kill pre-emerged weeds or apply glyphosate when weeds are actively growing.

Another pre-emergent is Surflan AS or Surflan XL 2G. Surflan AS can be used in non-bearing and bearing brambles at a rate of 20-40 gallons per acre. To broaden the spectrum of weed control, tank mix Gramaxone, Princep or Solicam. Irrigate product in to activate material. Surflan XL 2G can only be applied to non-bearing brambles.

Princep, Devrinol, Axxe, Solicam or Sinbar can all be applied for pre-emergent weed control in brambles and blueberries. These herbicides generally do not do a great job on all weeds and need to be evaluated as to your weed population and which tool makes the most sense.

Sandea can now be used in blueberries and caneberries. The real strength of this product is the effect it has on controlling nutsedge, BUT this can only be accomplished as a post-emergent directed spray.

Velpar is only labeled for blueberries. Velpar can be applied to bushes that are 3 years or older in early spring

before the foliage on the lower limbs break bud. Effects of Velpar L vary from one soil type to another.

Strawberries – Weeds in matted row strawberries are effectively controlled before they germinate or as small seedling growing vegetatively (before flowering). This means the farmer relies on pre- and post-emergence herbicides. Early spring after the soil has thawed and winter annual broadleaf weeds have broken dormancy, but before strawberries begin to grow, is a key time for herbicide application. Apply 2,4-D amine, Formula 40 or other labeled 2,4-D formulations, in late winter or early spring to control emerged winter annual broadleaf weeds.

Add Chateau to provide residual annual broadleaf weed control. Use 1 quart of Formula 40 per acre and 3 dry ounces of Chateau after the soil is no longer frozen, but before the strawberries break dormancy and begin to grow. Chateau can be used once in each calendar year. If Chateau was used in late fall, Chateau can be reapplied in early spring, but not used again in the calendar year. Some injury to early growth is possible, but the crop will “out-grow” any injury. Do NOT apply after the crop has broken dormancy and begun to grow or more severe and lasting injury may result.

In the spring make sure that label directions are followed on the grass herbicides like Poast. When the label says ‘spray when grass is 6-8” tall and ACTIVELY growing’ that indicates a specific window when you will get efficacy. We have had a number of springs when grass emerges, but is NOT actively growing because it’s too dry. This ‘dry-dormancy’ state will result in poor uptake and ineffective weed control.

Check 2015 Berry Pest Guidelines for details of material applications. If you don’t have a new Guideline, please call me or Jim O’Connell. -LGM

Farm Hack – An Open Source Community for Resilient Agriculture

For several years I’ve taught a class with the Northeast Beginning Farmer project. This course is on-line and available to anyone in the world, although content is aimed primarily at northeast growers. Many small growers in our region have taken advantage of the training. The students in the course tend to be true beginners, and one of the primary challenges they have is understanding the mechanical aspects of farming – I can relate to this as equipment/machines are not my strong point either!

The Farm Hack website offers a unique opportunity for beginners AND for veteran farmers to share their love of

machines and innovation. As their introductory video explains, Farm Hack is a farmer driven community that develops and documents tools for resilient agriculture. This “community” attempts to fill the gap that small farmers may feel exists in terms of affordable, adaptable, appropriate and easy to fix farm equipment. Farm Hack attempts to provide a solution to the problem of old, potentially antiquated equipment by allowing farmers that modernize and adapt equipment to share their ideas with others. The “horizontal exchange” on the Drupal software

continued on next page

Farm Hack – An Open Source Community for Resilient Agriculture, continued from previous page

platform allows collaboration with non-farmers – ie engineers, architects etc. that might be able to lend their relevant skill sets to the problems put forward on Farm Hack.

Tools are designed using links and/or schematics. You can offer polished products as kits for sale. Farm hack also assists the users with getting the tools manufactured locally through the same type of “sharing” platform.

Some of the things that were listed on the front page of the website this past week are highlighted below:

Wireless field sensor node: An open source, wireless, solar powered sensor that monitors soil temperature, air temperature, humidity, luminosity, and soil moisture levels in the field.

Root washer: An open-source root washer that can be built sturdily with NO WELDING. See Photo 1.

Farmbicycle - Recumbent bicycle for ergonomic weed management, planting, harvesting.

Encyclopedia of Practical Farm Knowledge – This farm knowledge WIKI is based on a Complete Manual of Successful Farming Written by Recognized Authorities in All Parts of the Country; Based on Sound Principles and the Actual Experience of Real Farmers—“The Farmers Own Cyclopedia” Starting text for the wiki was published in 1922. The text was digitized and posted here <https://archive.org/details/Farm1> for download for all who would like to contribute.

Transplanter Mount - hydraulically offsettable 3pt hitch mount for the transplanter so that 1, 2 or 3 row beds can be easily planted with a single row machine. See Photo 2.

Culticycle - A pedal powered tractor for cultivation and seeding, built from lawn tractor, ATV, and bicycle parts. Speed is 3 - 4 mph depending on choice of gearing and pedaling speed. Better for operator's body, less soil compaction, no fuel use, cheaper than a tractor; easily adaptable to specific needs.

Fido Temperature Alarm - Is your greenhouse getting frosty? How about too hot today? Is your fridge still on? Fido is a temperature alarm that will send you text messages that you can build for under \$100. Solder together the Arduino based model or snap together the Raspberry Pi based model. See Photo 3.



Photo 1. Root Washer

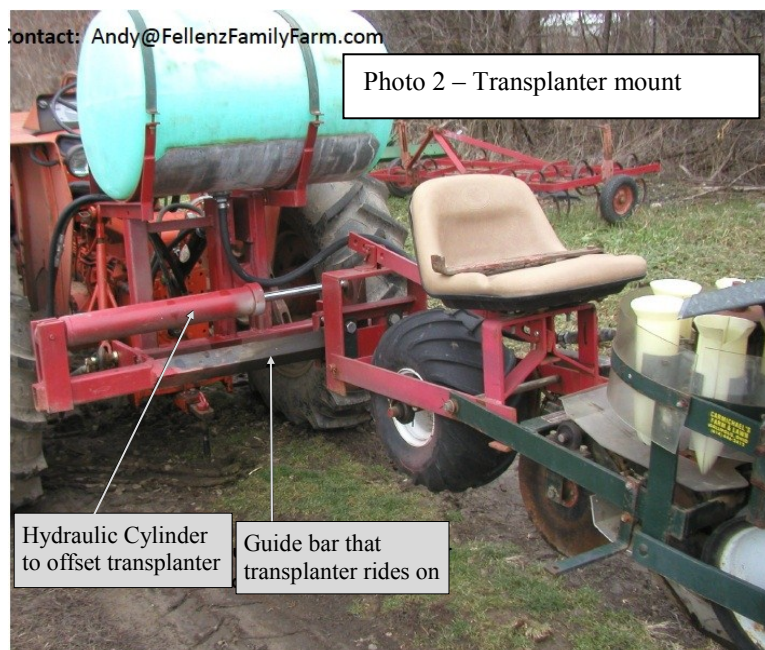


Photo 2 – Transplanter mount

Hydraulic Cylinder
to offset transplanter

Guide bar that
transplanter rides on

Check the website for more ideas and to add your own: www.farmhack.net. -LGM



Photo 3 – Fido Temperature Alarm

Upgrade and Calibrate to Optimize Your Backpack Sprayer

By Lee Stivers, Penn State Gazette, March 18, 2015

Note: information for this article is drawn from [*"Don't Overlook Backpack Sprayers for Small-Scale Farms"*](#) by John Grande and Jack Rabin, Rutgers.

Backpack sprayers are very useful tools for crop farmers to have on hand. Whether your farm is large or small, newly established or centuries old, certified organic or conventional, there is a spot for a backpack sprayer or two on your farm. However, to make the most of a backpack sprayer, we recommend that you make some upgrades to the sprayer wand assembly and of course, keep your sprayer calibrated.

There are many advantages to using backpack sprayers on the farm. Commonly used for spot-spraying herbicides, backpack sprayers can also be used to apply fungicides, insecticides, foliar fertilizers, and many other products very efficiently. Backpack sprayers are inexpensive, so you can have multiple sprayers set up for specific uses. Backpack sprayers are simply designed, so are easy to fill, clean, repair and maintain. Unlike larger sprayers, backpack sprayers are connected directly to the operator's arm and brain, allowing higher precision applications.

John Grande and Jack Rabin of Rutgers did some really great work on backpack sprayers a few years ago, and have posted a [comprehensive set of resources](#) for growers on selecting the best models for their needs, upgrading standard parts to improve function, calibrating backpack sprayers, and measuring small amounts of products as used in backpack sprayers. In this article, we'll concentrate on just a couple of these.

Spray wand conversion: Most backpack sprayers are generally well designed and built, with the exception of the spray wand. The spray wand consists of a flexible hose connected to the tank pump, a stiff wand with a trigger handle, and a simple flood nozzle at the end. These parts are usually made of plastic, with little to no ability to make adjustments. John Grande has developed a method to dramatically improve the functionality of a backpack sprayer by replacing the plastic spray wand with one custom assembled using compatible, off-the-shelf components from a sprayer supply company. The total cost of retrofitting a backpack sprayer with a new wand is around \$200.

The new wand includes several key components. First, it includes a **CF valve**, which solves a key problem of calibrating a backpack sprayer with a typical wand. In most backpack sprayers, the output from the nozzle increases and

decreases as the pressure in the tank varies. You can't really calibrate a sprayer unless the flow rate is uniform over time. With a CF valve built into the spray wand, the sprayer will only spray when the tank pressure is high enough to maintain output pressure and hence, flow rate. When the pressure drops below the CF valve's working pressure, flow stops completely, a clear sign to the operator that they need to pump more air into the tank in order to continue spraying.

Another important component of the retrofitted wand is the inclusion of a **standard nozzle body and cap**. This allows you to change nozzles depending on the product, application, or conditions. It is a simple thing to switch between flat fan, hollow cone and flood nozzles, or nozzles of different droplet sizes. Finally, adding a **barbed swivel** to the wand so that it can be easily pointed and positioned makes operating the sprayer a lot more comfortable.

Sprayer calibration: Now that you have the backpack sprayer retrofitted, it is important to calibrate it so that you can apply products accurately and according to labelled rates. Three factors are required to be determined for calibration:

1. **A constant spray output or volume.** The retrofitted wand will give us a constant output, and the manufacturer of the nozzle will provide the output rate for each nozzle at a given pressure. But you can check the output rate by following these steps: Half fill the sprayer with water, pump the sprayer, point the tip into a container, and squeeze the trigger handle for one minute (timed). Determine the volume collected per minute and convert the flow rate to gallons per minute by dividing by 128 (since there are 128 ounces in one gallon). Now you have nozzle output in gallons per minute (GPM).
2. **A constant walking travel speed.** It is very important to practice your walking speed, and to do this on the actual ground you will be walking on when operating the sprayer. Mark off 100 feet on the uneven ground, and time how long it takes to walk it. Do this several times so that the time is consistent. Most people's comfortable walking speeds fall in the range of 2.0 MPH (34 seconds to walk 100 feet) to 2.5 MPH (27 seconds) to 3.0 MPH (23 seconds). Now you have your walking speed in miles per hour (MPH).

Knowing and maintaining the spray width. Each nozzle type is manufactured with a spray angle and a recommended spray height which provides a known width listed in the parts catalog. Make sure you hold the boom at a constant height when spraying. 20" and 30" widths are common for 110 degree nozzles. Alternatively, you can spray water on an asphalt surface and measure the effective band width.



Optimize Your Backpack Sprayer, continued from previous page

You now have the measurements you need to calculate the output of your sprayer, as you will be operating it, in gallons per acre (GPA).

$$\text{GPA} = (\text{Nozzle GPM} \times 5,940) / (\text{MPH} \times \text{spray width inches})$$

If gallons per 1,000 square feet is more useful for your purposes, substitute 136 for 5,940 in the formula above.

Further details on backpack sprayer selection, modifications, and calibration can be found at [*Don't Overlook Backpack Sprayers for Small-Scale Farmers.*](#)

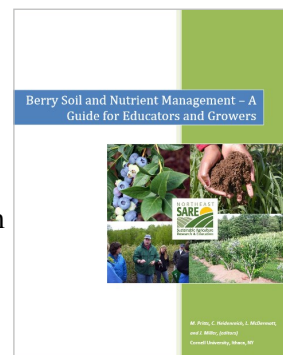
New Berry Resource Available

Dr. Marvin Pritts of Cornell University's School of Integrated Plant Science just announced the release of the Cornell ***Berry Soil and Nutrient Management – A Guide for Educators and Growers.*** This comprehensive guide covers all topics associated with berry crop fertility and soil management including:

- Berry Soil and Nutrient Management - The Basics
- Interpretation of Soil Test Results Prior to Planting
- Correction of Soil Problems
- Foliar Testing and Sampling and Interpretation of the Results
- Correction of Nutrient Problems in Established Plantings
- Soil Health Assessment
- Improving Biological and Physical Soil Properties
- The Environmental Impacts of Nutrient Use
- Future of Nutrient Management in Berry Crops
- Economics of Nutrient Use

Each chapter has an interactive 'worksheet' format that allows educators to assist farmers using examples that test knowledge comprehension.

You can download the entire guide for free by visiting <http://fruit.cornell.edu/berry/production/soilnutrientmgmt/index.html>. The 2-year research and education project including the production of the guide was funded by Northeast SARE.



2015 Spring Berry Workshops

Locations	Dates	Times
Kelder Farms , 5755 Route 209, Kerhonkson, NY 12446 <i>Questions? Contact Jim O'Connell: 845-943-9814</i>	Monday, April 13	1 - 3 pm
Greiner's Farm , 102 Lattintown Rd., Newburgh, NY 12550 <i>Questions? Contact Jim O'Connell: 845-943-9814</i>	Tuesday, April 14	1 - 3 pm
Gunnison's Lakeshore Orchard , Rte. 9N & 22, Crown Point, NY 12928 <i>Questions? Contact Laura McDermott: 518-791-5038</i>	Thursday, April 16	10 am - 12 pm
Anthony Weaver's Farm , 385 Spring Street, Fort Plain, NY 13339 <i>Questions? Contact Laura McDermott: 518-791-5038</i>	Tuesday, April 21	1 - 3 pm

These workshops are directed at the commercial berry grower. Monitoring for pests, designing an effective pest control program, Understanding pruning strategy for bramble crops and blueberries (depending upon site) and general troubleshooting will all be part of this workshop. There will be plenty of time for questions and discussion.

Please pre-register with Marcie Vohnoutka at 518-272-4210 or mmp74@cornell.edu to let us know you are coming. This helps us plan – and also allows us to cancel the class in the event of supremely foul weather. Otherwise it will be held rain or shine!

Call the person listed under the location and date you are interested in attending if you have questions about directions to the farm or if you have a specific topic that you want to address at the class. **When leaving a message include your name and phone number.**