

Spring Soil Prep for High Tunnels

Volume 2 Issue 5 March 2015

Spring arrives first in high tunnels, which after a winter like this, is reason enough to put one up! If your tunnel has been dormant over the winter, March is a good time to get the soil ready for planting. Roll down the sides and close the doors if they have been open, in order to trap that solar energy and warm air to thaw out the ground. If you have a late winter or early spring greens crop in production, now is a good time to consider what crop is coming next and make a plan for transitioning in order to get the most out of your current crop and still get your summer crop in on time.

Most tomato growers try to get their plants in the tunnels by mid-late April, or late April to early May up north and in higher elevations. Some growers try to intercrop an early planting of lettuce with their tunnel tomatoes, figuring

continued on page 3



Cornell University Cooperative Extension Eastern New York Commercial Horticulture

The Produce Pages

Editor: Crystal Stewart, Vegetables Phone: 518-775-0018 Email: cls263@cornell.edu

Regular contributors:

Chuck Bornt, Vegetables Phone: 518-859-6213 Email: cdb13@cornell.edu

Dan Donahue, Tree Fruit Phone: 845-691-7117 Email: djd13@cornell.edu

Amy Ivy, Vegetables Phone: 518-561-7450 Email: adi2@cornell.edu

Laura McDermott, Berries Phone: 518-791-5038 Email: lgm4@cornell.edu

James O'Connell, Berries and Grapes Phone: 845-691-7117 Email: jmo98@cornell.edu

Teresa Rusinek, Vegetables Phone: 845-691-7117 Email: tr28@cornell.edu

Crystal Stewart, Vegetables Phone: 518-775-0018 Email: cls263@cornell.edu

Maire Ullrich, Vegetables Phone: 845-344-1234 Email: mru2@cornell.edu

Anna Wallis, Apples and Grapes Phone: 443-421-7970 Email: aew232@cornell.edu

Bob Weybright, Business and Marketing Phone: 845-797-8878 Email: rw74@cornell.edu

Kevin Besler, Vegetables Phone: 845-344-1234 Email: krb98@cornell.edu

The Produce Pages is a monthly publication of the Eastern New York Commercial Horticulture Program. For more information about the program, please visit our website at http://enych.cce.cornell.edu/.

Contents

Vegetable Updates

Spring Soil Prep for High Tunnels	۱
Keep Your Cool this Summer4	ł
Biopesticides for Managing Diseases Organically 5	

Berry Updates

Blueberry Pruning – Commonly Asked Questions	6
New Berry Resource Available	8

Grape

Bud Mortality Report	
-----------------------------	--

Tree Fruit Updates

New and updated IPM Resources for Orchards	9
--	---

General Updates

How are Cover Crops Affecting my Nutrient Levels? 10)
NYS Mesonet Weather Observing Network	5
Saratoga Co. Ag Scholarship15	5
Collection & Disposal of Pesticides/Chemicals16	5
Seeking Field Technician16	5

Upcoming Events

Spring Berry Workshops	17
Hudson Valley Research Lab Membership Meeting	18
Special Permit Training for Pesticide Handlers	18
Garlic School	19
Nine Sensory Analysis Workshop	19
Eastern Winery Exhibition and Conference	19
Calendar of Events	20



Image above courtesy of Slack Hollow Farm. Cover Image: Pleasant Valley Farm

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, Rensselaer, Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties

Spring Soil Prep for High Tunnels, continued from cover

that the lettuce will be finished by the time the tomatoes really start to grow. The concern is the lettuce may compete with the young tomatoes as they get established and if planted too densely may impede air flow around the crop. Some growers feel this is a nuisance and others like getting more out of each square foot of their tunnel. You might try some of each this year and see which works best for you.

Because tunnels don't experience rain or snow melt to leach out extra nutrients, levels can rise over time. It is important to take a soil sample from every tunnel once a year. If you have been having trouble with one end or section of your tunnel, you may want to test that separately and compare the results with soil from the rest of your tunnel. Remember that your soil test results are only as good and accurate as the sample you submit. For any soil sample, from a field or a high tunnel, take 5-7 samples from across the area to be tested, at a depth of six inches, and mix them together in a clean plastic bucket. Two cups of this mixture makes one soil sample. Do not use rusty or dirty tools to collect or mix the soil.

Here is the link to the Dairy-One soil test submittal forms: <u>http://dairyone.com/analytical-services/</u> <u>agronomy-services/soil-testing/</u>. The basic soil test for vegetables costs \$12 but high tunnel growers should order the extra soluble salts test for an additional \$5, since salts found in fertilizer are not leached out by rain in a tunnel. It is well worth the small cost of these annual tests to be able to track nutrient, organic matter, pH and soluble salt levels over the years.

There is no way to know if your soil needs lime (or sulfur if your pH is high) without testing, so get the samples submitted soon in order to get your results back in time. There is always a big rush to send in soil samples each spring so the lab may take a few days longer this time of year. Take your soil sample before adding compost, fertilizer, leaves, peat moss or other soil amendments.



Anarging the nutrient content of the soil is one key to optimize performance of any plant whether it is your two are commercial corp like afflas. Comma performance of any plant whether it is your low or a commercial corp like afflas. Comma papels, turf or pumpinis. Over or under application of these essential plant nutrients is very costly in terms of lost nutrients can have significant and costly consequences as well. For that reason, soil testing should be the foundation of any crop management plan whether it is for the home gardener or the commercial farm operation.



The value of soil testing

An agronomic soil test extracts a portion of the plant available nutrients contained in a soil sample and results are then classified as low. medium. high or very high based on expected corp response to added corp nutrients, croops grown on soils that tesh high to very high for a specific nutrient are not likely to respond with a yield increase I that nutrient is applied to the soil. However, soils testing low or medium for that nutrient are likely to show improved yield and quality if that nutrient is applied (provided her nutrients are present in adequate amounts). If you're planning on adding manure this spring, check your calendar carefully. The recommendations for fresh manure are a minimum of 120 days before harvesting a crop that comes in contact with the soil and 90 days before harvesting a crop that has no contact with the soil. The site also explains the process to follow for producing composted manure. It takes more than just letting a pile of manure sit undisturbed over the winter. For more information visit this link to the GAPs new decision tree on soil amendments: <u>http://</u> www.gaps.cornell.edu/dt-soil.html.

As your tunnel warms up weeds will start to grow. Even if you won't be planting for a while, spend a little time now to get them under control. Don't put this off until the week before you want to transplant, and don't let those weeds go to seed! You can flame down young weeds, especially annual weeds but the deeper rooted perennial weeds need some serious cultivation.

Then consider what kind of mulch to use. Many growers like to cover their entire tunnel with woven landscape fabric or 'ground cloth'. The woven quality allows moisture and air to move through the fabric, but the heavy duty quality of the fabric does an excellent job at blocking weeds and conserving moisture. You can cut holes in the fabric with a box cutter or burn holes using a small plumber's torch. Use the torch with caution so the plastic doesn't ignite.

Other growers lay black plastic down the row just as they would in the field with bare soil in the aisles. The

main problem with bare soil in tunnels is that the soil can become quite dusty in arid conditions of a tunnel, coating fruit and leaves with a fine layer of dirt. Some growers lay clean straw between their rows of black plastic to keep things clean. We'll talk more about irrigation later but





Image: T-Tape Drip Tape, John Deere Water Drip Irrigation, Rain-Flo Irrigation PA (no endorsement of the company is expressed or implied)

most growers lay 2 lengths of drip tape down each row of tomatoes. A single line of drip tape takes too long to supply enough water to the crop. To help you decide how to lay out your drip system, visit this website for some easy to use information (no endorsement of the company is expressed or implied):

http://www.rainfloirrigation.com/drip-tape/dripirrigation.php.

Keep Your Cool this Summer

By Crystal Stewart, CCE ENYCHP

Despite all indications, we do believe that eventually the growing season will start and at some point it may even get hot out there! In that spirit, I'd like to share some of the information I gained while presenting in the postharvest session at the Mid-Atlantic Vegetable Convention with Dr. Marita Cantwell, post-harvevst specialist at UC-Davis.

One of the most interesting points that Dr. Cantwell made was that the key to produce quality isn't getting produce down to its final temperature as quickly as possible; rather, the focus should be on *starting* the cooling process as quickly as possible. In other words, more frequent trips back to the cooler are essential to maximizing quality. Of course, it also makes good sense to pick produce early in the day, before it has accumulated field heat. As Dr. Cantwell notes, "A useful rule of thumb is, that for each hour delay from harvest to cooling, one day of shelf-life is lost."

Balancing picking after dew has evaporated (which reduces the movement of some diseases and can reduce bruising) and getting done before the heat of mid-day can be tricky. Growers who are newer to using refrigeration or who are dissatisfied with the quality of some of their produce storage life might want to consult <u>USDA Handbook 66</u>, which details the specific harvesting and handling requirements of a large assortment of vegetables. This resource might help you plan the order and execution of harvesting on a daily basis to maximize quality.

There are really two stages to cooling produce: first, you must drop it to the desired temperature (pre-cooling), then you must maintain that temperature (cooling).

Pre-Cooling is an essential step in maintaining quality. The goal of pre-cooling is to drop the temperature to the target range quickly and with minimal water loss. Two common ways to accomplish pre-cooling are hydrocooling, accomplished with cold water, and forced -air cooling, which moves high volumes of cold air through packing crates.

Hydrocooling has been diminishing over the years due to food safety concerns. The preferred method of hydrocooling is to either use single-use (showered) water, or to incorporate a sanitizer into the cooling water. This practice is still being debated by researchers. I asked Robert Hadad, a vegetable specialist with the Cornell Vegetable Program for his thoughts on sanitizers and he explained that the recommendation has dropped from higher recommendations of 100-150 ppm Hydrogen Chloride in washwater down to 15-20 ppm,



Forced air cooling pulls air through product and can be assembled for little expense. *Photo courtesy of C. Kahlke, CCE LOFT.*

with close attention paid to keeping water pH close to 7. Organic growers can either seek an exemption and use chlorine, or they can use certified products like Sanidate 5.0 or Tsunami which rely on hydrogen dioxide and periacetic acid. It is important to note that this process is used after the product has been cleaned of organic debris and dirt, and is used to reduce water contamination, not to sterilize the produce itself.

The benefits of hydrocooling are of course speed (water transmits energy faster than air), and no water loss due to transpiration during the cooling process. The detriments are possible spread of both plant and human pathogens, and the following need to dry the surface of the product for longer-term storage.

Forced air cooling is being used more often as a middle ground between room cooling (passively setting product in a cold room) and hydro-cooling. Perforated crates are set up in a "tunnel" with impervious sides, and air is forced through the crates and out the other end using powerful fans. You need crates designed for air movement to do this successfully, and evaporation rates are much higher than with hydrocooling, but there is no movement of pathogens and the produce is never moistened. Berry growers use this process very effectively, but the process can be applied to many products.

Maintaining optimal storage temperatures:

After product has been brought to its optimal temperature, the goal is to maintain temperature, reduce water loss, and remove/exclude ethylene from areas with sensitive crops. Prior to this point crate liners and coverings are avoided; now they are welcomed to help maintain product quality. Perforated plastic bags

Keep Your Cool this Summer, continued from previous page

reduce evaporation while allowing air exchange and escape of excess moisture; moist burlap or misters can keep relative humidity at optimal levels. Storage conditions are kept as uniform as possible, with as little movement in and out of the cooler as possible and with relatively low air exchange (which also dries out the air).

By treating cooling as a two-step process, growers can quickly and effectively cool product and then store it efficiently.

Resources:

Small Scale Post-Harvest Handling Resource: <u>http://ucce.ucdavis.edu/files/datastore/234-</u> 1450.pdf

Effect of Cooling Delays on Storage Quality of Fruits and Vegetables: <u>http://ucanr.edu/</u> <u>datastoreFiles/234-8.pdf</u>

Handling information for warm season produce including melons: <u>http://ucanr.edu/</u> <u>datastoreFiles/234-2437.pdf</u>

Biopesticides for Managing Plant Diseases Organically

By Margaret Tuttle McGrath, Plant Pathology & Plant-Microbe Biology, Cornell University, Long Island Horticultural Research & Extension Center

Additional information posted at: <u>http://</u> www.longislandhort.cornell.edu/vegpath/organic.html

Biopesticides are defined by EPA as pesticides derived from natural materials. There are three types. Biochemical pesticides contain naturally occurring substances that control pests. Substances that control diseases include potassium bicarbonate, hydrogen dioxide, phosphorous acids, plant extracts, and botanical oils. Microbial pesticides contain microorganisms that function as biocontrol agents, affecting the pathogen directly or indirectly through the compounds they produce. Plant-incorporated protectants or PIPs are the least common type of biopesticide. These are pesticidal substances produced by plants that contain genetic material added to the plant often through genetic engineering. The genetic material and the protein it encodes, but not the plant itself, are regulated by EPA. Examples are virus-resistant varieties producing the virus coat protein, which covers virus particles after infection preventing their replication. More information about biopesticides plus lists of active ingredients and products are on the web at http://www.epa.gov/oppbppd1/biopesticides/ index.htm. There are also biopesticides for managing weeds and insect pests.

Biopesticides have advantages. Their activity generally is targeted to pests and closely related organisms, and they are usually inherently less toxic than conventional pesticides, thus they do not have the same potential to affect birds, beneficial insects, and mammals (there are exceptions, so check the label when this is a major reason for choosing biopesticides). And thus they typically have short REI and PHI. They generally decompose fast and sometimes are effective in small quantities, thus exposure is lower and potential pollution problems are avoided. Recognizing that biopesticides tend to pose fewer risks than conventional pesticides, EPA has been encouraging their development and use. EPA generally requires less data to register a biopesticide than a conventional pesticide, but enough data about the composition, toxicity, degradation, and other characteristics of the pesticide to ensure that the product will not have adverse effects on human health or the environment. EPA can conduct the registration process more quickly with biopesticides, often taking less than a year, compared with an average of more than 3 years for conventional pesticides. To facilitate their registration, the Biopesticides and Pollution Prevention Division was established in the Office of Pesticide Programs in 1994. Some biopesticides are defined as minimum risk pesticides through FIFRA Section 25(b) rule because their active and inert ingredients are generally recognized as safe (GRAS). These consequently are exempted from the regulation requirements of FIFRA and thus can be used on any labeled crops for any target since they do not need to be registered as a pesticide. 'Exempt from EPA registration' is stated on the label of these products.

Limited data on efficacy of biopesticides can be considered their main disadvantage. Data documenting efficacy is not considered when making decisions about registration of pesticides in the USA. Many biopesticides are produced by small companies lacking the R & D funds to support field trials to obtain efficacy data by experienced university and other independent researchers. To help fill this gap, the IR-4 Biopesticide and Organic Support Program funds grants to obtain efficacy information for biopesticides in development as

Continued on next page

Biopesticides for Managing Diseases Organically, continued from previous page

well as those already registered. These funded projects help the program meet its objective, which is to further the development and registration of biopesticides for use in pest management systems for specialty crops (which include all vegetables) or for minor uses on major crops. Information about this program, plus databases of labels and projects are at: <u>http://</u> ir4.rutgers.edu/biopesticides.html.

Most biopesticides are approved for organic production and most products approved for organic production are biopesticides, thus they have a logical excellent fit for managing diseases in organic crops. However some formulations are not approved, which can be due to inerts. For example, the potassium bicarbonate products EcoMate Armicarb O, Kaligreen and MilStop are approved whereas Armicarb is not. Also, some biopesticidal substances are not allowed under NOP (National Organic Program), for example phosphorous acids and genetically-engineered PIPs. Additionally, there are important organic fungicides that are not biopesticides, including mineral oils, copper, and sulfur. Biopesticides break down in the environment, thus there is no concern about build-up in soil as with copper, which is an element. However, biopesticides generally do not have the breadth of activity, efficacy, or residual activity of copper; thus it is important to obtain information about these factors and to know the target disease(s) when selecting biopesticides. The earlier in disease development that applications are started, the more effective the product will be. This is not unique to biopesticides. Fungicides cannot eradicate established lesions.

Some biopesticides, notably Regalia and Serenade, have induced plant resistance as a mode of action. These need to be applied before infection for this activity to be effective.

Several biopesticides have proven effective for diseases affecting vegetable crops. Powdery mildew is perhaps the easiest foliar disease to manage with biopesticides. It can be controlled with several different biopesticides, including botanical oil (Organocide, Mildew Cure, etc), potassium bicarbonate (Kaligreen, MilStop), and microbials (Actinovate, Serenade, Sonata, etc).

Please Note: The specific directions on fungicide labels must be adhered to -- they supersede these recommendations, if there is a conflict. If you are farming organically, before purchase make sure product is registered in your state and approved by your certifier. Any reference to commercial products, trade or brand names is for information only; no endorsement is intended.

Updated 2-3-15.

Blueberry Pruning – Commonly Asked Questions

By Laura McDermott, CCE ENYCHP

Do I have to prune every year?

Pruning blueberry bushes regularly helps reduce the overall size of the mature plant but it will also reduce the annual overall yield. However, the benefits to the plant over the long term significantly outweigh the short term loss of yield. If you ignore pruning you will drastically reduce the vigor of the planting and the number of years that you will be able to fruit the plants. Annual pruning, done efficiently, is the very best approach to managing the crop canopy.

Does pruning result in larger fruit?

Reducing the number of fruit buds on the bush can result in an increase in the size of the remaining individual berries. Improving irrigation, plant nutrition, pest management and cultivar selection will have similar positive effects on berry size.

How does pruning make my plants healthier?

Pruning invigorates plants to initiate more growth. Blueberry buds are initiated on wood produced the previous season - one-year-old wood. Annual pruning regulates the fruiting potential of the following season's crop. You are striving to invigorate the plant to produce enough new wood that you will have a good crop in two summers. By removing the oldest, unproductive wood, you are lengthening the overall life of the plant and increase the number of crops that those plants will bear.

When do I prune?

Blueberries should be pruned during the winter while the bushes are dormant. By mid-January you can see flower buds on one-year-old wood. This winter could be a major challenge given the snow pack that exists throughout the state.

Blueberry Pruning, continued from previous page

What tools do I need?

Use a good quality bypass (scissor action) hand pruner and/or lopper. The lopper should be capable of cutting branches 2 to 3 inches in diameter. For larger plantings, pneumatic pruners can be really helpful. I also think that pneumatic pruners can be VERY helpful as farmers'

age or if time is tight and pruning needs to be done especially quickly. This may be the case this year. Pneumatic pruners require an air compressor and can cost nearly \$2000.

When I look at the bush, what do I remove first?

This depends on the age of the plant. Well-rooted two year old plants do not need to be cut back except to remove fruit buds shortly after planting. In the second

year a moderate pruning will help to stimulate new growth. Continue to remove fruit buds on plants younger than three years of age in order to encourage bearing wood development. During the establishment phase (plants are 3-8 years old, prune to develop good plant architecture. Remove all low-spreading branches and the oldest canes if they are weak, particularly if in the center of the plant. "Head back" the strongest upright shoots to the desired height to keep the bush from growing too tall. These shoots will be your primary bearing wood for the next few seasons. Thin out the shorter, thin shoots and leave only those shoots that have enough vigor to bear a crop. Each variety will have a different ability to renew itself while it bears - some varieties send out very few renewal shoots - others you can't prune enough!

For a mature plant at least 8 years of age, simplify the process and focus on the crown of the plant. Remove diseased or broken shoots first. Then remove shoots

that are poorly placed, ie if they are flopping into the alley. Remove 1-2 of the oldest canes. Then step back and look for small canes that will not grow quickly enough to actually bear fruit in 2 seasons. If they are smaller than the diameter of a pencil, they are not going to perform and should be removed. After all of this pruning, you should have about 16 canes, 2 from each year (2 eight year old canes, 2 seven year old canes, 2 six

> year old canes etc.). If you still need to remove canes, make sure to prune canes that look crowded.

> When blueberries are 8-10 years old, they are at their productive peak, but this is when new cane development starts to slow. In order to prolong the productive life of the planting the blueberry grower needs to plan to revitalize the plant now. Weak or badly diseased canes should be removed entirely. If the varieties don't readily produce

new canes from the crown, it could be helpful to cut back to a strong lateral which is located in the right spot.

How can I make pruning go faster?

Most growers that I talk with estimate that pruning a well-managed blueberry planting will usually take 3-5 minutes per bush. That works out to be 250 to 417 manhours to prune 5000 plants; 6-10 people working for 40 hours – which adds up to a lot of money and time. Given the late winter, many growers are planning on a light pruning already, and my response is that a light pruning is better than no pruning. Pneumatic pruners can also help speed up a slow process. This equipment can be costly, but if you can afford to streamline the process and possibly hire fewer workers or have them complete the task in fewer hours, you can move closer to making the investment in a \$2000+ pruner and compressor system really pay for itself.

Visit the ENYCHP Website

For online class registrations, announcements, previous issues of our newsletters, and more, visit the ENYCHP website at <u>http://enych.cce.cornell.edu/</u>. Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!



Compressor used with Pneumatic pruner and pulled

with ATV at 'Gary's Berries' farm in Owego, NY.

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.

Bud Mortality Report

By Jim O'Connell, CCE ENYCHP

This winter has been cold, with temperatures across the Hudson Valley reaching below zero on a number of occasions. In areas such as the Hudson Valley Lab in Highland NY, temperatures have reached -2°F, while some areas (Modena, Red Hook, Lloyd), temperatures have reached -10°F or -12°F.

While many of us may be looking ahead to spring, warmer weather, and the start of the growing season, it's important to take a moment now and think about pruning the vineyard. Assessing bud mortality is an important first step for pruning. It provides an indication of how much damage is present and how many more buds should be left to compensate for this damage. Now is the time to collect bud samples and look at mortality.

There are a couple of different tools available to help predict bud mortality. The first is the table below, commonly used with new plantings. It lists the minimum winter temperatures along with the injury hazard at that temperature and varieties suitable for those temperatures. The second is a predictive model created by educators at Cornell University.

This table can serve as a quick reference when you want to get a general idea of whether or not the low temperatures were enough for possible bud mortality in your vineyard. Temperatures at the Hudson Valley Lab reached a low of -2°F, which from the table, falls between very

continued on next page

Winter Minimum	Injury Hazard	Comments on Suitable Varieties	
o°F	very low	almost any	
-5°F	low	most northern vinifera (Riesling, Chardonnay)	
-10°F	moderate	hardy vinifera/moderately hardy hybrids	
-15°F	high	hardy hybrids/most American	
<-15°F	very high	hardy American varieties; Minnesota varieties	
http://arcserver2.iz	agt.org/vII/learnmore.	aspx#tempeffects	



Bud Mortality Report, continued from previous page

low and low injury hazard levels. Based on the comments, this suggests that the more sensitive varieties (e.g. Sauvignon blanc, Pinot noir) may see high bud mortality while hardier vinifera (e.g. Riesling, Chardonnay) may experience lower bud mortality. Areas that reached a low temperature of -10°F or -12°F fall between moderate and high injury hazard levels, indicating the possibility of high bud mortality to anything other than hardy vinifera and hybrids or American varieties.

Another tool available for predicting bud mortality is the bud hardiness data collected by Cornell. Representative bud samples of select varieties from commercial and Cornell vineyards in four regions of NY are collected and subjected to differential thermal analysis. The results are a prediction of the lethal temperatures to kill 10%, 50% and 90% of the buds. The data is grouped by region, cultivar, and lethal temperature.

After bud mortality has been assessed, and you know the percent mortality in the vineyard, you can start

% Dead
Primary BudsCompensation0-20%Do not change normal pruning practice20-80%Increase the number of buds retained in
proportion to the injury>80%Prune away only those nodes which will intrude
into the space of the adjacent vines or which will
produce fruit so low that it hangs to the ground.

http://www.fruit.cornell.edu/grape/pool/winterinjurybuds.html

pruning. I mentioned how both tools will allow compensation for dead buds. The table above provides a simple explanation on how to prune based on percent bud mortality.

A detailed guide, with pictures, to assessing bud mortality in the vineyard can be found at: <u>http://www.fruit.cornell.edu/grape/pool/</u> winterinjurybuds.html.

Current bud hardiness data can be found at: https://grapesandwine.cals.cornell.edu/extension/budhardiness-data.

New and updated IPM Resources for Orchards

By Anna Wallis, CCE ENYCHP

This is the right time of year to be planning for pest management in your orchard. Pest pressures are changing due to many changes in orchard landscapes: an increasing number of acres are being planted to high density systems, global trade and change in climate have altered geographic distribution of pests, and increased incidence of resistance and changes in regulations continue to keep us on our toes about which materials are available.

With all this change, it is especially important to be planning ahead, making the most informed decisions possible. This winter, several resources have been created or updated that will be extremely helpful in the upcoming seasons.



1. NEWA website and new blog

The NEWA website is one of the best resources available for making pest management decisions. There are currently almost 250 electronic weather stations located across the northeast collecting data that is funneled to this website. This data is used in the pest forecast models used by many of you to make more precise IPM and production decisions.

The information provided by these models is incredibly valuable. In the 2012 NEWA report it was estimated that the average grower of high-value fruits and vegetables can save \$19,500 per year in spray costs and prevent \$264,000 per year in crop loss by using NEWA information. Information on having an electronic weather station installed on your farm can be found on the NEWA website.

This February the NEWA blog was created, called "You are NEWA." Julie Carroll, State IPM Specialist and Director of NEWA, manages the blog. You can subscribe by visiting the website: <u>http://blogs.cornell.edu/yourenewa/</u>.

continued on next page

VOLUME 2, ISSUE 5

New and updated IPM Resources for Orchards, continued from previous page

2. Apple IPM For Beginners

Despite the title, this new resource is likely to be valuable for many kinds of orchards. The 41-page guide, edited by Deborah Breth, was a collaborative effort developed by Cornell Scientists, CCE specialists, and private consultants. The guide consists of 15 fact sheets, designed to give new apple growers information to help protect orchards from pests. The fact sheets may be useful to more experienced orchards as well, as a succinct review of the main orchard pests, their biology, and monitoring and control strategies available. It is also an ideal place to start when training a new or existing employee, or when starting to get the next generation involved in IPM in the orchard.

The guide is available for Free online as a PDF. Hard copies can also be purchased. Both options can be found on the Cornell Tree Fruit website: http://www.fruit.cornell.edu/orchard-ipm/

Many more resources are available online at the Cornell Tree Fruit Website, <u>http://www.fruit.cornell.edu/tree_fruit/</u> IPMGeneral.html, including:

- Elements of IPM checklist http://www.nysipm.cornell.edu/elements/apple/default.asp
- NYS IPM Fact Sheets http://www.nysipm.cornell.edu/factsheets/treefruit/
- Link to purchase Tree Fruit Field Guide
- Link to purchase Cornell Pest Management Guidelines <u>https://demo.cuguidelines.net/</u> (Guidelines are also included with <u>enrollment in the ENYCH Program</u>).

How are Cover Crops Affecting my Nutrient Levels?

By Justin O'Dea, Vegetable and Field Crop Educator, CCE Ulster County

This is an increasingly relevant question as cover cropping regains popular favor, because cover crops - *especially after multiple years of cover cropping* - can begin to drastically change how nutrients are cycled in your soils. Consider that \leq 50% of fertilizer N given to a cash crop may actually be recovered by it. If the crop needs more N (and it very often does) it will need to come from the soil, and the % fertilizer N that your crop *didn't* recover is free to be lost to the environment, *and from your bank account*. If you've ever wondered, or weren't considering how significant your cover crops might alter your nutrient budgets, there are a number of ways you can begin to account for the effects of cover cropping.

Cereal rye is the primary go-to cover crop for many growers in the northeast and beyond. Cover crop opportunities and popular understanding of cover crops and their benefits are expanding in leaps and bounds though. The recent popularity of mixed-species



Fig. 1) Soil pit excavation illustrating forage 'daikon' radish (*Raphanus sativus var. longipinnatus*) cover crop taproots reaching into deep layers of the soil profile. Courtesy: Natalie Lounsbury, Univ. of Maryland.

cover crops, aka, "cover crop cocktails" has added an unprecedented level of complexity to reliably understanding effects from cover crops. But, the theory behind these mixed-species cocktails highlights principles that help us understand how an individual species might affect nutrient budgets on our farms.

Cover crops have a number of traits that allow them to perform a variety of "services" for your farm's soils. Deciphering what these services are for an individual species is a key part of beginning to understand how cover crops affect nutrient budgets. Nutrients in natural systems by-in-large cycle nutrients tightly in a self-regulating way without inputs. And without soil disturbance, deep-rooted perennial species (Fig. 2 and 3) and a highly developed ecosystem of decomposers dominate these systems. In annual crop systems that are absent of perennials, often disturbed (tilled), and demand fertility inputs (*particularly N*), we can attempt to improve the efficiency of nutrient



PAGE 10

VOLUME 2, ISSUE 5

How are Cover Crops Affecting my Nutrient Levels? continued from previous page

cycling on our farms with cover crops. Generally, all cover crops "scavenge" nutrients that leftover from cash crops, but some are more effective than others (not all perform well on residual nutrients alone), and legumes can actually *add* N to soils that wasn't there before. For simplicity's sake, these services can be organized into a few simple categories by the plant family of the more commonly used cover crops.

<u>Grasses:</u> Cheap, reliable, and often cold-hardy, grasses (especially small grains) are the most widely used family of cover crops. Their fibrous root systems (Fig. 3) are excellent for stabilizing soils, improving soil structure, building soil organic matter, and their ability to quickly form a thick canopy of competitive cover gives good weed suppression potential to boot. Grasses are also good nutrient scavengers, their fibrous root systems tend to reach wide and ubiquitously, especially in the upper layers of the soil; roots commonly will reach a maximum depth at 3-4 ft. Winter cereals scavenge more nutrients than fall-planted spring grains since they overwinter and will be taking up nutrients anytime when temperatures allow for plant growth. An over-wintered rye cover crop, for example, may commonly scavenge 25-50 lbs./ac by the time it is terminated.



Fig. 2) Generalized annual vs. perennial grass root systems. Courtesy of The Land Institute, Salina, KS.



A, filmos-out system of schent; B, topont system of red clove; numbers indicate depth of soil in feet. (From J. E. Wearer, "Rost Development of Field Crops," McGenus-Hill Book Company, New York, 1926.)

Fig. 3) Fibrous wheat root system (annual), left, vs. red clover taproot (perennial), right. *Image from "Root Development of Field Crops" By John E. Weaver, 1926.*

Winterkilled spring grains (like oats) may generally scavenge 10-20 lbs./acre *less* than overwintering grains. Summerplanted warm season grasses like millets, teff, sorghumsudangrass etc. may capture more N than small grain cover crops *if it's there to scavenge*, but may excel more at soil organic-matter building services; certain sorghumsudangrass cover crops been recognized for soil nematode suppressing properties as well.

Brassicas: Cool-season brassicas appear to be being adopted at the most rapid rate by growers, thanks to the popularity of forage or 'daikon' radish (Raphanus sativus var. longipinnatus) and it's ability to penetrate compacted layers in soils with an aggressive taproot (Fig. 1). Brassicas are also recognized for weed and disease control services due to their ability to produce sulfur-rich compounds called glucosinolates in their tissues. These compounds are capable of inhibiting weed seed germination and diminishing soil pathogen loads. Brassica species in general impart this service, but certain species excel in these services more than others; several species that were selected specifically for this purpose in Italy are now commercially available in the US, and are marketed as "biofumigation" crops. Biofumigants are being currently tested most widely for suppressing soilborne disease in potato, cucurbit, and nightshade crops and for nematode suppression. Brassicas are also often very weed-competitive in general due to an ability to respond to available fertility and quickly form a weed-suppressive crop canopy.

VOLUME 2, ISSUE 5

How are Cover Crops Affecting my Nutrient Levels? continued from previous page

In terms of nutrient budgets, brassicas generally root relatively deeply at a rapid rate; this ability makes them good candidates for bringing nitrates and other soluble nutrients (along with water) that have moved to deeper layers in the soil back to the upper soil layers. Species like forage radish (which is a biennial with a large tuberous taproot) are standouts among brassicas for this service though (Fig. 1). Brassicas also don't depend on mycorrhizal soil fungi (unlike grasses, legumes, and most other plant families) to aid them in nutrient acquisition, and theoretically, brassicas should be well adapted to scavenge nutrients in soils that have long histories of tillage with annually disturbed fungal growth networks. legumes begin to invest in seed production, legumes generally move their resources away from N-fixation. Legumes should also be inoculated with the correct type of rhizobia. This is a very affordable way to ensure that your legumes 1) have N-fixing rhizobia to associate with, and 2) associate with a strain of rhizobia that ensures that N-fixation potential is high. Low availability of other nutrients in your soils will also negatively affect N fixation, as will soil saturation and drought. Perennial legumes like red clover may have the added benefit of deep taproot development to scavenge nutrients and water from soil deeper layers (Fig 3); if left to grow long enough (>1 year), these perennials can also contribute a greater amount of carbon to soils.

Brassica species are highly responsive to nutrient levels and may commonly scavenge 100-200 lbs. per acre if the residual N is there to scavenge; counter -intuitively, brassicas may need at least ~10-15 lbs. of starter N fertility if N is low in the surface soil layer in order to begin reaching N stores in deeper layers. It is also worth noting too that many winterkilled brassicas may lose some



Fig. 4) Generalized soil microbial activity throughout the year by temperature. *Courtesy Elaine R. Ingham, Oregon State Univ.*

Others: Sunflowers and buckwheat (the former as a component of cover crop mixtures) are probably the most common cover crops that otherwise fall outside of the three aforementioned plant families. Sunflowers (especially giant varieties) produce a prodigious amount of biomass that can be returned to soils as an organic matter builder, and have strong taproot systems that

of the N they recover over winter and into spring, depending on environmental conditions.

Legumes: Nitrogen is the only nutrient that can be considered "renewable", and legumes are the single most powerful way to biologically renew N stores on your farm with a cover crop. Legumes demand a lot of N to meet their biological needs. So, when soil N isn't coming in fast enough, legumes invest in a relationship with certain soil bacteria (rhizobia) capable of turning airborne N gas into plant available N ("N-fixation") in exchange for some of the carbon they produce from photosynthesis. Other cover crops may scavenge and recycle nutrients better, but no other cover crop can actually *add* more N to soils than was there previously. Nitrogen fixation by legumes is variable by species and plant growth; for instance, beans are notoriously poor Nfixers that may produce 0-30 lbs. of N per acre, while a crop of hairy vetch or red clover may fix anywhere between 100-200 lbs. of N per acre. Some legumes fix N better than others when residual soil N levels are already high. Crop stage also plays a role; legume N-fixation generally is at its maximum around the they are in full bloom, so killing legumes before this stage is cutting the plant short of its ability to add N to your soil. After

THE PRODUCE PAGES

can reach deeply into soils to recover nutrients. Sunflowers have not been extensively studied as cover crops though to date, but estimates of biomass from other sunflower studies suggest that 5000-8000 lbs./ac of dry matter containing 90-150 lbs. of N may be reasonable metrics to keep in mind. Buckwheat thrives in the warm temperatures of midsummer where it grows at a blinding rate and is infamous for suppressing weeds, attracting pollinators, conditioning soils with its fine lateral roots, thriving on nutrient-poor soils, and increasing phosphorus availability to subsequent crops. Buckwheat may commonly capture ~50 lbs./ac of N as a cover crop; its ability to extract P from soils may not always be consistent or significant though, especially from soils most typical to humid regions (acidic, noncalcareous).

Payback time: With these services in mind, it's now important to think about think about how nutrients contained in cover crop residues are then released back into the system. Nutrient release from plant residues is "ecologically mediated"; temperature, air and water availability (think soil structure and texture), soil pH, the soil decomposer community, and residue quality all interplay to affect crop residue decomposition and nutrient release. Soil microbes are ultimately responsible









for the final molecular conversion of organic matterbound nutrients back to common plant-available forms though. Microbial activity drops considerably in temperatures below ~40° F, and raises significantly above this generalized threshold. As a general rule, envision that decomposers and soil microbes will be very busy breaking down organic matter and mineralizing nutrients in a warm, well-aerated, moist environment (Fig. 4).

Tillage can temporarily incite these conditions in surface soils and help with residue management, but can simultaneously disrupt many beneficial longer-term soil nutrient cycling/fertility processes. Tillage can lead to a *net loss* organic matter over time by breaking it down more quickly than it's replenished, destroys soil structures that aid in soil aeration and soil moisture management, and compromise soil food webs that can be beneficial to plant growth and health. The bottom line with tillage is that there is a tradeoff with how it can be used to manage cover crops. Reduced tillage approaches are generally being accepted as the direction to achieving longer-term soil health even if it means that the short-term benefits of tillage are forfeited.

Crop residue quality is the other major factor to consider from a management perspective. Residue quality is affected by species and how mature a crop is when it's terminated. Crop carbon-to-nitrogen (C:N) ratio is the simplest way to assess residue quality (Fig. 5), although you may also want to consider lignin content (the "woodiness" of a crop) as well. Crop residues have fractions that range from readily decomposable ("labile") to those resistant to decomposition ("recalcitrant"). The C:N ratio and lignin content of a crop increases as the crop approaches maturity (Fig. 6), and consequently so does the proportion of plant residues characteristic of the more recalcitrant end of the residue quality spectrum. Therefore, residue quality largely determines how much organic matter from a crop's residues are 1) labile and likely to quickly break back down into plant available nutrients, and 2) how much will be more *recalcitrant*, releasing nutrients slowly and/or contributing to soil humus. Each fraction is important, and cover crops can be managed to contribute more to one or the other pool. Younger plants are generally all quite labile, and legumes are generally more labile than most non-legume cover crops, even when mature (Fig. 6). Brassicas can also be very labile if they have taken up an abundance of N, as can





Fig. 6. Change in residue quality of 3 different cover crops over 3 months of growth in California.

Figure from "Winter Cover Crop Seeding Rate and Variety Effects during Eight Years of Organic Vegetables: III. Cover Crop Residue Quality and Nitrogen Mineralization", by Brennan et al. 2012.

How are Cover Crops Affecting my Nutrient Levels? continued from previous page

buckwheat. Grasses tend to be labile for a shorter period of time; rye infamously will begin to cause a nutrient "tieup" (a net "immobilization") after it begins to grow taller than ~6". This is the case for any cover crop where the C:N ratio begins to climb past 20:1 to 40:1, (Fig. 5) and when lignin content climbs. Microbes need to maintain a certain ratio of C:N in their bodies (~8:1), and when C sources are high, they will use available N to maintain the correct ration of C to N intake and temporarily compete with plants for available nutrients. This net immobilization of nutrients will occur until microbes have consumed the readily available carbon and, in turn, begin to die-off and re-release nutrients contained in their bodies. The opposite can occur when residues are labile and nutrients within the crop residues are more than sufficient; microbes will then excrete/release excess nutrients in plant available forms (a net "mineralization"). Note that in mixed species stands, this phenomenon can be used to your advantage with regard to managing residue quality, but requires a good understanding in order to utilize mixing species for the desired outcome. For instance, mixing a cereal into a legume stand will likely increase the overall C:N ratio of the stand and cause nutrients to be released more slowly (which may desirably prevent losses of excess legume N that may mineralize faster than a crop can take it up), or vice versa if a legume is added to a cereal stand.

Other factors to consider: Nitrogen fertilizers can factor in as well, but the interactions are complex. In short, N fertilizer can sometimes speed up decomposition in fresh, labile residues, but conversely tends to inhibit decomposition of more recalcitrant residue fractions and soil organic matter. This is a consideration with regard to building soil organic matter, because abundant fertility can also increase residues returned to soils from cropssometimes critically so. A nutrient-starved crop is a dysfunctional crop, whether it's for market or for soil improvement. This is another case for assuring that your fertility is adequate for functional crops, while still being careful to avoid over-fertilizing.

Biodiversity with cover crops is another factor to consider. Similar to what can occur with plant disease buildup in monocultures, studies in ecology have illustrated that over time, plants can inadvertently select for microbial communities that specialize in breaking down their own residues. This might be positive or negative, depending on your goals. If the same cover crops are always used (or if cash crop and cover crop residues are similar) you may 1) build up a microbial community that breaks those residues down efficiently for fast nutrient release and residue management (with the risk of pathogen build-up aside), but 2) in turn may also negatively affect your capacity to build soil organic matter and soil nutrient retention.

Give credit where credit is due: Avoid the pitfall of not giving a good cover crop stand credit in your nutrient budgets. This becomes more true the longer you have been cover cropping (recall that each % of soil organic matter = ~20 lbs.+ of N per acre/year) and/or if you have had successful legume cover crops 70-200 lbs./ac Studies have shown that successful cash crops may be grown entirely on legume N, and it's likewise not uncommon for growers with advanced cover cropping experience to cut back significantly on fertilizer inputs. This will understandably make some growers nervous because more risk is assumed, but if you aren't giving your cover crops a credit currently because of risk, trial some small areas to monitor how your crops respond with regard to the cover crop that preceded it (species, biomass produced, estimated nutrient return, residue quality at termination). Observation, experience, and knowledge are key to reaping the benefits of cover crops for building soil health, for keeping nutrients on the farm, and for keeping money otherwise spent on excess fertility in your bank account.

For more information:

- Cornell cover crops: http://covercrops.cals.cornell.edu
- Penn State cover crops: http://extension.psu.edu/agronomy-guide/cm/sec10/sec103
- Managing Cover Crops Profitably free PDF: http://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition
- NRCS comprehensive guide to NE cover crops: http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/ publications/nypmcpu10645.pdf
- NRCS C:N ratio article: <u>http://www.nrcs.usda.gov/wps/</u> <u>PA_NRCSConsumption/download?</u> <u>cid=nrcs142p2_052823&ext=pdf</u>
- Oregon State U article on estimating N credits from cover crops: <u>http://ir.library.oregonstate.edu/xmlui/</u> bitstream/handle/1957/34720/pnw636.pdf
- Making the Most of Cover Crop Mixtures article: http://www.hort.cornell.edu/expo/proceedings/2013/Cover% 20Crops/Cover%20Crops%20White%20Mixtures.pdf. There will be an upcoming revised and enhanced version of this article soon on <u>eXtension.org.</u>
- Penn State cover crop mixtures webinar: http://www.extension.org/pages/71186/using-cover-crop- mixtures-to-achieve-multiple-goals-on-the-farm-webinar#.VI8MaPjF8IA
- Penn State cover crop webinars: http://extension.psu.edu/plants/sustainable/courses/covercrop-innovations-webinar-series/webinars

The New York State Mesonet Weather Observing Network

By Dr. Jerald Brotzge, NYS Mesonet Project Manager

The New York State (NYS) Mesonet Early Warning Weather Detection System is an advanced, statewide weather station network. This network will be the first of its kind in New York and will consist of up to 125 surface weather stations that will detect

weather phenomena across the entire state. This weather detection system will provide federal, state, and local communities with access to high-resolution, real-time data, and more robust predictive models.

Each of the Mesonet's 125 weather stations will measure surface temperature, relative humidity, wind speed and direction, precipitation, solar radiation, atmospheric pressure, and soil moisture and temperature at three depths. In addition, 17 sites will be outfitted with lidars and microwave profilers, providing wind, temperature, and moisture profiles in the vertical. Another 20 sites will measure snow depth and snow water equivalent for hydrological applications. All of this data will be transmitted in real-time to a central location, where the data will be quality controlled and archived, and then disseminated to a variety of users. Upon completion, real-time data along with graphical products/models will be available to the public via a website.

The NYS Mesonet promises a new generation of local weather observations that will support more accurate, more precise decision-making in agriculture, emergency management, energy, ground transportation and aviation. For example, localized soil moisture and temperature data will improve irrigation efficiency, and various pest models will be much improved with more local data inputs.

The NYS Mesonet is now beginning the search for permanent site locations. Each site consists of a 33 ft tower centered within a 33 ft x 33 ft plot of land. To ensure the highest quality of data each station must be at least 300 feet from the nearest obstacle (tall trees, buildings, etc.) or potential heat sources (pavement). If you would be interested in hosting a Mesonet site, please contact Dr. Jerald Brotzge at <u>jbrotzge@albany.edu</u>. To learn more about the NYS Mesonet, please visit our website at <u>http://nysmesonet.org</u>.

Saratoga County Sundae on the Farm Agricultural Scholarship

The Saratoga County Agricultural Promotion Committee will award scholarship(s) of up to \$1,500 annually to Saratoga County Junior or Senior college students pursuing an agricultural degree and career. The award is presented at the Sundae on the Farm celebration on June 21, 2015.

Applicant must be:

- A resident of Saratoga County, New York
- Successfully attending and pursuing an agricultural degree at a college or university
- Currently in or entering Junior or Senior year in college (must have completed first semester of sophomore year to apply)
- Pursuing an agricultural career to seek employment in the agricultural industry

Applicant information should include:

- Name
- Address
- Phone
- Email address
- Name of Parent(s)/Guardian

- Date of Birth
- College attending:
 - Years completed
 - Major
 - Expected degree and Year to graduate
 - College advisor name and contact information
 - Copy of college transcripts
- A written essay (500 words or less) describing:
 - Your interest and experience in agriculture
 - How your educational and career goals relate to the field of agriculture
 - Your agricultural volunteer experiences. Have you ever volunteered for Sundae on the Farm?

Application must be postmarked by April 15, 2015 and mailed to: Barbara Hanehan, 340 Co. Rte. 68, Saratoga Springs, NY 12866. Recipient will be notified of date and location of Sundae on the Farm; recipient or a family member must attend to accept the scholarship.

This scholarship is made possible by all those who volunteer, support and contribute each year to Saratoga County's Sundae on the Farm.







Collection and Disposal of Unwanted/Unusable Pesticides and other Chemicals

THE SPRING 2015 CLEANSWEEPNY collection will be targeting the following lower Hudson Valley Counties: Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester. The collections will take place during the week of April 06, 2015. Pre-registration is required. Holders of pesticides and other waste chemicals can transport their materials to the collection sites which will be scheduled on consecutive days in Kingston, Fishkill and Middletown, NY.

CLEANSWEEPNY IS AN ENVIRONMENTAL BENEFIT

PROJECT that provides for the environmentally safe and economic collection and disposal of unwanted or unusable pesticides, school chemicals, golf course chemicals, and elemental mercury and mercurycontaining devices (e.g. manometers and thermometers). CleanSweepNY also collects and recycles triple-rinsed HDPE #2 plastic containers from agricultural and certain non-agricultural entities. The NYS Department of Environmental Conservation administers the CleanSweepNY project through its Albany, NY Central Office Pesticides Program. Funding for this environmental benefit project is administered by the Natural Heritage Trust.

To date, CleanSweepNY has collected and disposed of over 1.35 million pounds of pesticides and other chemical wastes, more than 850 pounds of elemental mercury, and over 4,000 plastic containers that could have been disposed of in landfills across New York State. CleanSweepNY results in enhanced stewardship of the environment through improved management of these materials which can pose human health risks upon exposure and a significant hazard to the environment such as groundwater resources.



ACCEPTED FREE OF CHARGE OR AT LOW FEE,

CleanSweepNY funding was originally earmarked for the benefit of New York agriculture. Farmers and the owners of former farms can register and bring their unwanted or unusable pesticides to CleanSweepNY events at no charge and with no quantity limit. A pricing sheet for other waste chemicals, such as old paint, motor oil, etc... will be mailed to those requesting the registration packet.

CLEANSWEEPNY SERVICES ARE <u>NOT</u> AVAILABLE TO HOMEOWNERS.

PRE-REGISTRATION is required-deadline is 3/26/15.

Requesting a registration packet is easy and can be done by calling 1-877-793-3769 or by e-mail to <u>info@cleansweepny.org_</u>NOTE: Information received by CleanSweepNY is kept strictly confidential.

There is <u>NO</u> enforcement potential for any product turned in as part of this collection project. <u>NO</u> enforcement has been taken on any of the 2,336 registered participants over the 17 CleanSweepNY events held throughout NY State.

Please participate in the Spring 2015 CleanSweepNY collection and help to properly manage unwanted or unusable pesticides and chemical wastes in NY State!

CleanSweepNY gratefully acknowledges the support and assistance of NYSDOT, Cornell Cooperative Extension, NY Farm Bureau, and Agricultural Container Recycling Council, and the Soil & Water Conservation Districts.

Seeking Two Field Technicians

The Eastern NY Commercial Horticulture Program (ENYCHP) is seeking 2, full time technicians to provide technical and program support in carrying out research and outreach that will ultimately enhance the profitability and sustainability of the vegetable, tree fruit, small fruit and grape industry served by the program. Technicians will be responsible for travelling to and assisting with research plots, collection and recording of data, scouting for insects, diseases and weeds; and routine plot maintenance including pruning, weeding and other duties required for carrying out research on commercial fruit and vegetable farms throughout the region. Technicians will also perform basic data entry and summary, and assist in logistical setup for educational meetings and events throughout the region. Preferred qualifications also include: the ability to work outdoors in all types of weather, lift 20-50 pounds consistently, access to reliable transportation, valid driver's license, be able to work flexible hours, competence in computer technology (Excel/Word/Publisher).

These are one year appointments with possible extension depending on funding and performance. Hours may be reduced to a minimum of 20 hours/week during winter months depending on available work and funding. One position will be located within the Albany area and one in the Lower Hudson Valley region. To see more information or apply for either of these positions please go to the links below:

<u>Capital District Field Technician</u>

• Lower Hudson Valley Field Technician

April 2015—4 dates and locations

These workshops will cover pruning efficiency and protocol; spring pest management including scouting for pests and optimizing control strategies. Join us to learn more about berry culture and how you can minimize the impact of berry pests.

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.

Locations	Dates	Times
Gade Farms, 2479 Western Ave., Guilderland, NY 12009 Questions? Contact Laura McDermott: 518-791-5038	Thursday, April 9	10:00 AM-12:00 PM
Kelder Farms, 5755 Route 209, Kerhonkson, New York 12446 Questions? Contact Jim O'Connell: 845-943-9814	Monday, April 13	1:00 PM-3:00 PM
Greiner's Farm, 102 Lattintown Rd., Newburgh, New York 12550 Questions? Contact Jim O'Connell: 845-943-9814		1:00 PM-3:00 PM
Northern location TBA Questions? Contact Laura McDermott: 518-791-5038	April (TBA)	ТВА



DEC Pesticide Re-certification credits will be available.

To pre-register:

<u>Please pre-register to let us know you are coming</u> with Marcie Vohnoutka at 518-272-4210 or <u>mmp74@cornell.edu</u>. 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!

Questions?

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.



Hudson Valley Research Lab Membership Meeting

March 10, 2014 at 4pm

The Hudson Valley Research Lab Inc. (HVRL) is hosting a membership meeting at 4PM on March 10, 2015 at the HVRL, 3357 Route 9W in Highland, NY. Membership allows growers to participate in establishing programing and research priorities originating from the HVRL.

Research conducted at the HVRL is of direct importance to growers in the Hudson Valley. Experiments are done under real world Hudson Valley conditions and the data collected can help with growers with their crop management decisions. The meeting will provide members a forum to participate in nominations and vote on lab board of director members, staff updates, begin development of a plant pathologist position to expand our research and support of the vegetable industry, discuss our partnership with the local economies project for future opportunities, begin development of a non-grower contribution membership, to be followed by open topic discussions on research and outreach priorities.

For more information about this meeting or the HVRL contact Peter Jenstch: 845-691-7151 or email pjj5@cornell.edu

NYS DEC Special Permit Training for Pesticide Handlers

Friday, April 3, 2015* 9am-12pm

Best Western Plus, 503 Washington Ave., Kingston, NY 12401

Contact: Dan Donahue at 845-691-7117 or email <u>djd13@cornell.edu</u>. Friday, April 10, 2015 9am-12pm (rescheduled from April 2)

St. Augustine's Parish Center 3035 Main Street, Peru, NY 12972

Contact: Anna Wallis at 443-421-7970 or email <u>aew232@cornell.edu</u>

*Kingston training will be offered in English and Spanish!

This training is for TREE FRUIT FARMS ONLY.

The NY State Department of Environmental Conservation (DEC) adopted regulations in 2000 that required supervising certified applicators to be on site and in voice contact with their trained pesticide handlers in order for the handlers to apply federally restricted pesticides. Permits issued last year are no longer valid, and this year's permit will be valid only for the 2015 season! The best option is still to have your handlers pass the DEC private applicator certification exam.

We will again hold training programs so that DEC can issue "special permits" to these non-certified applicators that work under the supervision of a private certified applicator. This will enable trained workers to apply restricted-use pesticides to tree fruit for the 2015 season without "direct, on-site supervision". These DEC "special permits" are being made available to assist individuals who have difficulty taking English written tests and are not certified.

Supervisor Requirements: The supervising certified applicator is required to attend the beginning portion of this meeting with employees being trained.

PRE-Registration is REQUIRED. Registration cost: \$30/trainee. Payment in advance is preferred; can be made at the door the day of the meeting but you <u>must be pre-registered</u>! Completed registration form must include **names and addresses of workers attending** the training and be received by the **registration deadline:** 3/27/15.

To register, go to the ENYCHP event webpage at <u>http://rvpadmin.cce.cornell.edu/pdf/event</u> and click on the event you want to attend. Under each event listing you will find a printable registration form (to register via mail or email) or a link for online/credit card registration. For further help registering, contact Marcie at 518-272-4210 or email <u>mmp74@cornell.edu</u>.

This event is being hosted by the Eastern NY Commercial Horticulture Program

2015 Garlic School

Tuesday, March 10th from 10 am-3 pm

Hudson Valley Lab, 3357 US 9W, Highland, NY 12528

This year's garlic schools will have a broad focus on disease, insect and weed pests that growers are already dealing with or that may show up in New York from other parts of the country. Cornell pathologists and growers will discuss the latest research on Aster Yellows, a disease which has devastated the garlic industry in the Midwest, and the soil-borne diseases such as Fusarium. The latest fertility and weed control research will also be presented.

Registration fee includes a delicious, garlicy lunch!

For full event details, and registration information (by mail or online) go to <u>http://enych.cce.cornell.edu/event.php?</u> id=303. For additional questions contact Marcie at 518-272-4210 or email <u>mmp74@cornell.edu</u>.

Wine Sensory Analysis Workshop Day 1: White Wines Day 2: Red Wines

March 15 & 16, 2015 at the OnCenter, Syracuse, NY

This workshop will benefit winemakers, cellar workers, winery staff, and wine enthusiasts who seek a deeper understanding of the topics below, and their impact on a winery's success.



In addition, workshop attendees will be guided through sensory test methods to access perceived differences and preferences in wine. **Presenter:** Melba Allen, Wine Export Agent, OENO-COM France.

Topics include: Introduction to Tasting, White and Red Sensory Standards, Evaluating Palate Attributes, Descriptive Analysis of White and Red Wines, Laboratory Investigating, Wine Competition Methodology and Professional Wine Rating Systems. A certificate will be awarded after the completion of this workshop. Attendees of the Wine Sensory Analysis Workshop are eligible for a 10% discount on Eastern Winery Exhibition registration.

For more information go to <u>http://www.vesta-usa.org/Events/Wine-Sensory-Analysis-Workshop-NY</u> or contact Michelle Norgren at 315-435-8099 or email <u>michellenorgren@missouristate.edu</u>.

Eastern Winery Exhibition

The Eastern Trade Show & Conference for Wineries and Growers Tues.-Thurs., March 17-19, 2015 at the OnCenter, Syracuse, NY

This 3-day event is an excellent opportunity for you to attend educational presentations and workshops on various topics focused on Enology, Viticulture, Cold Climate Grapes and Marketing, Money and Management; to network with other wine and grape producers; and to connect with companies who can supply products for your business. The trade show features 200+ wine industry companies.

Full event information and registration options are available on the EWE website at <u>http://www.easternwineryexposition.com/</u> or contact Marcia Gulino at 401-780-0721 or email <u>marcia@easternwineryexposition.com</u>.

The Cooperative Extension Association of Rensselaer County Agriculture and Life Sciences Building 61 State Street, Troy, NY 12180 Non-Profit U.S. Postage Paid Albany, NY Permit #937

UPCOMING EVENTS

March 10, Highland **2015 Garlic School** See page 19 for details.

March 10, Highland Hudson Valley Research Lab Membership Meeting. See page 18 for details.

March 15-16, Syracuse Wine Sensory Analysis Workshop. See page 19 for details.

March 17-19, Syracuse Eastern Winery Exhibition: The Eastern Trade Show & Conference for Wineries and Growers. See page 19 for details.

April 2015—4 dates and locations: Guilderland April 9; Kerhonkson April 13; Newburgh April 14; and a Northern location TBA **Spring Berry Workshops** See page 17 for details.

April 10, Peru and April 3, Kingston Special Permit Training for Pesticide Handlers. See page 18 for details.

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any product 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.

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.