

Cornell University
Cooperative Extension

Eastern NY Commercial Horticulture Program

Vol. 2, Issue 12
August 28, 2014

Berry News

ENYCH Program Educators:

Fruit

Laura McDermott

Cell: 518-791-5038

Email: lgm4@cornell.edu

Berries

James O'Connell

Phone: 845-691-7117

Email: jmo98@cornell.edu

Berries & Grapes

Dan Donahue

Phone: 845-691-7117

Email: djd13@cornell.edu

Tree Fruit

Anna Wallis

Phone: 443-421-7970

Email: aw232@cornell.edu

Grapes & Tree Fruit

Vegetables

Chuck Bornt

Cell: 518-859-6213

Email: cdb13@cornell.edu

Amy Ivy

Phone: 518-561-7450

Email: adi2@cornell.edu

Teresa Rusinek

Phone: 845-340-3990 x315

Email: tr28@cornell.edu

Crystal Stewart

Cell: 518-775-0018

Email: cls263@cornell.edu

Maire Ullrich

Phone: 845-344-1234

Email: mru2@cornell.edu

Business and Marketing

Bob Weybright

Phone: 845-797-8878

Email: rw74@cornell.edu

Layout:

Carrie Anne Doyle

Content Editor:

Laura McDermott

Regional Update

The weather this summer has been quite good for berry production. Warm, but not excessively hot days have allowed berries to mature gradually and hang on the plant for the maximum amount of time. We have had consistent rain that has allowed irrigation to augment moisture instead of being completely responsible for it. Humidity has been high, but not unusually so, and that has made for a normal disease year. And thus far, Spotted Wing Drosophila pressure has been relatively low.

However, I do want to stress that SWD has been found in most all locations – either in traps or in fruit. Numbers found in the traps have also increased weekly. Numbers of larvae and eggs found in fruit that have been reared out for various trials within the state have increased. **Simply stated - growers of fall raspberries and day-neutral strawberries need to maintain control of SWD until the 2014 crop is in.** I encourage growers to sample fruit in your fields several times per week. Use the salt water test to determine whether larvae are present and to assess the performance of your management program. Continue with a 5-7 day spray program as well as clean picking as much as possible. Removing cull berries when possible has also been shown to be effective. **Continue to slow the development of eggs and larvae by refrigerating the product immediately after picking.** One of the reasons I'm not reporting trap findings as aggressively as in the past is that I'm very concerned about false negatives. This season we are seeing much lower numbers of adults in the traps – and yet we are still seeing oviposition sites in fruit and also labs are rearing out flies from trials where we hadn't caught any adults at all. This helps support our very conservative spray recommendation – so as fruit begins to ripen you will need to spray an insecticide. Continue to rotate materials. As the season progresses you may be able to stretch the interval slightly because the cool nights will slow development, but this is the time that populations have spiked in the past, so crop protection is the name of the game.

Raspberries/Blackberries: A great fall raspberry and surprisingly decent blackberry crop is out there – so protect it from SWD! I'll have more about pruning in the next newsletter. High tunnel raspberries should continue to monitor mites and nutrients – especially potassium – should be added if leaves begin to show deficits.

Blueberries: harvest should be complete in most locations just after Labor Day. Most farmers had a banner year and the regrowth even in stressed plants looks promising. Those of you that were able to take tissue samples should make the recommended nutrient applications this fall – everything



Foliar purpling of raspberry indicative of Potassium deficiency. Credits: M. Bolda, Univ. CA Extension

continued on next page

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

Berry Regional Update, continued from previous page
but nitrogen can be applied now. If you have woody perennials growing in the patch, now is the time to consider control. The best practice is tedious, but it will yield great results. Use concentrated glyphosate and hand apply to freshly cut stems on the woody plants. This includes noxious weeds like sumac and buckthorn. I wouldn't bother with goldenrod – you can use Velpar for that in the spring. Don't get the glyphosate on any other tissue – but this type of application will insure that the active ingredient makes it's way right to the root.

Strawberries: Regrowth from renovation looks excellent. Some leaf spot here and there, but not terrible.

Slug control should be done now – organic Sluggo or iron phosphide materials like Deadline Bullets are both very effective. Weed control is my biggest concern. Now is the time that you can attend to special weeds like thistle (Stinger). See last issue for complete run-down on herbicide options. Keep monitoring tarnished plant bug on DN strawberries. All strawberries should get another shot of N now, 20#/A of actual N. If the tissue analysis suggests that more N is needed you can deliver another dose later in the fall. All other nutrients that are recommended by tissue analysis can be applied now as well.

Managing Mites in Raspberries and Blackberries

By Rufus Isaacs, Michigan State University Extension

Most caneberry growers in Michigan have had little need for mite management because of the abundance of predatory mites that keep pest mite populations in check. However, the current increased level of insecticide against spotted wing Drosophila is starting to cause some outbreaks of two-spotted spider mites, and these can compromise raspberry cane health and lead to reduced yield. This is especially likely inside high tunnels that tend to block the immigration of predatory mites.

Two spotted spider mite (TSSM) is the main species of pest mite encountered in Michigan caneberries, and this pest can quickly reach high abundance if the predator mites are not sufficiently abundant to suppress their populations. TSSM can be monitored through the season using a hand lens on 10-leaf samples taken weekly. Look on the underside of the leaves for the small spherical translucent eggs and the stationary/slow-moving immatures or adults of TSSM that have two dark spots in

their bodies. In contrast, the predatory mites are light colored and they do not have the dots, and tend to move quickly across the leaf surface. These mites will require a hand lens to see, as the mites are less than a millimeter diameter. A general rule of thumb is that if the predator to pest mite populations are 1:10 or higher, then the predators should keep spider mites in check.

Treatment for two-spotted spider mite is considered unnecessary unless populations reach a threshold of one or more TSSM on 50 percent of the leaves. If predator mites are not present, the pest mite populations can far exceed this threshold. If that happens, growers will notice stippling damage on the leaves as the pest mite populations build. If it gets out of control, there can be severe leaf bronzing. Canes will typically recover from this damage eventually and put out new leaves, but the goal of mite management is preventing that situation from happening in the first place. This can be done through inundative release of predatory mites, but this approach has not yet been well-tested in Michigan farms and the releases are best done

continued on next page



Photos show close-up of underside of leaf and the stippling on the upper side.

Photos courtesy of whatcom.wsu.edu

Managing Mites in Raspberries and Blackberries, continued from previous page

when the TSSM population is low and has not yet reached damaging levels.

Maintaining some broad-leaf weed/ground cover can also provide some habitat for predator mites, and this can also provide food for them to persist on. Fields with clean cultivation and completely weed-free management are more likely to experience mite outbreaks.

If chemical control is needed, caneberry growers have a number of miticides registered for use against TSSM. These can be grouped into those products that have activity on the immature and adult mites (Acramite, Kanemite, soaps) and those with activity primarily on eggs and immatures (Savey, Zeal). For growers producing fall

red raspberries, it may be important to highlight that Savey can be used when honey bees are active, although we still recommend that applications are done in a way that does not lead to direct application to bees, and so early morning or late evening application is suggested. The insecticidal soaps such as M-Pede, Safer, and other formulations are potassium salts of fatty acids, with activity on eggs, immatures, and adult mites. They have 0 day PHI restrictions and 12 hour re-entry. Soap products require thorough coverage, including on the undersides of the leaves to be effective. Miticides for use in raspberry have 0-3 day preharvest intervals.

Reprinted from Michigan State University Extension news. Dr. Issacs' work is funded in part by MSU's AgBioResearch.

Late Summer Cover Crops

By Katie Campbell-Nelson, UMass Extension adapted from work by R. Hazzard & F. Mangan, UMass; Vern Grubinger, UVM and Thomas Bjorkman, CU. Resources: Managing Cover Crops Profitably, 3rd edition, published by Sustainable Agriculture Network

A well-established late season cover crop increases organic matter, improves soil structure, scavenges remaining nutrients, chokes out weeds, and prevents soil erosion. Grains and grasses can provide all of these functions and legumes can add additional nitrogen. Each has strengths and weaknesses. Below is a list of several good choices, depending on your specific goals and field conditions.



The photo above shows a field of Reduced Tillage strawberries at Stanton's Feura Farm in Feura Bush NY. This system reduces establishment costs by at least a third and relies heavily on the use of cover crops – in this case winter rye – that are planted the fall before establishment. This planting proved to be one of the highest producing pieces the farm has ever seen this past spring.

Grasses can return a significant portion of organic matter and other nutrients to the soil if planted after removal of a seasonal crop and given enough time to mature. Kill grasses before maturity in the spring or mix with a legume to reduce the C:N ratio and supply more nitrogen for the following year's crop.

Winter or Cereal Rye (*Secale cereale*) is the most common cover crop used by growers in Massachusetts. It is inexpensive, easy to get and to establish, and can be seeded until 2 weeks before a killing frost. However, it is best planted before September 15th in order to recover the available N from soil and to produce enough canopy to protect soil from erosion and outcompete weeds. It consistently overwinters here and will continue to grow in the spring, producing up to 7,000 lbs/A of biomass contributing to soil organic matter. It should be seeded with a legume to keep the C:N ratio low making more N available in the spring. Some growers are hesitant to use this cover crop because of the longer decomposition rate and allelopathy against spring seeded crops. *Seeding rate: 90-120 lbs/A broadcast; 60-120 lbs/A drilled; 50-60 lbs/A mixed with a legume.

Annual or Italian Ryegrass (*Lolium multiflorum*) and **Perennial Ryegrass** (*Lolium perenne*) are used by some growers because of the dense root system that outcompetes weeds and protects against erosion. Annual ryegrass can tolerate some flooding while perennial ryegrass is more cold hardy. Both are shade tolerant. These cover crops should be planted at least 40 days before the fall frost date. The seed is small and light, so specialized equipment will be needed if seeding a large area. Seeding rate: 20-30 lbs/A broadcast; 10-20 lbs/A drilled; 8-15 lbs/A mixed with a legume.

continued on next page

Late Summer Cover Crops, continued from previous page

Oats (*Avena sativa*) can be seeded in the late summer, will come up quickly, and are best planted before September 15th similar to winter rye. Unlike winter rye, oats will winterkill in Massachusetts, making for simpler field preparation in the spring, however, with less organic matter contribution. To maximize nitrogen carry-over to the following crop, mix with a legume that will overwinter such as hairy vetch. Seeding rate: 110 – 140 lbs/A broadcast; 80- 110 lbs/A drilled; 60-90 lbs/A mixed with a legume.

Winter Wheat (*Triticum aestivum*) is increasingly being used as a cereal grain and as a cover crop. It is winter hardy, but does not grow as tall or mature as quickly as rye so there is no rush to kill it in early spring and risk compacting wet soils. Wheat is excellent for erosion control, scavenging N, P and K, building soil organic matter and improving tilth. Plant it in late summer to early fall; before September 15th. Best growth will be in well-drained soils with moderate fertility. Rye is a better choice on wet soils. Wheat works well as a nurse crop for legumes such as hairy vetch or clover. Seeding rate: 90-160 lbs/A broadcast; 60-120 lbs/A drilled; 60-90 lbs/A mixed with a legume.

Legumes are a good choice if you are interested in adding nitrogen to the soil, however, it is important to inoculate seed before planting with the appropriate root nodulating bacteria that will fix nitrogen from the air. Some growers use coca cola or sugar water to help the inoculum stick to the seed and plant while still wet to keep the bacteria alive. Bacterial inoculants are specific to certain legumes and therefore must be used with the correct plant groups in order to establish. Inoculum groups are: 1) red and white clovers, 2) crimson and berseem clovers, 3) alfalfa and sweet clover, 4) pea, vetch and lentils, 5) annual medics, 6) cowpea and lespedeza. If well managed, legume cover crops can provide as much as 100 to 150 lbs nitrogen per acre to the following crop.

Hairy Vetch (*Vicia villosa*) usually benefits from being grown with a nurse crop such as rye, oats or wheat to help reduce matting during spring and to keep weeds down.

Both the vetch and the grain can be mixed together in the seed drill. In the spring, vetch is incorporated at early bloom, typically in late May. With a good flail mower, vetch can be used in a deep zone tillage system without matting and tangling in the equipment. Seeding Rate: 25-40 lbs/A broadcast; 15- 40 lbs/A drilled, 15-20 lbs/A mixed with a grass.

Red Clover (*Trifolium pratense*) is a short-lived perennial that is somewhat tolerant of soil acidity or poor drainage. Mammoth red clover produces more biomass for plow-down than medium red clover, but does not regrow as well after mowing. Mammoth will often establish better than medium in dry or acid soils. Sow in early spring or late summer. Red Clover can be undersown in mid-summer into corn or winter squash before it vines and other crops if soil moisture is plentiful. Seeding rate: 10-15 lbs/A broadcast; 6-15 lbs/A drilled; 6-10 lbs/A mixed with a grass.

White Clover (*Trifolium repens*) is a low-growing perennial, tolerant of shade, moisture and slightly acid soil. Ladino types are taller and live longer than the Dutch or New Zealand types. The clovers do not compete well with weeds unless mowed to improve lateral growth and establishment. Thus, they are suitable for use in mowed walkways or alleys. Seed tends to be expensive, although stands can last for many years, especially if mowed or grazed, since the laterally- growing stolons continue to root. Seeding rate: 7-14 lbs/A broadcast; 10-12 lbs/acre drilled; 2-6 lbs/A in a mix.

Sweet clover (*Melilotus officinalis*) is a biennial crop, except for the annual types called Hubam. It is deeprooted and adapted to a wide range of soils and thus is a good soil-improving crop, as a provider of free N and “biological subsoiling”. Yellow Sweet clover is earlier maturing and somewhat less productive than white Sweet clover. Sow before August 30th for best results. Heavy growth is produced in spring after overwintering. The tall, lush growth may be difficult to incorporate without proper equipment. This should be done in latespring, or by mid-summer at flowering since growth will cease after that.

continued on next page

Cornell Berry Pages Nursery Guide

This two-part nursery guide for berry growers cross references scores of cultivars with the nurseries that sell them.

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/>

Late Summer Cover Crops, continued from previous page



Seeding rate: 20-30 lbs/A broadcast; 10-20 lbs/A drilled; 6-10 lbs/A in a mix.

Other species may be used as cover crops in disease management or in the case of the forage radish, for improving water drainage and soil structure:

Radish (*Raphanus sativus*), known as Daikon, tillage, forage or oilseed are also appropriate biological subsoilers, often producing 8-14 inch tap roots. With its deep roots, this crop can recover N, P, S, Ca and B for the following season, but must be planted into a crop early in the spring or else these nutrients are lost through fast decomposition and the deep root holes. This cover crop can be planted 4-10 weeks before a killing frost and typically winterkills in December or January. It can be used as animal forage. Seeding rate: 10-13 lbs/A broadcast; 7-10lbs/A drilled.

Brown Mustard (*Brassica juncea*) found in many of the ‘Caliente’ seed mixes is a biofumigant planted to combat root knot nematode and a variety of soil-borne fungal pathogens. It is also allelopathic against weeds. Do not plant this cover crop in rotation with any brassica crops. If allowed to flower, this crop is highly attractive to honey bees. Plant this in late August through September. Other brassica cover crops include Rapeseed or Canola and Turnips, which are often used as livestock forage. Mustards should not be planted following any brassica crops since they are in the same family. Seeding rate: 10-15lbs/A broadcast; 5-12 lbs/A drilled.

Keep in mind it is always best to plant a cover crop as leaving a field bare over winter is very damaging to soil structure, increasing erosion and reducing long term fertility. Though it may take several growing seasons or a lifetime to perfect the art of cover cropping, your soil will thank you.

Cover Crop Resources:

- 1) A Comprehensive Guide to Cover Crop Species used in the Northeast United States, prepared by Shawna Clark: http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/nypmcpu10645.pdf
- 2) Managing Cover Crops Profitably 3rd ed. Published by the Sustainable Agriculture Network, Beltsville, MD: <http://www.soilandhealth.org/03sov/0302hsted/covercropsbook.pdf>

* Note: seeding rate recommendations may vary with regional differences.

Source: UMass Veg Notes, Vol. 24, No. 16. August 8, 2013

Orchard Management Video

The Cornell Small Farms Program has released its first orchard management video! Ian Merwin, professor emeritus in Cornell University's Dept of Horticulture and owner of Black Diamond Farm, demonstrates the art and science of shaping the form of apple trees in “**Black Diamond Farm – Pruning and Training Apple Trees.**” Watch here: <https://www.youtube.com/watch?v=DDI-rfxWfIA>



The “Ag Exchange” – Boosting Business for Local Agriculture

Now open, the “Ag Exchange” at <http://agexchange.cce.cornell.edu/> by Cornell Cooperative Extension (<http://ccecapitalregion.org>) is a new **and simple** online agricultural classified service and ag business directory. Through this one exchange farmers in the mid- and upper Hudson Valley will be able to buy, sell, or rent any agriculture-related product or service. Property owners will also benefit since it includes land and facilities rental. It is not for retail sales.

The Ag Exchange classified is designed to facilitate wholesale business among our traditional dairy, beef, field crop, fruit or vegetable farms, bees and maple, as well as the new and developing farms involved in brewing, distilling, artisan products, organic production, and non-GMO animal feeds.

The Ag Business Directory portion is provided for commercial ag businesses to list their contact information

and a link to their website. Along with our traditional machinery and feed dealers, smaller businesses, from hoof trimming to fencing, can also be listed to advertise their products and services. Businesses are asked to make an annual donation to support CCE and the Ag Exchange and to link the CCE regional website to their homepage.

The Ag Exchange is an easy to use, blog-based system. No password is required and you do not have to create any “accounts”. To look for a product or service, simply click on the category you want. To post an ad onto the Exchange, simply read the “terms of use for the Ag Exchange”; click on the button “Post Ad”; select the county you are from; select the category for your ad; and enter the appropriate information. You can also post images of your item. Before your classified or directory listing is posted to the web, you will receive an email to confirm you are the person making the post to the Ag Exchange. It is very simple.

Local agriculture is very active. Many farmers have been asking for a service like the Ag Exchange. It may include other regions of New York beyond the mid- and upper Hudson Valley once it gets established. It will be a great boost for all farms in the local agricultural community.

To use the Ag Exchange, go to <http://agexchange.cce.cornell.edu/>.

If you have questions or comments, please contact:
Aaron Gabriel, (adg12@cornell.edu, 518-746-2560) or
Amy Sabbatis, (als77@cornell.edu, 518-668-4881).

2nd Annual Hops Event Thurs. September 11, 2014 - 8am-4pm

Cornell Cooperative Extension of Dutchess County
Farm and Home Center, 2715 Route 44, Millbrook, NY 12545

Topics include:

- Lab Analysis of Hops
- Harvesting and Drying of Hops
- Pest and Diseases of Hops
- Value Added Foods with Hops/The Culinary and the
- Craft Beer Industry
- The Need for Small Grains Production and How to Get Started
- Marketing Panel Discussion hosted at Dutchess Hops, 1167 Noxon Road, Lagrangeville, NY



*2013 Hops 101 Participants
visiting Dutchess Hops*

Topics are subject to change. \$60/person, includes lunch. Call 845-677-8223 ext. 115 for more information. Email nh26@cornell.edu to register.

Cornell Berry Open House, Ithaca, NY

Friday, October 3rd from 1 pm – 4:30 pm

Part one of the program will be held at Cornell Orchard and Part Two at the East Ithaca Farm with a refreshment break will be provided between program sessions. This event is free and open to the public but pre-registration is required to ensure adequate transportation, handouts, and refreshments. Please RSVP by 9/26/14 by contacting Cathy Heidenreich, mcm4@cornell.edu, 315-787-2367.

For full details see <http://blogs.cornell.edu/fruit/2014/08/21/cornell-small-fruit-open-house/>. Topics:

- Low Tunnel Day Neutral Strawberries: Production, Plastic Types and Exclusion Netting - *Dr. Marvin Pritts and Cathy Heidenreich*
- Cranberry Production - *Dr. Justine Vanden Heuvel*
- Bird Management - *Heidi Heinrichs and Dr. Paul Curtis*
- Spotted wing Drosophila - *Dr. Juliet Carroll*
- Strawberry Soil Health: The Effect of Soil Amendments - *Maria Gannett*
- Trellising Systems for High Tunnel Blackberries - *Marvin Pritts*
- Disease concerns - *Dr. Kerik Cox*
- Small Fruit Variety information - *Dr. Courtney Weber*
- Updates on Eastern NY Applied research - *Laura McDermott*

Calendar of Events

September 11, 2014. *2nd Annual Hops Event.* 8am-4pm, Cornell Cooperative Extension, Dutchess County, Farm and Home Center, 2715 Route 44, Millbrook, NY 12545. \$60/person, includes lunch. Call 845-677-8223 ext. 115 for more information. Email nh26@cornell.edu to register. See page 6 for more details

October 3, 2014. *Cornell Small Fruit Open House*, Ithaca, NY. See above for details, or go to .

November 17-19, 2014 – *Southeast Strawberry EXPO*, Pinehurst, North Carolina. **For more information:** www.ncstrawberry.com.

December 9-11, 2014. *Great Lakes Fruit, Vegetable, and Farm Market EXPO and Michigan Greenhouse Growers Expo.* More information: <http://www.glexpo.com/>.

January 20-22, 2015. *Empire State Producers EXPO.* **More information:** <http://nysvga.org/expo/information/>.

January 27-29, 2015. *Mid-Atlantic Fruit and Vegetable Convention*, Hershey, PA. More information: <http://www.rasperryblackberry.com>.

February 3-6 2015. *NASGA Conference and Symposium*, Ventura, CA. **More info:** www.nasga.org.

February 12, 2015. *Hudson Valley Fruit School – Berry and Grape session.* Information to follow.

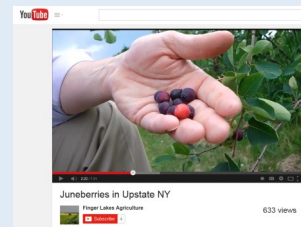
February 24-27, 2015. *North American Raspberry and Blackberry Conference*, Fayetteville, NC. **More information:** www.rasperryblackberry.com/.

June 18-25, 2015 – *11th International Rubus & Ribes Symposium* in Asheville, NC, June 21-24, with preconference tour to farms and research sites June 18-21. More information: <http://www.newbeginningsmanagement.com/ishs/>

Juneberries in Upstate NY

G&S Farms in the Finger Lakes are featured in the YouTube video. Learn a little about this promising berry crop by clicking this link:

https://www.youtube.com/watch?v=9Y5cESzB_k4.



2014 Weather Table—This chart is compiled using the data collected by Northeast Weather Association (NEWA) weather stations. For more information about NEWA and a list of sites, please visit <http://newa.cornell.edu/>. This site has information not only on weather, but insect and disease forecasting tools that are free to use.

2014 Weekly and Seasonal Weather Information						
	Growing Degree Information Base 50^o F			Rainfall Accumulations		
Site	2014 Weekly Total 8/18– 8/24	2014 Season Total 3/1 - 8/24	2013 Season Total 3/1 - 8/24	2014 Weekly Rainfall 8/18– 8/24 (inches)	2014 Season Rainfall 3/1 - 8/24 (inches)	2013 Total Rainfall 3/1 - 8/24 (inches)
Albany	127.8	2111.9	2124.5	0.68	7.39	26.00
Castleton	123.1	1994.0	2114.6	1.07	8.61	23.41
Clifton Park	112.7	1911.6	2001.7	0.00	9.26	26.90
Clintondale	128.7	2132.1	2276.7	1.38	10.18	16.46
Glens Falls	110.2	1889.5	1833.0	1.42	10.94	21.63
Guilderland	118.5	1930.0	2021.0	N/A	N/A	N/A
Highland	129.0	2123.8	2255.4	0.16	11.61	23.90
Hudson	126.6	2126.7	2224.1	0.20	9.83	20.64
Marlboro	124.2	2040.0	2179.6	0.30	12.78	26.94
Montgomery	130.1	2078.4	2139.5	0.15	14.46	26.32
Monticello	99.0	1630.2	1713.0	N/A	N/A	N/A
Peru	106.7	1805.5	1880.9	0.27	10.13	18.88
Shoreham, VT	110.3	1888.9	2001.4	1.63	9.22	20.49
Wilsboro	104.7	1742.0	1838.4	N/A	N/A	22.35

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.

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.