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Berry News

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Regional Update

June strawberry season is coming to a close. Overall, it was an average year, which given how good the crop looked at fruit set is a bit disappointing. The heavy rain on June 25th really did a number on some of the fruit. Growers have reported that some of the later varieties of June bearers, especially AC Valley Sunset, did not fare well with the rain. That variety also has been reported to be very susceptible to cyclamen mites, tarnished plant bugs and aphids. That is a big disappointment because in terms of quality it's an excellent berry and very late.

The strawberry season looked very good in terms of fruit set, but several growers reported that the fruit just didn't size.

This may be due to the excellent fall in 2013 inducing lots of flowers, but then when the early spring was so hard and plants weren't uncovered, the carbohydrate reserves were less than was needed. We also had less Tarnished plant bug found while scouting, but late varieties showed damage. Very little gray mold until after the recent rains. Cyclamen mite was a problem throughout the region.

Everbearing strawberries look decent but growers will really need to stay on top of pest control to insure good quality. This recent high humidity makes botrytis a threat and anthracnose has been seen throughout the region. Keep fertilization going – when the plants start bearing in earnest you should be adding 1# of actual N per acre per day. That rate should be slowly attained so it's likely you won't reach that amount until early August or later.

Summer raspberries are showing some delayed response to winter injury exhibited by cane collapse. There is also the possibility of Phytophthora if the ground is heavy and wet. Fruit is starting to color on Prelude. No real sign of crown borer yet.

Primocane raspberries are doing quite well – growth started out quite spotty but now looks good in most places. Canes should be thinned to allow good penetration for SWD treatments – which you will need to prepare for.

Blueberries are a mixed bag this year. Although set is good throughout the region, the condition of the canes on many plants is average to poor. There are many plantings showing flagging from Phomopsis canker brought on by winter injury. These dead canes need to be removed ASAP so that the spores will not spread. A little extra fertility until mid-July wouldn't hurt, but pruning well next winter will be the most important strategy for long term care of these plants.



Blueberries showing winter damage that has also been infected by phomopsis. This type of damage is being seen throughout the region. Please see the article in the last issue of Berry News about controlling this disease. Photo: LGM

Berry 'To Do' List

All crops

- Plan for SWD control – see article and updated pesticide charts in this newsletter and attend field meetings scheduled for mid and late July.

Blueberries

- Prune out winter injured dead wood to prevent canker. Scout for scale insects, weevil notching, blueberry gall midge, crown gall, witches broom etc. while pruning.

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Berry 'To Do' List, continued from previous page**(Blueberries, continued)**

- If leaf load is light apply extra nutrients through trickle but finish by mid-July. Plan to do foliar analysis in late July or early August.
- Scout for mummified berries – indicators of mummyberry disease.
- Use yellow sticky cards to scout for blueberry maggot. When 1 adult maggot is trapped consider treatment.
- Scout for blueberry stem borer which will cause the first 3-4 inches of current season's growth to wilt and die. Girdling in 2 places will indicate a grub that you can control with pruning.
- Remove flagged, dying branches and obvious winter killed branches now.

Blackberries

- If you have flowers – bring in bees if possible. They should be introduced at 10% bloom. Improving pollination will be worthwhile this year as there is so little crop out there.

Raspberries

- Make sure that you have thinned plantings adequately.
- Scout for cane borers.
- Scout for fireblight in raspberries. We don't usually see it but because there is so much inoculum in tree fruit now we may see it in brambles.
- Heavy soils may indicate Phytophthora. If plants collapse – dig them up and look for water soaked tissue near the soil line. Ridomil or Phostrol are labelled, but effectiveness is marginal if the cultural situation continues to promote wet feet.

Strawberries

- Evaluate your harvested fruit. This will tell you a great deal about what problems you did not sufficiently control. Make a note of them for next year.
- Strawberry renovation is important for continued vigor of plantings.

Winter Injury Showing on Cane Berries

It was a cold winter this past winter. We felt it, it was on the news, and many growers saw the injury to their bramble crops once spring arrived. Some of the injury, though, may have gone unnoticed until recently. The picture below of floricane raspberries is a classic example of winter injury. The canes made it through the winter, and looked healthy at the start of the season. However, once they started to flower and set fruit, many canes collapsed. The main difference between this injury (i.e. winter injury)

and injury due to a soil borne disease (e.g. phytophthora) is that the newly emerging primocanes are healthy and show no symptoms of disease. Because this collapse is the result of winter injury, applications of fungicides will not help and would be a waste of time and money. Removal of the dead floricanes will allow for better air circulation and help the newly emerging primocanes to grow unobstructed. Let's hope for a less troublesome winter this upcoming winter. *-JMO*

Raspberry canes showing winter injury and related collapse. *Photo: JMO*



Strawberry Renovation Simplified

Edited from article written by Sonia Schloemann and A. Richard Bonanno, UMass Extension in Berry Notes, Vol. 17, No. 9

Renovation stimulates new growth and helps disrupt the pest cycle in perennial strawberries. For best results, start immediately after harvest with a goal of finishing by late-July.

1. Apply 2,4-D amine formulation.

Be careful to avoid drift.

2. Mow the old leaves just above the crowns 3-5 days after herbicide application. Don't mow too low – and if we are in a period of extreme heat and drought – don't mow at all.

3. Fertilize at a rate of 25-60 lbs of actual N/acre. The rate will depend on the plant vigor and the soil fertility. Split applications (one now and the rest in 4-6 weeks) are better than a single fertilizer application. This gives plants more time to take up the nutrients in the fertilizer. A leaf tissue analysis (recommended once the canopy has regrown) is the best way to fine-tune your fertilizer program.

4. Subsoil between rows to break up compacted layers and provide better infiltration of water. Subsoiling may be done later if the soil is too wet.

5. Reduce the width of rows to 12-18 inches. More berries are produced along row edges than in row middles. Narrow rows also give better sunlight penetration, air circulation, spray coverage, and over-all fruit quality. Throw 1-inch of soil on top of the rows at this time to stimulate new root formation on crowns and new runners.

6. Preemergent weed control should begin immediately after the plants are mowed and the soil is tilled to narrow the crop row. The most common practice at this time is to

apply half the annual rate of terbacil (Sinbar at 4 oz/acre). It is essential that the strawberry plants be mowed, even if 2,4-D was not applied, to avoid injury from Sinbar. If regrowth of the strawberry plants has started, significant damage may result. Sinbar should not be used on soils with less than 0.5% organic matter or on reportedly

sensitive varieties such as Guardian, Darrow, Tribute, Tristar, and possibly Honeoye. Injury is usually the result of too high a rate or overlapping of the spray pattern. If Sinbar is not used, Devrinol at 4 lb/acre or Dacthal at 8- 12 lb/acre should be applied at this time. Dacthal is preferred over Devrinol if the planting is weak. If Sinbar is used, Devrinol at 4 lb/acre should be applied 4 to 6 weeks later. This later application of Devrinol will control most winter annual weeds that begin to germinate in late August or early September. Devrinol should be applied prior to rainfall or it must be irrigated into the soil. During the summer, Poast can be used to control emerged grasses.



Photo Source: <http://www.fruit.cornell.edu/berry/production/pdfs/strrenovation.pdf>

7. Irrigate with 1 to 1-1/2 inches of water per week from either rain or irrigation.

8. Cultivate as an alternative to herbicides and later to sweep runners into the row until plant stand is sufficient.

9. Evaluate in late summer - adequate moisture and fertility during August and September will increase fruit bud formation and improve fruit yield for the coming year. Continue irrigation through this period and fertilize if necessary. An additional 20- 30 pounds of N per acre is suggested, depending on the vigor.

GAPS Help?

If you want help with writing your GAPs plan or need to get ready for your first inspection, contact Maire Ulrich mru2@cornell.edu. We have a staff person that is prepared to help you take the next steps needed to get that inspection and to be GAPs certified.

This Fall, we plan on having more 2-day classes, across the region for those who have yet to get started with their plans or investigating “what it takes”.

Please call 845-344-1234, and ask for Maire, if you have questions or want to book an appointment with our GAPs specialist.



Rainfast Characteristics of Insecticides on Fruit for 2014

By John Wise, Michigan State University Extension

The rainfall events experienced in Michigan have prompted questions about the relative “rainfastness” of the insecticides used in fruit production. In 2006, AgBioResearch provided funds to purchase and install a state-of-the-art rainfall simulation chamber at the Trevor Nichols Research Center (TNRC), after which Michigan State University Extension has conducted trials, with generous funding support from Michigan fruit commodity groups, on fruit crops for a range of insecticides.

There are several critical factors that influence impact of precipitation on a pesticide’s performance. First is the plant-penetrative attributes of the various compounds. Some pesticide chemistries, like organophosphates, have limited penetrative potential in plant tissue, and thus are considered primarily as surface materials. Some compounds, such as carbamates, oxadiazines and pyrethroids penetrate plant cuticles, providing some resistance to wash-off.

Many newer compounds, such as spinosyns, diamides, avermectins and some Insect Growth Regulators (IGR) readily penetrate plant cuticles and have translaminar movement in leaf tissue. Others, like the neonicotinoid insecticides, are systemic and can have translaminar (moves from top surface to bottom of leaf) as well as acropetal movement in the plant’s vascular system (moves from center to growing tips of leaves). Penetration into plant tissue is generally expected to enhance rainfastness of pesticides.

The second factor is the inherent toxicity of an insecticide to the target pest and the persistence of the compound in the environment. In some cases, a compound may be susceptible to wash-off, but its environmental persistence and inherent toxicity to the target pest compensates for the loss of residue, thus delaying the need for immediate re-application.

The third factor is the amount of precipitation. In general organophosphate insecticides have the highest susceptibility to wash-off from precipitation, but their high field-rate toxicity to most target pests overcomes the

Rainfastness rating chart: General characteristics for insecticide chemical classes						
Insecticide Class	Rainfastness ≤ 0.5 inch		Rainfastness ≤ 1 inch		Rainfastness ≤ 2 inch	
	Fruit	Leaves	Fruit	Leaves	Fruit	Leaves
Organophosphates	L	M	L	M	L	L
Pyrethroids	M/H	M/H	M	M	L	L
Carbamates	M	M/H	M	M	L	L
IGRs	M	M/H	M	M		
Oxadiazines	M	M/H	M	M	L	L
Neonicotinoids	M,S	H,S	L,S	L,S	L,S	L,S
Spinosyns	H	H	H	M	M	L
Diamides	H	H	H	M	M	L
Avermectins	M,S	H,S	L,S	M,S	L	L

* H – highly rainfast (≤ 30% residue wash-off), M – moderately rainfast (≤ 50% residue wash-off), L – low rainfast (≤ 70% residue wash-off), S-systemic residues remain within plant tissue.

necessity for an immediate re-application. Neonicotinoid insecticides are moderately susceptible to wash-off with residues that have moved systemically into plant tissue being highly rainfast, and surface residues less so. Carbamate, IGR and oxadiazine insecticides are moderately susceptible to wash-off, and vary widely in their toxicity to the range of relevant fruit pests. Diamide, spinosyn, avermectin and pyrethroid insecticides have proven to be moderate to highly rainfast on most fruit crops.

For most insecticides, a drying time of two to six hours is sufficient to “set” the compound in or on the plant. With neonicotinoids, for which plant penetration is important, drying time can significantly influence rainfastness. For neonicotinoids, up to 24 hours is needed for optimal plant penetration, thus the time proximity of precipitation after application should be considered carefully. Spray adjuvants, materials intended to aid the retention, penetration or

Blueberry insecticide precipitation wash-off re-application decision chart: Expected Japanese beetle control in blueberries, based on each compound’s inherent toxicity to Japanese beetle adults, maximum residual and wash-off potential from rainfall.						
Insecticides	Rainfall = 0.5 inch		Rainfall = 1 inch		Rainfall = 2 inches	
	*1 day	*7 days	*1 day	*7 days	*1 day	*7 days
Imidan	X	X	X	X	X	X
Mustang Max		X		X	X	X
Sevin		X	X	X	X	X

* Number of days after insecticide application that the precipitation event occurred.
 X – Insufficient insecticide residue remains to provide significant activity on the target pest, and thus re-application is recommended.
 - An un-marked cell suggests that there is sufficient insecticide residue remaining to provide significant activity on the target pest, although residual activity may be reduced.

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Rainfast Characteristics of Insecticides, continued from previous page

spread on the plant, can also improve the performance of insecticides.

Based on the results from the current studies, the following charts have been developed to serve as a guide for general rainfastness characteristics and re-application recommendations for certain insect pests, also printed in the 2014 Michigan Fruit Management Guide (E-154). Note that these recommendations should not supersede insecticide label restrictions or farm-level knowledge based on site-specific pest scouting, but rather are meant to compliment a comprehensive pest management decision-making process.

Insecticide persistence, plant penetration, and rainfastness rating			
Compound class	Persistence (residual on plant)	Plant penetration characteristics	Rainfast rating
Organophosphates	Medium - Long	Surface	Low
Carbamates	Short	Cuticle Penetration	Moderate
Pyrethroids	Short	Cuticle Penetration	Moderate - High
Neonicotinoids	Medium	Translaminar & Acropetal	Moderate
Oxadiazines	Medium	Cuticle Penetration	Moderate
Avermectins	Medium	Translaminar	Moderate
IGRs	Medium - Long	Translaminar	Moderate
Spinosyns	Short - Medium	Translaminar	Moderate - High
Diamides	Medium - Long	Translaminar	Moderate - High

Calendar of Events

Cornell University Willsboro Farm Open House

Wed. July 9 from 2 pm - 4:30 pm.

Tour leaves the main office at 2:30pm. 48 Sayward Lane, Willsboro, NY (just past Willsboro Central School on the right). Admission is free and open to the public. For more information call 518-963-7492. Research projects featured:

- reduced tillage strategies for sweet corn and pumpkins
- adaptive nitrogen management
- juneberry nursery project
- testing alternative summer annual forages
- forage grass and alfalfa variety trials
- organic wheat agronomy
- high tunnel vegetable production systems
- ancient and heritage wheat variety trials
- cover crops options for the alleys between vegetable beds
- cold hardy wine grape variety trial

Summer Berry Workshops:

- Wed. July 16th, Lawrence’s Farms Orchards, 39 Colandrea Road, Newburgh, NY 12550, 3-5pm
- Mon. July 21, Rulf’s Orchard, 531 Bear Swamp Road, Peru, NY 12972, 4-6pm
- Wed. July 23, Bohringer’s Orchard, 3992 NY 30, Middleburgh, NY 12122, 3-5pm

Monitoring for SWD, designing an effective pesticide rotation program, understanding when and how to collect leaves for a nutrient analysis and general troubleshooting will all be part of this workshop. 2 DEC Pesticide Re-certification credits have been applied for. Please pre-register with Marcie Vohnoutka at 518-272-4210 or mmp74@cornell.edu.

Wednesday, August 13, 3:00-5:00pm - SWD Exclusion Netting Project will be the highlight of this meeting. Two weights of netting are being trialed. A vestibule was added to improve ease of movement. The entire patch has been covered. A 2nd year trial of a fixed sprayer system in a high tunnel will also be on view. Location: The Berry Patch of Stonewall Hill Farm, 15370 NY Route 22, Stephentown, NY 12168. To preregister call Marcie at 518-272-4210 or visit <http://enych.cce.cornell.edu/>.

***Labeled Insecticides for Control of Spotted Wing Drosophila in New York Berry Crops**

Compiled by Greg Loebl, Catly Heldenreich, Laura McDermott, Peter Jentsch, Debbie Breth, & Juliet Carroll, Cornell University, February 21, 2014

BLUEBERRIES

PRODUCT	AI ¹	IRAC group	EPA#	Rate/A	REF ³	DTH ⁴	Max. Prod/A/yr (ai)	Total applic's	Spray Interval	Probable efficacy
EnTrust Naturlyte (Zee)	spinosad	5	62719-282	1.25-2 oz	4 hr	3 d	9 oz (0.45 lb)	3 per crop	6 d	Good to Excellent ⁶
EnTrust SC (Zee)	spinosad	5	62719-621	4-6 fl oz	4 hr	3 d	29 fl oz (0.45 lb)	3 per crop	6 d	Good to Excellent ⁶
Delegate WG (Zee)	spinetoram	5	62719-541	3-6 oz	4 hr	3 d	19.5 oz (0.305 lb)	6	6 d	Excellent ⁶
Brigade WSB (Zee)	bifenthrin	3A	279-3108	5.3-16 oz	12 hr	1 d	5 lb (0.5 lb)	-	7 d	Excellent
Danitol 2.4EC	fenproprathrin	3A	59639-35	16 fl oz	24 hr	3 d	32 fl oz (0.6 lb)	2	-	Excellent
Mustang Max Insecticide (Zee)	zeta-cypermethrin	3A	279-3249	4 fl oz	12 hr	1 d	24 fl oz (0.15 lb)	6	7 d	Excellent
Triple Crown	bifenthrin, imidacloprid, zeta-cypermethrin	3A, 4A	279-3440	6.4-10.3 fl oz	12 hr	3 d	31.0 fl oz (0.54 lb)	5	7 d	Good to excellent
Imidan 70W	phosmet	1B	10163-169	1.33 lb	24 hr	3 d	7.125 lb (5.0 lb)	5	-	Excellent
Lannate SP (Zee)	methomyl	1A	352-342	0.5 - 1.0 lb	48 hr	3 d	4 lb (3.6 lb)	4	5-7 d	Excellent
Lannate VP (Zee)	methomyl	1A	352-384	1.5-3.0 pts	48 hr	3 d	12 pts (3.6 lb)	4	5-7 d	Excellent
Malathion 5EC (Zee)	malathion	1B	19713-217	2.0 pts	12 hr	1 d	6 pts (3.75 lb)	3	5 d	Good
Malathion 5EC (Zee)	malathion	1B	66330-220	2.0 pts	12 hr	1 d	6 pts (3.75 lb)	3	5 d	Good
Malathion 8 Aquamul (Zee)	malathion	1B	34704-474	1.875 pts	12 hr	1 d	3.75 pts (3.75 lb)	1	5 d	Good
Malathion 57 (Zee)	malathion	1B	67760-40-53883	2.0 pts	12 hr	1 d	6 pts (3.75 lb)	3	5 d	Good
Assail 30SG	acetamiprid	4A	8033-36-70506	4.5-5.3 oz	12 hr	1 d	26.7 oz (0.5 lb)	5	7 d	Good ⁶
Pyganic EC 1.4	pyrethrin	3A	1021-1771	1 pt - 2 qts	12 hr	0 d	-	-	-	Fair to Poor
Pyganic EC 5.0	pyrethrin	3A	1021-1772	4.5 - 18 fl oz	12 hr	0 d	-	-	-	Fair to Poor
AzaSol	azadirachtin	UN	81899-4	6 oz in 50 gal	4 hr	0 d	-	-	-	Fair to Poor

¹ Refer to label for details and additional restrictions.

² Adding sugar (sucrose) at 2 lb/100 gal water as a feeding stimulant will increase efficacy.

³ Approved for organic use in NY.

⁴ After two consecutive applications must rotate to different mode of action.

⁵ Active ingredient.

⁶ Mode of Action, based on IRAC group code.

⁷ Re-entry interval.

⁸ Days to Harvest.

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STRAWBERRIES

PRODUCT	AI ¹	IRAC group	EPA#	RATE/A	REI ²	DTH ⁴	Max. Prod/A/yr (af)	Total applic's	Spray Interval	Probable efficacy
[®] Entrust Naturalyte (2ec)	spinosad	5	62719-282	1.25-2 oz.	4 hr	1 d	9 oz (0.45 lb)	5	5 d	Good to Excellent [®]
[®] Entrust SC (2ec)	spinosad	5	62719-621	4-6 fl oz.	4 hr	1 d	29 fl oz (0.45 lb)	5	5 d	Good to Excellent [®]
[®] Radiant (2ec)	spinetoram	5	62719-545	6-10 fl oz.	4 hr	1 d	39 fl oz (0.305 lb)	5	3 d	Excellent [®]
Brigade WSB (2ec)	bifenthrin	3A	279-3108	5.3-16 oz	12 hr	0 d	5 lb (0.5 lb)	-	7 d	Excellent
Damitol 2.4EC	fenpropathrin	3A	59639-35	16-21.3 fl oz	24 hr	2 d	42.7 fl oz (0.8 lb)	2	-	Excellent
Malathion SEC (2ec)	malathion	1B	19713-217	3.2 pts	12 hr	3 d	12.8 pts (8.0 lb)	4	7 d	Good
Malathion SEC (2ec)	malathion	1B	66330-220	3.2 pts	12 hr	3 d	12.8 pts (8.0 lb)	4	7 d	Good
Malathion 8-Aquamul (2ec)	malathion	1B	34704-474	2.0 pts	12 hr	3 d	8 pts (8.0 lb)	4	7 d	Good
Malathion 57 (2ec)	malathion	1B	67760-40-53883	3.2 pts	12 hr	3 d	12.8 pts (8.0 lb)	4	7 d	Good
Assail 30SG	acetamiprid	4A	8033-36-70506	4.5-5.3 oz	12 hr	1 d	13.8 oz (0.26 lb)	2	7 d	Good [®]
Pyganic EC 1.4	pyrethrin	3A	1021-1771	1 pt - 2 qts	12 hr	0 d	-	-	-	Fair to Poor
Pyganic EC 5.0	pyrethrin	3A	1021-1772	4.5 - 18 fl oz	12 hr	0 d	-	-	-	Fair to Poor
AzaSol	azadirachtin	UN	81899-4	6 oz in 50 gal	4 hr	0 d	-	-	-	Fair to Poor

[®]Refer to label for details and additional restrictions.

[®]Adding sugar (sucrose) at 2 lb/100 gal water as a feeding stimulant will increase efficacy.

[®]Approved for organic use in NY.

[®]After two consecutive applications must rotate to different mode of action.

¹ Active Ingredient.

² Mode of Action, based on IRAC group code.

³ Re-entry Interval.

⁴ Days to Harvest

The Eastern NY Commercial Horticulture Team is proud to announce that their updated website is up and running. For on-line class registrations, announcements, older versions of the newsletters, etc. Please visit <http://enych.cce.cornell.edu/>. We hope you bookmark it on your computer and begin using it as your ‘go to’ website for production and marketing information. Email or call any of the educators with questions or comments on the website – we want to make it work for YOU!



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						
Site	Growing Degree Information Base 50^o F			Rainfall Accumulations		
	2014 Weekly Total 6/23 –6/29	2014 Season Total 3/1 - 6/29	2013 Season Total 3/1 - 6/29	2014 Weekly Rainfall 6/23 –6/29 (inches)	2014 Season Rainfall 3/1 - 6/29 (inches)	2013 Total Rainfall 3/1 - 6/29 (inches)
Albany	161.5	928.8	887.0	1.64	8.91	19.17
Castleton	152.1	879.2	882.0	1.70	10.35	16.32
Clifton Park	148.0	840.2	819.7	2.03	9.26	21.37
Clintondale	159.1	967.8	972.5	0.46	10.18	14.50
Glens Falls	135.6	837.6	757.5	0.79	10.94	15.60
Guilderland	138.0	849.0	803.5	0.51	N/A	N/A
Highland	159.1	960.3	963.2	0.46	11.61	12.94
Hudson	159.5	953.1	911.6	4.81	9.83	14.03
Marlboro	151.5	901.3	925.5	0.56	12.78	15.25
Montgomery	150.5	918.8	905.0	0.26	14.46	16.33
Monticello	126.9	681.3	696.0	N/A	N/A	N/A
Peru	137.0	776.2	772.1	1.55	10.13	13.81
Shoreham, VT	139.6	797.7	818.4	1.19	9.22	13.78
Wilsboro	132.7	731.7	746.7	N/A	N/A	17.14

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.

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