

# Cornell University Cooperative Extension Regional Vegetable Programs

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## 2012 Capital District Fresh Market Tomato Variety Trial

*Chuck Bornt, Laura McDermott, Crystal Stewart and Abby Foster, Capital District Vegetable and Small Fruit Program*

Beefsteak tomatoes continue to be one of the most popular vegetable crops grown by fresh market growers in the Capital District and consumers continue to demand early, large, good tasting tomatoes at roadside stands and farmers markets. During the 2012 growing season, the CDVSFP evaluated 16 beefsteak tomato varieties at Altobelli Family Farms in Kinderhook, NY.

On April 13, 2012 seeds of the 16 varieties were placed in 288 seed flats and placed in the greenhouses at Altobelli Farms. After two weeks these plants were transplanted into 48 cell flats and placed back in the greenhouse. These plants were maintained by the grower and received the same care and treatments as other tomato transplants being grown for field planting. On May 29, 2012, raised beds mulched with black plastic and a single drip tape (0.45 gallons/100ft/minute at 12" emitter spacing) line were formed in a Knickerbocker fine sandy loam. These beds were on 6.5' centers with a finished bed width of approximately 28". Each plot consisted of 10 plants, replicated twice for a total of 20 plants per variety. All varieties were planted in a single row down the center of the bed 2' apart using a RainFlo Waterwheel transplanter with a transplant solution analysis of 20-20-20 at 2 pounds per 100 gallons of water.



As the plants grew throughout the spring, they were pruned and trellised in the Florida Basket Weave system and fertigated to achieve approximately 120 pounds of Nitrogen, 60 pounds of Phosphorous and 140 pounds of Potassium. Plants were irrigated 2 –3 times a week to maintain optimum moisture levels in the beds. Weeds were controlled using a shielded sprayer, which applied the herbicides (Sencor and Dual Magnum) to the row middles only (to avoid contact with the plastic and newly planted transplants) soon after planting.

Variety Name	Seed Company	Variety Name	Seed Company
BHN 589	Seedway	Mt. Merit	Seedway
BHN 967	Siegers Seed Co.	Primo Red	Harris Seed Co.
BHN 1009	Siegers Seed Co.	Red Deuce	Harris Seed Co.
Biltmore	Seedway	Red Bounty	Harris Seed Co.
Black Velvet	Seedway	RFT 6153	Seedway
BSS 832	Seedway	Rocky Top	Seedway
Charger	Seedway	Scarlet Red	Harris Seed Co.
Mt. Fresh Plus	Seedway	Volante	Seedway

*continued on page 3*

# Veg Edge

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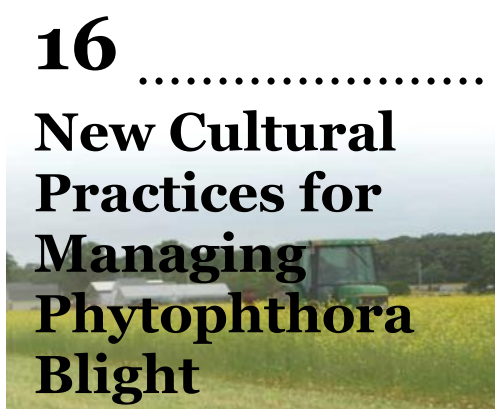
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This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are possible. Some materials may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in NYS must be registered with the NYS Dept of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide usage in NYS should be directed to the appropriate Cornell Cooperative Extension (CCE) specialist or your regional DEC office.

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**Veg Edge** is a shared publication of two Cornell Cooperative Extension teams, the **Cornell Vegetable Program**, serving 11 counties in Western NY, and the **Capital District Vegetable & Small Fruit Program**, serving 11 counties in the Capital Region of NY

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The first harvest was August 9, 2012; plants were harvested weekly until September 7 for a total of 5 harvests. Any fruit that was showing at least 30% color or was harvested and graded into one of six categories based on the growers grading program. For the first two harvests, the Altobelli Farm crew was brought in to ensure we were grading the fruit according to their standards:

- 1) Extra Large #1 = tomato fruit larger than 12 ounces and blemish free
- 2) Large #1 = tomato fruit between 10—12 ounces and blemish free
- 3) Medium #1 = tomato fruit between 8 and 10 ounces and blemish free
- 4) Small #1 = tomato fruit between 6 and 8 ounces and blemish free
- 5) Culls = unmarketable tomato fruit due to size or defects such as rots, excessive cracking etc.
- 6) Seconds = tomato fruit that were flawed cosmetically but marketable

The number and weight of fruit for each category was recorded for the 5 har-

vests. This data was summarized in Table 1 and the yields are shown as the number of 25 pound boxes per acre for each size category and the overall average size per category. Table 1 is the summary table in which the total number of boxes can be found for the entire harvest for each variety. Table 2 gives you a brief description of each variety (i.e. shape, color), what made up the seconds and cull fruit and also any other fruit characteristics we thought were important to note.

We decided that it is important to know the breakout for each individual harvest date so that one can evaluate yields and fruit quality over the entire season for a particular variety. **However, these tables can only be found on-line at our web-site: <http://cdvsfp.cce.cornell.edu/>** These additional tables show the number of 25 pound boxes per acre by size category for each harvest date. For example, Table 2 shows the boxes of “Extra Large” size tomatoes harvested for each harvest date for the 16 tomato varieties evaluated in this trial. Pictures of the varieties are also posted at this website.

Everyone has different criteria they look for in a tomato. Looking at overall yield, and the associated comments for each variety, will help determine the best. For early production Red Deuce did a fantastic job of producing large, attractive fruit with fewer pointed fruit compared to Primo Red. Primo Red also produces early, very large attractive tomatoes but has a tendency to produce a fair amount of fruit that have a strong pointed blossom end. This year’s surprise was Volante which produced beautiful, early large tomatoes. For main season production try Red Bounty which gave good yields of attractive fruit followed by Mt. Merit, Mt. Fresh, Scarlet Red and BHN 589. Mt. Merit is also reported to have Late Blight resistance which is an added bonus. Scarlet Red produced some of the most attractive fruit in this trial which has been the case in past trials, but it is not recommended for shipping, only as a direct marketed variety. BHN 589 is, in our opinion, one of the best tasting tomatoes in this class of tomatoes and produces very nice, attractive fruit.

**Table 1.** The total number of 25 pound boxes and average fruit size of tomatoes per acre by size category at Altobelli Family Farms.

Variety	Days to Harvest	Xtra-LG Boxes/ acre	Avg X-LG Size (ozs)	LG Boxes/ acre	Avg Lg Fruit Size (ozs)	Med Boxes/ acre	Avg Med Fruit Size (ozs)	Small Boxes/ acre	Avg Sm Fruit Size (ozs)	Sec-ond Boxes/ acre	Avg Seconds Size (ozs)	Cull Boxes/ acre	Avg Cull Fruit Size (ozs)
BHN 589	74	182	16.6	241	11.5	205	9.2	180	7.3	360	9.6	370	7.0
BHN 967	77	71	15.4	103	11.2	170	8.8	248	6.4	184	7.0	135	5.1
BHN 1009	74	83	15.3	195	11.9	195	9.1	258	7.1	178	6.5	288	5.1
Biltmore	80	242	16.0	181	11.4	158	9.6	165	7.3	231	10.4	365	7.7
Black Velvet	72	0	0.0	0	0.0	0	0.0	72	3.6	622	3.0	330	3.1
BSS 832	75	175	16.1	235	11.6	117	9.6	92	7.3	309	10.5	381	8.7
Charger	76	155	15.4	262	11.2	198	9.2	162	6.9	84	7.7	271	5.4
Mt. Fresh Plus	77	154	14.6	187	11.1	298	9.3	282	7.1	299	7.7	266	5.5
Mt. Merit	75	166	13.6	151	11.6	211	9.1	268	7.3	261	8.3	359	6.3
Primo Red	70	302	14.7	328	11.0	340	9.1	207	7.0	134	10.3	336	5.7
Red Bounty	76	246	16.3	289	11.5	222	9.6	157	7.3	270	9.9	291	6.6
Red Deuce	71	397	16.6	332	11.6	208	9.3	206	7.2	281	11.3	412	8.7
RFT 6153	77	68	16.2	175	11.0	186	9.1	182	7.5	174	9.9	187	6.5
Rocky Top	76	195	16.0	311	11.6	201	9.2	197	6.9	257	8.5	238	5.7
Scarlet Red	75	162	14.9	172	10.8	245	9.1	208	6.8	150	8.5	215	5.1
Volante	74	250	16.1	363	11.5	178	9.2	210	6.9	177	10.1	272	6.0

continued on page 4

As part of the trial in 2012 we conducted a taste testing experiment at one of our twilight meetings in mid August. We took and cut pieces of each of the 16 varieties and placed them on individual plates around a table. Each grower attending the twilight meeting was given 5 tickets to vote on their favorite tasting variety. At each plate an empty cup was placed to collect tickets. The variety that received the most votes was RFT 6153 (27 votes) followed by BSS 832 (17 votes). Others that received votes were Primo Red (4), BHN 967 (3), Volante (2), Biltmore (3), BHN 1009 (2), Scarlet Red (2), Black Velvet (8) and BHN 589 (7). For main or later plantings consider planting RFT 6153, Mt. Merit and Rocky Top or even possibly a later planting of Red Deuce, Volante or Primo Red.

**Table 2.** Fruit characteristics of 16 tomato varieties grown at Altobelli Family Farms in Kinderhook, NY.

Variety	Days to Harvest	Comments
<b>BHN 589</b>	<b>74</b>	Tall round to slightly oblong shaped fruit with a medium stem scar with slight yellow halo and medium blossom scar. Fairly firm, medium red color. Attractive looking overall and still has the best flavor in this researchers opinion! Culls were deep radial and concentric cracking.
<b>BHN 967</b>	<b>77</b>	Mostly flat to slightly tall round fruit with a very slight lobe. Large pronounced stem scar, medium blossom scar. Nice red uniform color. Fair flavor. Fruit size tends to be smaller overall.
<b>BHN 1009</b>	<b>74</b>	Tall round with very little lobing. Large, dark colored stem scar with slight yellow halo and small to medium blossom scar. Firm, but blotchy streaky coloring. Overall unattractive. Fair flavor.
<b>Biltmore</b>	<b>80</b>	Large, round to slightly oblong shape - slightly lobed. Huge, rough looking, unattractive stem scar with a small to medium blossom scar. Firm, medium red color and uniform ripening. Culls were mostly radial and concentric cracking. Fair
<b>Black Velvet</b>	<b>72</b>	Specialty fruit: Small (large cherry type), round to slightly tall specialty fruit. Tiny blossom and stem scar. Green to golden orange color. Nothing special in flavor. Culls were mostly undersized, rain checking and concentric cracking.
<b>BSS 832</b>	<b>75</b>	Tall round to flat oblong fruit - a fair amount of variation. Medium to large stem scar, medium to large blossom scar. Also uneven ripening. Deep radial cracking, zipper scar and rain check.
<b>Charger</b>	<b>76</b>	Not the most attractive tomato in the trial - slightly oblong to round shape. Variable stem scars but mostly large and dark colored (not attractive looking), large blossom scars. Blotchy ripening - not impressed. Culls were radial cracking.
<b>Mt. Fresh Plus</b>	<b>77</b>	Round, slightly tall fruit with a medium to large stem scar and small blossom scar. Fairly firm but slightly uneven ripening. Fair flavor.
<b>Mt. Merit</b>	<b>75</b>	Attractive appearance in the box - fruit have a sheen to them - mostly tall round shape, small to medium stem scar, small blossom scar. Slightly uneven ripening on stem end. Fair flavor. Severe radial cracking, rain checking. Late Blight Resistant
<b>Primo Red</b>	<b>70</b>	Fairly tall, round, strongly pointed fruit. Small stem and blossom scar with slight yellow halo around stem scar. Fairly firm, decent red color and fairly uniform. Nice size, attractive and not bad tasting for an early variety. Culls were mostly radial cracking.
<b>Red Bounty</b>	<b>76</b>	Tall round, slightly lobed with a small to medium stem scar and small to medium blossom scar. Firm, decent color and attractive looking overall. Fair to good flavor.
<b>Red Deuce</b>	<b>71</b>	Fairly attractive, round, slightly tall fruit - a few slightly pointed. Tiny stem and blossom scars. Firm, orange red color, uniform ripening. Fair flavor. Worth looking at for early production.
<b>RFT 6153</b>	<b>77</b>	Very round flat, slightly tall shaped fruit with slight lobe. Medium to large stem scar and small to medium blossom scar. Firm, decent red color and fairly uniform ripening. Good flavor (received the highest votes at twilight meeting tasting). Culls were mostly radial cracking.
<b>Rocky Top</b>	<b>76</b>	Fairly flat to tall round to oblong shape, with a slight lobe. Medium stem scar with slight yellow halo, variable blossom scar (mostly large). Firm, decent red color and fairly uniform ripening - pretty attractive. Culls were mostly radial cracking and Bacterial canker. Flavor was fair at best.
<b>Scarlet Red</b>	<b>75</b>	One of the most attractive looking tomatoes in the trial. Mostly round, smooth, flattened to slightly tall. Medium stem scar with slight yellow halo, medium blossom scar. Fairly firm, attractive red color and fair flavor. Culls and seconds were usually zipper scar and radial cracking.
<b>Volante</b>	<b>74</b>	Second most attractive tomato in the trial - nice appearance in the box. Round - oblong, flat fruit, slightly lobed - Small stem scar, but large to medium blossom scar. Firm, nice color and uniform ripening. Good to fair flavor - would recom-

A sincere thank you to our hosts Altobelli Family Farm and to the seed companies that provided seeds for this trial including Seedway, Harris and Siegers Seed Company. If you would like to discuss any of the information found in this report further, please feel free to contact Chuck Bornt at [cdb13@cornell.edu](mailto:cdb13@cornell.edu) or 518-859-6213. ■



# Calling 911 for Help in a Farm Emergency

Sharon Scofield, Jim Carrabba, and Anna Meyerhoff, the NY Center for Agricultural Medicine & Health – NYCAMH

If an emergency occurred at your farm (or elsewhere) would everyone at the farm know how to call for help? Would everyone at your farm know how to make a 911 call? Does everyone at your farm know how to tell the 911 dispatcher how Emergency Medical Service (EMS) responders can reach your farm location or any location at your farm? In an emergency, it is vitally important to call 911 as soon as possible. The sooner that EMS arrives on the scene, the better the chance of survival for the victim(s). When a 911 call is made, the dispatcher will ask for information from the caller. This information is important to the EMS responders so that they are fully prepared to deal with the situation when they arrive. When you call 911, you will be asked for the following information:

- Your name and the telephone number you are calling from
- The number and condition of the victim(s)
- Information on the nature of the emergency
- Any care that has been rendered to the victim(s)
- Special conditions that will hinder rescue efforts such as overturned machinery, entanglements, downed power lines, fire, chemical spill, animals present, etc.

- Specific instructions on how to get to the victim

When giving directions to the 911 Dispatcher include the following:

- 911 address, road names, specific mileage, visible landmarks. The victim may be in a remote location on the farm or in a confined space.
- Who, if anybody, will meet and direct EMS to your location.

*Important: When making the 911 call, never hang up until told to do so by the dispatcher.*

*Note: Using your cell phone may not ensure being located by a 911 dispatcher. Older models may not have the GPS feature. You may not have cell phone service in the area you are located. Certain weather conditions may interfere with tower and satellite reception.*

Use these preventative measures when working alone to alert your family and co-workers of potential emergencies:

- Advise someone where you will be and how long you will be there
- Co-workers or other family members should periodically check on individuals who are working in remote locations for long periods of time
- Carry a cell phone or two-way radio
- Show family members, workers, and visitors where the directions to the

farm and emergency telephone numbers are posted

- Emergency telephone numbers and directions to the farm should be posted prominently near all landline telephones. This information could also be printed on a wallet sized card that employees and/or family members could carry with them if cell phones are used on your farm. Have this information posted in Spanish, if necessary.

Note: This information was prepared with the assistance of the Oneida County 911 Dispatchers.

NYCAMH offers on-farm safety surveys and worker safety trainings at no cost to farm owners. We offer bilingual trainings and materials for Spanish speaking workers. If you want more information on these services, or information on farm emergency response, please call 800-343-7527, or email us at:

[jcarrabba@nycamh.com](mailto:jcarrabba@nycamh.com) or [ameyerhoff@nycamh.com](mailto:ameyerhoff@nycamh.com).

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## New Form I-9 Released



### U.S. Citizenship and Immigration Services

On March 8, 2013, the US Citizenship and Immigration Service (USCIS) re-released a new Employment Eligibility Verification Form I-9. Employers should begin using the new Form I-9 with revision date 03/08/13 immediately for all new hires. The revision date is on the

lower left of the new form (Rev. 03/08/13N). Employers may continue to use previously valid Forms I-9 (Rev. 08/07/09Y and 02/02/09N) for 60 calendar days. Beginning May 7, 2013, employers must only use the new Form I-9. In the cases of reverification or rehires the new version of the Form must be used. You may obtain the new Form I-9 (Rev.03/08/13)N and instructions at: <http://www.uscis.gov/files/form/i-9.pdf> The form is now two pages and there are new fields for e-mail address, phone number and foreign passport. For links to a copy of the I-9 form in Spanish to assist employees in answering questions (only for employer use in Puerto Rico) and the Handbook for Employers, Guidance for Completing /Form I-9 go to: <http://www.uscis.gov/portal/site/uscis/menuitem.5af9bb95919f35e66f614176543f6d1a/?vgnextoid=31b3ab0a43b5d010VgnVCM10000048f3d6a1RCRD&vgnextchannel=7d316c0b4c3bf110VgnVCM1000004718190aRCRD> ■

## Weed Management Programs for Zone-Till Dry Beans

*Robin Bellinder, Cornell*

Trials were conducted in 2011 and 2012 to evaluate potential herbicide combinations and times of application in conventional [CT] and zone-tillage [ZT] dry beans. In both years rye cover crops were killed with glyphosate at 12 to 15 inches tall in mid-April. The herbicide 'programs' were:

### 1. Preemergence

- Dual Magnum + Reflex
- Prowl H2O + Reflex
- Sandea\* + Reflex

\* Sandea contains the same active ingredient as Permit.

### 2. Preemergence + Postemergence

- Dual Magnum [PRE] + Basagran + Re-

flex [POST]

- Prowl H2O [PRE] + Basagran + Preflex [POST]

### 3. Postemergence

- Dual Magnum + Basagran + Reflex + Select
- Prowl H2O + Basagran + Reflex + Select

The two growing seasons were very different with 2011 being overly wet and 2012 being extremely dry. The wet conditions early in the season caused slight but transitory crop stunting with the preemergence herbicides but this did not lead to reduced yields. Weed emergence and growth were also greater in 2011 than in 2012 and were somewhat better

controlled in CT than in ZT. In 2012 weed control was 90% with all programs in both tillage systems. The preemergence program of Sandea + Reflex, as would be expected, failed to control annual grasses. The only other negative impact observed was that adding Select to the total postemergence program did cause increased foliar burning in the beans, however this was temporary and did not affect yields. In 2011 ZT yields were slightly higher than CT and the reverse happened in 2012, however in neither year were there any significant differences. Overall the three types of application programs performed well. ■



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Chris Daum: 585-738-3889  
daumc@helenachemical.com

John Ivison: 585-509-2262  
ivisonj@helenachemical.com

Cris Wunder: 315-727-1300  
wunderc@helenachemical.com

Kevin Witkop: 585-738-9882  
witkopk@helenachemical.com

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# Herbicides for Snap & Dry Bean Weed Control\*

Robin Bellinder, Cornell, and Carol MacNeil, CCE Cornell Vegetable Program

Key to Comparative Effectiveness  E = Excellent G = Good F = Fair P = Poor N = None	BROADLEAF ANNUALS									GRASSES					
										ANNUAL				PERENNIAL	
	Lambsquarters	Purslane	Common Ragweed	Pigweed	Smartweed	Galinsoga	Mustard	Nightshade	Velvetleaf	Barnyardgrass	Crabgrass	Fall Panicum	Foxtail sp.	Quackgrass	Yellow Nutsedge
<b>Pre-Plant Incorporated</b>															
Treflan (trifluralin)	F	F	P	P	P	P	P	P	P	E	E	G	E	P	P
Prowl <sup>9</sup> (pendimethalin)	G	G	P	G	F	P	F	P	G	E	E	E	E	P	P
Sonalan <sup>1,2,9</sup> (ethalfluralin)	G	G	P	G	P	P	P	F	P	E	E	E	E	P	P
Eptam (EPTC)	F	G	P	F	P	P	P	G	P	E	E	E	E	P	F
Micro-Tech <sup>1,2,4,12</sup> (alachlor)	P	G	P	G	P	G	P	F	P	E	E	E	E	P	G
Dual Magnum <sup>1</sup> (s-metolachlor)	G	G	P	E	P	E	P	G <sup>5</sup>	P	E	E	E	E	P	E
<b>Pre-Emergence</b>															
Command 3ME <sup>3,9</sup> (clomazone)	F	F	F	P	F	F	P	P	G	G	G	G	G	P	P
Dual Magnum <sup>1</sup> (s-metolachlor)	F-G	G	P	E	P	E	P	G <sup>5</sup>	P	E	E	E	E	P	E
Permit <sup>1,2</sup> /Sanda <sup>1</sup> (halosulfuron)	E	P	E	E	G	G	G	P	G	P	P	P	P	P	F
Reflex <sup>9</sup> (fomesafen)	G	G	G	E	P	G-E	E	E/F <sup>10</sup>	P	N	N	N	N	N	F <sup>11</sup>
<b>Post-Emergence</b>															
Basagran (bentazon)	G	F	G	F	G	P	G	G <sup>6</sup>	G	P	P	P	P	P	P
Reflex <sup>9</sup> (fomesafen)	F	G	E	E	F-G	G	E	G <sup>7</sup>	P	P	P	P	P	P	P
Raptor (imazamox)	F	F	P	E	F	F	E	E	P	P	P	P	F	P	P
Poast (sethoxydim)	P	P	P	P	P	P	P	P	P	G	F	G	G	F	P
Assure II/Targa (quizalofop P-ethyl)	P	P	P	P	P	P	P	P	P	E	E	E	E	E	P
Select Max (clethodim)	P	P	P	P	P	P	P	P	P	E	E	E	E	G	P
Permit <sup>1,2</sup> /Sanda <sup>1,3</sup> (halosulfuron)	F	P	E	E	P	G	G	P	G	P	P	P	P	P	E
<b>PPI, Pre- or Post-Emergence</b>															
Pursuit <sup>2,9</sup> (imazethapyr)	G <sup>8</sup>	P	P	E	P	P	E	E	P	P	P	P	P	P	P
Outlook <sup>1,2</sup> (dimethenamid-p)	G	G	F	E	P	E	P	G	P	E	E	E	E	P	E

\* For general comparison only. Effectiveness may vary with method of application, rate, use of an adjuvant, size of weed, soil type and weather. See the Cornell 2013 Guidelines for Vegetable Production for more details. Always read and follow label directions.

- 1 - Crop injury is possible on coarse soils if heavy rain occurs shortly after application and beans are emerging, especially black beans
- 2 - Dry beans only
- 3 - Snap beans only
- 4 - MicroTech is slightly better than Lasso EC on some annual broadleaves and grasses
- 5 - Eastern black nightshade only
- 6 - Hairy nightshade only
- 7 - Very small Eastern black nightshade and very small hairy nightshade only
- 8 - Only the pre-plant incorporated application is effective
- 9 - Read the label regarding crop rotational restrictions
- 10 - Excellent – Eastern black nightshade; Fair – hairy nightshade
- 11 - Fair at snap/dry bean rates
- 12 - Registration ends after the 2013 season. (See pg. 9, NYS DEC Approval of Acetochlor, Cancellation of Alachlor Herbicides)



# Upcoming Meetings

## Marketing NY Farm Products to Bed & Breakfast Innkeepers

Dates, times, and locations appear to the right

These workshops are designed to bring B&B innkeepers together with farmers with products for sale. Organized by the Empire State B&B Assoc., the NYS Small Scale Food Processors, and NOFA-NY. Register online at the web links below, or contact Karen Baase at 315-684-3001 or [kab21@cornell.edu](mailto:kab21@cornell.edu) before the workshop. *Funded by NYS Dept. of Ag & Markets and the Federal State Marketing Improvement Program at USDA.*

**April 9**, 1:00 - 4:00 pm, CCE - Warren Co, 377 Schroom River Rd, Warrensburg. Register online at: [https://reg.cce.cornell.edu/BandBWarrensburg\\_225](https://reg.cce.cornell.edu/BandBWarrensburg_225)

## Electronic Benefit Transfer (EBT) Training Webinar

April 17, May 7, May 17 or June 5  
12:00 - 1:00 pm

This webinar provides the required training for new Farmers Market Federation EBT program participants and acts as a refresher for existing recipients.

Register online at:  
<http://nyfarmersmarket.com/work-shop-programs/webinars/ebt-training-webinar-registration.html>. Or call the Federation at (315) 637-4690.

## Farming Transplants: The Basics of Greenhouse Production for Sales and Farm Use

Thursday, April 25, 2013

4:30 - 7:00 pm

Blue Heron Farm

1641 Shaw Rd, Lodi 14860

Gain confidence starting your own transplants for the farm, or for use as an early-season source of farm income. Robin Ostfeld will take us on a tour of Blue Heron Farm's greenhouses. Learn how to decide what to plant, how much to plant, how to time your plantings, how to market transplants and best strategies for finding a balance between risk and reliability with the plant varieties you choose.

Cost: \$5 per person; \$10 for two or more people from same farm.

Pre-register by 12:00 pm on 4/22/13. Limited to 30 people.

To register go to <http://tinyurl.com/9wudtwa> or contact Stephanie at 585-271-1979 ext. 509.

## WIC Vegetable & Fruit Check Program Webinar

May 15, 2013 or May 20, 2013

7:00 - 8:30 pm

This is a mandatory webinar training session presented by the NYS Department of Ag & Markets that allows participating farmers to accept WIC benefits at farmers markets. To register online for the webinar, or for information on applying to the NYS WIC Vegetables and Fruit Check Program (WIC VF) at farmers' markets, go to: <http://www.agriculture.ny.gov/AP/agsservices/fmnp-wic-vf.html>

## 4th Annual Produce Research Symposium

June 25 - 26, 2013

Wegmans Conference Center  
Rochester, NY

Registration information: <http://cps.ucdavis.edu>

Presented by the Center for Produce Safety (CPS). *The Center for Produce Safety is focused on providing the produce industry and government with open access to information needed to enhance the safety of produce through a partnership between University of California, Davis, California Department of Food and Agriculture, University of California, Produce Marketing Association and Taylor Farms.* For more information on the CPS go to: [cpsinfo@cps.ucdavis.edu](mailto:cpsinfo@cps.ucdavis.edu) or call 530-757-5777.



## Pesticide Classes

### DEC Special Permit Training Class for Non-Certified Applicators and Handlers of Federally Restricted-Use Pesticides

Wayne County

Tuesday, April 9, 2013

English Session: 9:00 am - 12:00 pm

Spanish Session: 1:00 pm - 4:30 pm

Registration: 8:30 am (English)  
and at 12:30 pm (Spanish)

CCE Wayne County  
1581 Rt. 88N, Newark

Orleans County

Wednesday, April 10, 2013

English & Spanish sessions  
9:00 am - 12:30 pm

Registration: 8:30 am

Orleans County Cooperative Extension  
Fairgrounds Trolley Bldg.  
Rte. 31, Knowlesville  
(between Albion and Medina)

**Certified Supervisors are required to attend the first 30 minutes of training!**  
*In Wayne County, supervisors who attend the first 30 minutes of training in the English session do not need to repeat the training in the Spanish session*

**DEC Special Permit allows non-certified workers to apply and handle federally restricted use pesticides:** The Special Permit does not relieve the responsibility of the certified applicator who supervises these employees, but it does relieve the requirement of "on-site, within voice contact" supervision while these pesticides are being applied.

**What are federally restricted-use pesticides?** There are several reasons why pesticides may be federally restricted including avian, fish or aquatic toxicity, acute human oral/inhalation/dermal toxicity (poison), ground and surface water concerns, reproductive effects or tumor causing. Several of the **pyrethroid, organophosphorous and carbamate insecticides** such as Warrior, Capture, Diazinon, Lorsban and Lannate, and a few herbicides such as Gramoxone and Atrazine, are federally restricted-use materials.

**DEC Special Permit training** - At Special Permit trainings, we review with non-certified applicators Worker Protection Safety (WPS) handler training and for each federally restricted-use pesticide the potential hazards to non-target species and the environment, and how to prevent the risk of exposure. Trainees also receive a packet with summaries of this information. **A DEC Special Permit is valid for one year and must be renewed every year unless the pesticide applicator becomes certified.**

\$20 per DEC Special Permit. To register, contact Kim Hazel at 585-798-4265 x26 or [krh5@cornell.edu](mailto:krh5@cornell.edu).

## NYS DEC Approval of Acetochlor, Cancellation of Alachlor Herbicides

*Mike Helms, Pesticide Management Education Program (PMEP), Cornell*

The NYSDEC has recently approved the registration of the following herbicides containing the new active ingredient acetochlor:

- **Degree Xtra Herbicide** (EPA Reg. No. 524-511) – active ingredients acetochlor and atrazine
- **Harness Herbicide** (EPA Reg. No. 524-473) – active ingredient acetochlor
- **Harness Xtra Herbicide** (EPA Reg. No. 524-480) – active ingredients acetochlor and atrazine.
- **Harness Xtra 5.6L Herbicide** (EPA Reg. No. 524-485) – active ingredients acetochlor and atrazine.
- **Warrant Herbicide** (EPA Reg. No. 524-591) – active ingredient acetochlor.
- **Keystone** (EPA Reg. No. 62719-368) – active ingredients acetochlor and atrazine.
- **Surepass EC** (EPA Reg. No. 62719-367) – active ingredient acetochlor.
- **SureStart** (EPA Reg. No. 62719-570) –

active ingredients acetochlor, flumetsulam, and clopyralid.

- **TripleFlex Herbicide** (EPA Reg. No. 62719-570-524) – active ingredients acetochlor, flumetsulam, and clopyralid.

The above herbicides are labeled for pre-plant, pre-emergent and/or early post emergent control of annual broadleaf and grassy weeds in corn (field, silage, seed, sweet, and pop), sorghum, and soybeans. Note the following restrictions for these products:

- All are restricted-use pesticides.
- All products are prohibited from use on Long Island.
- All products have specific setback requirements to protect water resources.

Due to concerns about the impacts of acetochlor-containing herbicides on natural resources, particularly water re-

sources, educational materials and programs will be made available on acetochlor best management practices. Information on how to obtain these will be made available in the near future.

Also note that with the registration of the above acetochlor-containing herbicides, the **DEC will be cancelling the registrations for alachlor-containing herbicides (Lasso, Bullet, Micro-Tech, Intro, and Lariat). Registrations for these products are to end after the 2013 season.** Growers or custom applicators who have stocks of alachlor-containing herbicides on hand will need to use them up during this year's growing season.

Copies of the approved labels for these products will be available on the PMEP PIMS website: <http://pims.psur.cornell.edu>

As with any pesticide product, always read and follow label directions. ■

# Workshop Explains & Enables Farm-to-Restaurant Connections

*Robert Hadad and Elizabeth Buck, CCE Cornell Vegetable Program*

Though the atmosphere is ripe for farms to pursue direct marketing to restaurants, the number of enterprises initiating such business relationships is below market demand. Establishing supplier-buyer relationships brings up challenges, questions, and unknowns for both chefs and farmers.

To help farmers and chefs initiate business relationships, Cornell Cooperative Extension (CCE), the Cornell Vegetable Program, and Finger Lakes Culinary Bounty sponsored Culinary Connections: Farm to Restaurant Workshop and Networking Opportunity, Mendon, NY on February 18. The unique panel discussion - networking break format of the event allowed the twenty-three farmers and twelve chefs and food industry professionals to hear from those successfully marketing and buying local produce for restaurants. It also gave participants a chance to form business relationships using the tips and knowledge gained in the panel sessions.

New business relationships between restaurants and farms can contain equal amounts of reward and strain potential. CCE Ontario Educator Jim Ochterski points out that “communication is a big thing, the key thing” to capturing the benefits and minimizing the drawbacks of direct farm-to-restaurant marketing. Farmers and chefs need to establish frequent, clear, and effective communication very early in the relationship.

Communication will be the important difference in successful integration of the farm and restaurant. Growers and chefs have to work together to develop a common language regarding ordering quantity, specific quality traits like stage of maturity, and product availability. Grower panelist Sharon Nagle, owner of Firefly Farms, shared that “in terms of quantity, there seems to be this communication divide. [Chefs] tend to order by ‘case’, and there isn’t anywhere to go [as a farmer] to get a sense of a ‘case’”. She worked with her chefs to develop an

understanding of how exactly much produce they needed. Fresh market produce grower Keturah Gilbert suggested that growers “really nail down the communication with the chef as to exact volumes in terms that both understand.... Precisely discuss stages of maturity and various uses and prices for vegetables at various stages, discuss variety selection related to those uses, in winter meetings.” She places great value on getting to know the personality of the chefs and their preferences and business schedules.

Farmers attending the workshop learned that they should provide chefs with predicted availability one to two weeks in advance, being careful not to promise more than they can deliver. Blaine Mays of the New York Wine and Culinary Center explained that “a lot of restaurants don’t grasp calling out ahead a week or so to see what’s available. Many want to ‘source’ or ‘contract out’ needs - for example, 50 lbs of carrots/week.” Giving conservative estimates is better than promising quantities you cannot deliver. Once product is promised to a chef and an order is placed, the grower has to deliver that quantity of produce to remain a reliable source. Restaurants are busy establishments, and chefs have to

plan menus and order ingredients well in advance. They depend upon reliable, timely delivery of their orders. Chefs will find other suppliers if there is unreliability in quantity, quality, or timeliness of deliveries.

Chef Mary Bartolotta of Mooseberry Café in Penfield summarized the necessity for close communication: selling to restaurants is “selling to a business. You have to meet their needs, demands, and constraints.” Farmers and chefs have to work together to develop a clear understanding of each other’s wants and abilities. And as for the unpredictability in farming – Nagle succinctly summarized the scenario and resolution, saying “insects happen, diseases happen, weather happens – notify the chefs as soon as you see things happening.” Chefs need to understand that catastrophes can change availability.

Other stumbling blocks easily removed by communication are pricing and payment. Most chefs have to be price sensitive. Muroski explained that chefs are under pressure from owners and corporate offices to be profitable. “[The owner] says they want organic and need to turn a profit, but now my [purchasing] price just doubled.” As a result, farmers



Farmers and chefs networking at Culinary Connections workshop on February 18, 2013. Every thirty minutes, panel discussions adjourned for “speed dating” style network sessions before returning for further panel discussions.

cannot afford to be insensitive to the price constraints of restaurant buyers. Growers must know their costs of production and, as Caridi-Miller stated, must “go out there and see what the prices are...you do have to compete with other food sources....When you go out to talk to chefs, you leave your ego behind and just talk about what you love, the farming of the product” and how that makes your produce preferable. Growers who have done their homework and present their prices will be better able to capture and retain restaurant accounts.

Growers may be in the habit of delivering a bill with their produce. However, they shouldn’t assume that they will be paid up-front or even that week. Each business has a different time frame for paying bills and closing books. Mays frankly told the group that farm-restaurant “relationships have ended based on terms of payment. Sometimes payment schedules cannot be as prompt as the farm needs to thrive.” Both the grower and chef panel urged up-front discussion of both price and payment schedule. Chefs need to ensure that bills are paid according to the agreed, pre-determined schedule.

Good communication facilitates the success of mutually advantageous undertakings. For example, chefs and producers can build upon their strong communication base to develop joint marketing for the farm and finished dish. Restaurant customers increasingly ask for information about the farm that raised the local ingredients. Restaurants can increase customer interest and satisfaction by placing farm information on the menu and in promotional materials. Farms benefit from the increased exposure and generated good will.

Farms should create an explanatory PR piece that quickly, attractively, and memorably highlights the farm practices. A short piece will ensure that “your farm product never travels alone. It travels with your story”, as Ochterski highly recommends. Muroski reinforced the usefulness and importance of summaries as

training materials to teach wait staff to accurately describe the features of each dish. The farmer panel suggested packing the farm or ingredient summary in the delivery boxes. Creating and updating summaries throughout the season affords both parties significant marketing services with a small input of effort.

Other businesses, such as food distributors and food hubs, offer key services to both farms and chefs, which make them potentially valuable partners in the effort to reconnect local agriculture and local eateries. David Ward, an employee of FreshWise, a Rochester-area non-profit food distributor, attended the Culinary Connections workshop to network with local growers and raise awareness of the services FreshWise offers. He believes that “we have a wealth of small farmers, growers in our area. They have hurdles to distribution of their produce. As a distributor we can take spinach, for example, from many farms to help market the crop and get locally grown meals into institutional eateries like school and group home kitchens.” Ward explained that some food hubs can also help a grower add value to their produce by providing processing, packaging, and labeling services for a reasonable fee.

The chef panel described food hubs and distributors as desirable partners because they allow chefs to work with one supplier to fulfill high quantity needs for an ingredient sourced from a number of local farms. “We’ve had great success working with farmers, we’ve had great success dealing with food hubs” said Mays, speaking about the NY Wine and Culinary Center. But, as Chef Bartolotta cautioned, many chefs prize personal business relationships and “want to have a one-on-one relationship” with their growers. Ochterski reminded the farmers that regardless of whether they plan to supply chefs or food hubs, they need to remember that “serving food distributors and restaurant accounts takes a different focus, a different kind of farming.”



Growers and chefs immediately applied the information they learned in the networking breaks. Farmers prepared displays highlighting their products, serving to draw in potential restaurant buyers and industry partners. This small handful of local farms proved that it is more than possible to fully stock a kitchen using only the agricultural bounty of New York. Small groups formed in every corner to learn more about the other’s farm/restaurant operation, role as a service provider or educator. Business cards exchanged hands, and new business opportunities took hold. For example, two growers toured the Freshwise facility to explore developing a supplier relationship this growing season and 5 farmers/chefs have reported pursuing new relationships because of their participation in Culinary Connections.

Tantalizing opportunities await those farmers and restaurants willing to enter into direct marketing relationships. Both parties stand to benefit from the burgeoning Eat Local movement, as do the diners visiting restaurants serving locally-grown meals. Re-connecting local farming and local restaurants is challenging, but as the thirty-nine attendees of the Culinary Connections workshop learned, those challenges can be overcome by frequent communication. Discussing key points like payment procedure, quantity and size or varietal needs, pricing, and delivery time early on will help establish thriving business relationships. ■



## A New Look at nyfarmersmarket.com

*From the Farmers' Market Federation of New York*

One of the most valuable resources of the Farmers Market Federation is its website, [www.nyfarmersmarket.com](http://www.nyfarmersmarket.com), has recently been substantially updated. The **Resources** section has Resources for the Public, Resources for Farmers &



Market Vendors, and Resources for Market Managers. We added two new documents to the **Market Management and Operations** Page (*Farmers Market Rules, Regulations and Opportunities*, a National AgLaw Center Publication, and *Case Study: Creation of the Cicero Farmers Market*). We created a new section for **Funding and Grants** under **Resources for Farmers & Market Vendors**. We've relaunched our **Events Calendar**. Registered users can now add events without contacting the Federation office. For instructions on becoming a registered user, contact us at [gojiem@nyfarmersmarket.com](mailto:gojiem@nyfarmersmarket.com). We reset the Market Organizer subscription as lifetime. Your market will still need to


pay its dues yearly to remain a member of the Federation, but your email address will remain subscribed to important updates (unless you contact us to unsubscribe), and your market information will remain published on our website. Reminder: Keep your information current with the Federation. If your email has changed, please update your profile on our website or contact us.

A new website has also been launched by the Farmers Market Federation of NY, strictly for market consumers, with info about shopping at farmers markets, recipes and ways to use local market products, and info on food safety. Check out: [www.nylocalfood.com](http://www.nylocalfood.com) ■

## Green Peas - Pest Management Strategic Plan Available

*Julie Kikkert, CCE Cornell Vegetable Program*

If you grow processing or fresh market green peas and are interested in the diseases, weeds, insects and other maladies of the crop, you may want to read the report entitled "Pest Management Strategic Plan for Processing Peas in New York." This report is available on-line at the Northeastern IPM Center website <http://www.northeastipm.org/> (click on PMSP's) and details the production and common pests of the crop. While focused on the processing industry, fresh market growers would also benefit from parts of the report. Most notable is the detailed description of the many organisms that can be involved in the root rot complex. Cultural and chemical management options are discussed for each pest. The appendix contains detailed tables of the crop production cycle, varieties and their disease resistance, and currently labeled pesticides. The report is the summary of a workgroup meeting that consisted of processing growers, field reps, commercial crop consultants, IR-4, IPM and Cornell University faculty and extension educators. A hard copy can be obtained by contacting Julie Kikkert at [jrk2@cornell.edu](mailto:jrk2@cornell.edu). ■

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# Q & A Teleconference on the Proposed Produce Safety Rule

*Betsy Bihn, Director, Produce Safety Alliance*

The Produce Safety Alliance, in collaboration with the FDA, will be hosting a series of teleconferences to discuss specific sections of the Food Safety Modernization Act (FSMA) Proposed Produce Safety Rule. This is a great opportunity for you to ask questions of FDA staff. If specific details are not available or addressed in this Q & A series, we encourage you to write and submit a comment or question to the docket that FDA should clarify or address in the final rule or in companion guidance documents.

Comments must be submitted **BEFORE May 16, 2013**. There are 2 ways to comment: Electronically: <http://www.regulations.gov/#!docketDetail;D=FDA-2011-N-0921>  
Written comments may be faxed to the FDA at 301-827-6870 or mailed to: Division of Dockets Management (HFA-305), Food and Drug Administration  
5630 Fishers Lane, Room 1061, Rockville, MD 20852

## Q & A Sessions with the FDA

Mar 18 - Understanding Exemptions; go to <http://producesafetyalliance.cornell.edu>

Mar 25 - Agricultural Water; go to <http://producesafetyalliance.cornell.edu>

Apr 22, 2013, 11:00 AM - Soil Amendments

Apr 25, 2013, 11:00 AM - Domestic & Wild Animals

Dates/times to be announced:

Growing, Harvesting, Packing, & Holding Activities

Equipment, Tools, Buildings & Sanitation

Health, Hygiene & Training of Workers

Recordkeeping, Compliance & Enforcement

The following links will take you to other documents that may help clarify the proposed rule. We recommend reviewing this info before the teleconference.


Proposed Produce Safety Rule at a Glance: <http://www.fda.gov/Food/FoodSafety/FSMA/ucm334554.htm#coverage>

Proposed Produce Rule Subpart Fact Sheets: <http://www.fda.gov/Food/FoodSafety/FSMA/ucm334552.htm#L>

## Call-in Information and Instructions

To participate in the teleconference, dial the toll-free number below 5 minutes prior to the presentation. No registration is required. All participants will be placed on mute, however, the Q & A will be moderated by an operator who will provide instructions for how to ask questions. **Dial toll-free: 866-906-9888. Enter passcode: 8140591.**

Questions about the series? Contact Gretchen Wall at 607-255-6806, [glw53@cornell.edu](mailto:glw53@cornell.edu) or <http://producesafetyalliance.cornell.edu/psa.html> ■



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# Adopt Deep Zone Tillage on Your Farm - Reduced Tillage Project 2012

Anu Rangarajan and Ryan White, Cornell

With funding from a New York Farm Viability Institute and a Northeast SARE Grant, we want to assist more vegetable growers in testing reduced tillage approaches on their farms. Growers who have tested deep zone tillage have found savings in labor (between 25% and 60%) and fuel costs (between 25% and 70%) as compared to their conventional tillage systems (moldboard plow, plus other passes).

## **We can provide equipment loans and support to twenty growers this year for deep zone tillage trials in vegetables.**

We will provide information, technical assistance and cost share funds to help growers plan trials, rent or borrow needed equipment and learn how to adapt Reduced Tillage (RT) to their own farms. We are seeking growers with farms of all sizes, producing conventional or organic vegetables. Either direct seeded or transplanted crops may be tested. We will also assist with some economic analysis to quantify cash savings from these systems. Our research seeks to pair deep zone tillage trials alongside conventional tillage in the same field and on the same crop.

Trying to find the equipment to test RT has been an obstacle for many growers. We will provide loans and transportation of our two-row Unverferth Zone Builder and Yeoman's Plow to growers that have a need for such equipment. To help in this search, we have identified several equipment dealers around NY who will have deep zone builder units available in the spring and summer of 2013 for rental, for use in paired trials. The equipment dealers are working closely with Cornell and Cornell Cooperative Extension to make this equipment available and assist with transportation to interested growers.

## **When deciding whether to try deep zone tillage, please consider this:**

**Limitations:** Be sure you have the **horsepower** needed to pull the tillage unit you'll be using. If your soil is heavier or

compacted you will need more horsepower or you will not be able to rip as deep and break up compaction layers. *(It is essential that you determine the depth of compaction so you can rip a little deeper than the compacted layer. ed. C. MacNeil, CVP)* Equipment dealers estimate that 100-120 horsepower is needed to pull a four row unit. For growers with a smaller acreage, our Yeoman's plow is a zone builder that has been built specifically for tractors where the horsepower rating may be lower, at a 55 rating or more. Our Unverferth zone builder requires some more horsepower to run its two shanks at a rating of 85 or more.

## **For growers new to practicing reduced tillage for vegetables:**

We suggest that you do your first trials on sweet corn, followed by winter squash or dry beans, then cabbage or other transplanted crops. We also suggest that you try reduced tillage for vegetables on a small acreage, until your equipment is adjusted properly for your soils and conditions, to ensure a good seedbed and plant stand. Also, plan to rip the same number of rows that you plant since you will be planting in those narrow disturbed strips.

**Preparing a trial:** If you're planning a (RT) side by side comparison with your previous tillage practices: The deep zone tillage should be conducted next to a conventionally plowed plot in the **same field**. The same crop variety, planting date, soil management, weed management and fertility program should be applied to your deep zone tilled plot as your conventional plot.

**Planting your crop:** Plan to plant the same number of rows that you rip. It's very important that the planting row go right over the deep rip for vegetables. If the weather is dry this will allow roots to reach water below your compaction layer. Also, check the spacing between your planter units at the disc openers and between the ripper units at ground level before planting. Row cleaners on the

ripper or planter are essential to moving residue out of the way.

If you are interested in participating in the project or have questions regarding reduced tillage, contact Carol MacNeil, CVP, at [crm6@cornell.edu](mailto:crm6@cornell.edu) or 585-394-3977 x406, Chuck Bornt, CDVSFP, at [cdb13@cornell.edu](mailto:cdb13@cornell.edu) or 518-859-6213, or Anu Rangarajan ([ar47@cornell.edu](mailto:ar47@cornell.edu)) and Ryan White ([rew37@cornell.edu](mailto:rew37@cornell.edu)) in the Cornell Department of Horticulture. Please also visit our team's website: [www.hort.cornell.edu/reducedtillage](http://www.hort.cornell.edu/reducedtillage) for videos, fact sheets and stories from other growers who have transitioned to reduced tillage. ■



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# Soil Health - Maintain 30% Soil Cover All Year Long

*Adam Hayes, OMAFRA, Ontario, from Crop Talk, Vol. 13, Issue 1*

Rising land prices make it more important than ever to protect our soils from erosion and keep organic matter at optimum levels. Soil erosion can cost up to \$10 per ton of lost soil per acre, reduce yields by up to 50% and cost up to \$40 per acre in drain maintenance and other costs. Soil productivity can be easily maintained by providing at least 30% soil cover with crops, residues or cover crops throughout the year. A wide range of equipment and cropping options are available to get us there.

## Tillage Considerations

- Every tillage pass breaks down soil structure and aggregates.
  - ✓ Good soil structure is important for water movement into the soil. The more water that goes into the soil, less runs off and is lost.
  - ✓ A well-structured soil allows more air in the soil to support root growth and soil life.
- When it comes to tillage, whoever makes the least passes wins.
  - ✓ Fewer passes leave more residue on the soil surface to protect from erosion, and also saves labor and fuel.
  - ✓ Design your tillage system to keep soil out of surface water.
- The tillage system must be economical.

- ✓ Avoid excessive tillage. In many cases, tillage does not pay for itself in additional yield.

- The tillage system should be sustainable in the long term
  - ✓ Reducing organic matter levels and allowing the soil to erode is not sustainable.

## Planter Considerations

- Let the planter or drill do a tillage pass.
  - ✓ Adding coulters to the planter or drill can save a tillage pass.
  - ✓ Trash whippers/row cleaners can remove residue from the row, reducing one or more tillage passes.
- Use a wide range of planter attachments to ensure good seed-to-soil contact.
  - ✓ Attachments are available to facilitate good seed placement.
  - ✓ Closing wheels are available to firm the seed in place.

## Cropping Considerations

- Longer crop rotations are better.
  - ✓ Including a wide variety of crops will help increase organic matter levels, reduce pest problems and increase crop yields.
- Include cover crops as much as possible.

- ✓ Cover crops can provide a wide variety of benefits, such as soil cover to protect against erosion, adding organic matter and improving soil structure.

- Manage residues at harvest.
  - ✓ Proper spreading of crop residues at harvest can reduce the need for tillage and avoid uneven soil drying in the spring.
- Winter wheat
  - ✓ No-tilling winter wheat into soybean or edible bean residue is the most profitable system, and provides the most soil cover.
- Soybeans
  - ✓ No-tilling soybeans into corn residue is the most profitable system, and provides the most soil cover.
- Corn
  - ✓ Reduced tillage and good residue management produces yields equivalent to moldboard plowing. This often costs less and provides more than 30% soil cover.
  - ✓ No-tilling corn after corn results in lower corn yields, although it provides the most soil cover.
  - ✓ Many growers successfully no-till corn after soybeans and cereal crops, while protecting the soil from erosion. ■

# Cover Crop Burndown Considerations

*William Curran, Pennsylvania State University, Penn State Extension Crop & Soils News, 4/13*

Reminders on spring cover crop management:

- Herbicide rate—most glyphosate labels recommend increasing the rate of product as the cereal grain and weeds mature irregardless of weather. With Gramoxone, use the 3 pt rate. It is better on smaller cereals, OR after they have reached the boot stage.
- Include appropriate adjuvants in the spray tank— 1 to 2 qt/100 gal nonionic surfactant plus 8.5 to 17 lb/100 gal AMS or equivalent with glyphosate.
- Use clean water that does not contain soil or other sediments.
- Use flat fan nozzle tips that produce a uniform spray pattern.
- Cold nights (<40 F) reduce activity, par-

ticularly for glyphosate, and especially when followed by cool (<55 F) cloudy days.

Annual ryegrass (*Lolium multiflorum*) cover crop control has been somewhat difficult with herbicides in the spring. Some general recommendations are provided by agronomists from Illinois, Indiana, and Oregon State who have a lot of experience with this species:

- Control is best when the plants are small, 8 inches in height and before the first node has developed. This is usually mid April in the northern Corn Belt.
- While one burndown application may provide control growers should plan for two.

- If annual ryegrass flowers the control of the plant is easier, but some viable seed may develop.
- For glyphosate apply 48 to 64 fl oz of a 3 lb ae gal product, with AMS and surfactant. Adding other herbicides, and especially triazines or clay-based materials can reduce glyphosate activity.
- The use of spray tips that produce coarse droplets should be avoided.
- Spray during the day at temperatures about 60F when annual ryegrass is actively growing.
- If night temperatures drop below 38F, wait three days before spraying; soil temperatures should be above 45F.
- Spray at least 4 hours prior to sunset. ■



# New Cultural Practices for Managing Phytophthora Blight

Margaret Tuttle McGrath, Cornell, LIHREC, from *Agricultural News*, April 2013

Biofumigation with mustard and deep-zone reduced tillage are two cultural practices that are proving useful for managing *Phytophthora* blight based on observations from research and commercial fields. These practices need to be integrated with other practices, including fungicide applications, to achieve effective control of this challenging disease. While these practices cannot be implemented together, they can be used in consecutive years in a field.

Deep-zone reduced tillage (DZT) affects *Phytophthora* blight occurrence by improving soil health. The long shank on DZT equipment cuts through hard pans (going up to 20-in deep) in the planting row thereby improving soil water drainage in the field. The *Phytophthora* blight pathogen needs a period of soil saturated with water to begin developing. Conventional tillage adversely affects beneficial soil microbes directly and indirectly by reducing organic matter. Some of these microbes may be antagonistic to pathogens. LI growers using DZT have noticed their soil drains better and it seems healthier. While *Phytophthora* blight was severe in 2012 in some commercial pumpkin crops on LI produced with conventional tillage, no symptoms were found in other pumpkin crops produced with DZT in fields where blight had occurred in previous years. Benefits of DZT for managing *Phytophthora* blight may take a few years to be realized in a field; however, once DZT has improved soil in a field, the benefits can be evident in subsequent years when crops are grown with conventional tillage. In 2012 at one LI farm, *Phytophthora* blight developed in crops grown conventionally in



Mustard cover crop being flail chopped and then incorporated for biofumigation.

a field where DZT had never been used but not in another field where DZT had been used in previous years.

LI growers have observed other benefits of DZT. Less time, labor, and fuel are needed to prepare fields for planting. There is greater flexibility with DZT. Being able to prepare rows for corn well in advance facilitates planting on schedule. It is possible to work sooner in DZT fields than conventionally-tilled fields following rain. Pumpkin fruit are cleaner and more attractive for you-pick.

Sweet corn and pumpkin are the main crops being produced with DZT. Growers on LI have also used DZT to produce sunflower, cucumber, crucifers, and snap bean. An estimated 300 acres were produced with DZT in 2012. Many of these growers plan to expand their acreage and crops.

Several procedures are being used to handle the rye cover crop. Rye can be sprayed with herbicide and then rolled, or vice versa, when the rye is full height (at pollination) or much shorter. With corn, rows can be prepared in standing rye several weeks before planting, then refreshed if needed before seeding.

Key steps for biofumigation are selecting an appropriate variety, providing conditions that optimize growth of the mustard, incorporating after the mustard has begun flowering using a flail mower or other equipment that chops the plant material into small pieces, and promptly incorporating then sealing the soil surface. Pick a variety with high glucosinolate content, such as Caliente 199. Most varieties need to be seeded in very early spring or fall. Mustard grown in spring will provide the greatest benefit. Biofumigant mustard varieties are being or have been developed that tolerate hot summer weather. Optimize growth of the mustard by applying 50 - 100 lb/A of nitrogen using a fertilizer with sulfur where soil levels are low, drilling rather than broadcast seeding, and irrigating when needed. Up to 80% of the nitrogen will be returned to the subsequent crop. Mustard has a long flowering period before first seed start to mature (harden), thus there is a long period when incorporation can be done. To reduce loss of the volatile biofumigant, thereby maximizing fumigation effect, chop early in the day when temperatures are coolest, incorporate ASAP (within 20 minutes is ideal which neces-



Zone-builder for deep-zone tillage.



sitates having a tractor with a disk or rototiller following right behind the mower), then seal the soil surface using a roller. Water is needed to initiate biofumigation. One to two weeks later, lightly disk to release any remaining biofumigant before planting. Some crops may be sensitive, thus a trial planting may be worth considering for a crop that has not been grown after biofumigation (cucurbits have been focus of studies on LI). Improved soil tilth from adding organic matter is an additional benefit reported by a grower who now routinely uses biofumigation as part of the management program for Phytophthora blight in pumpkin and winter squash.



Reduced till pumpkin crop.

Biofumigation was the first step in a management program implemented in a research field in 2012 for a study to address a question many asked last fall: can pumpkin be grown successfully the year after a severe outbreak of Phytophthora blight. This was conducted at the Long Island Horticultural Research and Extension Center in Riverhead, NY. The program also included subsoiling between rows after planting to improve drainage, weekly applying fungicides with targeted activity for oomycete pathogens, and destroying the first plants affected. Fertilizer (10-10-10) was spread at 400 lb/A then incorporated on 30 March. Mustard variety Caliente 199 was seeded at 10 lb/A on 3 April. Plants had emerged by 13 April and started



Reduced till corn crop.

flowering by 21 May. On 12 June the mustard was flail chopped, immediately disked to incorporate, and then a culti-packer was used to seal the surface. *(There is concern among organic growers that some mustard seed will have matured by waiting this long to disk. ed. C. MacNeil, CVP)* This was an ideal day for this step because there was a high probability of rain occurring afterwards to provide the water needed for biofumigation. Total of 1.5 inches of rain fell over night and during the day on 13 June. Ground was lightly disked before seeding pumpkin with controlled release nitrogen fertilizer (675 lb/A of 15-5-15). On 24 July the soil between pumpkin rows was subsoiled. The following fungicides (listed alphabetically) were applied for Phytophthora blight: Curzate (5 oz/A) on 31 July; Forum (6 oz/A) on 7 September and 21 September; Presidio (4 fl oz/A) on 31 July, 17 August, 14 September, and 21 September; ProPhyt (2 qts/A) on 18 July; Ranman (2.75 fl oz/A) on 31 July and 24 August; and Revus (8 oz/A) on 8 August and 1 September. Seven applications were made. A fungicide application could not be made before a 2.5 in. rain event on 28 July because of sprayer malfunction. Rain also fell on 20 and 24 July. Symptoms of blight were observed on 30 July in another pumpkin planting at LIHREC, therefore several oomycete fungicides were applied together on 31 July before resuming a 7-day schedule alternating among individual products. Beginning with the application on 8 August, Bravo Ultrex (1.8 lb/A) and/or a copper fungicide were also included as well as a

fungicide with targeted activity for powdery mildew. Symptoms of blight were first observed on 16 August in the low end of the field. Affected plants plus a healthy border area were disked on 24 August. A few affected fruit were observed near this area and in the center of the field during September. These fruit were not removed. Of the 1489 fruit counted on 17 October, 91.1% were good with no signs of rot due to Phytophthora or another cause. Thus the integrated program was successful. ■



**NEED CREDITS?**

## Certified Pesticide Applicator Credits are Now Available Online

Online courses are offered to help you achieve your Pesticide Applicator License Recertification. Both Core and Category courses are available.

The courses adhere to New York State regulations and have been approved by the Department of Environmental Conservation.

Visit the Distance Learning Center website for more information on course offerings, costs, and rules.

<http://coursem.cce.cornell.edu/>

If you have additional questions, contact Amber VanNostrand, PMEP, at 607-255-1866 or [asr243@cornell.edu](mailto:asr243@cornell.edu).



**Cornell University**  
Cooperative Extension

A partnership between the Pesticide Management Education Program at Cornell University and the NYS Integrated Pest Management program led to the creation of these online courses. The Distance Learning Center website was made possible through grants from the US-EPA Pesticide Stewardship program and USDA Smith Lever funds.

# Contact the Cornell Vegetable Program

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## *Cornell Vegetable Program (CVP) Specialists*



**Robert Hadad**  
Extension Specialist  
*Food safety; Western region fresh market vegetables; marketing; organic*

Phone: (716) 433-8839 x228  
Cell: (585) 739-4065  
Email: [rgh26@cornell.edu](mailto:rgh26@cornell.edu)



**Julie Kikkert\***  
Extension Specialist  
*Processing crops: sweet corn, snap beans, peas, beets and carrots*

Phone: (585) 394-3977 x404  
Cell: (585) 313-8160  
Email: [jrk2@cornell.edu](mailto:jrk2@cornell.edu)



**Judson Reid**  
Extension Specialist  
*Greenhouse production; small farming operations; Eastern region fresh market vegetables*

Phone: (315) 536-5123  
Cell: (585) 313-8912  
Email: [jer11@cornell.edu](mailto:jer11@cornell.edu)



**Christy Hoepting**  
Extension Specialist  
*Onions, cabbage, field research and pesticide training*

Phone: (585) 798-4265 x38  
Cell: (585) 721-6953  
Email: [cah59@cornell.edu](mailto:cah59@cornell.edu)



**Carol MacNeil**  
Extension Specialist  
*Potatoes, dry beans and soil health; Editor of Veg Edge*

Phone: (585) 394-3977 x406  
Cell: (585) 313-8796  
Email: [crm6@cornell.edu](mailto:crm6@cornell.edu)



**Megan Fenton**  
Regional Ag Economic Development Specialist, Harvest New York

Cell: (315) 694-1306  
Email: [mef46@cornell.edu](mailto:mef46@cornell.edu)

---

**Elizabeth Buck**, Field Technician  
Phone: (607) 425-3494  
Email: [emb273@cornell.edu](mailto:emb273@cornell.edu)

**John Gibbons**, Field Technician  
Phone: (585) 394-3977 x405  
Email: [jpg10@cornell.edu](mailto:jpg10@cornell.edu)

---

## *CVP Administration*

**Mark Giles\***, Regional Ag Team Leader  
*Cornell University*  
Phone: (607) 255-6619  
Email: [fmg4@cornell.edu](mailto:fmg4@cornell.edu)

**Angela Parr**, Administrative Assistant  
*Veg Edge, Enrollment, & Sponsorships*  
Phone: (585) 394-3977 x426  
Email: [aep63@cornell.edu](mailto:aep63@cornell.edu)

**Steve Reiners\***, Co-Team Leader  
*Cornell University*  
Phone: (315) 787-2311  
Email: [sr43@cornell.edu](mailto:sr43@cornell.edu)

*\* Member of the Cornell Vegetable Program Administrative Management Team*

---

## *Cornell Cooperative Extension Offices of the CVP*

**Allegany County CCE**  
Phone: (585) 268-7644

**Monroe County CCE**  
Phone: (585) 461-1000

**Seneca County CCE**  
Phone: (315) 539-9251

**Cattaraugus County CCE**  
Phone: (716) 699-2377

**Niagara County CCE**  
Phone: (716) 433-8839

**Wayne County CCE**  
Phone: (315) 331-8415

**Erie County CCE**  
Phone: (716) 652-5400

**Ontario County CCE**  
Phone: (585) 394-3977

**Yates County CCE**  
Phone: (315) 536-5123

**Genesee County CCE**  
Phone: (585) 343-3040

**Orleans County CCE**  
Phone: (585) 798-4265

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*Visit our website at <http://cvp.cce.cornell.edu>*

## *CVP Region Berry Program*

**Deborah Breth**, Lake Ontario Fruit Program Team Leader  
*Monroe, Niagara, Onondaga, Orleans, Oswego & Wayne Co.*  
Phone: (585) 798-4265 x36  
Email: [dib1@cornell.edu](mailto:dib1@cornell.edu)  
Website: <http://lof.cce.cornell.edu>

**Cathy Heidenreich**, Berry Extension Support Specialist  
*Allegany/Cattaraugus, Erie, Genesee, Ontario, Seneca & Yates Co.*  
Phone: (315) 787-2367  
Email: [mcm4@cornell.edu](mailto:mcm4@cornell.edu)  
Website: [www.fruit.cornell.edu/berry.html](http://www.fruit.cornell.edu/berry.html)

# Contact the Capital District Vegetable & Small Fruit Program

## Capital District Vegetable and Small Fruit Program (CDVSFP) Specialists



**Chuck Bornt**, Team Leader  
Extension Specialist

*Vine crops, sweet corn,  
potatoes, tomatoes and  
reduced tillage*

Office: (518) 272-4210 ext 125  
Cell: (518) 859-6213  
Email: [cdb13@cornell.edu](mailto:cdb13@cornell.edu)  
Address: 61 State Street  
Troy, NY 12180



**Laura McDermott**,  
Extension Specialist

*Small fruits, leafy greens,  
labor, high tunnels, and  
food safety*

Office: (518) 746-2562  
Cell: (518) 791-5038  
Email: [lgm4@cornell.edu](mailto:lgm4@cornell.edu)  
Address: 415 Lower Main Street  
Hudson Falls, NY 12839



**Crystal Stewart**,  
Extension Specialist

*Small and beginning farms,  
organic, root crops,  
brassicas, and garlic*

Cell: (518) 775-0018  
Email: [cls263@cornell.edu](mailto:cls263@cornell.edu)  
Address: 141 Fonclair Terrace  
Johnstown, NY 12095

**Abigail Foster**, Field Technician  
Email: [aef225@cornell.edu](mailto:aef225@cornell.edu)

## CDVSFP Administration

**Mark Giles**, Regional Ag Team Leader  
Cornell University  
Phone: (607) 255-6619  
Email: [fmg4@cornell.edu](mailto:fmg4@cornell.edu)

**Steve Reiners**, Co-Team Leader  
Cornell University  
Phone: (315) 787-2311  
Email: [sr43@cornell.edu](mailto:sr43@cornell.edu)

## Cornell Cooperative Extension Offices of the CDVSFP

### Albany County CCE

William Rice Jr. Extension Center  
24 Martin Road  
Voohreesville, NY  
Phone: (518) 765-3500

### Columbia County CCE

Education Center, 479 Rte. 66  
Hudson, NY 12534  
Phone: (518) 828-3346

### Fulton & Montgomery Counties CCE

50 E. Main Street  
Canajoharie, NY 13317  
Phone: (518) 673-5525

### Greene County CCE

Agroforestry Resource Center  
6055 Route 23  
Acra, NY 12405  
Phone: (518) 622-9820

### Rensselaer County CCE

61 State Street  
Troy, NY 12180  
Phone: (518) 272-4210

### Saratoga County CCE

50 West High Street  
Ballston Spa, NY 12020  
Phone: (518) 885-8995

### Schenectady County CCE

Schaffer Heights  
107 Nott Terrace, Suite 301  
Schenectady, NY 12308  
Phone: (518) 372-1622

### Schoharie County CCE

Extension Center  
173 S. Grand Street  
Cobleskill, NY 12043  
Phone: (518) 234-4303

### Warren County CCE

377 Schroon River Road  
Warrensburg, NY 12885  
Phone: (518) 623-3291

### Washington County CCE

415 Lower Main Street  
Hudson Falls, NY 12839  
Phone: (518) 746-2560

## Advisory Members

Albany: Tim Albright and Tim Stanton  
Columbia: John Altobelli, Bryan Samascott,  
Jody Bolluyt (organic)  
Fulton: Eric and Stephanie Grey  
Greene: Pete Kavakos, Jr. and Jim Story  
Montgomery: Jim Hoffman and Ken  
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Rensselaer: Larry Eckhardt and David  
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Industry Representatives: Jay Matthews and  
Paul Peckham

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*If you have questions or comments about this publication or the Capital District Program in general, please contact your county's grower advisory member or the Agricultural Program leader of your local Cornell Cooperative Extension office.*

## SUCCESS FACTORS IN FARMING

*giving you the long-term edge with wisdom from your fellow farmers*

### ***Being a soil-smart farmer is not enough.***

Richard Wiswall of Cate Farm in Plainfield, VT believes that too many farmers focus on the production aspects of farming, rather than the small business realities that lead to sustainable wealth building. In his view, business skills are the limiting factor that gives farming a bad name. At some point, **a farm owner must see themselves as a profitable small business manager more so than a farmer.** One success factor he notes in his book, *The Organic Farmer's Business Handbook*, is how seriously a farmer handles the business aspects of their small farm:

**“Production techniques rarely limit a farm’s success; rather it is the lack of dependable profitable returns ...Farming and business worlds inevitable collide, and farmers are often uninformed about the business concepts and tools crucial to navigating forward effectively and profitably.”**



With an eye on profitability, Cate Farm is producing ample income for Richard and his family to enjoy the perks of life while farming. It is a well-run farm with a sustainable business orientation. Learn more about his approach at <http://www.catefarm.com>.

Success Factors in Farming provides tips and advice from the vast collective knowledge found among farmers in our area. These thought-provoking commentaries have been collected by Extension agent Jim Ochterski, and are presented exclusively in the Cornell Vegetable Programs award-winning newsletter, *Veg Edge* to offer real-life insights about sustainability and long-term success in agriculture.