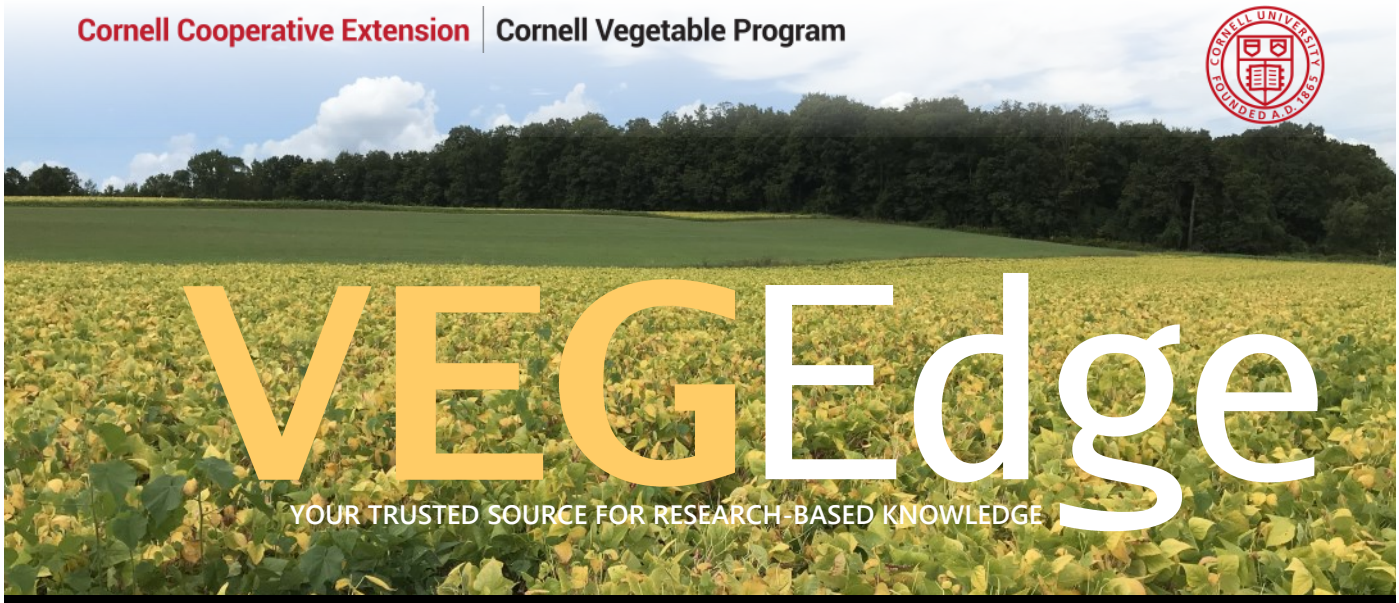
Cornell Cooperative Extension | Cornell Vegetable Program



VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 15 • Issue 21 • September 4, 2019

Palmer Amaranth Confirmed in Southwest New York

Josh Putnam, Field Crop Specialist, SWNY Dairy, Livestock, and Field Crops Team

Palmer amaranth (*Amaranthus palmeri*) is a serious problem for many growers throughout the United States because of its competitiveness and effect on agricultural production. Palmer amaranth is commonly confused with other pigweeds and is often difficult to identify in the early stages of growth. Much of the Palmer amaranth in the United States is resistant to several classes of herbicides such as glyphosate, and it's common for many of these to be resistant to ALS-inhibiting herbicides such as Pursuit and Classic.

Last week, it was noticed in two dry bean production fields in Steuben County. This is the second population of Palmer amaranth to be found in New York, but is the first population to be found in a crop production setting. The fields are located along a high traffic roadway where it's possible that the specimens came in on a tractor trailer or piece of machinery. It is important to know the biology of Palmer amaranth to avoid its potential to spread to surrounding counties.

Palmer amaranth is aggressive as it competes for nutrients, sunlight, and water. Palmer amaranth has dioecous reproduction, so individual plants are either male or female, which forces outcrossing and genetic diversity. Under ideal conditions, Palmer amaranth can grow 2-3 inches per day and within a few months of emergence, can reach heights of 6-8 feet.

Mature male Palmer amaranth. *Photo: Josh Putnam, SWNY Dairy, Livestock, and Field Crops Team*

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VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.

The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at:
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Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.

Contents

As the season nears the end, we will be tapering the frequency that we produce VegEdge. The next issue of VegEdge newsletter will be produced in two weeks on September 18.

New Weed Scientist Joins Cornell University

Lynn Sosnoskie

Dr. Lynn Sosnoskie has officially started in the position of Weed Ecology and Management for Specialty Crops at Cornell University. Lynn is a native of Pennsylvania and most recently served as the Agronomy and Weed Science Advisor with the University of California, ANR. She received her BS from Lebanon Valley College in Pennsylvania, her MS in Plant Pathology from the University of Delaware and her PhD in Weed Science at The Ohio State University. Since her PhD, Lynn has been in research and extension positions at Wisconsin, Georgia, Washington and UC Davis and has emerged as one of the leading weed scientists in the country. Lynn's new office is in Hedrick Hall at Cornell AgriTech at the New York State Agricultural Experiment Station in Geneva, NY. Welcome Lynn!

continued from cover – Palmer Amaranth Confirmed in Southwest New York

It is a highly prolific seed producer in that it can produce 100,000-600,000 seeds per female plant. The seed is also very small and can be transported via machinery, mud, or travel on the bottom of your shoe. As the plant matures, it forms a poinsettia appearance and is a key characteristic for identification. It has been found that the presence of this weed species can double or triple your cost of management on the farm.

If you suspect you have this weed species, please contact your local specialist or CCE office for correct identification and management.

For more information: https://integratedweedmanagement.org/index.php/iwm-toolbox/search-weeds/palmer-amaranth/

Male and female plants in field in Steuben County. *Photo: Josh Putnam, SWNY Dairy, Livestock, and Field Crops*

Poinsettia appearance of Palmer amaranth, a key characteristic for identification of this weed. *Photo: Josh Putnam, SWNY Dairy, Livestock, and Field Crops*

Early Blight in High Tunnels

Judson Reid, CCE Cornell Vegetable Program

Tomatoes continue to be the most common vegetable crop grown under protection in New York. 81% of all greenhouses growing edible crops grow tomatoes and the statewide value is reported at nearly $30 million*. There are several reasons tomatoes are the most common crop; including yield, price and quality. Another common motivation for growing tomatoes indoors is disease protection. We have often noted that common foliar diseases such as Septoria and Bacterial Speck are all but eliminated from high tunnel tomatoes. Many growers who prefer not to spray fungicides, either conventional or organic, use high tunnels to eliminate disease. Early Blight (caused by species of the Alternaria fungus) has traditionally been one of these diseases that high tunnel production eliminates. Early Blight causes black lesions on the foliage and can eventually defoliate the crop. Early Blight is spread in the field by rain splashing contaminated soil into the canopy.

No rain=no problem, right? Unfortunately, no, as growers have unintentionally created situations where Early Blight does affect a tunnel crop. The most common transgressions?

- Repeated use of ground cover introducing Early Blight spores each season
- Location of greenhouse where there is poor air drainage or morning mist
- Orientation of greenhouse to the east and west reduces air flow
- Allowing weeds or veg crops to grow along the outside edges increasing relative humidity

Figure 1. Stakes that are reused year-to-year are a common source of Early Blight spores. Do not reuse field stakes in high tunnels. *Photo: Caitlin Vore, CCE CVP*

Figure 2. Tight spacing of unpruned tomatoes and low sidewalls increase relative humidity and opportunity for fungal infections. *Photo: Caitlin Vore, CCE CVP*

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Figure 3. Reused ground cover is a likely source of Early Blight spores. *Photo: Judson Reid, CCE CVP*

Figure 4. Early Blight of field tomatoes. Note the concentric rings inside the lesions. *Photo: C. Vore, CVP*

Figure 5. Early Blight on high tunnel tomatoes. *Photo: J. Reid*

Figure 6. Early Blight lesions decrease foliage, which will decrease fruit quality. *Photo: C. Vore*

Sprays? If we manage properly, we do not need to spray for Early Blight in tunnels. If mistakes have been made and action must be taken there are several options. Quadris Top (FRAC groups 3 and 11) can be applied with 0 days PHI, however not on tomato transplants. We also note that there are reports of Early Blight resistance to group 11 fungicides. Revus Top is also permitted (groups 40 and 3, 1 D PHI) and brings the added benefit of Late Blight activity. Organic recommendations include microbial fungicides that include Bacillus species such as Serenade and Sonata. Organic formulations of copper are also permitted for high tunnel tomatoes. All growers who are experiencing Early Blight in protected settings are advised to sanitize structures and equipment prior to the following season's crop. Oxidate or similar products can be applied to greenhouses and equipment. Do not reuse ground cloth or stakes where there has been Early Blight.

**2017 USDA Census of Agriculture, New York State Data*

Late Blight Risk

John Gibbons, CCE Cornell Vegetable Program

This past week has been very favorable for late blight development. All stations will have accumulated 30 blight units (BU) needed to trigger a spray for late blight (LB) through the forecasted period thru 9/06 except Knowlesville which will have 29. If the weather station closest to you has not yet reached 30 blight units (BU) and the forecast indicates that it will in the next 2-3 days, a spray is still recommended. Note that this 30 BU threshold is for fully susceptible varieties, and assumes the use of fungicides such as chlorothalonil. Warning! Forecast BUs can change day by day, just like the weather! The chart assumes that chlorothalonil at the high rate was applied on 8/28. Information for other weather stations can be found at the following address: http://newa.cornell.edu/index.php?page=potato-diseases

No new late blight finds this week to report. Late blight has now been found in the following counties in New York: **Allegany, Cattaraugus, Genesee, Orleans, and Yates County**. All have been the US-23 genotype. Other states where late blight has been identified include Florida, North Carolina, Pennsylvania, Wisconsin, Tennessee, and Washington. In all these states US-23 has been the genotype.

Late Blight Risk Chart, 9/03/19

Location[1]	Blight Units[1] 8/28-9/03	Blight Units[2] 9/04-9/06
Albion	19	18
Arkport	23	15
Baldwinsville	31	16
Bergen	20	16
Buffalo	14	16
Burt	NA	NA
Ceres	37	15
Elba	22	14
Fairville	36	18
Farmington	32	17
Fulton	40	16
Geneva	22	16
Hammondsport	23	11
Kendall	23	13
Knowlesville	20	9
Lyndonville	19	15
Medina	30	9
Niagara Falls	19	15
Penn Yan	38	18
Rochester	36	11
Sodus	38	16
Versailles	24	16
Wellsville	45	17
Williamson	26	13

[1] Past week Simcast Blight Units (BU)
[2] Three day predicted Simcast Blight Units (BUs)

NY Sweet Corn Trap Network Report, 9/3/19

Marion Zuefle, NYS IPM Program, from http://sweetcorn.nysipm.cornell.edu

WNY Pheromone Trap Catches, 9/3/19

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD Base 38F
Batavia (Genesee)	0	0	2	0	0	2075
Bellona (Yates)	0	0	10	107	0	2113
Carlton (Orleans)	NA	NA	NA	NA	NA	2019
Eden (Erie)	NA	NA	NA	NA	NA	2113
Farmington (Ontario)	0	0	2	2	0	2159
Geneva (Ontario)	6	0	0	12	48	2094
Kennedy (Chautauqua)	0	1	1	29	0	2021
LeRoy (Genesee)	0	13	28	86	2	2038
Lyndonville (Orleans)	0	0	4	53	32	2014
Penn Yan (Yates)	0	0	3	21	NA	2048
Portville (Cattaraugus)	1	0	0	6	1	1915
Ransomville (Niagara)	NA	NA	NA	NA	NA	2129
Seneca Castle (Ontario)	0	0	1	1	1	2046
Williamson (Wayne)	NA	NA	NA	NA	NA	1908

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available
DD - Degree Day (mod. base 50F) accumulation

Average corn earworm catch and recommended spray interval

Per Day	Per Five Days	Per Week	Days Between Sprays
<0.2	<1.0	<1.4	No Spray (for CEW)
0.2-0.5	1.0-2.5	1.4-3.5	6 days
0.5-1.0	2.5-5.0	3.5-7.0	5 days
1-13	5-65	7-91	4 days
over 13	over 65	over 91	3 days

Add one day to the recommended spray interval if daily maximum temperatures are less than 80°F for the previous 2-3 days.

Statewide, eighteen sites reporting this week. European corn borer (ECB)-E and ECB-Z were caught at only two sites this week. Thirteen sites reported corn earworm (CEW), with ten high enough to be on a 4, 5, or 6 day spray schedule (see table at bottom of post). Fall armyworm (FAW) numbers really increased this week with fourteen sites catching FAW and a high of 147 caught at the Sherwood site. Western bean cutworm (WBC) numbers continue to decline with only nine sites reporting catches.

European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation.

Development Stage	Accumulated Degree Days
First Generation	
First spring moths	374
First eggs	450
Peak spring moths	631
First generation treatment period	800-1000
Second Generation	
First summer moths	1400
First eggs	1450
First egg hatch	1550
Peak summer moths	1733
Second generation treatment period	1550-2100

from J.W. Apple, Department of Entomology, Univ. of Wisconsin-Madison

Western Bean Cutworm Report

Margie Lund, CCE Cornell Vegetable Program

Historically, peak flight for WBC is the last week of July to the first week of August, though was delayed this year. Both the trap reports and scouting corn in fields near dry beans can help determine the risk. Growers should scout adjacent corn fields when cumulative WBC have reached >50 moths per trap. Traps in Avoca, South Caledonia, Southwest Caledonia, Riga, Stafford, and Wayland have reached >50 cumulative catch, so sweet corn fields in these areas should be scouted. Dry bean pod scouting should begin 7 to 10 days after peak emergence, regardless of cumulative WBC trap catch, and especially where WBC has been found in bean pods/seeds in recent years. This scouting should continue for three weeks.

To scout for WBC, inspect 50 plants per field (10 stops, 5 plants per stop), looking at all pods present on the plant for holes. WBC chew directly into the pod and eat the seed. It can be difficult to scout dry beans for egg masses or caterpillars, since the caterpillars move from the pods to the soil during the daytime, so looking for signs of damage is the best strategy. European corn borer damage (ECB) may be similar to WBC, but an ECB larva would likely still be present in the pod when inspected. If damage into the pod and seed is found with no larva present, it is possible this is WBC. A spray is recommended if dry bean pod damage is found. In addition, to the WBC traps listed in the sweet corn report, the following dry bean trap sites are being monitored this year (project funded by the NYS Dry Bean Endowment and led by Marion Zuefle, NYS IPM):

Dry Bean Location	7/30/19	8/6/19	8/13/19	8/20/19	8/27/19	9/3/19	Cumulative WBC
Avoca 1 (Steuben Co.)	37	69	11	1	0	NA	156
Avoca 2 (Steuben Co.)	19	36	25	12	0	NA	101
Caledonia South (Livingston Co.)	44	20	14	14	12	2	106
Caledonia SW (Livingston Co.)	8	10	13	5	4	0	51
Geneva (Ontario Co.)	10	1	13	19	0	NA	45
Riga (Monroe Co.)	61	80	83	62	14	3	320
Stafford (Genesee Co.)	28	23	23	15	9	1	104
Wayland (Steuben Co.)	40.5	73	108	31	21	NA	319

Western Bean Cutworm trap counts by date
NA - not available

CROP INSIGHTS

Cabbage looper (left). Swede midge on collards (right). *Photos: C. Vore, CVP*

COLE CROPS
The next generation of cabbage loopers and cabbageworms are beginning to cause significant damage on cole crops. Also seeing swede midge damage, Alternaria, and black rot. – *CV*

EGGPLANTS
The Colorado potato beetle eggs that Robert spotted last week have indeed hatched and are beginning to feed. – *CV*

Colorado potato beetle larva feeding on eggplant. *Photo: C. Vore, CVP*

ONION
(See onion lodging and harvest article, pg 7.)

POTATO
Late blight has been confirmed in many counties throughout Western New York (see Late Blight Risk, pg 4), so growers in the regions should be on alert and monitoring fields regularly. Protective sprays should be applied (all current confirmations in NY are US-23, Ridomil sensitive), and spray programs followed. If you suspect you have late blight in your field, contact your local Vegetable Specialist to collect a sample for strain identification. – *ML*

PROCESSING VEGETABLES
Lima bean harvest is getting underway. Snap bean and sweet corn harvest continues with ongoing challenges due to interrupted planting schedules earlier in the year. White mold continues to show up in beans, but has not been severe in most cases. *From NYS IPM Field Crops:* Reports of Southern Corn Leaf Blight, have been confirmed by our neighbors near Erie, PA this past week. This is on our radar, because that area shares latitude with some of our corn acreage in our southern tier and Hudson Valley region. Therefore, you may want to keep an eye out for atypical corn foliar disease symptoms as the season progresses. For more information: http://blogs.cornell.edu/ccefieldcropnews/2019/08/29/unfamiliar-foliar-lesions-on-your-corn-it-could-be-southern-corn-leaf-blight/.

Table beet harvests continues with little root decay being reported so far. Leaf diseases have been kept in check thus far, but don't let your guard down. Growers are still hoping rains will improve yields of some fields. Carrots have been looking really good and growers are working to keep tops healthy. The biggest leaf disease concern for September is Alternaria leaf blight because the disease can blow up quickly. Alternaria first appears as dark brown to black irregular spots on the margins of the leaflets. Lesions on the petioles and stems are dark brown and girdle the stems, killing them. As the disease progresses, entire leaflets may shrivel and die. Lesions are more prevalent on older foliage. Cercospora leaf spot may also be present, although it is more prevalent in hot and humid weather. Cercospora lesions are small, circular, tan or gray spots with a dead center which appear along the leaf margins, causing them to curl. The Cercospora fungus attacks younger leaves. Bacterial lesions are small yellow areas on the leaflets with brown, dry centers which are often surrounded by a yellow halo. While sprays with Bravo fungicide (group M5) will control both Alternaria and Cercospora, rotation with a fungicide with a different mode of action is advisable for resistance management. Quadris (group 11) or Quadris Opti (group 11 + M5) control both fungi and also have a 0 day PHI. There are several other fungicides labeled for carrot and outlined in the 2019 Cornell guidelines. Choices should be based on what you are trying to control, cost, and PHI . – *JK*

Early blight, high tunnel tomato. *Photo: C. Vore, CVP*

Late blight, high tunnel tomato. *Photo: C. Vore, CVP*

TOMATO
Both early and late blight continue to rear their ugly heads. (See articles, Early Blight in High Tunnels, pg 3; and Late Blight Risk, pg 4.) – *CV*

BASIL
Basil downy mildew has all but taken out entire plantings in some areas. – *CV*

Basil downy mildew. *Photo: C. Vore, CVP*

VINE CROPS
Continuing to see Alternaria in melons. Powdery mildew is everywhere and on everything. A few cases of Plectosporium Blight have

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continued – CROP Insights

popped up in zucchini and pumpkins. Plectosporium develops under cool, rainy weather. Sound familiar? Small, diamond-shaped lesions form on the vines, stems, fruit, leaves and leaf petioles. It is a significant problem in pumpkins as it weakens the handles, thus reducing marketability. (See cover article of the 8/14/19 issue of VegEdge for more info.)

Alternaria on melon.

Plectosporium on zucchini.

PCap on zucchini.

Finding Phytophthora blight in zucchini, yellow squash, and cucumbers. *Phytophthora capsici* can cause fruit, crown, and root rot in cucurbits, tomatoes, peppers, and eggplant. Extended periods of rain and water-logged soils are favorable conditions for development. This disease can be spread by contaminated soil moving with humans or farm equipment. Contact CVP if you suspect you might have PCap! – *CV (Photos: C. Vore, CVP)*

Onion Lodging and Harvest Tips

Christy Hoepting, CCE Cornell Vegetable Program

After Labor Day, harvest is on every onion grower's mind. The onion crop has done well this season. Most fields have reached the end and have either had sprout inhibitor or will be getting it this week (at 50% lodging). Lodging progressed a lot over the past week. After lodging, bulb size increases an additional 25 to 33%.

Pulling. Storage-bound onions are ready for harvest when at least half of the leaves are dead (ideally that have died naturally and not from disease or thrips). Pulling too green will make it difficult to cure and will reduce total yield potential. Waiting until the leaves are dead and dry can result in loose outer skins that are easily sloughed off. This will not hurt keeping quality, but the onions will not look as nice. Tug on the plants to see how easily the bulb comes out of the ground. If they come right out, go ahead and pull them. If the roots are still holding on, this is an indication that the roots are still functioning and you can leave them in to size up a little bit longer.

Topping. Onions should only be topped when the neck is dry and has no more green tissue (e.g. the tissue does not slide when you roll the neck between your fingers). Bacterial diseases, Botrytis neck rot and black mold can enter into and move through green tissue into the bulbs. These diseases do not infect or move in dry tissue. Leave 2-3 inches of neck on the bulb to ensure enough distance from the cut surface to the bulb for fungal and bacterial pathogens to travel so that the neck dries down before the disease gets to the bulb, so that the bulb will be sound in storage. Conduct harvest practices when the weather is dry and avoid bruising.

Curing. For optimum storage quality, onions must be cured soon after harvest. Curing decreases the incidence of neck rot and bacterial diseases, reduces water loss during storage and is desirable for development of good scale color. Optimum conditions are 68-86°F and 70% relative humidity for at least 12 to 24 h. Onions can be left in the field to dry.

Storage. To ensure maximum storage life, onions should be stored after curing. The optimum temperature for long-term storage of onions is 32°F with 65-70% relative humidity. It is important to bring them down to this temperature slowly. Onions are usually left outside curing in boxes until mid-October and then brought inside before a deep freeze. Protect cured onions from direct sunlight; exposure to light after curing will induce greening of the outer scales. Damaged or rotten bulbs should be graded out before putting them into storage as they give off moisture, which is favorable for development of diseases in storage. Rotten bulbs can ooze onto healthy bulbs and stain them.

When onions that don't want to lodge. Plants that are ready to lodge should have soft necks and can be easily knocked over. Sometimes plants with soft necks remain standing because their leaves have been ravaged by thrips or leaf diseases (or other stress) and they do not have enough weight to fall over (Fig. 1). If this is the case, the crop can be rolled to knock over the tops – just be careful to not damage the neck tissue in the process. Or, they can just be pulled when half of the leaves are dead. Check the leaf axils to see if the plants are still putting on new leaves. Longer day varieties, especially if planted late may not "know that it's supposed to be over", and will continue to put on new leaves instead of bulbing. At this point with days only getting shorter and temperatures getting cooler, it is likely that they will continue with vegetative growth. In this case, just pull them once the bulbs have reached a marketable size, and note that it will take much longer to dry them with so much top growth and thick necks. For small-scale production, such plants could be brought into a high tunnel for warmer (and faster) drying conditions.

Figure 1. Onions lodged properly (left) and unable to lodge (right) because foliage ravaged by disease is too light for the leaves to fall over (= "onions dying standing up). *Photos: C. Hoepting, CCE CVP*

FARM FOOD SAFETY Updates

by Robert Hadad, CCE Cornell Vegetable Program

Manure Spreading Drift Concerns

Photo: Cornell Produce Safety Alliance

We have been trained to be careful with spraying pesticides and wind conditions. Making sure that product doesn't cause problems for your own adjacent fields or neighboring farms is important. Today, with the new federal Food Safety Modernization Act, raw manure is a huge concern. We often don't think about manure drift. This can pose a serious problem.

Research has indicated that manure dust and manure spray droplets can carry pathogenic bacteria. Generally if the manure drift occurs early in the season and adjacent crops are a long way off from harvest, the risk is very small. However, if an application occurs when the adjacent crop is only a few days from harvest then possible contamination can pose a high risk.

We want to keep all of our produce safe. Often dairy farms might be collaborating with a produce farm exchange field rotation for the fertility from manure. Have a talk with the dairy farmer and their equipment operators about applying manure safely to minimize the chances of contamination.

Photo: Washington State Extension

Cleaning Harvest Equipment Left in the Field

Old cucumber harvester. *Photo: NC State Extension*

When we think of farm food safety, a big focus area is harvest time and the wash/pack facility. Harvest tools, harvest bins, produce washing tubs/sinks/tanks, brush washers, and root barrel washers are all food contact surfaces. When cleaning these surfaces, attention needs to be paid on removing vegetative debris, stuck-on crud, or even pest residue (bird poop etc.). Following the 4 steps of cleaning is critical: rinsing, brushing or scrubbing stuck-on debris and using detergent as needed, rinsing again, and sanitizing.

What about equipment used for harvesting (including transporting harvested produce back to packing area) that gets left outside or in the field? Could contamination from rodents, birds, or other pests pose a contamination risk? The answer of course is yes. Who knows what might crawl in or perch on equipment left outside or in a field. It is important to have a Standard Operating Procedure (SOP) worked out for making sure that these harvesting equipment pieces are inspected for possible contamination prior to each harvest. Cleaning prior to a new day's harvest is recommended.

Of course, cleaning a piece of equipment that may not be close by the home farm will be a challenge. The FSMA Produce Safety Regulations (PSR) doesn't provide any guidelines for cleaning. I posed this question to the group of Extension specialists, food microbiologists, and ag engineers involved with farm food safety in the Northeast through the Northeast Center for Advancement of Food Safety. Others had similar questions about the same subject.

A plausible idea emerged from the group. Cleaning the equipment left out could be done several ways. If it is dry, a good brushing or sweeping of the food contact surface could be done. If the surface is wet (from rain or dew) then more appropriate cleaning measures would be needed. A portable battery operated backpack sprayer could be used to spray down a surface to facilitate cleaning. Enough water could be transported to the surface to get that operation done and have enough to refill the sprayer for mixing and application of a sanitizer.

Caution must be noted not to let rinse water etc. drain down onto a field area where harvest will be taking place. The equipment needs to be moved to a spot where the rinse water can't come in contact with the crop or where workers might come in contact with mud tracking it into the field that is to be harvested. Properly trained workers is a key in making sure these tasks are done correctly.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 8/27 - 9/02/19

Location**	Rainfall (inch)		Temp (°F)	
	Week	Month September	Max	Min
Albion	1.02	0.91	80	51
Arkport	0.72	0.35	76	48
Bergen	0.88	0.74	81	48
Brocton	1.83	1.19	75	53
Buffalo*	1.79	1.55	79	55
Burt	1.12	1.04	80	51
Ceres	1.24	0.89	76	49
Elba	0.98	0.74	79	48
Fairville	1.39	0.63	76	48
Farmington	1.31	0.82	77	48
Fulton*	2.30	1.30	76	50
Geneva	0.88	0.61	73	52
Hammondsport	0.27	0.11	75	50
Hanover	3.05	2.57	76	50
Lodi	1.28	0.82	77	53
Niagara Falls*	1.44	1.42	80	52
Penn Yan*	1.34	0.89	78	52
Rochester*	0.94	0.64	82	52
Sodus	1.20	0.43	76	47
South Bristol	0.69	0.47	75	49
Varick	1.80	1.34	77	55
Versailles	2.05	1.64	76	48
Williamson	2.01	1.02	77	48

Accumulated Growing Degree Days (AGDD)
Base 50°F: April 1 - September 2, 2019

Location	2019	2018	2017
Albion	2068	2440	2053
Arkport	1844	2356	1877
Bergen	1983	2318	1943
Brocton	2028	NA	NA
Buffalo*	2100	2508	2093
Burt	1906	2277	1919
Ceres	1907	2134	1810
Elba	1893	2295	1966
Fairville	1899	2259	NA
Farmington	1919	2300	1913
Fulton*	1911	2330	1957
Geneva	2026	2353	2014
Hammondsport	1921	2243	1922
Hanover	2015	2370	NA
Lodi	2066	2394	2104
Niagara Falls*	2008	2548	2291
Penn Yan*	2119	2439	2143
Rochester*	2191	2581	2148
Sodus	1857	2239	NA
South Bristol	1900	2249	1903
Varick	2129	2433	2135
Versailles	1972	2325	2012
Williamson	1845	2214	1957

* Airport stations
** Data from other station/airport sites is at: http://newa.cornell.edu/ Weather Data, Daily Summary and Degree Days.

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VEGEdge

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VegEdge is the award-winning newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas and research results from Cornell and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

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fresh market vegetables, weed management, and soil health

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food safety & quality, organic, business & marketing, and fresh market vegetables

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onions, cabbage, broccoli, and pesticide management

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processing crops (table beets, carrots, lima beans, peas, snap beans, sweet corn)

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potatoes, dry beans, and post-harvest handling and storage

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