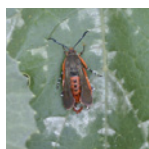




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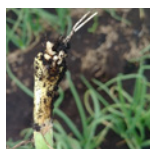
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## Is Squash Vine Borer Becoming a Fall Pest Concern?

Elizabeth Buck, Cornell Cooperative Extension, Cornell Vegetable Program

If you look up squash vine borer in a regional pest control resource, you'll probably see it listed as a concern in late June through all of July. Squash vine borer adult moths are emerging and active then, so it makes sense that the typical vine collapse associated with the caterpillar larvae feeding inside the base of the plant follows shortly thereafter. And historically, that's been the only window of concern for most areas of WNY in most years. But as the climate warms, is it a safe assumption that July is the only problematic window for squash vine borer?

I'm beginning to see some anecdotal evidence that the answer may be no, it isn't a sure bet that squash vine borer is only an early summer issue.

### SQUASH VINE BORER DEVELOPMENT

To assess that question, it helps to have an understanding of the squash vine borer life cycle. Squash vine borer development is best measured in growing degree days (base 50). A base 50 growing degree day (GDD) is a count of how much time the temperature is above 50 degrees. GDDs are a far more accurate way to track biological development of many pests and weeds compared to measuring calendar days. A cool day will accumulate only a few GDDs and a hot one will accumulate a lot of GDDs.



Figure 1. A nearly full sized, almost inch long squash vine borer caterpillar strikes a pose in this fall photo shoot, as if to say, "Feeling cute. Might destroy your Delicata squash later, IDK."

Photo: E. Buck, CCE Cornell Vegetable Program

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## About VegEdge

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.

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*The next issue of VegEdge newsletter will be produced on December 1, 2020.*



CCE Cornell Vegetable Program Assistant, Caitlin Tucker, collects soil samples as part of Cornell Vegetable Program research in high tunnel cover crops. Photo: J. Reid, CVP



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Squash vine borer is an overwintering pest in WNY, and it overwinters in the soil as either a late stage larvae or a pupa. In the spring, it takes roughly 750-1000 growing degree days (base 50) for the overwintering vine borers to complete their development and become beautiful moths. Actually though, these guys are impressive bright orange, wasp-like, half-inch long, good looking insects that fly around during the day. Which makes them pretty easy to spot while you're out scouting your field (see what I did there?).

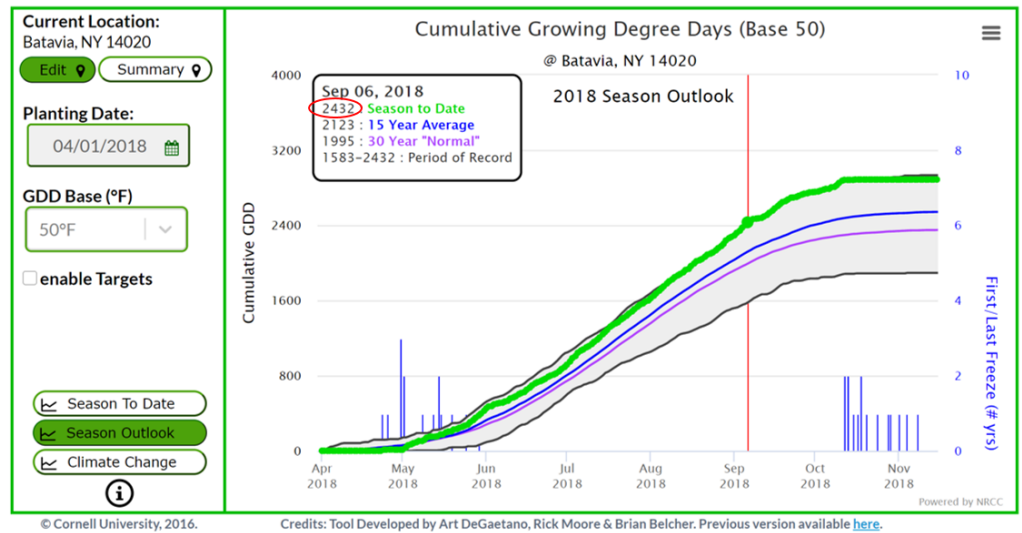


Figure 2. The cumulative GDD base 50 chart for Batavia in 2018, with specific GDD counts for September 6, 2018. Graph from [climatesmartfarming.org](https://climatesmartfarming.org)

So, the big pretty moths emerge at roughly 750-1000 GDD. Most years, that window is late June to early July. The adults are short-lived, so eggs are laid at the base of stems within 3-5 days of the adults beginning to emerge. Eggs need 245-300 GDD to hatch, at which point a small caterpillar will burrow into the stem. That caterpillar takes a long time to develop, about 660 GDD. During that time you see plants start to wilt and go backwards as the larvae hollows out the vine. They crawl out of the stem and pupate in the soil for another 745 GDD when they could re-emerge as an adult moth. All told, the time from egg to adult is about 1650-1700 GDD.

### HOW DO YOU GET A SECOND GENERATION?

In most years, the pupae don't re-emerge as adults, they stay in soil and overwinter. When an area accumulates about 1650-1700 GDD from the time of first flight until late summer, squash vine borers can push into a second generation. Those second generation adults lay eggs at the base of nearly mature pumpkins and winter squashes. The hatching caterpillars initially bore into the stems. As the vines become more stressed and begin going down with the nearing harvest, second generation caterpillars leave the vines, crawl across the ground, and take up residence in the fruit. Usually these second generation squash vine borer larvae drill into the fruit on the belly side, so you can't

easily spot the problem until harvest. And it is an unpleasant problem. Even if they don't take up residence in a given fruit, their nibbling opens wounds that are readily invaded by fungus and bacteria.

### CASE STUDY

Twice in the last three years (2018 & 2020) I've fielded calls of squash vine borer going to a second generation and causing unacceptably high levels of damage in winter squashes. Remarkably, this has occurred on farms that did not have appreciable on-farm damage during July of that year. Let's dig into one from Batavia as a case study. Keep in mind that the total, season long GDD (base 50), needed to get a second generation is about 2430-2680.

The first case was in Batavia in 2018. I like to use the Climate Smart Farming GDD calculator tool to map out the GDD accumulated in a given season (green line) because it automatically compares the season of interest to the warmest and coldest periods on record (black lines), the 30-year climatic average (purple line), and the average of the past 15 years (blue line). By sliding the mouse left and right, you can see the GDD accumulation in the current season compared to those other datapoints for any given date (red bar and upper left insert).

2018 was a very warm year. From mid-May on, the GDD curve jumped away from both the 30 and 15 year average. Batavia reached 750 GDD historically early, on June 22, and reached 1000 GDD by July 4th. This resulted in an early first flight of squash vine borer. 2018 continued to be a very warm year, even setting the record for highest GDD accumulation on record from August 8 – October 18. No surprise then that the season crossed 2430 GDD on September 6th (Fig. 2). With plenty of time to develop, there was a large population of caterpillars inhabiting fruit.

But look at the blue 15 year average relative to the purple 30 year average. There's a big departure between those lines moving into September, with the past 15 years having many more GDD than the past 30 combined. With relation to squash vine borer having a second generation, the 30 year average doesn't reach 2430 GDD base 50 by November 15th, but the 15 year average hits 2430 GDD by October 5th. That's a consistent six week difference! In the past 5 years, Batavia has hit 2430 GDD twice before September 10th and three times by September 27th.

All told, it is too early to definitively say that squash vine borer should be a regularly scouted and managed pest in winter squash and pumpkin fields throughout September. But I think there is good reason to keep an eye on the degree day accumulation each late summer. As the climate continues to warm, it is not improbable that more growers will have to address a second generation of squash vine borer in the not so distant future. ●

# Onion Seed Treatment Recommendations for 2021 Featuring Trigard for Onion Maggot Control

Brian Nault, Department of Entomology, Cornell AgriTech, and Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

It is time to think about ordering onion seed and deciding which seed treatments to select for next year's onion crop. This article focuses on what insecticide seed treatments should be used for managing the maggot complex (onion maggot and seedcorn maggot) (Fig. 1) as well as what fungicide seed treatments should be used to manage the disease complex (damping off and smut) (Fig. 2). In both cases, there are no rescue treatments once onions are infested and infected, respectively. Therefore, **selecting effective insecticide and fungicide seed treatments is especially critical for protecting the onion crop.**

Table 1 lists all of the active ingredients available for onion seed treatment and their relative efficacy on onion maggot, seedcorn maggot, onion smut and damping off, based on results of Cornell on-farm trials conducted over several years.

## INSECTICIDES

### Trigard available as "Alternative FarMore FI500" for 2021 onion crop.

Last year, Trigard OMC was not available for treating onion seeds for the 2020 season. Fortunately, it will be available for the 2021 season. Syngenta will offer Trigard OMC as part of an "Alternative FarMore FI500" seed treatment package, while the original FarMore FI500 package will be called "Classic FarMore FI500". The Alternative FarMore FI500 package will include both Trigard OMC and Cruiser 70WS and the Classic FarMore FI500 package will continue to include Regard SC and Cruiser 70WS. Both of these seed treatment packages will contain the trio of fungicides (azoxystrobin, fludioxinil and mefenoxam), which is still called FarMore F300 (Table 1).

In a field where onion maggot pressure was very high (i.e., 63% stand loss due to maggot in the untreated) in Oswego County in 2019, Trigard

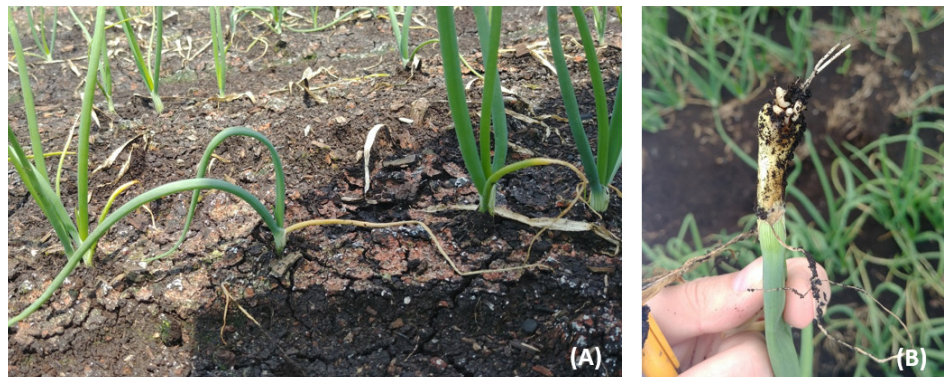


Figure 1. Onion maggot damage (A) and maggots actively feeding (B). Photos courtesy of E. Moretti.



Figure 2. Seedling diseases including damping off (A) and onion smut (B). Photos: C. Hoepting, CCE Cornell Vegetable Program

OMC + Cruiser 70WS performed equally as well as Regard SC + Cruiser 70WS with both resulting in 73% control. In the same experiment, Cruiser 70WS alone failed to control onion maggot. Therefore, it is clear that Cruiser 70WS has no activity on onion maggot and that Trigard OMC and Regard SC are providing all of the onion maggot control within the FarMore FI500 seed treatment package. See study results at: <https://doi.org/10.1093/amt/tsaa007>.

### Rotate between Trigard and Regard annually for best onion maggot resistance management.

The purpose for developing these two seed treatment package options is to mitigate insecticide resistance to onion maggot. Regard SC and Trigard OMC belong to different modes of action; IRAC (Insecticide Resistance Action Committee) Groups 5 and 17, respectively (Table 1). The best way to conserve these chemistries and slow down resistance is to alternate between these active ingredients on an annual basis to minimize exposure of the insect to the same insecticide class, even in fields with low maggot pressure. **Ideally, these seed treatment options should be rotated annually between Classic FarMore FI500 and Alternative FarMore FI500 per isolated muck pocket.**

The rotation does not have to be perfect, but it should strive to cover all acreage per isolated muck pocket. Since Trigard was not available for 2020 onion crop, the majority of onion acreage was grown from Regard/FI500-treated seed. **Thus, for best resistance management practices, in 2021 we recommend all onion acreage to be planted with Trigard/Alternative FarMore FI500-treated seed. The EXCEPTION to this is if you had an isolated pocket of muck that was grown from Trigard-treated seed in 2020.**

*continued on next page*



**Table 1. Insecticide and fungicide seed treatment options for onion including relative efficacy of products** based on multiple years of research by Brian Nault, Cornell Entomology for maggots, and Christy Hoepting, CCE Cornell Vegetable Program for diseases.

| Insecticides  |                      | Group                                       | Activity on Target Pests |  |
|---|----------------------|---|--------------------------|--|
| Tradename   | Active Ingredient(s) | IRAC <sup>1</sup>                           | Onion Maggot             | Seedcorn Maggot  |
| Regard SC   | spinosad             | 5   | Excellent                | Excellent  |
| Trigard OMC   | cyromazine           | 17  | Excellent                | Fair   |
| Cruiser 70WS  | thiamethoxam         | 4   | Poor                     | Excellent  |
| Sepresto  | chlothianidin        | 4A  | Fair                     | Fair   |
|   | + imidacloprid       | 4A  |                          |  |
| Fungicides  |                      | Group                                       | Activity on Target Pests |  |
| Tradename   | Active Ingredient(s) | FRAC <sup>3</sup>                           | Onion Smut               | Damping Off <sup>2</sup>                                     |
| EverGol Prime   | penflufen            | 7   | Excellent                | None   |
| Pro Gro   | thiram               | M3  | Fair-Poor                | Fair   |
|   | + carboxiin          | 7   |                          |  |
| FarMore F300  | Apron XL             | 4   | None                     | <i>Phythium</i> spp. <sup>4</sup>                            |
|   | Maxim 4FS            | 12  | None                     | <i>Rhizoctonia</i> spp.<br><i>Fusarium</i> spp. <sup>4</sup> |
|   | Dynasty              | azoxystrobin                                | 11                       | None   |
| Thiram  | thiram               | M3  | Poor                     | Fair   |
| Seed Treatment Packages   |                      |   |                          |  |
| Classic FarMore FI500   |                      | = Regard SC + Cruiser 70WS + FarMore F300   |                          |  |
| Alternative FarMore FI500   |                      | = Trigard OMC + Cruiser 70WS + FarMore F300 |                          |  |
| <sup>1</sup> IRAC: Insecticide Resistance Action Committee. Products belonging to different IRAC groups have different modes of action and kill insects differently. For resistance management, it is advisable to rotate among IRAC groups.  |                      |   |                          |  |
| <sup>2</sup> Most common pathogens that cause damping off in onion in New York are <i>Phythium</i> species.   |                      |   |                          |  |
| <sup>3</sup> FRAC: Fungicide Resistance Action Committee.   |                      |   |                          |  |
| <sup>4</sup> Apron, Maxim and Dynasty have activity on different genera of soil borne pathogens, which is listed here. Individually, these fungicides are not rated for their activity against the different damping off pathogens, because we have no studies from New York to draw from. However, <b>Farmore F300 and FI500</b> packages appeared to provide <b>fair control of damping off</b> in New York trials. |                      |   |                          |  |

In this case, if this acreage will be planted to onions again in 2021, it should be planted with Regard/Classic FarMore FI500-treated seed.

#### Alternative FarMore FI500 also controls seedcorn maggot.

Of the three products, Cruiser 70WS and Regard SC are excellent on seedcorn maggot, while Trigard OMC is not as good (efficacy is fair) (Table 1). Therefore, control of seedcorn maggot is covered when using Classic/Alternative FarMore FI500 seed treatment packages. Note that seedcorn maggot could be a problem if Trigard were used alone, so do not use Trigard alone in fields where seedcorn maggot infestations have been a problem.

#### Sepresto seed treatment generally not recommended.

Sepresto is another insecticide seed treatment option for maggot control (Table 1). Unfortunately, Sepresto has not consistently controlled onion maggot in New York, and we do not recommend it for most situations.

#### Lorsban not needed with FarMore FI500 packages.

In December 2019, Governor Cuomo directed the NYS Department of Environmental Conservation (DEC) to **ban chlorpyrifos (e.g. Lorsban) for use on most agricultural crops including onion in New York by December 2020** <https://www.governor.ny.gov/news/governor-cuomo-directs-dec-ban-use-chlorpyrifos>. Chlorpyrifos has been used for decades as an at-plant treatment for maggot control. Despite resistance to chlorpyrifos in many onion maggot populations across New York, it continued to be used in combination with insecticide seed treatments as insurance for protecting the crop from maggots. This was especially true when using Trigard seed treatment because it is weak against seedcorn maggots (Table 1). Research in Nault's program over many years showed an improvement in maggot control when chlorpyrifos was added to

Trigard OMC seed treatment. In contrast, Nault's research documented no improvement in maggot control when chlorpyrifos was added to FarMore FI500 (includes Regard). Thus, trial results suggest that **in the absence of chlorpyrifos, use of Cruiser with Trigard in Alternative FarMore FI500 seed treatment package should be as effective against both seedcorn and onion maggot as Trigard + Lorsban.**

#### FUNGICIDES

##### FarMore FI500 does not control onion smut – Add EverGol Prime.

None of the three fungicides included in the FarMore FI500 packages (a.i. mefenoxam, fludioxonil, azoxystrobin) have activity on onion smut, but they do have some activity on damping off pathogens (Table 1). So, **in addition to Alternative/Classic FarMore FI500 seed treatment packages, growers will have to order EverGol Prime for control of onion smut.** Since it first became available two years ago, EverGol Prime has appropriately become the first choice for onion smut control as its performance is far superior to Pro Gro. When EverGol Prime is used with FarMore FI500 or F300 seed treatment packages, it is not necessary to order additional seed treatment for control of damping off. Mancozeb and/or mefenoxam (Ridomil) could be applied as an in-furrow drench for additional protection against damping off. If for some reason, EverGol Prime is not used with a FarMore package, then another fungicide with activity on damping off should be included in the seed treatment (Table 1).

#### QUESTIONS?

For questions about this information, please [email Brian Nault](mailto:ban6@cornell.edu) (ban6@cornell.edu) or [Christ Hoepting](mailto:cah59@cornell.edu) (cah59@cornell.edu). Also, a Cornell "Cheat Sheet": Seed Treatments and In-Furrow Drenches for Direct Seeded Muck-Grown Onion is available on the CVP website at [https://rvpadmin.cce.cornell.edu/uploads/doc\\_937.pdf](https://rvpadmin.cce.cornell.edu/uploads/doc_937.pdf) ●

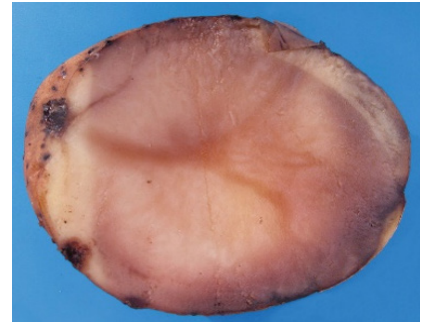
# What is Rotting My Potatoes?

Margie Lund, Cornell Cooperative Extension, Cornell Vegetable Program

With potatoes moving into storage it is possible you may be seeing tubers that show signs of rotting. Identifying one problem from another can be tricky at times, so this guide can help you identify what might be causing the rot. However, this is not an exhaustive list of potential tuber problems going into storage, so if you see signs of disease in your potato tubers be sure to contact your local CVP specialist to collect samples for confirmation.

## PINK ROT

Pink rot is caused by a soil borne pathogen, *Phytophthora erythroseptica*. The disease will develop before or at harvest and is associated with wet soils, poor drainage, or low spots in fields. Infection to the tubers occurs through stolons and lenticels, as well as wounds created during harvest. Symptoms of pink rot include darkened skins of the tubers, and a rubbery flesh. When cut open, the flesh of the tuber will turn from a cream to a pink color in around 20-30 minutes, and if left for longer will turn black. The area of infection is usually very clear and defined. Infection and spread is often highest during potato handling and storage. Maintaining proper soil moisture throughout the season as well as proper sanitation of equipment are important control measures for pink rot.



Pink rot. Photo: Ontario CropIPM

## PYTHIUM LEAK

Also known as water rot or shell rot, leak is caused by the *Pythium* spp. This soilborne pathogen infects tubers through bruises and wounds caused at harvest, and the rate of infection may increase when harvesting in hot weather. Tubers infected with leak will develop a soft rot that can be cream/grey/brown/black in color and very wet. When infected tubers are squeezed they will release a clear liquid. Infected areas are well defined, and may be surrounded by a dark line at the edge of the infected tissue. When left, the entire flesh of the tuber will rot, leaving a thin outer shell. Tubers infected with leak will have a sweet smell. Since leak infects tuber through wounds, it is important to reduce bruising and wounding during harvest and handling.



Pythium leak. Photo: Ontario CropIPM

## BACTERIAL SOFT ROT

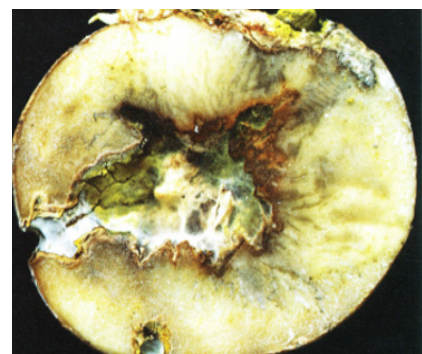
Soft rot in potato tubers is caused by many different bacteria, and causes soft, wet rot that may be cream or brown colored. Potatoes infected with soft rot will be slimy and often develop a fishy or bad-smelling odor. Soft rot can enter the tuber through lenticels, as well as growth cracks or injuries, and is often a secondary infection to other diseases such as Fusarium dry rot. To avoid soft rot, make sure you plant disease-free seed, and ensure good handling practices at harvest to avoid damage to tubers. Potatoes should be properly cured going into storage to heal any wounds, and temperatures lowered slowly to avoid condensation forming on the tubers which helps spread soft rot. Infection is highest shortly after harvest, and will decrease during storage. However, the bacteria can remain on debris in storages from year to year, so proper sanitation of storage facilities is important to reduce spread to tubers in storage.



Bacterial soft rot. Photo: Michigan State University

## FUSARIUM DRY ROT

Dry rot is caused by infection from fungal species in the genus *Fusarium*, and appears as an internal rot that can be light colored to dark brown/black, and is usually dry. Infection often develops at an injury point, and once infected can lead to the center of the tuber rotting out. There is often also white or yellow mold present. *Fusarium* can be introduced to the soil via seed tubers, and can survive in soil for long periods of time. However, tubers often aren't infected until harvest, as that is when tubers are most often damaged. Dry rot can be spread in storage, so make sure tubers are properly cured to allow wounds to heal, and drop storage temperatures slowly so condensation doesn't form. Make sure to monitor potatoes in storage, and grade out any infected tubers to reduce spread to healthy potatoes. Potatoes infected with dry rot are often secondarily infected with soft rot bacteria, leading to slimy tubers and masked dry rot symptoms, especially when condensation is high in storage. Fungicides are also available for application to tubers going into storage.



Fusarium dry rot. Photo: Phillip Wharton, Michigan State University

continued on next page

## LATE BLIGHT

Late blight is caused by the fungus-like pathogen *Phytophthora infestans*, and can infect potato tubers both in the field and in storage. Tubers initially become infected in the field, anytime between early tuberization and harvest, by sporangia that are washed off of infected foliage into the soil. Signs of late blight in tubers are irregularly shaped, brown to black skin lesions. The flesh of the tuber may develop a tan or brown dry rot that extends into the tuber from the infected skin lesions. Potatoes infected with late blight often become secondarily infected with soft rot, internal late blight symptoms might be masked. Harvested tubers that show signs of late blight should be removed, and remaining tubers should be stored in cool, dry conditions to reduce condensation and subsequent spread of late blight or secondary infection by soft rot. Using certified disease-free seed, planting resistant varieties, and maintaining a protectant fungicide spray program throughout the growing season are important control measures for reducing late blight in tubers. Fungicides are also available for tubers going into storage.



Late blight. Photo: Steve Johnson, University of Maine ●

## Food Safety for Wash/Pack Facilities – ANOTHER New Online Resource

Caitlin Tucker, Cornell Cooperative Extension, Cornell Vegetable Program

Wash/pack facilities are bottlenecks – all produce on the farm may need to go through the facility, and the smallest amount of contamination could escalate into a much bigger contamination event under the right conditions. This is why it's critical that food safety practices be implemented – to ensure that foodborne pathogens are not introduced or spread as produce is sorted, graded, washed, and packed. To help you understand how wash/pack facilities can be sources of foodborne pathogens, Robert Hadad and Caitlin Tucker have developed a 5-part online video resource so that you can get the training you need from the comfort of wherever you happen to be.

### PART 1: PRINCIPLES OF FOOD SAFETY FOR WASH/PACK FACILITIES

For any subject, it's important to start with the basics. In Part 1 you'll learn about the three types of pathogens that can contaminate produce. We'll identify how contamination can enter into the wash/pack facility via workers, water, soil amendments, animals, and tools. For mitigating risks, one of the easiest ways workers can reduce the chance of foodborne pathogens entering into the wash/pack line is by following everyday health and hygiene practices. In Part 1 we'll go through all of the personal hygiene expectations that you should have for your workers, and for yourself.

### PART 2: THE IDEAL WASH/PACK FACILITY

Whether you're currently dreaming about a wash/pack facility, or already have one up and running, it's important to set aside time to think about how design and layout can impact food safety. There is no one "ideal" wash/pack facility layout, but there are number of modifications that can be made to greatly reduce food safety risks. In Part 2 we'll outline the 5 Principles of Hygienic Design, the benefits of ergonomics, and how general layout can impact cleaning efforts, worker safety, and efficiency. We'll also dive into some detailed considerations for walls, lighting, flooring, drainage, storage, pest management, and more.

### PART 3: POST-HARVEST WATER MANAGEMENT

The source and quality of the water used for washing produce is critical for food safety. In part 3, we'll review the different sources of water typically found on the farm and how "risky" they are when used to wash produce. Food safety risks related to water can further be reduced when we understand the concept of infiltration and the benefits of using sanitizers in wash water. We'll also cover a number of factors that can influence sanitizer efficacy – following label instructions, monitoring sanitizer levels, water temperature, pH, and turbidity. Finally we'll highlight all of the different ways you could wash produce and the pros, cons, and food safety considerations of each.

### PART 4: CLEANING AND SANITIZING

What's the difference between cleaning and sanitizing? How can I clean my wash/pack equipment if I don't typically introduce water into the wash/pack line? How do I clean harvest bins, equipment, greens spinners, etc? Can I use my power washer? All of these questions and more will be answered in Part 4. We'll walk you through the steps of cleaning and sanitizing, introduce the concept of "dry cleaning", and will point out some key things you should know about cleaning and sanitizing different items in your wash/pack facility.

### PART 5: CLEANING COMMON WASH/PACK EQUIPMENT

Cleaning – a topic so important for wash/pack facilities that we're going to cover it in TWO sessions. In Part 5 we're going to tackle cleaning larger wash/pack equipment like root barrel washers and brush washers. Cleaning this type of equipment is much more involved – more tools, more time, more attention to detail. We'll also discuss the difference between "thorough or deep" cleaning and "maintenance or routine" cleaning and underline why both types of cleaning are needed for larger, heavily used cleaning equipment. Throughout Part 5 we'll highlight some of the tools that the Cornell Vegetable Program has trialed, tips and tricks for cleaning items like absorber donuts and give you an estimate on just how much time it will take to clean this type of equipment.

This [5-part video series](https://www.youtube.com/user/cccecvp) is available on the Cornell Vegetable Program YouTube page at <https://www.youtube.com/user/cccecvp>. While you're there check out "Essentials of Food Safety for Farmworkers" a training series that meets most of the required worker training topics set by FSMA or other 3rd Party Auditing programs. ●





# 10 Things You Should Try to Know Before Leasing Your Land for Solar Development

Presented by [Daniel Brockett](#), Penn State Extension, and George Thompson, Wilson, Thompson, and Cisek, LLC, October 20, 2020; summarized by Amy Barkley, CCE SWNY Dairy, Livestock, & Field Crops Teams

Development of land for solar energy projects is becoming common across the state of New York. These large projects require land leases from landowners, which can extend 40-50 years. While leasing land for solar development can provide supplemental income to a landowner, here are ten items to keep in mind before signing your name on the dotted line.

## 1 -- WHAT'S YOUR BARGAINING POSITION?

If a solar company is coming to you that means that they need your land for a proposed project. Until you sign the option and/or lease agreements, you have leverage to make sure that the documents reflect your wants and requirements for the land they are planning to occupy. Keep in mind that once you sign, you will lose most, if not all, of your leverage. With these leases, you need to be thinking very long term. Although a lease may outline a contract term of 10-20 years, there will be a series of renewal options.

Understanding where main power hubs and lines are located can be helpful in determining your bargaining position. If you are close to land that includes this infrastructure, your position may be better than if your land is on the fringes of a development project.

Keep in mind that option payments tend to be smaller than lease payments. The option period is essentially a pre-lease; if the project gets approved, then your option agreement will transition to a lease agreement.

Even if the lease is presented with a sense of urgency, there is usually some time to take deliberate actions to review the documents.

## 2 -- OPTIMIZATION: WHAT DO YOU WANT? WHAT DO YOU WANT TO PREVENT?

Knowing what is important to you will help you determine what the project on your land will end up looking like. For instance, if you have a pond that you do not want filled in, make sure that this is specifically addressed. If you want to have the option to farm under the panels, make sure that you list what agriculture you would like to have allowed once the installation is in.

If you have established infrastructure that the company would like use of, such as a right-of-way, restricted access road, concrete pads, etc., make sure that you are compensated for these. Maintenance requirements for these should also be written into the agreement.

The level of detail is important here, and everything you want counts. Even something as specific as your wishes surrounding herbicide use needs to be documented.

Think through the financial end of things, too – Is it worth the money they are offering you to have your landscape changed? If not, what would that dollar amount look like? Do you want an escalator built in to make sure that lease payments keep up with the rate of inflation?

## 3 -- DON'T ASSUME YOU CAN DO THINGS THAT ARE NOT WRITTEN INTO YOUR LEASE.

Even if something is “commonly allowed” under solar panels, that may not be true for a particular project or company. If you want to farm or have other access between the panels, make sure it is written into the body of the lease or in an addendum. The same holds true for access roads; if a company wants to utilize your regularly used access road, make sure you write into the lease that you can maintain use of it.

## 4 -- UNDERSTAND THE DURATION OF YOUR LEASE.

Solar leases tend to have lives of 40-50 total years, which is presented as a contract period with a series of renewal options. Understanding a lease's duration is important when establishing other written wants or needs in the lease agreement.

## 5 -- THE OPTION AGREEMENT IS THEIR OPTION, NOT YOUR OPTION.

An option agreement is the first step to a solar lease. At this point, the company is in a phase where they are inventorying and securing land for a proposed development. At this point, there is some uncertainty; if the plug is pulled on a project, a lease agreement may never come to fruition. By signing an option agreement, you may or may not be agreeing to a lease agreement. Read the documents carefully. Involving a legal professional is highly recommended.

There is a chance that not all of your land will be developed when moving from the option agreement stage into the lease stage. If the amount of land developed is important to you to make this worth your time, there is an opportunity to write into the agreement that a certain amount of land must be developed.

*continued on next page*



## 6 -- KNOW HOW TO MODIFY YOUR LEASE.

Use of legal professional can be key to ensuring that a lease is modified to meet your expectations and demands. Leases usually cannot be altered once signed.

## 7 -- BE CLEAR WHEN, WHERE, AND HOW YOU WILL GET PAID.

Ensure that payment terms are clear and concise. Also make sure that there are protections written into the option and lease agreements regarding repercussions for missed payments.

## 8 -- THINGS THAT ARE WRITTEN COUNT. THINGS THAT ARE SPOKEN DON'T.

Landmen will come to your house, sit down, and have a lovely conversation with you. However, it is more likely than not that once an agreement and/or lease is signed, you will never see that person again. This makes it nearly impossible to follow up on demands from conversations had with these representatives. So, even if you talk through all of the items listed above with a landman, nothing "counts" if it isn't written into the documents you are signing. Consult a legal professional for a second opinion if something does not sound right.

## 9 -- YOUR NEIGHBORS MAY NOT LIKE THIS.

Be mindful that some members of your community may not want a solar array as their next door viewscape. There are also folks who are talking with zoning to try to restrict solar development.

Some landowners may currently lease their land for hunting, fishing, agriculture, etc. If a lease comes knocking, it is good to think about those relationships and if there are any protections that can be put into the lease to get the best of both worlds.

## 10 -- THERE'S A LOT OF BAD INFORMATION OUT THERE ON THE INTERNET.

Take time to speak to people who really know what is going on in the arena of solar development. If you come across information, make sure it is from a reputable source to dispel myths or verify information.

In conclusion, when approached with a solar development option agreement or lease, remember that only those items written down count. It's important to know what you want, and to make sure that any documents that you're signing reflect those needs before you sign. Use of a legal professional to ensure your needs are met for the duration of a lease is strongly recommended.

More information can be found by viewing the original presentation at: [https://psu.mediaspace.kaltura.com/media/Solar+Leasing+10+Things+You+Should+Try+to+Know+Before+Leasing+Your+Land+for+Solar+Development/1\\_ugusc5dm](https://psu.mediaspace.kaltura.com/media/Solar+Leasing+10+Things+You+Should+Try+to+Know+Before+Leasing+Your+Land+for+Solar+Development/1_ugusc5dm)

The American Solar Grazing Association also provides a series of solar-centric resources. You can access their website by this link: <https://solargrazing.org/> ●

# Important Notice for Licensed Pesticide Applicators

*Elizabeth Buck, Cornell Cooperative Extension, Cornell Vegetable Program*

Because of COVID-19, the DEC did not require growers whose licenses expired in November of 2019 or later to renew their applicator's license in order to buy and spray restricted use materials during the 2020 growing season. That discretionary policy is no longer in effect.

**If your license expired between November 2019 and November 23, 2020, you must obtain the full number of recertification credits and renew your license by February 23, 2021.**

If your license expires after November 23, 2020, you will follow the typical DEC guidelines.

To recertify, you must have 25% of your required credits in the same category as your license. If you are a commercial applicator, the remaining 75% must be in your category or core credits. If you are a private applicator with a license in categories

21-25, the remaining 75% can be a mix of your category, core, or any other 21-25 category. Category 21-25 licenses must get 10 recertification credits over the 5 year license period and cannot get all 10 credits in a single year.

We at Cornell Cooperative Extension realize that growers may be short on recertification credits. We are working hard to set up classes and opportunities to get credits. **At least a half-dozen category 23 credits will be available during our online Empire State Producers Expo from January 12-14, 2021.** We hope to offer a limited number of in-person seats at Expo satellite sites so those needing to recertify who also have poor internet connectivity can attend Expo.

Growers seeking credits are encouraged to call CCE or to check the DEC's list of upcoming courses online at <https://www.dec.ny.gov/nyspad/find-?1&tab=COURSES>. Courses appear on the list about 30-45 days in advance of the class occurring. Some ag input supplies and industry groups may also be in a position to offer credits. Free, online, self-study recertification courses are also available at <http://pmepcourses.cce.cornell.edu/catalog?pagename=ny-credits>.

For any questions regarding your license renewal, you can contact the DEC at 518-402-8748. ●



## Upcoming Events

View more events at [CVP.CCE.CORNELL.EDU](https://cvp.cce.cornell.edu)

### Food Safety & Wash/Pack Facilities: Virtual Training

November 16, 2020 (Monday) | 8:45am - 1:15pm

FREE online training

A well-thought out Wash/Pack Facility can go a long way in improving produce quality, worker health and safety, and overall efficiency. But how can intentional design impact food safety? This virtual training will help farmers and workers understand the food safety risks present in wash/pack facilities and outline ways in which risks can be minimized. [Topics and more information](https://cvp.cce.cornell.edu) can be found at [cvp.cce.cornell.edu](https://cvp.cce.cornell.edu).

Register by visiting: [https://cornell.zoom.us/join/join?secret=70pdeitpzoHddDRSBpt\\_dWf2eptEhenK0h](https://cornell.zoom.us/join/join?secret=70pdeitpzoHddDRSBpt_dWf2eptEhenK0h) Or contact Robert Hadad, [rgh26@cornell.edu](mailto:rgh26@cornell.edu), 585-739-4065.

### Storage Crop Facility School: Large-Scale Vegetable Storage (potato and cabbage)

December 1, 2020 (Tuesday) | 9:00am - 12:30pm

FREE online training

Join us to hear speakers from across the Northeast and Midwest present the latest updates and challenges surrounding vegetable storage. This day will focus on larger scale potato and cabbage storage. Presentations will include information on storage innovation and updating facilities, decreasing storage diseases, storage funding programs, and farm food safety considerations for storage facilities. Speakers will be Mike Mager, Arctic Refrigeration; Steve Johnson, University of Maine; Chris Smart, Cornell University; Karen Rugenstein, Farm Service Agency; Robert Hadad, CCE Cornell Vegetable Program.

#### REGISTRATION

Both of these FREE events will be held virtually over Zoom. Registration is required. Only those who register will receive meeting attendance information. To register, please [email Margie Lund](mailto:mel296@cornell.edu) at [mel296@cornell.edu](mailto:mel296@cornell.edu) and include the name(s), phone number, and email of those who plan to attend, as well as which day(s) you would like to attend.

### Storage Crop Facility School: Smaller-Scale Mixed Vegetable Storage

December 8, 2020 (Tuesday) | 9:00am - 1:30pm

FREE online training

Join us to hear speakers from across the Northeast and Midwest present the latest updates and challenges surrounding smaller-scale, mixed vegetable storage. Presentations will include information on cold storage construction, humidity and ventilation management, tactics for better storage of produce, decreasing diseases in storage, funding opportunities, and farm food safety considerations for storage facilities. Speakers will include Chris Callahan, University of Vermont; Scott Sanford, University of Wisconsin; Steve Johnson, University of Maine; Chris Smart, Cornell University; Karen Rugenstein, Farm Service Agency; Robert Hadad, CCE Cornell Vegetable Program.

### Good Agricultural Practices (GAPs) Farm Food Safety Training

December 14, 2020 (Monday) | 8:45am - 4:30pm

FREE online training

Farm food safety is common-sense practices organized to assist farmers to improve their skill set to continue to grow safe and healthy food. This one day programming will be an educational training on farm food safety principles and practices to provide the background and information for farmers to understand how to minimize the risk of food born disease contamination. Day Two (which will be scheduled later in January) will be for those who want help with writing a farm food safety plan. If you want to be certified under the GAPs or HGAPs program, a farm food safety plan is needed for the audit.

Pre-registration is required for this FREE training. To register and for more information, contact Amanda Henning, CCE Niagara County, at 716-433-8839 x21 or [email Amanda](mailto:email Amanda) at [app27@cornell.edu](mailto:app27@cornell.edu).

### Processing Vegetable Crops Advisory Meetings

December 15, 2020 (Tuesday) | 8:45am - 10:15am Snap Beans | 1:15pm - 3:00pm Peas and Sweet Corn

December 16, 2020 (Wednesday) | 8:45am - 11:00am Beets and Carrots

FREE online meetings

Registration information will be available in the December VegEdge. DEC and CCA credits have been applied for. The meeting is free of charge. For more information, contact Julie Kikkert at 585-313-8160.





## Labor Roadshow IV

Virtual Event Offered by the Ag Workforce Development Council

12 PM EDT via Zoom

November 18, 19, 20, 23, 24

New York Labor Road Show IV is an opportunity to learn about regulation changes and how to best position your business for compliance and success. Several important changes to state regulations occurred in 2020 that farm employers need to understand, including which employees are covered by overtime and day-of-rest and which can be designated as family members or exempt employees.

Topics:

- FLFLPA overtime and day-of-rest updates
- New NY permanent sick leave law and insurance requirements
- Paid family leave, disability, and worker's compensation
- Union education for farm managers
- FLFLPA employee housing requirements
- Sexual harassment prevention training requirements
- COVID-19 and farm workforce health

### Featured Speakers:

- Elizabeth Bihn, Ph.D., Cornell Institute for Food Safety
- Libby Eiholzer, Cornell Cooperative Extension
- Neil Gilberg, Advocate for Business, New York Worker's Compensation Board
- Kali Kniel, Ph.D., Professor of Microbial Food Safety, University of Delaware
- Jeanette Lazelle and Caylin Gwise, Division of Immigrant Policies and Affairs, NYS Department of Labor
- Steven Martin, Chief Sanitarian, NYS Department of Health
- Charles Palmer, Partner, Michael Best & Friedrich LLP
- Richard Stup, Ph.D., Cornell Ag Workforce Development

The series of five one to two-hour webinars will be held online through Zoom at noon on November 18, 19, 20, 23, and 24. Cost is \$55 per person to attend all five webinars and to receive links to the webinar recordings. Register at [tinyurl.com/LaborRoadshowIV](https://tinyurl.com/LaborRoadshowIV).

Ag Workforce Development Council: NEDPA, Cornell Cooperative Extension, Cornell Agricultural Workforce Development, Cayuga Marketing, AgriMark, Upstate Niagara, New York Farm Bureau, New York Vegetable Growers Association, New York Animal Ag Coalition, Agri-Placement Services, New York Horticultural Society, Dairy Farmers of America, Farm Credit East, Gray & Oscar LLC. ●

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# Cornell Cooperative Extension Cornell Vegetable Program

480 North Main Street  
Canandaigua, NY 14424



VegEdge is the highly regarded 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 University 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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**Cornell Cooperative Extension  
Cornell Vegetable Program**

For more information about our program, email [cce-cvp@cornell.edu](mailto:cce-cvp@cornell.edu) or visit [CVP.CCE.CORNELL.EDU](http://CVP.CCE.CORNELL.EDU)



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