THE UNIVERSITY OF RHODE ISLAND COOPERATIVE EXTENSION

VEGETABLE PRODUCTION

THE WEEK IN VEGETABLES

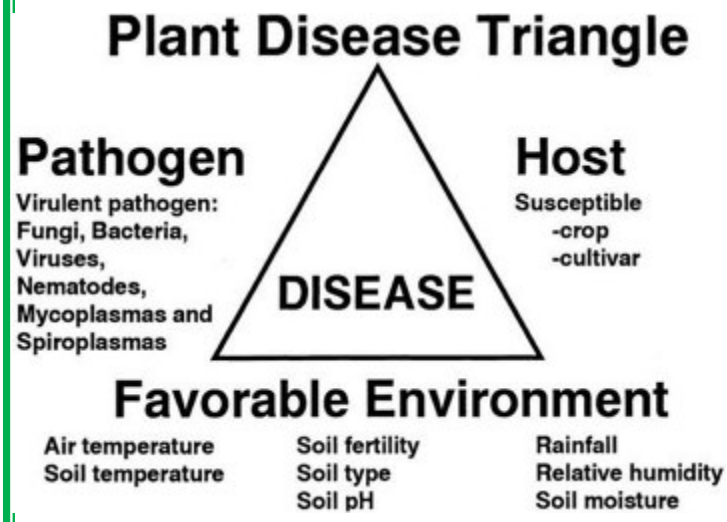
April 20, 2019

PEST ALERTS: Peak flight of **Seed Corn Maggot** Flies takes place at 360 GDD (Base 39°F); according to Climate Smart Farming (Cornell) website, that should be right around May 1. What do they attack? Peas, Fava beans, and many other seeds, but they especially like these big ones, **before and during germination.** Good fact sheet here: https://learningstore.uwex.edu/Assets/pdfs/A3972-01.pdf. Also beware of **Beet and Spinach Leafminers.** If you had beets, chard or spinach overwintering in high tunnels, then you may have earlier emergence, but they can also be expected by the first of May. Look for rows of elongated white eggs under leaves. You can apply Entrust before the eggs have hatched.

--> **Need to discuss? Got something you need looked at? URI Extension: 401-874-2967/andy_radin@uri.edu, hfaubert@uri.edu**

The Heart of IPM: Planning your season with cultural controls

While plant diseases are sure as the sunrise, minimizing risk of serious disease loss can be done by all. Good notes from previous years will help you to make adjustments as you plan your field layouts. Consider what plant pathologists call **The Disease Triangle:**



If all three sides of the triangle connect, then conditions are favorable for plant disease. By preventing one of the sides from being complete, we can reduce disease risk.

Of the three sides that we have control over, we have the least over the **Pathogen side**. Most of the diseases we encounter are simply endemic: it's just a matter of time before plants get infected because inoculum, the infectious part of the pathogen, is lying in wait for the right host and the right set of environmental conditions. Either that, or a mid-summer weather system brings inoculum into our region. Still, we can remove sources of inoculum, like infected crop debris, or turn it into the soil profile to decompose, unless it is a root pathogen.

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Season of the Ticks

Keeping yourself, your workers, and your customers safe

You may not know it but The University of Rhode Island is Host (pun intended) to the **Tick Encounter Resource Center (**https://tickencounter.org/ **).** It has pretty much everything you need to know about ticks, including identification, seasonal development, testing, prevention, and important questions answered about your risk for becoming infected with tick-borne pathogens. And right now, the **Tick Encoutner Index** is high for New England (https://tickencounter.org/current_tick_activity) and it's the beginning of the Lyme disease transmission season. There are some pretty amazing pictures to help you identify ticks on this website (https://tickencounter.org/tick_identification/tick_species). You and your farm workers may have a good chance of encountering ticks. The following are

>>>>>>AN APPEAL: We Need Your Help<<<<<<

April 25 is ***URI's Day of Giving***, a 24-hour campaign in which the public will join together to support the university and its programs that matter to YOU.

Please consider making a gift to the Sustainable Agriculture Extension program and help it win the Dean's prize of an additional $500. Funds in this URI Foundation account are used to support research, demonstration and extension programming that can (we hope) improve YOUR bottom line.

Make your gift between **now and the 25th** by Googling **urifoundation.org/coopext**. Questions? Call me! Many thanks in advance for your support of the URI Sustainable Agriculture Extension program, and we hope to hear from you on or before April 25!

Squash Bees, *Peponapis pruinosa*

Cultural controls...

Humans have been selecting for **disease resistance** since the dawn of agriculture. Seed was saved from plants which survived to produce abundantly. Such

plants most likely were not afflicted (or *as* afflicted) by endemic pathogens, and they may well have been exceptionally productive, good tasting, and nutritious. Today, selective breeding for resistance is an indispensable tool. This is mainly done through hybridization, a process which is much quicker and more precise than selecting open pollinated lines. The results are reduction in fungicide use and greater crop yields. Choosing disease resistant varieties is thinking from the **Host side** of the triangle.

The **Environment side** of the triangle is where we have the most control, although we can't stop 3 inches of rain in a week. But should such rain come, we can have good practices in place that discourage disease development.

Check the following list. Sometimes, there are very good reasons why choosing a certain preventative practice is *incompatible* with other production practices. But cultural controls come from many different angles. Some will fit into your production scheme.

1) **Avoid field conditions** that favor disease such as perennially or seasonally wet areas, areas where there is a disease history, or slow drying areas in shadows or heavy soils.
2) **Rotate crops** by plant family, a minimum of 2 years; this is most effective agains pathogens with narrow host ranges, pathogens that overwinter here, and pathogens that last a few years.
3) **Cover cropping can break disease cycles,** but make sure the cover crop itself isn't susceptible to the disease, and plant during the period which would normally be infective to host crop.

4) Use **sanitation** where it makes sense: removal of infested crop residues works well in small areas like high tunnels; **sanitize** pruning and harvesting equipment when transmissible diseases are known to be present.
5) Use **pruning, staking, and trellising** to promote air movement, which allows leaf surfaces and fruits to dry quickly.

(**Ticks, continued**…) recommendations for reducing that risk.

Elimate Tick Habitat: Deer ticks are not out in the middle of your lawn, they live where yards border wooded areas, ornamental plantings and gardens, or anywhere it is shaded and there are leaves with high humidity. By raking leaves, trimming shrubs and low branches you can make certain areas where ticks cannot survive. Pay special attention to frequented border areas, woodpiles, stonewalls and sheds. Creating borders of wood chips stone or any other landscaping material helps to serve as a reminder between tick-safe and Tick-danger zones.

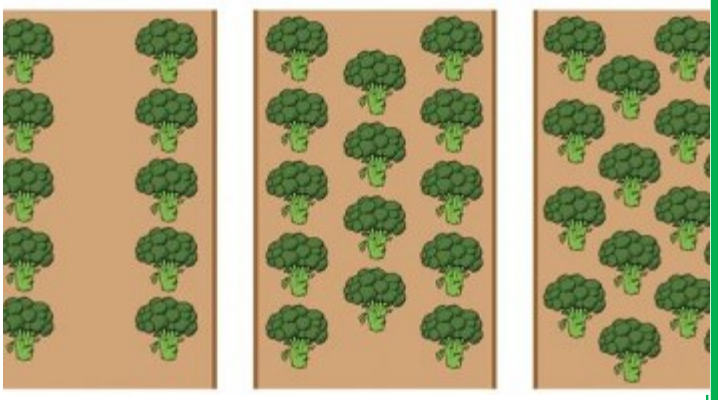
Do NOT Attract Wildlife: Ticks are brought to your yard by deer and become infected mainly by feeding on mice. Keep deer out by planting undesirable plants, installing deer fencing or applying deer repellents. Mice like to live in stonewalls, around sheds, woodpiles or any enclosed area they can get into. Clean up brush, keep stonewalls clear of leaves, move woodpiles away from daily activity. Birdfeeders also attract deer and rodents that may drop ticks off right where you are standing.

Mouse-targeted Devices: When larval blacklegged ticks hatch from eggs, they generally are pathogen-free (several studies from a number of laboratories have failed to detect any human disease-causing pathogens in newly hatched larvae). Ticks become infected with disease-causing pathogens when they feed on reservoir animals. Most studies support the notion that white-footed mice (Peromyscus leucopus) are the main reservoir host for Lyme disease spirochetes, Babesia protozoa, and Anaplasma bacteria; in most settings, mice are the primary culprits for producing infected ticks. These mice are common and often quite abundant in rural, suburban, and semi-urban settings across much of the eastern United States.

Perimeter sprays and Granules: Perimeter spray treatments are eco-friendly by limiting the amount of pesticide being applied, and targeting the areas where people most frequently come into contact with deer ticks. The chemicals used today for tick control are much less toxic than in the past, and are used in very low concentrations. Additionally, Bifenthrin and permethrin do not leach through soil; these chemicals are degraded by soil microorganisms within the top 4 cm of the soil surface. Note: Pyrethroid products should not be applied around fish-containing ponds or streams.

6) **Mulching** can reduce rain splash from the ground, keep even soil moisture, and prevent excessive humidity in the crop canopy caused by weed growth.

7) **Irrigate** on time and in the right quantity: leaving water on for excessively long periods deprives roots of oxygen, promoting root rots; inadequate duration discourages deep root development.
8) **Planting density** is a fine line: higher density can mean higher yield per area planted, which is a benefit where space is scarce; weed suppression can also improve, with faster row closing to create more shade; but in certain cases where specific disease issues are always expected, lower density allows for faster drying of foliage and lower relative humidity. Experiment!
9) Optimal **soil fertility** for optimal nutrient access. This is truly one of the great challenges of growing: finding the sweet spot for each of the crops you grow. Using published guidelines, such as from the **New England Vegetable Management Guide** is a good starting point, and keeping records is essential.
10) Avoid **surface and subsurface compaction**: it's a lot more common than you think. A test with a penetrometer can be instructive. A well-drained soil with a plow pan layer may not be well drained, which can lead to root rot diseases.
11) Excessive **tillage** can contribute to poor plant health, which makes plants susceptible to disease. However, zero tillage is not a panacea: residues on the surface may harbor disease inoculum and overwintering insect pests. And then there's weeds. Again, experimentation is important.
12) Increasing **soil organic matter** improves microbial diversity, making it harder for some of the disease causing pathogens to survive and attack roots. Introducing selected microorganisms into the **rhizosphere** of crop plants can stimulate **plant immunity**. Next week: Bio-Fungicides...



Produce Safety Rule 3 days left to comment!

There is currently a draft set of guidelines for the produce industry. You can look at it here: https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ucm606284.htm#Chapter6**.** Here is the page the gives you a link to comment through electronic submission: https://www.federalregister.gov/documents/2018/10/22/2018-23006/standards-for-the-growing-harvesting-packing-and-holding-of-produce-for-human-consumption-draft.

Issues to look at: **Use of Biological Soil Amendments of Animal Origin** (Chapter 4) and **Growing, Harvesting, Packing, and Holding Activities** (Chapter 6). In the soil amendments section, there's contradictory instructions concerning allowance of manure and manure compost with "covered" crops. In the dropped produce section (page 88), it seems to imply that fruit that is in contact with the ground, even while still attached to the plant, like a tomato, is considered a "drop." But this wouldn't apply to cucumbers or zucchini, whose fruit grow in contact with the ground. The Vermont Agriculture Agency submitted some great comments. The PDF document is being sent to you by email. Take a look, make similar comments if you are concerned about this. Produce Safety is important, but regulations should be based in knowledge of growing.