

Vermont Vegetable and Berry News – July 8, 2009

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www.uvm.edu/vtvegandberry

VEGETABLE DISEASE UPDATE

(Ann Hazelrigg, UVM Plant Diagnostic Clinic)

Late blight remains a top concern. Be sure to scout your fields often and remember the disease can also be found on common Solanaceous weeds (Bitter nightshade) and petunias. Promptly destroy affected plants when found to reduce the amount of inoculum in a field. It is recommended that plants with symptoms be physically pulled up plus a few border plants, preferably on a bright sunny day when possible, then tarp the plants; spores will be killed by sunlight and heat under the tarp. Scout daily thereafter for a few days to see if more plants develop symptoms. Clean equipment after working in infested fields to avoid moving spores. As soon as harvest is finished, disk in crop residues.

Prevention is key to managing late blight. For a listing of conventional fungicides see the New England Vegetable Management Guide or go to: www.nevegetable.org, and click on crops then tomato or potato, then diseases. Organic growers can use a copper product such as NuCop 50WP or Champ as a preventative. Excellent coverage of foliage and frequent applications will be needed prior to infection to optimize protection. It may be advisable to combine copper with a biological-fungicide such as Serenade.

Late blight is rather easy to identify but if you suspect it is on your farm and are not sure, don't guess, send a sample into the Plant Diagnostic Clinic, 105 Carrigan Drive, UVM, Burlington, VT 05405. Editor's note: here's a collection of images of the disease on potato, tomato and weeds: www.hort.cornell.edu/departement/Facilities/lihrec/vegpath/photos/lateblight_tomato.htm

Pumpkin and squash problems this time of year include: inadequate pollination due to low bee activity which results in poorly shaped fruit, as well as excessive blossom drop and fruit rot. Choanephora rot, a fungus disease, can also cause small fruits to rot during wet weather. Once the weather dries out the plants will churn out more zucchinis than you need. Phytophthora capsici can be a problem if you have 24 hours of water-saturated soils (who hasn't?) This destructive fungus causes fruit rots in pumpkins and squash. Often the only visible symptom of infection, especially for cucumber and tomato plants, is stunting. Because the disease often occurs in the low areas of a field where water accumulates, many growers assume that the stunting is due to the 'water logging' of the roots. Squash and pepper plants may have more obvious symptoms, with plants permanently wilted or collapsed prior to dying. Infected plants often have brown to black discolored roots and crowns. The disease is more easily seen on infected fruit, initially as dark, water-soaked lesions which may develop a distinctive white 'powdered sugar' layer of spores on the surface of the fruit.

Disease management is achieved by cultural practices that help soils dry out and by prevention of spread into clean fields. Remove soil from equipment and workers when moving between fields, and avoid applying infested water (as in farm ponds). Rotate tomatoes, peppers, eggplant, and all cucurbits into fields that have no history of this disease and are well-drained. Use raised beds, avoid planting in low areas where water puddles, and improve drainage by sub-soiling. Promptly disk under small areas where the disease appears, along with a border of healthy appearing plants. Avoid working in wet fields and compacting the soil.

Downy mildew on basil is a relatively new disease on this crop that was first found in Vermont in 2008. It's been found this year in NY on plants that were shipped in. Growers may not recognize the disease because the most noticeable symptom is yellowing, which can look like several other problems in basil. The fungus does not overwinter here but blows in on storms. Check for leaf yellowing with gray sporulation on the leaf undersides. For pictures and more information see: <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html>. According to Meg McGrath at Cornell, few fungicides are currently labeled for this disease. There are two phosphorous acid fungicides, ProPhyt and K-Phite that have downy mildew under herbs on the current label. These fungicides were effective in efficacy trials when applications started before or just after initial symptoms were found. Actinovate AG is an OMRI-listed fungicide that is labeled for use on herbs and for suppressing foliar diseases including downy mildew. Other fungicides are expected to be labeled for this use in the future.

Cucurbit downy mildew has been confirmed in a field of cucumber in southern Ontario. This is another disease that does not overwinter in Vermont but will blow in on storms, so be on the lookout. It is caused by the fungus *Pseudoperonospora cubensis*, and can be found annually on squash, cucumbers, pumpkins, and muskmelons. There are many different strains of the fungus that are specific for a certain cucurbit crop. For example, it is not uncommon to see squash, cantaloupe, and cucumber severely diseased by downy mildew whereas watermelons on the same farm show no signs of this disease. Downy mildew can reduce yield, fruit quality, and harvesting time. Downy mildew can kill plants if plants are severely infected early.

Symptoms start as small yellowish areas on the upper leaf surface. Later, a more brilliant yellow coloration occurs with the internal part of the lesion turning brown. Usually the spots will be angular as they are somewhat restricted by the small leaf veins. When the leaves are wet, a downy white-gray-light blue fungus growth can be seen on the underside of individual spots (lesions). On watermelons, yellow leaf spots may be angular or non-angular, and they will later turn brown to black in color. Often on watermelons, an exaggerated upward leaf curling will occur. Consult the NE Vegetable Recommendations for current fungicide control options.

Greenhouse tomato diseases caused by several pathogens are being found right now. Botrytis (gray mold) and Alternaria (early blight) can be a problem if there's high humidity, condensation and poor air movement. Botrytis infections are covered with gray/brown spores; Alternaria infections have a target shape or bulls eye appearance to the affected tissue.

Sclerotinia or white mold can cause a black canker often in the leaf and branch axils; this is usually accompanied by fluffy white mold and sometimes by hard black sclerotia (like small peas) inside the stem. Another stem disease, bacterial canker, shows up as a dark canker on the main stem when the plants are producing fruit. It causes the plant to wilt and can rapidly spread via pruning or watering. When the stem of the tomato is cut open you'd see brown streaking in the water conducting tissue. The Plant Diagnostic Clinic has Rapid Assay kits on hand so if you suspect this destructive disease send in a sample for quick analysis.

For Botrytis and Alternaria, improving air circulation and driving out humidity (rolling up sides, venting, etc) will usually manage the disease. With Sclerotinia and Bacterial Canker, look for wilted plants. These should be bagged and carefully removed from the greenhouse as soon as possible to prevent spread of the disease.

BLACK APHIDS ON GREENS

(from UMass Extension Vegetable Notes)

Outbreaks are being reported of a black aphid on crops such as Swiss chard, beets, lettuce, spinach, and radishes. Leaves are covered with aphids, making the greens unmarketable. They are also on weeds such as lambsquarters and pigweed – in fact, they inhabit those weeds every year. On close inspection, the species appears to be chickpea aphid, one of two black aphids that would likely be found in vegetables (the other is bean aphid). It has a wide host range, but is most abundant on leguminous plants. Vegetables attacked include asparagus, carrot, cowpea, kidney bean, lettuce and lima bean – and, apparently, vegetables in the Chenopodiaceae family (chard, spinach, beets). Field crops include many types of clover, alfalfa, hairy vetch, and wheat. Chickpea aphid is found on every continent, in both temperate and tropical areas.

Adults and nymphs are black, with a slightly gray or shiny appearance from a dusting of white wax. Like most aphids on our vegetable crops, they reach crops in winged form and quickly reproduce as wingless forms that produce live nymphs, building up into dense colonies very rapidly. Some aspect of weather conditions probably favored these chickpea aphids over their many predators and parasites, resulting in unusually high numbers on crops as well as weeds.

They have many predators especially ladybeetles and a large outbreak of aphids will induce a comparable flush of ladybeetles. That seems to be the good news: ladybeetles will reproduce in those colonies and head out around the farm. Meanwhile, you can protect crops with insecticides; the list for aphids registered on beets and Swiss chard has been updated at www.nevegetable.org.

ORGANIC WEED CONTROL AND CULTIVATION WORKSHOP, JULY 21

Intervale Community Farm • 128 Intervale Rd • Burlington, 5 to 7 pm.

Farmers Andy Jones, Becky Maden, and Keri Latiolais of Intervale Community Farm will share weed control strategies they use at the Intervale Community Farm. Growing 20 acres of mixed organic produce, the farm employs several cultivating tractors, specialty weed control tools, and diverse approaches to stay ahead of most weeds. Co-sponsored by NOFA-VT, VT Vegetable & Berry Growers Association, and UVM Extension. Free for: VV&BGA Members and VOF Certified Farmers. Others: \$10 for NOFA members, \$15 for non-members. For directions see www.uvm.edu/vtvegandberry click on meetings, or call NOFA at 802-434-4122.

RICE PRODUCTION WORKSHOP, JULY 25

Takeshi and Linda Akaogi will host a workshop on growing rice in the Northeast at their farm in Westminster on 7/25 from 8am to 5 pm. The workshop, funded by a NE-SARE grant, is intended for commercial growers, academics, and students or farm interns who are studying agriculture, natural resources, and environmental sciences. The goal is to start satellite rice growing experiments throughout the Northeast and to establish a network of experts of the agronomic, wetland wildlife, and watershed management aspects of sustainable rice production. Speakers include the Akaogis; Yolanda Chen, UVM; Christian Elwell, South River Miso; Tatiana Schreiber, Union Institute; and Cornell University's Randy Barker, Peter Hobbs, Susan McCouch, and Gen Onishi. The workshop is free but space is limited and pre-registration is required. To register, email Linda at akaogi@sover.net with your name, phone number, business name, and profession (please describe in detail, i.e. farmer growing grains and vegetables for CSA & wholesale).

HIGH MOWINGS SEEDS GROWER WALKS

These Grower Walks are held from 5 to 7 pm at the High Mowings Trial Gardens in Wolcott. Go to www.highmowingseeds.com/visiting-our-farm.html or call (802) 472-6174 for directions. Upcoming Walks: August 5: zucchini, cucumbers, heat-tolerant greens. September 2: melons, winter squash, pumpkins. September 29: fall brassicas, cold-hardy greens.