

Compiled by Vern Grubinger, University of Vermont Extension
(802) 257-7967 ext. 303, vernon.grubinger@uvm.edu
<http://www.uvm.edu/vtvegandberry>

Late blight was recently confirmed on Long Island NY in tomato fields at 3 farms and in potato fields at 2 farms. Late blight was also reported on potatoes in VA and DE. Be sure to scout your fields regularly so you can catch the disease early if it arrives. For images of the disease to help with identification: http://www.longislandhort.cornell.edu/vegpath/photos/lateblight_tomato.htm#images and http://www.longislandhort.cornell.edu/vegpath/photos/lateblight_potato.htm. To help us track the disease in VT please send samples of any suspected plants ASAP for a positive ID to: Ann Hazelrigg, UVM Plant Diagnostic Clinic, 201 Jeffords Building, 63 Carrigan Drive, UVM, Burlington, VT 05405. Fungicides allowed for use on organic farms that show some efficacy against late blight and are registered in VT are: Nu-Cop 50 WP and Champ WG. These both contain 77% copper hydroxide and must be applied prior to infection to the entire crop canopy on a regular spray schedule in order to be effective. Champ WG is available from Crop Production Services in Addison VT: 802-759-2022 and NuCop 50WP is available from Helena Chemical in western MA: 413-247-3126. Conventional fungicide options are listed in the New England Vegetable Management Guide, call Vern's office if you need a copy or view it on line at: <http://www.nevegetable.org/>

(adapted from UMass Extension vegetable notes)

Late blight. Classic symptoms are large, at least nickel-sized olive-green to brown spots on leaves with slightly fuzzy white fungal growth on the underside when conditions have been humid. Sometimes the lesion border is slightly yellow or has a water-soaked appearance. Leaf lesions begin as tiny, irregularly shaped brown spots and quickly grow larger: spots that are consistently small are not typical. Brown to blackish lesions develop on upper stems and leaf petioles. These stem lesions are a fairly distinctive sign of late blight and should definitely raise a red flag. Firm, brown spots develop on tomato fruit.

Septoria leaf spot. This destructive disease of tomato foliage occurs wherever tomatoes are grown. It can destroy most of a plant's foliage resulting in sunscald, failure of fruit to mature properly, and low yields. Once infections begin, they can spread rapidly from lower to upper tomato canopy. Symptoms consist of circular tan to grey lesions with a dark brown margin that appear on lower leaves first, after the first fruit set. If conditions are favorable, lesions can enlarge rapidly, forming fruiting bodies that look like black specks, and turn infected leaf

Early blight. This common disease occurs on the foliage, stem, and fruit of tomato everywhere the tomatoes are grown. It first appears as small brown to black lesions on older foliage. The tissue surrounding the initial lesion may become yellow, and when lesions are numerous entire leaves may become chlorotic. As the lesions enlarge, they often develop concentric rings giving them a 'bull's eye' or 'target-spot' appearance. As the disease progresses, plants can become defoliated, reducing both fruit quantity and quality. Fruit can become infected either in the green or ripe stage through the stem attachment. Fruit lesions can become quite large, involve the whole fruit, and have characteristic concentric rings. Infected fruit often drop and losses of 30-50% of immature fruit may occur. On potato, foliar symptoms are quite similar though complete defoliation rarely results. The concentric rings in the lesions are fairly diagnostic for this disease, and help to distinguish it from either late blight or Septoria.

Management of Septoria leaf spot and early blight. Adequate nitrogen fertility throughout the season can help delay disease development; lower leaves become more susceptible as the nitrogen demand increases with fruit load and older leaves decline in nitrogen. Protectant fungicide sprays at regular intervals (depending on weather conditions and disease pressure) will delay onset of the disease. Many of the fungicides that are labeled for the control of late blight will also provide control of early blight and Septoria leaf spot. See the New England Vegetable Management Guide for recommendations. Both pathogens survive between crops on infected plant debris, soil, and other solanaceous host weeds and can be carried on tomato seed. Early blight can be transmitted in infected potato tubers. Rotate out of tomato crops for at least two years, control susceptible weeds, and incorporate debris after harvest. Reduce the length of time that tomato foliage is wet by using trickle irrigation, wider plant spacing, and staking. Keep workers and equipment out of wet fields where possible.

Leaf Mold. This disease can occur in the field but is most common in poorly ventilated greenhouses. Symptoms look somewhat like late blight. The high temperatures in the greenhouse make late blight less likely, but growers on hyper-alert for late blight have been concerned. Infections begin on older leaves with yellow areas visible on the upper leaf surface. Corresponding to these, on the underside, are areas of olive-green to grayish-purple fuzzy growth where the fungus is making spores. Leaves turn yellow, then brown. The disease can spread rapidly as spores disperse throughout a greenhouse on air currents, water, insects, and workers. Management: Start with certified disease free seed. Improve air circulation by adequate row/plant spacing and removal of lower leaves. Avoid the formation of water droplets on leaves by watering in the morning. Reduce relative humidity by a combination of heating and venting, especially at night. Avoid excessive nitrogen fertilization. Remove diseased leaves, place in plastic bag, and destroy. At the end of the crop cycle, remove all plant residue and destroy and disinfest the entire greenhouse.

Corn borer moth numbers are variable in the region but most areas are seeing some moth activity, suggesting that larval feeding pressure is likely to increase in the near future. Scout your field for the typical small "pinholes" in the leaves of whorl and pre-tassel stage corn plants. Corn in the whorl stage only needs to be sprayed if fresh feeding injury is found on 30% or more of the plants scouted in a field. Corn at the pre-tassel stage should be sprayed if 15% or more of plants are showing injury.

Sprays during the pre-tassel stage when both moths and larvae are present can stop larvae from moving into the stalks and ears of the plant. Fields with silking corn should have corn earworm traps to monitor for their arrival. Place two traps per field with lures suspended directly above the freshest silk found. Move traps to fresh silk as needed. Southern storm fronts can deliver large populations overnight that begin laying eggs that will hatch on fresh silk and tunnel into developing ears. The New England Vegetable Management guide lists insecticide options; UMaine Extension has good resources on scouting for insect pests in sweet corn: <http://umaine.edu/ipm/ipddl/publications/5101e/>.

adapted from an article by Thomas Bjorkman, Cornell University

Buckwheat and sudangrass have different properties, so the management goal and field condition will determine which is the right one to use. Sudangrass is often chosen for improving soil organic matter. It produces a strong root system and lots of biomass. The deep root system helps reduce subsurface hard-ness. Sudangrass is also a good choice for reducing root-knot nematode pressure. If weed suppression is the main goal, buckwheat is preferable. Buckwheat is best known for weed suppression and mellowing the soil. It covers the ground earlier than sudangrass, especially in June, and outcompetes weeds that may establish in sudangrass. Sudangrass requires a higher seeding rate for effective weed suppression. The amount of time until the fall crop is to be planted is a significant decision factor. As a cover crop, buckwheat is in the ground for 35-40 days. It can be sown as early as May 20. The recommended seeding rate is 60 lbs/acre. Sudangrass needs 60-70 days to be effective, and is most worthwhile if planted once soil has become thoroughly warm. The recommended seeding rates for is 50 lbs/acre. Both cover crops should be mowed after about 40 days. This is the end of the season for buckwheat, but the beginning of major root growth for sudangrass. Sudangrass needs a final flail mowing and immediate incorporation to suppress nematodes. If the soil is hard or the field is prone to standing water, sudangrass is a good choice, but buckwheat will do poorly. However, if the field is low in nitrogen and phosphorous, buckwheat will do well without additional fertilizer, while sudangrass needs about 40 lb of N/acre to give satisfactory performance. If the crop to follow the cover crop needs a fine seedbed, it will be easier to produce after buckwheat. Buckwheat mellows the soil for easy working and decomposes quickly after incorporation. Sudangrass crowns take some time to break down, so the following crop needs to be one that can be sown in a somewhat lumpy field. The main production risks associated with buckwheat are a failed stand and letting it go to seed. The failed stand usually follows a heavy rain around the time of emergence. It will be obvious two weeks after planting. If the seedlings are not doing well then, till them in and plant again. To avoid volunteer buckwheat seed, kill the crop before there are filled green seeds on the plant. This takes about 40 days from a July planting. The main production risk associated with sudangrass is that the crop gets too big to mow or to incorporate after frost has killed it. This crop grows very fast, so keep an eye on it. Mow the first time when it reaches 3 feet and the second time while the flail mower can still chop it well. If sudangrass gets too big to control, it will be killed by frost and make a nice winter mulch. However, the biofumigant effect will be lost.