

## Life after Late Blight

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This has been a trying summer for gardeners. The early spring hot weather tempted gardeners to plant earlier than normal but then the weather morphed into a long wet spell with cooler than normal temperatures--the perfect recipe for vegetable diseases, the 'perfect storm' in fact. Back in April many of the box store seasonal garden centers received vegetable transplants from a southern grower whose plants/soil harbored the spores for *Phytophthora infestans*, better known as Late blight. This is the same fungal disease that caused the Irish potato famine in the mid eighteenth century and although it is seen occasionally, it has never shown up so early in the season and with such a vengeance. The southern transplants were shipped all over the northeast and many were planted in gardens before signs of the disease aroused suspicion. Dr. Tom Zitter, a plant pathologist from Cornell, was asked to diagnose some ill transplants from a local Ithaca big box store and he along with other plant pathologists were among the first to identify the pathogen as Late blight. By this time the newly planted tomatoes were producing fungal spores that were picked up by the wind and the disease was spreading everywhere infecting plants in the Nightshade (Solanaceae) family, mainly potatoes and tomatoes. The vast numbers of plants and the range of planting areas coupled with the prolonged wet weather and cool temperatures made the perfect situation for late blight to take hold. Backyard gardens and commercial fields were all hit by the spores and the plant decline was swift. For those who know the disease is nearby, Copper sulfate is a fungicide that will set up a barrier against the fungus but it will not cure it. Symptoms include brown streaks on stems, blackened areas on leaves that dry and wilt quickly, and olive green to brown blotches on the fruit that appear shiny or wet but are hard to the touch. Humid weather will often foster a white fuzz or mildew like growth on the fruit or leaves that indicate that the fungus is producing spores. Gardeners often remark that the plants were healthy one day and wilting with symptoms the next. The rapidity of the disease moving through a plant is humbling and not quickly forgotten and so gardeners are wondering what to do to prevent this from happening again.

Since we have no control over weather and winds, we need to take all the precautions that we can to ensure that our gardens are as hospitable as possible for planting next spring:

1. Clean-up all diseased foliage and fruit and discard in a plastic bag for the land fill—DO NOT COMPOST. Check that all potato tubers are out of the soil. If you see any signs of potato growth next spring (from left over tubers), remove promptly as spores can over-winter in living tissue. Spores for late blight will not over-winter in the soil.
2. Rotate crops, especially all Nightshade family plants, for example, do not plant peppers where tomatoes, eggplant, or potatoes were growing the previous year.

3. Look for the new tomato variety 'Mountain Magic' which should be available in 2010 as it has resistance to Early blight, Septoria leaf spot, and Late blight.
4. Remember the garden rules when planting and leave room to allow for good air circulation as this will lessen disease. DO NOT CROWD PLANTS.
5. This fall, incorporate organic matter such as chopped up leaves, compost, or dried manures into the vegetable garden. Plant a green manure crop such as winter rye or buckwheat that can be turned over in the spring to enrich and nurture the soil. FEED THE SOIL AND IT WILL FEED YOU.

With phones ringing off the hook daily with callers asking questions about tomato diseases, especially late blight, the most often asked question concerns the safety of eating fruit from blighted plants. The pathogen will not harm people, only plants. Tomatoes that are picked before ripening should be washed well with a mild soap and water solution, rinsed, and DRIED VERY THOROUGHLY. Set out to ripen on the windowsill out of direct sunlight or wrapped in newspaper or brown paper bags. The best advice is to be vigilant in the garden and check often for signs of disease. Do what you can to limit the spread of disease, and salvage what harvest you can. Gardeners are optimistic people who learn from each seasons' experience and know well that there is always next year.



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