2011 - An Average Year Made Up of Unusual Weather

Eric Sideman - MOFGA Organic Crop Specialist

Back in October I heard a weather forecaster say that there was a foot of snow predicted, which he said was very unusual for October. Then he said that unusual weather is very common. That pretty much sums up 2011. I am looking back at the Pest Reports that I sent out over the season and I see that I started on April 11 saying that the forecast was for 70 degrees, warm for early April and I warned folks not to be fooled. Do not rush into planting until the soil warms up because there are all sorts of pests and diseases that will jump all over your slow-to-germinate seeds sitting in the cold soil. Then it got dry as a bone in July for some folks. I finished the season talking about wet. Our soils here on East Wind Farm, my home in New Hampshire, have been water logged since mid August, even before Irene. Now it is mid December and the ground still has not frozen and it is completely water logged. There are all sorts of problems that can afflict your crops when their roots drown. I hope it dries up by spring.

My take home message is to farm based on the calendar, but take lots more into account such as daily weather, soil condition, pest history and even your mood. Here are some highlights from the 2011 series of Pest Reports that are good representations of the year. Also, check out the last picture. This is what lots of potatoes looked like this year. If you want to see more pictures of pests around in 2011, and ask questions, come to my presentation at the Trades Show in Augusta on January 10 (go to the MOFGA website and look at the Trades Show Schedule for details).

(From Pest Report April 11, 2011)

SEEDCORN MAGGOT (Delia platura)

The seedcorn maggot is a larva of a fly. The maggot mostly feeds on decaying vegetable matter in the soil, but if seeds are slow to germinate they fall prey too. Peas and beans are the most commonly injured seeds because people rush peas into the ground early in the spring and beans are slow to germinate in cool soil no matter what the calendar says. Corn, melons, cucumbers, potato sprouts, cabbage, beet, onion (here often confused with onion maggot), spinach, radish and more crops are also frequent victims.

The fly lays its eggs in moist soil. They are attracted to soil high in fresh organic matter. The fly eggs can hatch at very low temperatures. The larva feed on the seed, especially the embryo. Seeds may be killed before they sprout, or may sprout but be missing parts such as a cotyledon or growing tip. I often see beans germinate that have two cotyledons but no more growth because this pest ate the growing tip.

Cultural Control

Everything that can be done to encourage and hasten seed germination is important in early spring plantings. For example, waiting for warm soil, waiting for a good 5-day weather forecast, planting shallowly, etc. Slow to germinate seeds are sitting ducks for the seedcorn maggot. Avoid adding organic matter that is not fully decomposed to fields of early spring planted crops (ex. unfinished compost, livestock manure). Clean cultivation is recommended for early plantings.

DAMPING-OFF IN THE FIELD

Below I will discuss damping-off of seedlings in greenhouses and on window sills. Last year I received calls about peas dying just after or just before germinating and I thought I better mention that damping off can also occur in the field. This time of year the problem is with peas.

The disease is caused by several different species of Pythium, which is a common soil inhabitant that persists in soil (often in root debris) as spores. The species have a wide host range of crops and weeds and so crop rotation will do little to avoid the problem.

During or just after germination the pea seedling begins to show symptoms. The symptoms may be as simple as yellowing and stunting because sometimes only the root tips are infected and this root pruning interrupts growth. Sometimes a soft rot of the stem kills the plant. Sometimes you just don't see any peas.

High soil moisture and warm soil temperatures (warmer than optimum for pea growth, i.e., 65-75) favors Pythium. You can't control the weather but you can choose when you plant your peas. If the soil is very wet and warm weather is forecast it may make sense to delay planting a few days for the soil to dry a bit.

There are resistant varieties. The resistant gene is tied to some visual characteristics of the seed. Wrinkled seeds are more severely affected than round seeds. Also, some biological seed treatments such as Rootshield may help.

(From Pest Report August 22, 2011)

LATE SUMMER DISEASES RAMPANT

This August has been wet. But even before we got the recent rains, August has been wet because it was very humid and the days are getting shorter. It is kind of sad for some people to see the days get shorter, and others that wake late in the morning don't notice it, but the days are much shorter now. It gets dark by 8:00 and not light until after 5:00. Shorter days, the sun lower in the sky and especially the humidity being high for quite a few weeks have lead to heavy dew setting early in the evening and not evaporating until late morning. That means the leaves stay wet longer. What has developed in this seasonal situation, and weather, and late August crowded plants is disease. Many spores depend on a minimum number of hours for spore germination, and we got it in the past few weeks. All of a sudden some crops that looked great are on the edge of death, or over the edge.

ONIONS- Botrytis leaf blight has gone wild. Botrytis leaf blight is one of the most common fungal diseases of onion. Severity depends on the abundance of overwintering inoculum, and the number and duration of high humidity and leaf wetness periods, and moderate (50-70°F) temperatures. When conditions are favorable it can take down an entire field. The disease often results in smaller bulbs and lower yield. Symptoms are whitish lesions on the leaves, usually at first having a greenish halo, then developing into a sunken, yellowish spot with a characteristic slit oriented lengthwise to the stem. Symptoms tend to appear first on older leaves. . As the disease progresses the lesions coalesce and leaves yellow and die back. Massive numbers of conidia (spores) are released from infected leaves and are wind blown to new plants. Botrytis overwinters as sclerotia, which were formed on infected tissue and appear as tiny black specks. Dead leaves and culls left in the field or in piles over winter are the source of new infections. The sclerotia germinate in the spring and release spores, which infect young onion plants.

Minimizing the leaf and cull bulb tissue left on the soil surface after harvest is key to management. Culls should be destroyed, not piled. Volunteer onion plants in the spring should be rougued. Crop residue should be removed from the field at harvest or plowed deeply. Crop rotation is effective if new field is well apart from the old field.

Minimizing periods of leaf wetness is key. Wide row spacing and within row spacing allows more air movement. Double or triple rows on wet years will lead to a problem. Overhead irrigation should be very early morning on sunny days to allow for quick drying and not extend the period of wetness from dew.

Serenade (Bacillus subtilis) has been shown to be effective in at least one study.

Botrytis leaf blight

GRAY MOLD- There are a bunch of species of Botrytis but the one that causes gray mold has taken off in the humid weather and crowded garden conditions. The most common places you see this include soft ripe fruit after picking (ex. raspberries), tomatoes in humid greenhouses, tomatoes crowded in gardens, lettuce planted too close, and many flowers. Sanitation helps because leaving the fuzzy, gray mass of spores around is asking for problems. But, by far, the most important practice is to keep the air moving and drying the flowers, leaves and fruit. Of course, if the air is 100% humid it will help little.

Botrytis on tomato leaf

Pink Rot

Potato harvest in 2011 was very disappointing for many. Soils have been water logged since August and many have become totally anaerobic, a great environment for some pretty horrible diseases of potatoes. About half our potatoes rotted in the ground from pink rot, a disease caused by a species of Phytophtora (not the species that causes late blight). After being infected by this fungus, Erwinia, a bacteria flourish and turn the potatoes to liquid.

To see more pictures of this and other diseases that do well in the wet, come to the Trades Show on January 10th - (http://mofga.org/Events/MOFGADayattheMaineAgriculturalTradesShow/tabid/372/Default.aspx).

3:00 pm Season Recap (Androscoggin/Aroostook)*

Pests and Diseases had a field day in 2011. Many crops did very well this year, but some were total losses. Now that the farm work is a bit more quiet, take some time to come and see if you can identify your problems and learn about ways to manage them. Eric Sideman, MOFGA's Crop Specialist will show some pretty pictures of some ugly stuff and make some recommendations.

* These sessions qualify for one pesticide recertification credit. Questions? Contact Gary Fish, Maine Board of Pesticides Control by calling 207-287-7545.

PEST Reports...*are you getting yours?*

MOFGA Organic Crop Specialist Eric Sideman, Ph D., compiles a report every week or two during the heart of the season highlighting problems happening now or likely to show up soon. Eric hears about problems from growers all around the region so please help out and let him know if a big or unusual pest problem is happening in your area.
To contact Eric and to sign up to receive the report via email send a request to: esideman@mofga.org or call the office at 568-4142. You can also access current year reports from www.mofgacertification.org, as well as reports for the past 5 years, archived at: http://www.mofga.org/Publications/PestReports/tabid/732/Default.aspx.