Next Year’s Diseases: Prevention Starts NOW

Disease management requires forethought. Here are ways to minimize impact.

Variety choice

✦ You may feel the natural impulse to go with varieties that you’ve had great success with. Those were good seasons, weren’t they? The fact is, disease pathogens evolve and the climate is changing. Breeding programs are trying to keep ahead of these issues. Identify problem diseases on our farms - Heather Faubert at URI can help! Choose varieties with documented resistance to those pathogens. Once again, here is the link for Meg McGrath’s page on disease resistant varieties for most vegetable crops.: http://vegetablemdonline.ppath.cornell.edu/Tables/TableList.htm

✦ Don’t make a huge commitment to one or two varieties- diversify and spread your risk. Buy sampler packets of varieties purported to be resistant to your problem diseases and trial them near your staples.

✦ Back off on varieties that have multiple problems- you may be losing money on them.

Cover cropping/Soil management/Residue management

✦ Cover crops: 1) increase organic matter for the sake of future microbial nutrition; 2) “fix” (take up and incorporate) available plant nutrients in the fall that might otherwise be leached through the soil profile during the winter; 3) maintains a biologically active “rhizosphere”; microbes in immediate proximity of plant roots can make a less habitable environment for pathogenic organisms that might attack roots.

✦ Soil management strategies to reduce root disease include: 1) Promoting soil structure through incorporation of organic residues and compost/manure amendments; and 2) avoiding excessive tillage.

✦ Residue management may be necessary when diseased plant tissue is left in the field. In some cases, this may require deep incorporation through plowing or spading in order to ensure thorough decomposition. A RI no-till pumpkin grower had trouble with Bacterial Leaf Spot for three years until he deep-plowed. All residue was put out of reach of living plants and decomposed. We haven’t seen a problem since.
Crop rotation

- This is a BIGGIE. However, it’s important to be clear on which diseases are restricted within a family (or even species) and which have wide host ranges. An example of the latter is “white mold”, which can affect 64 plant families and also has a small, hard, black resting structure (sclerotium) which can last in soil for 5 to 8 years.

- Disease management is the most important reason for good rotation planning on mixed vegetable farms.

Sanitation

- Start with a clean greenhouse: transplanting infested plants is not a good way to start, and we’ve seen that on two occasions this year: bacterial canker and Rhizoctonia

- In high tunnels especially, remove diseased crop residue and dispose of it.

- In the field, some disease issues are perennial, either because the inoculum overwinters in your soil, or because it is guaranteed to show up at some point in the summer. Often, it is not practical to remove crop residues, but in the case of fruit rots, picking and removing diseased fruits can reduce inoculum.

- Wooden stakes and posts can be reservoirs for diseases, and these are not easy to surface-sterilize since they are porous. Therefore, soaking is required. Remember that disinfectants lose their efficacy after a certain amount of use so fresh solutions are required. Hand tools for pruning should also be treated.

Location choice/Planting density/cultural practices

- Well-drained and sunny is ideal for vegetables (assuming you have irrigation capability). This ensures that soil is rarely anaerobic (oxygen-less), which is what most root pathogens like.

- High density planting can make sense for short season crops where there is good drainage and no known disease history. Longer season crops need air flow so that leaf surfaces can dry quickly to avoid spore germination. One example of this is Brussels sprouts: Alternaria is common, and so is inadequate N, which favors the disease. Wet leaf surfaces are needed for disease development and all too often, plantings are too dense.

Seed treatments

- Coating of seed with fungicide is a common method of avoiding pathogens that attack germinating seeds. It is usually applied by the seed company.

- Hot water treatment is essential if you save your own seed. There are specific instructions for this process.

Upcoming Events:

Sept 12, 4:00 PM: Annual Twilight Vegetable Meeting at URI Agronomy Farm

A great chance to look at research projects, make connections, talk shop with your colleagues, and get inspired... Meal Included!

Please RSVP- Leave message at 401-874-2967 or email: andy_radin@uri.edu

Use TEST STRIPS when using disinfectant! It spoils with use!
**Crop issues requiring attention...**

Brassicas become ever more prominent as we change seasons. Especially important is the cabbage aphid, which you may have already seen by mid-summer. In fact, we seem to see them earlier with each passing year. These aphids overwinter in the egg stage in crop debris and as adults on live brassicas. They can get really out of hand in September and muck up your kale, collard and Brussels sprouts. According to a UNH study (by our colleague, Becky Sideman and her grad student), good control can be obtained by rotating potassium fatty acid insecticidal soap (such as M-pede) and Azadiractin/Pyrethrum mix (Azera). They also attempted to attract parasitoid wasps with flower plantings in this study. [https://extension.unh.edu/resources/files/Resource006332_Rep9072.pdf](https://extension.unh.edu/resources/files/Resource006332_Rep9072.pdf)

Fruit rots of tomatoes and peppers can cause issues with your customers. This pepper (left) has an unassuming little dimple on it but this is the beginning of an anthracnose lesion which can become most unpleasant, and on tomatoes and eggplant as well. From UMass Extension Vegetable Program website: “Although C. coccodes is considered to be a weak pathogen, many common weeds and crop plants are hosts and thus inoculum reservoirs. The pathogen overwinters as microsclerotia on seed, in the soil, and in infected plant debris and is spread by splashing rain and overhead irrigation. The disease is favored by warm temperatures (68-75° F), extended periods of leaf and fruit wetness, and free moisture. Fruit on plants partially defoliated by leaf diseases are particularly susceptible to infection.” Crop rotation, drip irrigation, weed control, and staking/mulching all help to reduce risk. Regular fungicide spraying is an important tool.

And more on Brassicas: don’t forget that the various caterpillar pests can continue to feed voraciously well into the fall. Do take the time to scout, formally or informally. Small larvae don’t do much damage. Large larvae do LOTS of damage. Small larvae grow into large larvae. Ergo, control small larvae with B.t.