

The Effects of a Wet Winter on Vegetables

Back in the fall of 1997 I wrote an article on what the possible effects of the predicted El Nino of 97/98 may have on vegetables. As we now know it was a record season for rainfall and there were many issues that occurred with vegetable production. Here we are 18 years later and now meteorologists are predicting not just an El Nino winter, but a “Godzilla” El Nino winter. So what are some of the potential problems vegetables face if we do have an abnormally wet season?

Foliar diseases will likely be a bigger issue this winter and spring. One that particularly comes in mind is garlic rust. Before the El Nino of 97/98 garlic rust was a minor issue in California. But in 1998 garlic rust was a huge problem due to the extremely wet season. If history repeats itself, then garlic rust is one that may be a problem during this upcoming rainy season. Late blight was an issue in 1996 and 1997 with the development of new resistant strains of that fungus. It continued to be a problem 1998 with the addition of the constant rains. This year has been a very bad year for late blight on both tomatoes and potatoes. Late blight will be another one to be aware of with this upcoming rainy season.

Other foliar diseases to pay close attention to for next season would be the downy mildews. Downy mildew affects several vegetable crops including onions, lettuce, spinach and broccoli. These fungi along with late blight are called water molds because they thrive in wet conditions. In fact, genetically they have been found not to be fungi at all but actually a type of algae. But true fungi such as *Botrytis* and *Sclerotinia* also do well in cool wet conditions so expect these to also be a problem in a Godzilla El Nino year.

Bacterial diseases will also likely be a problem during a wet season. Bacterial speck and spot of tomatoes, spot of peppers, and bacterial leaf blight of carrots potentially could be worse this upcoming season. Onions are affected by several bacterial issues. Splashing rain transmits bacteria from the soil onto leaves of onions where they may enter the plant through old downy mildew lesions.

Seedling diseases such as damping off will likely be an issue for direct seeded vegetables and less so for transplants during cool wet soil conditions. Soil-borne fungal pathogens such as *Pythium*, *Rhizoctonia*, *Fuarias*, *Thielaviopsis*, and others may kill seedlings before they emerge (pre-emergence damping off) or after they emerge (post-emergence damping off). The result of seedling disease is a field with a poor stand and low yield.

Cool wet soil conditions can also lead to various root rots. The water molds *Phytophthora* and *Pythium* can infect the roots of many vegetable plants resulting in severe root rots stunting growth or killing plants. *Rhizoctonia* is not a water mold but it is also capable of infecting roots of various vegetables.

Knowing that a potential record breaking wet season is coming means planning ahead and taking appropriate measures that can help avoid some of these problems is important. This may be even more critical for organic production which has fewer tools to rely on.

If possible, early plantings should be restricted to fields with sandier soils which drain better and are warmer than heavier soils. Fields with soil compaction issues should be worked so water can drain properly. Also avoiding tractor work when fields are wet will help prevent a compaction issue during the course of the season.

If possible, try to plant during periods of dry weather to avoid seedling diseases and root rots. The use of treated seed will really be important for direct seed fields for this upcoming El Nino year. For transplants, the use of starter fertilizers in the transplant water may be even more important to make sure transplants get off to a quick start.

Field scouting and the use of preventive fungicides is also going to be important for the management of foliar diseases. That will help ensure that a foliar disease does not have an opportunity to get so established that it becomes difficult to control. Field scouting will provide early detection of any problem that might arise and the use of broad spectrum fungicides preventively will help lessen the chance of them starting or becoming overwhelming. The use of copper and mancozeb together works well for bacterial foliar disease.

It is impossible to predict if the up-coming vegetable season is going to experience higher incidence of diseases. However, knowing that wet years and increased disease pressure goes hand in hand, means some steps can be taken minimize disease severity. Steps can be taken such as properly preparing and selecting field sites, use of resistant varieties when available, field scouting and the proper use of protectant fungicides are always good management practices. These steps however are more critical in a year predicted to be wetter than normal.

So while a “Godzilla” El Nino will be a welcome relief to parched California, we can also expect some problems to come along with it. On the agriculture production side those will be flooded fields, delayed plantings and harvests and perhaps increased disease incidence. But overall hopefully this El Nino will provide more benefit than problems.

Joe Nunez, Farm Advisor, Vegetable Crops/Plant Pathology
661-868-6222 or jnunez@ucdavis.edu