

# What's in Season from the Garden State

Biweekly Highlights from Cooperative Extension, a unit of Rutgers New Jersey Agricultural Experiment Station

July 1, 2009



*Symptoms of late blight on stem of infected tomato plant.*



*Late blight sporulating on the bottom of infected tomato leaves.*



*Symptoms of late blight on green tomato fruit.*  
Photos by Dr. Dan Ward, Rutgers NJAES

## Averting the New Jersey Tomato Famine

For those of us with short memories, it felt like the coolest, rainiest June – ever. According to New Jersey State Climatologist Dave Robinson, 2003 and 2006 were wetter, but June 2009 does fall into the “top ten rainiest Junes” on record. June 2009 also ranks as the 24<sup>th</sup> coolest of the past 115 years. Robinson explains that the culprit for this weather is a very persistent spring weather pattern that has maintained itself for the month of June rather than “lifting” into Canada by this time of year. (For the warmest/colest and wettest/driest months on record for New Jersey since 1895, visit the Rutgers State Climatologist website at: <http://climate.rutgers.edu/stateclim>.)

While New Jerseyans endure this weather, lamenting over their mildewed basements, mushroomy lawns, and frizzy hair, our agricultural neighbors are dealing with another set of problems. Bill Walker of New Jersey Department of Agriculture reports that we can expect seeding/planting and harvesting schedules to be delayed or interrupted, if not from the rain, then from the wet fields that are unable to support heavy machinery. And to top it off, the temperatures, combined with moisture in the fields, leave farm fields ripe for disease development.

## The Irish Potato Famine

Every growing season brings the usual collection of plant diseases that are managed with minor crop loss. However, ever-vigilant plant pathologists keep a watchful eye for those diseases that manifest infrequently, but leave much damage in their wake. This year the disease that has New Jersey's tomato and potato industry on high alert is late blight, caused by *Phytophthora infestans*. This pathogen was responsible for the Irish Potato Famine in the mid-1800s.

While social, political, and economic factors played a role in the devastation the potato famine caused in Ireland, the actual culprit was a fungal-like organism (*Phytophthora infestans*) that was originally transported in seed potatoes in the holds of ships traveling from North America to England.

“The Famine began quite mysteriously in September 1845 as leaves on potato plants suddenly turned black and curled, then rotted, seemingly the result of a fog that had wafted across the fields of Ireland.

Winds from southern England carried the fungus to the countryside around Dublin. The blight spread throughout the fields as fungal spores settled on the leaves of healthy potato plants, multiplied and were carried in the millions by cool breezes to surrounding plants. Under ideal moist conditions, a single infected potato plant could infect thousands more in just a few days.

The attacked plants fermented while providing the nourishment the fungus needed to live, emitting a nauseous stench as they blackened and withered in front of the disbelieving eyes of Irish peasants. There had been crop failures in the past due to weather and other diseases, but this strange new failure was unlike anything ever seen. Potatoes dug out of the ground at first looked edible, but shriveled and rotted within days. The potatoes had been attacked by the same fungus that had destroyed the plant leaves above ground.”<sup>1</sup>

<sup>1</sup>The History Place, *The Irish Potato Famine*, <http://www.historyplace.com/worldhistory/famine/index.html>

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**RUTGERS**

New Jersey Agricultural  
Experiment Station

New Jersey Department of  
Agriculture's Jersey Fresh &  
Seafood Availability Report



Arugula	Atlantic Bonito
Baby Arugula & Baby Spinach	Bluefish
Basil	Bunker (Menhaden)
Beets	Butterfish
Blueberries	Flounder
Cabbage	Fluke
Cilantro	Ling
Collards	Lobster
Cucumbers	Mahi-Mahi
Dandelions	Monktail (Day Boat Gill Net)
Dill	Scup (Porgies)
Escarole & Endive	Sea Eel
Kale	Sea Scallops (Day Boat)
Leeks	Skate Wings
Mint	Squid
Lettuces	Tilefish
Parsley	Whiting
Radishes	<b>Farm Raised Hard Clams &amp; Oysters</b>
Spinach	Little-necks/Middle-necks
Squash	Cherrystones,
Swiss Chard	Chowders, Top-necks
Turnips	Cape May Salt Oysters
<b>Forecast:</b>	Delaware Bay Oysters
Eggplant - mid-July	
Nectarines - mid-July	
Peaches - after the 4th	
Peppers - mid-July	
Sweet corn - mid to late July	
Tomatoes - mid-July	

**A Summer without Jersey Tomatoes?**

While the factors set in place in 1845 in Ireland do not apply to our scenario, late blight is a disease that can cause devastation to an industry – and in this case, we are talking about the New Jersey tomato and potato industries. Late blight has been confirmed in fresh-market tomatoes in southern New Jersey, and the potential for this disease to quickly destroy an entire crop is great. Does this mean a 2009 loss of New Jersey's beloved tomato crop? New Jerseyans are already cranky about the mildew, mushrooms and hair frizz – don't take away our tomatoes!

**NJ's Agricultural SWAT Team to the Rescue**

Unlike the mystery and surprise that met the Irish in 1845, New Jersey is equipped with a team of specialists that are taking action to avert any catastrophe. The first steps in the process involve the sharing of information from surrounding states. Vegetable plant pathologists alert colleagues in other states when diseases such as late blight are confirmed in their home state. Rutgers NJAES specialist in vegetable pathology Dr. Andy Wyenandt alerted New Jersey growers of the encroaching disease with recommendations for preventive measures.

Commercial growers are updated through the weekly *Plant & Pest Advisory* newsletters that they receive from Rutgers NJAES. When the disease was first diagnosed in New Jersey, an urgent alert was sent to growers by e-mail. With growers on high alert, they are instructed to continue their preventive measures and transition to scouting their fields for signs of the disease. Rutgers NJAES Cooperative Extension county agricultural agents are then employed to assist in scouting farms for signs of the diseased plants and instructing on proper disposal of the diseased crop.

**Home gardens are at risk too!**

The occurrence of late blight in 2009 is different compared to most seasons. This is the earliest the disease has been reported over such a broad region of the country. More tragic for the Northeast is that infected plants have been distributed to large local retail stores throughout the region (Ohio to Maine). Never before has such an extensive distribution of infected plants occurred. The inoculum is exceptionally contagious, thus it has most likely spread on garden center shelves to tomato plants which were not involved in the original and initial source of the inoculum. In recent days, vegetable pathologists throughout the Northeast spread the word of this potential disaster, and within days the original supplier, working with the Department of Agriculture in the affected states, has begun to remove most of the infected plant material. If you are a home gardener with tomato plants purchased from a "big box" store, please read our advisory posted here:

<http://www.njfarmfresh.rutgers.edu/JerseyTomato.html>

**What does this mean for New Jersey consumers?**

While home gardeners that are affected may still be able to replace their diseased tomato plants, how will it affect the Jersey tomatoes and potatoes at our farm stands and farm markets this summer, not to mention the wholesale supply that is the bulk of commercial farm sales? If the preventive and cautionary measures can keep late blight from massive spread, there may be only a subtle dent in the marketplace, which consumers will barely notice. If the disease takes its toll requiring the destruction of a few commercial crops, we may see a slight decrease in quantity with an expected increase in price. With all the precautionary strategies that have been put into place, crop loss statewide is unlikely, but it requires vigilance from commercial growers and home gardeners alike.

Where to find Jersey Fresh? Ask for it where you shop or dine or go to:  
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