

PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

APRIL 7, 2004



INSIDE

Upright Dieback and Fairy Ring 1

Periodical Cicadas: Not, They're not Everywhere 2

Netting to Protect Small Trees and Shrubs from Cicadas 3

Upright Dieback and Fairy Ring

Peter V. Oudemans, Ph.D., Specialist in Cranberry Pathology

Recent research efforts indicate that the fungus previously believed to be responsible for **Fairy Ring** is not the mushroom forming species *Psilocybe agrariella*. In fact, preliminary evidence indicates that the causal agent is more similar to the **Upright dieback** fungus. For this reason, as well as some preliminary results of Frank Caruso of the University of Massachusetts and me, I am suggesting that growers treat fairy ring in a manner similar to Upright Dieback.

Upright dieback is a cranberry vine disease caused by the fungus *Phomopsis vaccinii*. This same fungus is also responsible for one of the several types of field rot. During the past several seasons *Phomopsis vaccinii* has been identified from scattered locations throughout New Jersey. On average for New Jersey 6-7% of the fruit tested were infected with *Phomopsis vaccinii*. However, on 70% of the beds surveyed this fungus was of minor importance. At the other extreme, about 13% of the beds in the survey had between 20-50% of fruit rot caused by *Phomopsis vaccinii*. The incidence of *Phomopsis* fruit rot and the severity of upright dieback are almost certainly correlated.

Symptoms of upright dieback begin to appear during early spring after approximately 1" of new vegetative growth. The infected uprights bend over, giving the appearance of a Shepherd's crook. The next symptoms seen include a bronzing of the upright and a fruit rot (see description below). These later symptoms usually develop in late July but become more apparent in late August. Upright dieback is especially severe in areas where there is a high degree of vine overgrowth. Excessive nitrogen fertilization can help create conditions favorable for disease.

To recognize this disease look for the following symptoms as described by Drs. F. Caruso and D.M. Boone in the *Compendium of Blueberry and Cranberry Diseases*. The complete description of the disease and color photos of the symptoms are found on pages 40-41 and plates 83-86 of the compendium.

"Symptoms first appear as a yellow mottling or general yellowing of the leaves. Orange coloration or bronzing may eventually develop, and eventually the upright turns brown and dies. Damage is particularly severe in one-to three-year-old cranberry beds where large patches of

See Diseases on page 2

Diseases from page 1

uprights can be infected. Normally in well-established vine stands, uprights are scattered throughout the healthy uprights." " In Massachusetts, uprights die in certain cranberry beds after the removal of the winter flood in March when the plants resume active growth."

If you suspect upright dieback or fairy ring on your farm and need confirmation please call your IPM agent or the Rutgers Blueberry and Cranberry Research Center.

To control these diseases a preventative action should be taken. Fungicides must be applied as new vegetative growth is visible in the spring and can be timed to the popcorn stage. There are currently four labeled fungicides registered for preharvest applications to combat this disease. They are: Bravo (either the Weather Stik or Ultrex other formulations are not registered), Maneb, Champ Formula 2, and Kocide. In a two-spray program an application of Bravo is suggested around budbreak and this would be followed by an application of Abound at early bloom. Full rates of both materials are suggested.

Keep in mind that Bravo (or any formulation of chlorothalonil as well as several others) can be used a maximum of three times during the growing season. Thus, if chlorothalonil is used once for upright dieback it can be used twice for fruit rot control. Overuse (more than three applications/season) is illegal and can lead to residue problems at harvest time. □

Periodical Cicadas: No, They're not Everywhere

Barbara J. Bromley, Mercer County Horticulturist

Are you planning a bridal reception or graduation picnic in your backyard for May or June? Do you attend daytime ball games for your child's baseball league? If you live in any one of several relatively small locations in New Jersey*, perhaps you should re-think your plans. The year 2004 from May through June into July is the expected emergence of Brood X (ten) of the periodical or 17-year cicada. The last emergence of this brood was in 1987 and was memorable for those who lived in these areas. Millions of cicadas were flying into each other and people, colliding with windows, panicking drivers, and generating a mind-numbing high-pitched racket. Plus, the hotter the day, the louder the noise. There were so many nymph skins on the ground under trees that it sounded like popcorn underfoot.

You might say, "But we have cicadas every summer. What is the difference?" or "I heard these are locusts. Are they the same as the Biblical plague?" The cicadas we have each year are the dog-day cicadas (*Tibicen linnei*) that have overlapping two- to five-year life cycles and emerge to "sing" in the trees in the "dog-days" of July and August. The dog-day cicada is about 1 5/8 inches long, has a black body with whitish bloom, green wing margins, and light markings on the thorax and abdomen. Emergence is just before that of cicada killers which are large wasps that paralyze dog-day cicadas then drag them into the ground as a food source for their young. Cicadas are related to aphids and leafhoppers and have sucking mouthparts. Locusts are closely related to grasshoppers and katydids and have chewing mouthparts. Periodical cicadas were sometimes called locusts because they emerged in such huge numbers that the colonists equated them with the plant-destroying locust.

The adult periodical cicada (*Magicicada septendecim*) is about an inch long. Most of the body is black, the transparent wings have orange veins, and the legs and eyes are reddish. The immature stage, or nymph, that spent seventeen years underground sucking sap from tree roots starts creating one inch tall "chimneys" or cones of soil in April and peers out of the half-inch hole to scout the surroundings, returning back underground. Finally it emerges at dusk one night in May and promptly crawls up the nearest upright structure (usually a tree), hooks its clawed "feet" into the bark, and splits its skin or exoskeleton along the back. The emerged adult cicada spends the rest of the night turning a darker color and drying its wings so it can fly. The range of flight is about a half mile. Within a week it mates.

The female then lays her eggs in slits she creates near the ends of slim branches of over 25 species of favored trees and shrubs. To do this she uses a saw-like egg-laying device called an ovipositor that is attached to the end of her abdomen. Each female lays about 500 eggs, which hatch in about seven weeks. The tiny nymphs drop to the ground, burrow in, and spend the next seventeen years sucking small amounts of sap out of tree roots and molting through several growth phases called instars. By midsummer the branch tips turn brown, die, and eventually break off at the egg-laying site, a kind of natural pruning.

See Cicadas on page 3

The 17-year cicada is known to exist only in the central and eastern United States. (There is also a 13-year race found in the South.) Each year marks the emergence of a different brood designated by Roman numeral. Brood I was first recognized in 1893, Brood II in 1894, Brood III in 1895, and so on. Some broods are small, some large, and some now extinct or inconsequential. Brood II had its most recent sighting in parts of northern New Jersey and other states in 1996. Brood X, the largest brood, had very impressive sightings in parts of New Jersey (especially the Princeton area) and other eastern states in 1987.

So what do we do? First, don't be alarmed or frighten your children. Periodical cicadas aren't everywhere, they don't bite people, and they are fascinating to watch. They either don't feed at all as adults or simply suck small amounts of sap. Children love to collect the shed nymph skins. The tremendous noise of millions of male cicadas thrumming at the same time can be made tolerable with a very good set of earplugs. The damage done by the female egg-laying in large trees is negligible. Because young trees don't have too many branches to start with, it is recommended that the planting of new trees and shrubs be delayed until after the cicadas have finished egg-laying. Transplants already in the ground can be protected with fine netting or cheesecloth until mid-summer. Many birds love cicadas for dinner, so providing a water source and a few birdhouses may encourage the birds to stay around. Hopefully, feeding by birds will reduce the number of dead and decaying cicadas that will litter the ground and clog gutters before summer is over.

There are a few labeled pesticides, but spraying trees is generally not recommended except in commercial apple orchards. However, leaves and twigs that turn brown can be pruned out before the nymphs drop to the ground to stave off the 2021 population. Daytime outdoor parties should be planned for unaffected communities or delayed until August. All things considered, this emergence is truly a miracle of nature. Field trip, anyone?

* The author was present for and very aware of the emergence in Princeton in 1987, but has only anecdotal evidence of populations in other parts of New Jersey. In 1974 John B. Schmitt published research on the 1970 Brood X emergence. At that time infestations in small areas of Mercer, Somerset, Hunterdon, Warren, Burlington, Salem, and Monmouth Counties were noted. Habitat influences whether those populations continue to survive. Undisturbed woodland areas and residential properties have the greatest potential for continued survival of the periodical cicada. Community development and construction in those areas since 1970 has probably eliminated populations. To find out if your neighborhood had an emergence in 1987, call your local Rutgers Cooperative Extension office, Master Gardener Helpline, or newspaper archives at the local library. In any event, you will have your answer by early June. □

Netting to Protect Small Trees and Shrub from Cicadas

A source for tubular netting that can be used to cover small trees and shrubs is available on the Rutgers Cooperative Extension web site at:

[http://www.pestmanagement.rutgers.edu/
NJinPAS/postings/netall.pdf](http://www.pestmanagement.rutgers.edu/NJinPAS/postings/netall.pdf)

*Submitted by Peter Shearer, Specialist in
Entomology. □*

FIRST CLASS
POSTAGE PAID
PERMIT #576
MILLTOWN, NJ 08850

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY CRANBERRY EDITION CONTRIBUTORS

Philip E. Marucci Center for Blueberry and Cranberry
Research & Extension (609-726-1590)

Bradley A. Majek, Ph.D., Weed Science

Peter Oudemans, Ph.D., Plant Pathology

Sridhar Polavarapu, Ph.D., Entomology and IPM

Nicholi Vorsa, Ph.D., Breeding, Genetics and Culture

Rutgers Cooperative Extension Agricultural Agent

Raymond J. Samulis, Burlington County (609-265-5050)

Ocean Spray Cranberries, Inc.

Dan Schiffhauer, Agricultural Specialist

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES

Cindy Rovins, Crop Management Communications Editor

For back issues, visit our web site at:
www.rce.rutgers.edu/pubs/plantandpestadvisory

Rutgers Cooperative Extension (RCE) provides information and educational services to all people without regard to sex, race, color, national origin, disability, or age. RCE is an Equal Opportunity Employer.

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.