

# PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

JUNE 8, 1998



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## Fairy Ring

*Peter Oudemans, Ph.D., Plant Pathology*

### Fairy Ring

This disease, believed to be caused by the fungus *Psilocybe agrariella-vaccinii*, is frequently observed in mature cranberry beds in New Jersey and Massachusetts. The fungus belongs to the group known as the basidiomycetes that include a majority of the mushroom forming species. Mushrooms of this fungus were reported in the 1930's and 1940's, however have not been seen since that time. It is unknown how the fungus is spread. The development of symptoms often occurs along the edges of bogs near ditches. This suggests that the fungus may be transmitted through water or may require areas of higher moisture to become established. Early infections appear as small areas of dead vines. These can be easily mistaken for insect (i.e. grub or rootworm) injury, *Phytophthora* infection or herbicide damage. In the case of fairy ring, the dead areas expand at a rate of 1-1 1/2 feet per year. As this area expands, the vines in the center begin to recover resulting in a ring of dead vines. In advanced cases rings will actually merge and form more complex patterns.

Fairy ring disease may behave in a manner similar to the fairy ring disease seen on golf courses. In that crop the disease is very difficult to control and several species of mushroom can be involved. However, aeration and nitrogen applications can mask symptoms in turf. Some reports suggest that cranberry vines are killed, not because of an infection where the fungus actually invades the host tissue, but rather as a result of dehydration and starving. This is because the fungus forms a dense mat of mycelium between the soil surface and the root zone. This forms an impermeable layer which prevents water and nutrients from reaching the plants. Testing the effects of an aerator in diseased areas may provide some useful results.

### Control

There is currently only one method for direct chemical control of this disease:

Carbamate WDG can be applied at a rate of 1 gallon per square foot and a concentration of 9 lb/100 gal. If this rate seems high, a more concentrated solution can be used followed by irrigation to make up the difference. One application per year is permitted and it should be made in the 2-month window between June 1 and July 31. Applications should **not** be made after July 31.

*See Fairy Ring on page 2*

# Insect Update

Sridhar Polavarapu, Ph.D., Entomology and IPM

✓ **Blackheaded fireworm:** Trap catches are increasing in several of the monitored areas. Trap catches are expected to further increase in the following 7-10 days. Eggs laid by these moths will begin to hatch in the following 3-5 days. Eggs are flat and light yellow, and laid singly on the underside of the leaves. Confirm 2F (Tebufenozide) has recently been labeled for controlling Blackheaded fireworm in New Jersey. If insecticide applications are required, the first application should be made in the next 6-10 days. Please remember that high trap counts may not necessarily mean high larval numbers. For this reason, before applying insecticides, closely monitor those bogs with a history of Blackheaded fireworm populations (and with high trap counts) for eggs and larvae.

✓ **Spotted fireworm:** Pheromone traps are capturing adult males for the past 10 days. Trap catches will peak in the following 3-4 days. Egg laying will begin in the next couple of days. Egg laying will peak in another 10-14 days.

Spotted fireworm lays eggs mainly on weeds such as leather leaf, red maple, briars, ferns, grasses etc. We have recorded egg-masses on more than two dozen weed species so far. Egg-mass density (number of egg-masses per unit area) is greater in areas with weeds than in areas without weeds. Keeping weeds in check may reduce the egg load on a bog and thereby reduce larval abundance in the following generation.

✓ **Sparganothis fruitworm:** Adults are emerging and a few moths have been caught in pheromone traps so far. Pheromone trap catches are not expected to peak for another 2-3 weeks.

✓ **Cranberry rootworm:** Adult Cranberry rootworm beetles are beginning to emerge. We have seen only a few adults so far. Most of the grub population at this time is in the pupal stage. Adult emergence is expected to peak in the following 7-10 days. Adults will continue to emerge over the following 3-4 week period.

The grubs of this insect feed on fine roots as well as the bark of larger roots and runners that are in contact with ground. Infestations are very spotty and appear as brown irregular circular patches. Damaged vines can be easily pulled and rolled back like a mat. Adults also feed on the cranberry foliage and cause the vines to turn brown similar to fireworm damage.

The adult is about 1/5 of an inch long, shiny mahogany brown. Eggs are laid singly or in masses on bog trash and in surface soil in June and July. They hatch in about a week, and the young grubs continue to feed on roots until October. This insect overwinters as a grub in the soil and generally has a one-year life cycle,

but a few grubs may take more than one season to mature.

Growers should inspect for the presence of adults in suspected areas. Adults can be easily found on the foliage as well as in the bog trash. Currently, chemical controls targeting the grub stage are not available. However, application of Sevin XLR Plus targeting adults may reduce grub populations in the following generation. Sevin XLR Plus should be applied in late evening hours when bee activity is minimal. This insecticide is toxic to honey bees and may even have some repellent activity. If possible, remove hives from the immediate vicinity of treated areas. For effective control of adults, 2-3 sprays of Sevin XLR Plus at 4-6 day intervals are required. For more information on honey bee hazard due to Sevin XLR Plus, please read the label carefully and follow all instructions. □

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## *Fairy Ring from page 1*

To treat a fairy ring, measure 3 ft. outward from the edge of the ring (area of dead vines) and 2 ft. in from the edge. Mark this area with flags and treat the entire area with the carbamate solution.

The amount of material needed to treat a diseased site should be calculated before the application is made. To determine this, calculate the area of the ring plus the 3-ft. beyond the edge of dead vines. Subtract the area not to be treated within the ring from the total area.

An interesting side-effect that has been repeatedly reported in association with carbamate applications is that vines appear significantly greener in treated areas. In addition, those areas appear to show reduced bloom. To date we have assumed that this is the result of a "fertilizer effect" due to the carbamate. However, this is also a symptom seen in untreated rings and is likely an effect of the fungus.

## **Replanting**

Maintaining the genetic purity of a bed is of concern to growers who may want to rake vines for replanting or re-sale. Based on preliminary evidence it appears that "stand opening" diseases such as fairy ring and root rot or even root insects can have an effect on the genetic composition of vines in a bed. The mechanism may be due to direct competition of "invading vines" which arise from a seed bank left in the bog from previous seasons. If this were the case, cultivars such as Ben Lear would be more susceptible since they are generally poor vegetative competitors. To insure against this, growers who experience these types of dieback should consider replanting with the appropriate cultivar rather than allowing the vines to simply grow or fill in from the edges. □

# WWW Sites for Cranberry Growers

Raymond J. Samulis, Burlington County Agricultural Agent

Growers with computer and internet access know the power of the “web” in finding information. Unfortunately, sometimes finding what you want is equivalent to finding a single fish in the whole ocean! New sites are being added daily as we speak. Here are some sites that may be of interest.

Our Burlington County site at <http://www.rce.rutgers.edu/burlington> does have cranberry information that I designed for the general public who desire to know more about cranberries. Currently, Bill Bamka and I are working with new digital imagery technology that will enable us to easily add photos to our site. We can add any picture growers might feel useful such as diseases, insects or bog problems, etc. Let us know what you might want.

New rule changes dealing with worker verification have caused anxiety for some growers. There are many questions that need answering regarding what the new rulings require. The INS site as <http://www.ins.usdoj.gov/> can provide you with the latest information on how to comply with the new INS requirements.

The state of Maine has just recently become involved in the cranberry business. They do, however, have an excellent web site at <http://www.nemaine.com/rc&d/cranberry.htm> There is good information on cranberry IPM, weeds, insects, diseases and other information. Be cautious of exact pesticide recommendations since they may differ from ours.

The University of Wisconsin has just released a new computer program for cranberry growers entitled, “Wisdom Cranberry Crop Manager” or CCM. The software uses temperature-driven models to generate control recommendations. These results are then correlated

# Cranberry Twilight Meeting

Raymond J. Samulis, Burlington County Agricultural Agent

Cranberry growers are reminded that Rutgers Cooperative Extension will be hosting a **Cranberry Twilight Meeting on Wednesday, June 17**. The program begins at 6:30 prompt at Sam & Neva Moore’s Farm, 126 Moore’s Meadow Road, Tabernacle.

All growers on my current mailing list should receive a personal invitation to the meeting. Any other interested persons can call 609-265-5050 for details and directions.

The program will consist of a tour, six interesting topics, refreshments, pesticide credits and fellowship. I hope to see you all there! ☐

with local scouting information. The program is sold by Gemplers.

To learn more about the program, check out the site at <http://www.wisc.edu/ipcm/CCM/default.htm>

Periodically, I will update you on new and interesting sites relating to cranberries. ☐

# Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 82 degrees at Freehold and Woodstown on the 3rd, and 39 degrees at Charlotteburg on the 4th. Weekly rainfall averaged 0.03 inches north, 0.09 inches central, and 0.13 inches south. The heaviest 24 hour total was 0.38 inches at Woodstown on the 1st to 2nd. Estimated soil moisture, in percent of field capacity, this past week averaged 84 percent north, 78 percent central and 46 percent south. Four inch soil temperatures averaged 66 degrees north, 68 degrees central and 69 degrees south.

Weather Summary for the Week Ending 8 a.m. Monday, 6/ 8/98

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.10	19.68	7.27	75	44	59.	-7	644	180	76
CANOE BROOK	.03	19.11	5.52	79	44	61.	-5	781	354	85
CHARLOTTEBURG	.01	19.22	5.71	75	39	55.	-8	541	232	73
LONG VALLEY	.00	18.24	4.37	72	44	56.	-8	548	194	78
NEWTON	.00	15.52	3.45	74	40	55.	-9	538	178	80
FREEHOLD	.06	20.43	7.62	82	45	61.	-7	775	255	78
LONG BRANCH	.00	23.96	10.87	76	46	61.	-6	601	135	65
NEW BRUNSWICK	.05	19.93	7.35	79	45	60.	-9	715	157	87
PEMBERTON	.17	17.05	4.81	80	46	62.	-6	897	348	51
TOMS RIVER	.25	27.36	14.61	75	45	61.	-4	779	306	65
TRENTON	.03	20.09	8.49	76	45	60.	-9	704	99	67
CAPE MAY COURT HOUSE	.14	14.78	3.53	78	51	64.	-3	727	197	21
DOWNTOWN	.31	14.91	3.40	78	49	62.	-7	837	218	49
GLASSBORO	.00	13.58	1.25	78	50	63.	-6	846	247	53
HAMMONTON	.31	14.81	2.81	78	47	62.	-7	788	198	34
POMONA	.00	19.39	8.34	79	47	63.	-4	765	250	38
SEABROOK	.11	15.69	4.95	78	49	64.	-5	881	257	47
ATLANTIC CITY MARINA	.04	19.78	9.27	75	52	64.	-2	682	195	43
WOODSTOWN	.56	12.03	1.37	91	54	73	NA	814	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW	Last Week			228 (Ending 6/1/98)		This Week 153 (Ending 6/8/98)				

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

**Use of Trade Names:** Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances a compound may be sold under different trade names, which may vary as to label clearances.