

PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

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Cranberry Disease Management

Peter V. Oudemans, Specialist in Plant Pathology

✓ **Cranberry bloom:** Ben Lear are near 50% bloom in many locations. Young Stevens are 30 –50% bloom while mature Stevens beds are closer to 10-30% bloom. Early Black are mainly in the hook phase. Growers using a phenology based spray program for fruit rot should continue monitoring bloom. Ben Lear beds should be receiving the first fungicide application within the next week if they have not received one already. Beds with mixed cultivars will show a more extended bloom period.

✓ **Fruit rot fungicides:** Of the fungicides available for fruit rot control I have tested several formulations of chlorothalonil (Bravo, Terranil etc) and have found them to be equally effective. Similarly formulations of mancozeb are equally effective (Dithane, Manzate, etc.).

✓ **Fairy ring:** This disease is caused by an unknown fungus and is frequently observed in mature cranberry beds in New Jersey and Massachusetts. The causal fungus was long believed to be a member of the basidiomycetes, a group of fungi that includes the majority of the mushroom forming species. Mushrooms of the fungus were reported in the 1930's and 1940's, however have not been seen since that time. Since then we have isolated a different fungus that is more similar to the upright die back fungus. It remains unknown how the fungus is spread although the spread is very slow. 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 root feeding insect injury, *Phytophthora* infection or herbicide damage. In the case of fairy ring, the dead areas expand at a rate of 1-1½ 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.

Control

There is currently only one approved method for direct chemical control of this disease. However, it is my feeling that the recommendation (see below) is a very costly method that may not provide a sufficient return to justify its use.

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Carbamate WDG can be applied at a rate of 1 gallon per square foot and a concentration of 9lb/100 gal. 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.

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. The treatments are still fairly recent and we are unsure how long the vines take to recover from this treatment.

Replanting

Maintaining the genetic purity of a bed is of concern to growers who may want to rake vines for replanting or re-sale. Also, beds with one cultivar or genotype are likely to have a more predictable bloom and will be easier to manage fruit rot. 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. □

Insect Update

Sridhar Polavarapu, Specialist in Entomology

✓ **Confirm 2F for the management of Spotted fireworm during bloom:** Adults are flying for the past 10 days. Egg masses are beginning to appear on several weed species. This moth lays most of the egg masses on weed species most notably **leather leaf, red maple, red root, loose strife, briars, and grasses**. Removal of these weeds may discourage egg laying by spotted fireworm in the bog and thereby reduce the larval populations.

Traditionally **spotted fireworm** and **sparganothis fruitworm** larvae have been managed with an organophosphate insecticide applied soon after the removal of honeybees (post bloom). While this strategy has been generally effective, at times we have seen growers applying this spray very late in the season (late third week of July) because of operational difficulties. This delay in applying the spray may cause fruit damage, especially as a result of feeding by the earliest hatching spotted fireworm larvae. Another potential problem with the delayed application is that some of the spotted fireworm larvae may have started to web leaves and fruit together and are generally more difficult to control at this stage.

An alternative strategy is to apply Confirm 2F during bloom targeting the early instar spotted fireworm larvae. Spotted fireworm egg masses begin hatching from the third week of June onwards. Eggs continue to hatch over a 2-3 week period. Most of the eggs (>90%) will hatch by the end of the first week in July. Two applications of Confirm 2F are suggested for managing high population levels. The first application should be made around June 22-25, followed by a second application 7-10 days later. For low to moderate populations, a single spray of Confirm 2F applied around June 26-28 (approximately 75% hatch) may be sufficient. You may not need an organophosphate application specifically for managing spotted fireworm and sparganothis fruitworm, if you use Confirm 2F during bloom.

The advantages of this strategy include 1) better survival of natural enemies and beneficials as Confirm 2F is practically non-toxic to insects other than caterpillars, 2) extended pollination as honeybees can be kept as long as needed, and 3) control of other caterpillar pests such as sparganothis fruitworm, blackheaded fireworm, and spanworms. This alternative strategy also has several disadvantages. First, Confirm 2F being a target-specific insecticide, has activity only against caterpillar pests. Minor pests such as bluntnosed leafhoppers, flea beetles etc., which are controlled by organophosphate sprays will not be controlled by Confirm 2F. Secondly, Confirm 2F application will be more expensive than organophosphate applications.

✓ **Blackheaded fireworm:** Pheromone trap catches in commercial bogs are close to peak at this time. In our research bog trap catches peaked last week. As of June 13, more than 40% of the blackheaded fireworm eggs in our research bog have hatched.

Blackheaded fireworm eggs are flat and light yellow, and laid singly on the underside of the leaves. Confirm 2F (Tebufenozide) is labeled for managing Blackheaded fireworm. This insecticide is safe to pollinators and works best when applied before the early instars begin to web up the foliage. If insecticide applications are required for managing blackheaded fireworm, Confirm 2F should be applied at this time.

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Please remember that high trap counts may not necessarily mean high larval numbers. For this reason, before deciding to apply insecticides, you should closely monitor bogs with a history of Blackheaded fireworm populations (and with high trap counts) for eggs and larvae. Conversely, bogs with very few adult moths in pheromone traps (less than 20 moths per trap per week during peak flight) will rarely have infestations that justify insecticide treatments.

✓ **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 14-20 days.

✓ **Cranberry rootworm:** Adult Cranberry rootworm beetles are beginning to emerge. We have seen only a few adults so far. Most of the grub population is in the pupal stage at this time. Adult emergence is expected to peak in the following 7-10 days. Adults will continue to emerge over the following 2-3 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, and 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.

The next 7-10 days would be a good time to monitor for leaf damage by adults to identify potential areas of grub infestations. Adults can be easily found on the foliage as well as in the bog trash. Adults are more active during late evening hours and the night. Should you need to use an insecticide, your option is limited to using insecticidal nematodes. If you need more information on insecticidal nematodes for cranberry rootworm management, please contact us at the Research Station. □

Update for Fax Subscribers

We regret the delay in the repair of the fax broadcast system. In order to better service our readers we invested in a new system which will improve our faxing capabilities. Unfortunately, technology does not always perform as expected. Our vendor has identified the cause of the system failure, and is awaiting the arrival of the software upgrade.

Fax subscribers will temporarily receive the newsletter by mail.

To receive the newsletter on issue day, you can call our fax back system at 732-932-4535 and request fax document 8004. The next newsletter will be placed on the system around 5:00 pm on June 22nd.

If you are a fax subscriber and have not been receiving previous weeks' issues, please contact Cindy Rovins at 732-932-4539 or by fax at 732-932-9838, or e-mail rovins@aesop.rutgers.edu. We can send you back issues of the newsletter.

We apologize for the inconvenience and hope to reinstate the fax broadcasts very shortly. Thank you for your continued patience. □

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