

# Cranberry

## Crop Management Newsletter

### Special points of interest:

- *Phomopsis vaccinii*
- Disease Cycle
- Admire® Pro
- Scale Insects
- Farm Plan Project
- Nutrient Management Training Session

University of Wisconsin—Extension

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### UPRIGHT DIEBACK

By: Patty McManus, UW-Madison Extension Plant Pathologist

Upright dieback is a poorly understood disease complex that can cause significant damage to new or established cranberry beds. It is called a “disease complex” because it may be caused by a combination of different fungi and environmental conditions that are poorly understood. In Wisconsin, *Phomopsis vaccinii* (also called *Diaporthe vaccinii*) is the major fungal species involved in upright dieback. *P. vaccinii* is also the cause of viscid rot, a soft rot of fruit. Of course, many problems other than fungi can cause uprights to die back. Symptoms of *Phomopsis* upright dieback show up in middle to late summer. If vines looked good at the time of harvest but look bad now, *Phomopsis* is probably *not* the problem.

**Symptoms.** By middle to late summer, diseased uprights initially are mottled or show general yellowing, with symptoms starting at the tip and progressing to the base. Later, uprights may turn orange-bronze before they eventually turn brown and die. Diseased uprights are dispersed among healthy vines and may be adjacent to apparently healthy uprights on the same runner. This scattered distribution of disease among healthy uprights gives the cranberry planting a “salt and pepper” appearance. In general, large dead patches of uprights are not the result of upright dieback caused by *P. vaccinii* but are caused by various factors including standing water, winter injury, misapplication of chemicals, or weed competition.

**Disease Cycle.** Although *P. vaccinii* is frequently associated with upright dieback, the disease cycles of upright dieback and viscid rot are not fully understood. However, based on when and where *Phomopsis* is detected on vines, when symptoms appear, and when chemical control seems to work best, a disease cycle is proposed as follows.

***Phomopsis*** overwinters in the form of fungal fruiting bodies on dead shoots and to a lesser extent, old fruit (viscid rot). It also may overwinter internally in dormant, living vines. In the spring, spores ooze out of the fruiting bodies and are spread by rain and irrigation water to newly elongating, succulent shoots. Exactly where on the new tissue infection occurs is not known, but chemical control has been most effective when shoots show about ½ inch of new growth.

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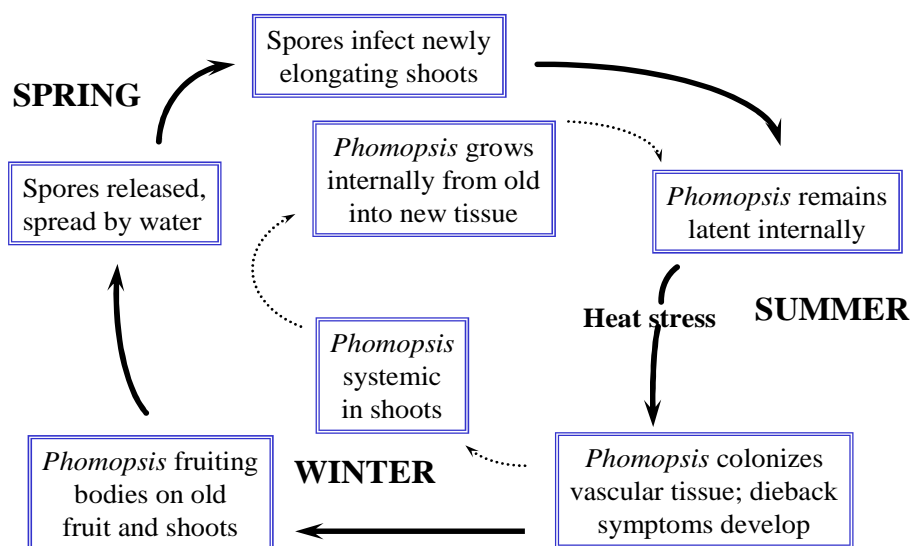
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## Upright Dieback Continued

*Phomopsis* that overwintered in vines may grow internally into new tissue. After new growth is invaded, infections remain latent (dormant) for several weeks. During this period, *Phomopsis* can be isolated from healthy-looking vines. Later in the summer, as vines become stressed from heat and the burden of bearing fruit, *Phomopsis* becomes active and colonizes vascular tissue. As the food- and water-conducting tissues are invaded, uprights turn yellow and eventually die back. During fall, the fungus forms fruiting bodies on dead tissues, where it overwinters.

### *Upright Dieback--Proposed Disease Cycle*



Solid arrows indicate the predominant cycle; broken arrows indicate a possible alternative cycle.

### Control

Practices that minimize heat and drought stress, and encourage vigorous but not rank vine growth, should minimize the incidence and severity of upright dieback and viscid rot. When establishing a new planting, obtain vines from a source with little or no history of upright dieback or viscid rot. Fungicide performance has been inconsistent, but application chlorothalonil (Echo, Equus, Bravo) when shoots are about ½ inch long is probably the best time for preventing upright dieback. Check labels for specifics and to be certain that pre-bloom sprays are permitted. For example Echo 720 and Equus 720 labels list upright dieback, but to use Bravo WeatherStik, you need to have the Section 2(ee) special label on hand. By bloom and later, fungicides will not control upright dieback, because by this time the fungus has apparently invaded shoots and is out of reach of fungicides.

**Patty McManus, Professor and Extension Plant Pathologist**

## New Insecticide Profiles: **Admire® Pro**

By: Dan Mahr, University of Wisconsin, Entomology

Within the past few years several new insecticides have become registered for use on cranberry. Product names include Actara, Admire, Assail, Avaunt, Delegate, Entrust, Intrepid, Knack, and SpinTor. These are mostly in new chemical groups. Many are more selective than previous broad spectrum insecticides in the organophosphate and carbamate classes and therefore fit better into IPM programs where we wish to protect beneficial insects. Many have a safer mammalian toxicity profile and therefore are safer to applicators. This series is designed to provide some basic information about these newer products and how they might fit into your insect management program.

Admire has the active ingredient imidacloprid, which was the first in a new class of insecticides, the neonicotinoids, to gain widespread registration. The tobacco extract nicotine has long been known for its insecticidal properties; Black Leaf 40 was a commonly used insecticide for many years until it was discontinued. The neonicotinoids are roughly based on the nicotine molecule but are designed to be more effective against insects and less hazardous to humans. They are neurotoxins (nerve poisons), but although insect and human nerve functions are very similar, there are some significantly different biochemical processes, and the neonicotinoids take advantage of those differences. The acute oral toxicity ( $LD_{50}$ ) of Admire Pro is in the range of 600 mg/kg while the dermal toxicity is  $>2000$ ; in both cases this is considered as a Category III (slightly toxic) chemical.

Admire is a somewhat selective insecticide; it has low activity against most leaf and fruit feeding Lepidoptera and is not registered for cranberry pests such as fruitworm, fireworm, sparganothis, or spanworms.

Currently Admire is registered on cranberry for only two groups of insects, both of which are soil pests. These include rootworms (in the leaf beetle family Chrysomelidae) which are not a problem in Wisconsin, and root grubs (in the white grub family Scarabaeidae). Note that in East Coast cranberry production, there are multiple species of root grubs (white grubs) and Admire works well against some of these. Unfortunately, it does not work well against our Wisconsin June beetle grubs. For these reasons, Admire, as currently labeled, has little value in Wisconsin cranberry pest management.

*Potential tipworm usage.* We have had imidacloprid (two different formulations) in our insecticide trials for four years now, and it shows promise for control of cranberry tipworm. In all cases we have made three applications per year at about 10-14 day intervals. In 2005, imidacloprid reduced larval numbers 93% compared with untreated plots. In 2006, it improved bud survival from 30% in untreated plots to 85% in treated plots. Imidacloprid is a systemic insecticide and in some crop situations it is applied to the soil for uptake and protection of aerial foliage, so in 2008 we compared foliar applications to soil applications (which were watered in after application). Both treatments provided substantial protection in comparison with the untreated plots. This year we are further evaluating the effectiveness of soil application, as well as looking at decreasing the number of applications from three to one or two. After this year's results we will present Bayer with our data and request that tipworm be added to the Admire label.

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## NEW INSECTICIDE PROFILES:ADMIRE® PRO CONT'D

By: Dan Mahr, University of Wisconsin, Entomology



Cranberry Harvest

*Potential dearness scale usage.* Imidacloprid shows reasonably good activity against various scale insects and therefore may be effective against dearness scale. However, we have yet to find a site with sufficient scale population for research purposes. If you do have a dearness scale infestation and would be willing to host research plots, please let us know.

*Bits 'n' Pieces.*

- Admire is marketed by Bayer CropScience.
- It is a liquid formulation that has 4.6 pounds of active ingredient per gallon of formulation.
- The Restricted Entry Interval (REI) is 12 hours.
- The Preharvest Interval on cranberry is 30 days.
- The rate of use on cranberry is 7-14 fl oz/ acre.
- No more than 14 oz can be used per season.
- Imidacloprid is highly toxic to bees and should not be applied immediately before bloom or during bloom.

It may be applied by chemigation.

*"But who prays for Satan? Who, in eighteen centuries has had the humanity to pray for the one sinner that needed it the most?"*

**Mark Twain**

**Dan Mahr**  
University of Wisconsin, Entomology

References to products in this publication are for your convenience and are not an endorsement of one product over similar products. You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.

“A great civilization is not conquered from without until it has destroyed itself from within.” **W. Durant**



Cranberry Harvest

## DESIGNING NUTRIENT MANAGEMENT PLANS

By: Tod Planer, WSCGA Whole Farm Conservation Plan Project

One of the major efforts of the Farm Plan Project is to develop nutrient management plans and strategies for Wisconsin Cranberry Growers. Efforts thus far have been excellent with perhaps 75% or more of Wisconsin cranberry acreage under nutrient management planning.

Efforts by the Grower's Association and the Farm Plan Project staff brought training to the growers in the 2007-2008 time periods. Growers attending these training sessions were allowed to either write their own plan, or get assistance from a certified crop advisor to complete their plan for them. To date we have had significant response to plan writing, as well as excellent reductions in unnecessary nutrients being used on cranberry.

Growers who attended one of the training sessions but have as of yet to complete a plan for their marsh, are encouraged to do so as we enter the 2009 growing season. For those growers who opted to not attend either of the sessions but now choose to write a plan, we need to hear from you. While it is possible for a grower to hire a certified consultant to write their plan, we highly encourage growers to have an active role in the plan writing process. In order to write a plan yourself, you will need to attend a training session as required by WDATCP. This effort is very similar to the Pesticide Training effort growers are accustomed to.

We currently are considering setting up a Nutrient Management training session for growers wanting to pursue writing their own nutrient plan. This will require pulling together the agency personnel and our staff to achieve this. We need to hear from those growers needing the training, so we can plan on such a training session, if sufficient attendance is available. If not, your option at this point will be to rely on a certified crop advisor to complete your plan for you.

If you are in need of this training, contact the WI State Cranberry Grower's Office, or the Whole Farm Plan Project office at 715-423-2070 and let us know who will attend. If sufficient growers sign up, we will contact WDATCP to see where and when we can hold a training session. If you have further questions on this effort, or on your existing Nutrient Plan, contact us as well.

“America is great because she is good, and if America ever ceases to be good, she will cease to be great” Alexis de Tocqueville





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