LEAF SPOTS

A number of different fungi cause spots on cranberry leaves, but the two most noted leaf spots in Wisconsin are red leaf spot and Protoventuria (Gibbera) leaf spot. Neither disease is considered economically important in Wisconsin, and specific control recommendations have not been worked out. Even so, it's useful to recognize these diseases in case they suddenly become important on your marsh.

Red leaf spot (caused by *Exobasidium rostrupii*), as the name suggests, results in bright red, circular spots on the upper surfaces of new leaves. Infection occurs during shoot elongation and symptoms start showing up about a month later. The spots are quite large, sometimes covering a quarter to half of the leaf surface. A single leaf can have several spots that merge. The fungus can invade the stem and turn it red and distorted. Often, after red leaf spot has developed, the black spot fungus (*Mycosphaerella nigro-maculans*) invades. Together the two diseases can kill uprights. Red leaf spot is favored by high-moisture conditions brought on by rain, fog, and dense, rank growth which is slow to dry. Ben Lear and Stevens, particularly in nitrogen-rich soil, seem to be the most, although other cultivars are affected. Because infection occurs during early shoot growth, fungicides applied during bloom and later for control of cottonball and fruit rots will not stop red leaf spot.

Protoventuria leaf spot (caused by *Protoventuria myrtilli*), is characterized by small, red-purple, irregularly shaped spots on the upper surfaces of the current year's leaves. Infection occurs during late bloom through August, and symptoms first appear at about harvest time. Sometimes berries are speckled red, but this disease is not the sole cause of speckled fruit. By the following spring, the spots enlarge and fade to a dull yellow hue. Infected leaves often drop by mid-summer the year after infection. The loss of leaves at this point is probably harmless for the cranberry plant. Protoventuria leaf spot is common in marshes where fungicides are not used. Fungicides that are labeled for use during bloom and later control the disease. But if fungicides are not being applied to control fruit rot, and the bed doesn't have a history of severe berry speckle, this disease does not warrant fungicide use.

Patty McManus, UW-Madison Extension Plant Pathologist

I know of no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education.

Thomas Jefferson

VAMPIRES

We have all read or watched TV shows that tell stories of vampires and other blood sucking creatures. I used to laugh at the idea of garlic to be used to ward off such critters. Thinking, how ridiculous! Now I have been experimenting with garlic tablets to ward off mosquitoes and other blood sucking pests. The idea is that if we take in enough garlic that it secretes out with our sweat and we would not be appetizing to those pesky, hungry things. I guess that if I were a vampire or even a little mosquito I would find something more flavorful, too.

What is happening around cranberry land?

By this writing we will be in full bloom. Our bees will be working hard at pllinating and second generation black headed fireworm will be here as well. We have already found BHFW eggs on June 19. They were clear to a light yellow in color, but we know what is ahead. Make sure that you have a product on hand because things happen fast with this generation and it is much easier to take a product back than to see burn on the marsh.

Spanworm and loopers have been unruly in 1997. It appears that some products just don't work on them. I am a firm believer in insecticide rotation. This year has proven itself in this aspect. Yes, I realize that we are limited, but don't get caught up in a routine just because for the past six years it has worked . . . . . ROTATE.

Cutworms appear to be a problem in numerous crops this year. Keep a close eye out for them. For the most part they are nocturnal feeders and are not usually detected until the problem areas surface. They work in circular areas. At the present time they are eating blossoms and then they take a bite of fruit here and there, seldom eating the whole thing. They can be found in the duff of a bed once you see the blossoms eaten. At this time of the year they are quite large, similar to a false armyworm. I understand that there are only 18 to 20 different species that work our specialty crop! YIKES . . . . Each, of course, having their own unique characteristics.

July is a perfect time for Cholinesterase testing. We use residue products for fruitworm and applications are close together. After mid-July we spot treat only and seldom have a need to treat the whole marsh. Make an appointment now and request cholinesterase—plasma and red cell tests to be completed. It's a simple blood test.

Jayne Sojka, Lady Bug IPM

NEW GROWER WORKSHOPS

Two new grower workshops remain for this summer. Even if you've missed some of the previous sessions you won't want to miss the last two. The meetings are informal and there is lots of opportunity for discussion.

July 9 **5:00 pm—note time**

Topic: Chemigation
Presenter: WDATCP Staff
Location: Northland's Biron Division
Take hwy 54 east of Wisc. Rapids. 8 miles from Wisc. Rapids turn left on Hoffman road. Signs indicate the marsh.

July16 3:30 pm

Topic: Mineral Nutrition
Presenter: Teryl Roper
Location: Valley Corporation
Marsh is about 1 ½ miles north of Valley Junction, NW of Hwy 173. Valley Junction is about 2 miles north of Hwy 21 on CTH N or about 10 miles southwest of Mather.

Iron rusts from disuse; stagnant water loses its purity and in cold weather becomes frozen; even so does inaction sap the vigor of the mind.

Leonardo da Vinci

TIMING CRANBERRY FRUITWORM SPRAYS

Cranberry fruitworm is a difficult pest to control because eggs are laid and larvae emerge while flowers are on the vines. Therefore, any insecticide that is used to manage fruitworm is potentially toxic to pollinating insects, including honeybees.

Timing of sprays to control cranberry fruitworm is based on percent out of bloom (%OOB). %OOB is calculated by collecting 10 uprights from at least 4 locations in a bed, two from the edge and 2 from the interior. Hooks and flowers are counted as one group and pinheads and fruit are counted as a separate group. The total number of floral stages is summed and the hooks and flowers are divided by the total number.

Hooks and flowers _____
Pinheads & fruit _____
Total _____

$$\frac{\text{Pinheads \& fruit}}{\text{Total}} \times 100 = \%\text{OOB}$$

Until very recently the recommendation for cranberry fruitworm control was to make an initial application 7 to 9 days after 50%OOB. A second application was made about 10 days later. New recommendations are coming out of the University of Massachusetts based on the cultivar, so some cultivars would be treated sooner after 50%OOB than others. More experience is needed in Wisconsin before the recommendations can be widely adopted here.

There is an action threshold for cranberry fruitworm. It is determined by collecting about 50 berries per acre of bed at random throughout a bed and then carefully examining the berries for fruitworm eggs. The action threshold is one viable egg per 200-250 berries per 0-5 acre bed. If you find no eggs after examining 200 berries in a typical bed there should be no need to spray unless that bed has a history of cranberry fruitworm infestation.

All of the insecticides listed for cranberry fruitworm control in A3276 *Cranberry Pest Management in Wisconsin* are highly toxic to honeybees. The trade-off is to determine how severe the cranberry fruitworm infestation is and then determine if it is economically justifiable to remove bee hives from the marsh before all petals have dropped. In short, which will cost me more, fruitworm injury or potential yield loss?

Hopefully, as time goes by research will offer better approaches to timing and control of this cranberry pest.

VINE COOLING

A common fruit production technique is to cool the fruit and plants with water. Sprinkling with water for cooling is frequently used in tree fruit production, particularly in hot arid regions. The principles are similar as for frost protection. As water changes from a liquid to a gas heat is consumed. As this heat is transferred to the water the plants are cooled. The home I grew up in was cooled with an evaporative cooler. Water is dripped through pads outside of a fan. As the fan draws air through the pads into the house it is cooled as the water evaporates.

The rate of cooling is a function of the water content of the air in relation to its ability to hold water. Warm air can hold more water than cool air. During a given day the water content of the air is relatively stable (unless a front moves through the area), but the relative humidity will fall as the air warms. Table 1 shows the change in relative humidity at a constant air water content of 50 grains per pound of air as the temperature increases.

Table 1. Change in relative humidity with constant moisture content of 50 grains

Air temperature (F)	Relative Humidity (%)
55	78
60	66
65	55
70	47
75	38
80	32
85	28
90	25

If you want to sprinkle to cool vines and avoid sun scald, wait until the relative humidity begins to drop. The difference in water content between the air and the vines actually drives the cooling process. As the air temperature increases during the day the cooling capacity also increases. Most people I talk to suggest running the sprinklers for a couple of hours once you start.

Consider draining mainlines if you plan to irrigate during the heat of the day. Water sitting in aluminum pipe heats up quickly and will scald vines when it is pumped through the sprinklers.

Unvined areas will benefit the most from extra irrigation since bare soil will heat and lose moisture quickly.

One story related to sprinkling for evaporative cooling that I keep running into, not only from cranberry growers, but from other crops as well is that water droplets on the leaves act like little magnifying glasses that will concentrate sunlight on a small area and burn the leaves. This has no basis in fact. I know of no research data that supports this view. Water droplets are not shaped like little magnifying glasses. Don't be afraid to use evaporative cooling for fear of "burning" your vines.

Teryl Roper, UW-Madison, Extension Horticulturist

In a free society the state does not administer the affairs of men. It administers justice among men who conduct their own affairs. **Walter Lippmann**

PESTICIDES & LAUNDRY

At the end of each work day, launder all clothes that were worn when handling pesticides. If fabric clothing is saturated with pesticide concentrate, **discard it**. Clothing contaminated with pesticide concentrate still contained a high amount of pesticide even after 10 washings. Handle heavily contaminated clothing with appropriate resistant gloves. Launder other clothing worn while handling pesticides using the following guidelines.

- While still outdoors remove pesticide granules from cuffs and pockets.
- Pre-rinse clothing by spraying with a hose, soaking in a bucket or tub or use the rinse cycle of the washer.
- Wash clothing separate from family clothing. Pesticide residues can be transferred from contaminated clothing to other clothing. Don't try to wash too large of a load.
- Wash in hot water to more thoroughly remove pesticides. Use the highest water setting and a heavy duty detergent. Neither bleach nor ammonia help remove pesticides.
- Wash a second time if needed.
- Before doing other family wash run through another cycle (with detergent) to rinse out the washing machine.
- Line dry so that pesticide residues do not build up in the dryer.

Wash the respirator facepiece in detergent and water. Rinse and dry it thoroughly. Don't use solvents such as alcohol, they can damage the rubber and plastic. Store the respirator in a large Ziplock bag. Also wash resistant gloves and aprons with water and detergent, rinse, and line dry. Test the gloves for leaks by filling them with water and squeezing.

Improperly maintained protective equipment and clothing can re-contaminate you with every wearing or use. Protect yourself and your family by handling pesticide contaminated clothing properly.

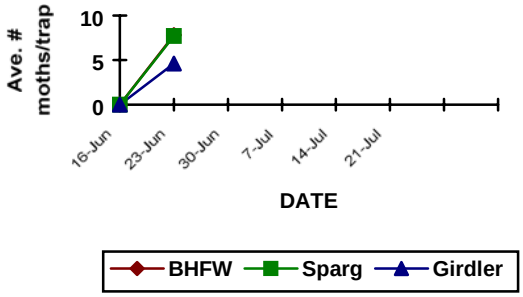
Extracted from: Pest Management Principles for the commercial applicator--Fruit Crops, 1994.

1997 Pheromone trap counts

Cranmoor area includes:	Adams, Portage and Wood counties
Warrens area includes:	Jackson, Juneau and Monroe counties
Northeast area includes:	Forest, Lincoln, Oneida, Price, and Vilas counties
Northwest area includes:	Barron, Burnett, Douglas, Rusk, Sawyer, and Washburn counties

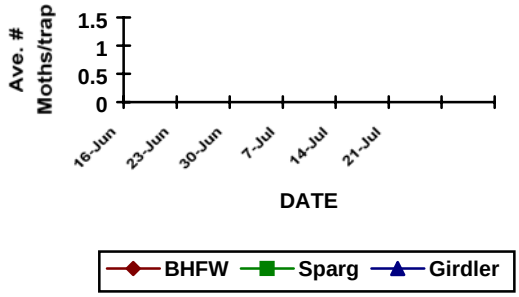
Please note that different regions may have different scales on the left axis. Doing this allows greater accuracy in determining actual values within a region. However, comparisons between regions are more difficult. Please use caution in making comparisons of these averages to trap counts on your marsh.

Northwest Area



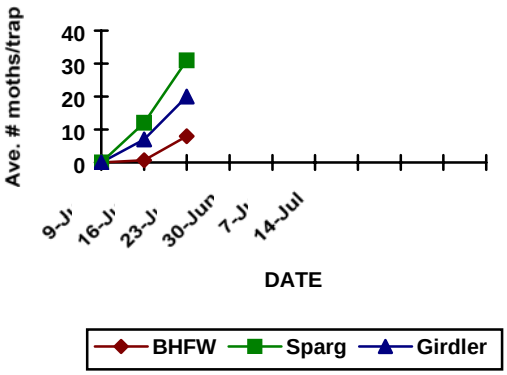
Means from 9 growers

Northeast Area



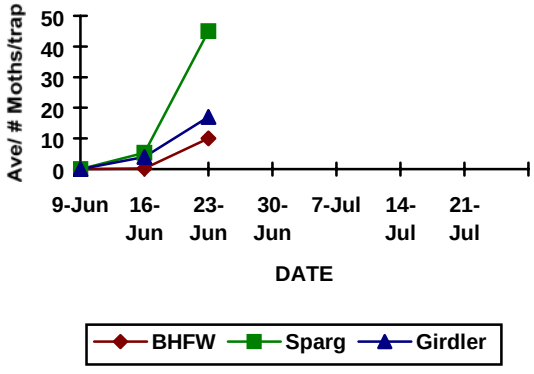
Means from 0 growers

Warrens Area



Means from 21 growers

Cranmoor Area



Means from 12 growers

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