

University of Massachusetts • Extension
Cranberry Station Newsletter



January 1997
Cranberry Experiment Station
Glen Charlie Road
East Wareham, MA 02538



**1997 UMASS
Annual Cranberry
Research and
Extension Update**

NEW VENUE!

**The Sea Crest Resort
in North Falmouth**

**Tuesday - March 4, 1997
8:30 AM - 4:30 PM**

Cranberry Station Personnel will present highlights of their 1996 research projects. **4 contact hours** (cranberry category) will be offered for the day towards pesticide re-certification.

\$22.00 charge includes 2 coffee breaks and a deli buffet lunch. You must pre-register and pre-pay using the enclosed registration form.

Meeting schedule and directions to Sea Crest are enclosed.

The new Station Director, Dr. Thomas Bewick, has arrived and officially begins work on January 13th. Feel free to contact him here at the station or meet him at the upcoming meetings.

WINTER FLOOD MANAGEMENT

November was a cool month (averaging ~3.5 degrees colder than normal; daytime highs were 5.6 degrees lower than normal and nighttime lows were 2.6 degrees colder than normal). Vines were entering dormancy as expected. However, the warm temperatures became a trend in December.

If the trend of alternating warm and cold periods continues, and your vines are not under water, chances are the vines would start to lose chilling hours and be at risk for injury. Thus, if you have not already done so, we advise that bogs be flooded for winter protection as soon as possible (especially if there is no snow cover).

Bogs that were flooded prior to the onset of the cold weather at the end of December should be in good shape. Water will help to buffer the vines against fluctuations in the air temperature. Vines will continue to accrue chilling hours at temperatures below 45°F, even if they are in water.

If the winter flood is unfrozen, or light can penetrate the ice covering the flood, oxygen levels should be adequate. Oxygen deficiency conditions may occur over time even if the ice is clear. After 10 days of consistent ice, you should monitor a couple of times a week even when the ice looks good. Increase monitoring when the ice starts to look cloudy. When the ice is cloudy, or covered by snow or sand, oxygen levels will begin to fall as the plants continue to use the oxygen. The water should be removed from beneath the ice when levels are *5 ppm or less*. If you sample in an area where algae are abundant, you may get falsely high readings. It is always advisable to sample in several places. Failure to prevent oxygen deficiency can result in leaf drop, inability of blossoms to set fruit and crop reduction.

CAROLYN DEMORANVILLE/HILARY SANDLER

FUNGICIDE INJURY?

In June, I received several direct and indirect inquiries on whether fungicide applications had injured the blossoms. Some uprights showed injury to the blossoms, leaves and the tip of the upright. These were probably injured by a combination of dry (rainfall was below normal in June) and hot conditions, and **not** due to the fungicide application. In cases where the injury was only observed on the blossoms, I observed blossom blast symptoms together with the signs of the fungal pathogen on different floral parts. The early rot fungus, *Phyllosticta vaccinii*, was cultured at a high frequency from these symptomatic flowers.

This blast condition has hardly ever occurred during my 12 growing seasons. It was probably a situation where the floral tissue was highly susceptible, the temperature and humidity were at the optimal levels for the fungus, and the grower had not gotten the fungicide application on in time to prevent the infections which occurred. The fungicides registered for fruit rot control are protectants and can only prevent infections; they are not eradicants which can stop infections once they have been initiated. These same bogs also displayed spots on the leaves which also yielded cultures of *Phyllosticta*. This condition is not commonly observed, but can develop where the optimal weather conditions are present and the leaves are susceptible. If you notice similar symptoms during the 1997 growing season, please bring some uprights showing typical symptoms into my lab, or call me and I will take a look at it in person.

FRANK CARUSO

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(508) 295-2213 FAX (508) 295-6387

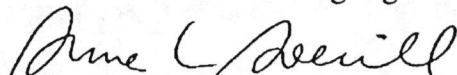
Dr. Thomas Bewick, Director

January 1997 Issue

Martha M. Sylvia, Editor

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UMass Extension Mailing Signoff


Anne L. Averill, Small Fruit Specialist

NATIVE POLLINATORS PROJECT WITH MAINE RESEARCHERS

Recently there has been a decline in the availability of honey bee hives and an increase in hive rental cost. The honey bees themselves are infested by parasitic mites which has drastically decreased the number of hives which overwinter successfully. Protecting hives from these mites is costly and not completely effective. This, coupled with an increase in the price of honey (which encourages hive owners to use their hives for honey instead of renting out for crop pollination) has created the honey bee "crunch".

We are researchers at the University of Maine investigating how to increase the numbers of native pollinators in cranberry fields and decrease dependency on the uncertain honey bee rental business by increasing plant diversity within and around cranberry bogs. We want to test the hypothesis that an increase in the diversity of flowers around the bogs will provide additional pollen and nectar for native bees and boost their numbers. In addition, increased diversity around fields may bolster populations of insects which prey on arthropods harmful to cranberry. Such bog characteristics could decrease dependency on rental hives and on insecticide application, which translates to a stronger, cheaper, more profitable bog.

We are looking for several cranberry grower cooperators with bogs which range in the amount of vegetation other than cranberry within the bog and vary in the types of plants which surround the bog. We will be conducting economic analyses which examine the relationship between plant diversity in and around the bogs and crop yield which will be given to participants. The study will take place during the 1997 and 1998 growing seasons. We will be sampling with low impact traps, which are 1ft by 3ft netting X's which hang from poles, on and around the bog. We also plan to put up sticky traps suspended from poles and occasionally sweep net.

If you are interested in participating in this study please contact Frank Drummond in Maine at 1-207-581-2989 or Marty Sylvia at the Station.

FRANK DRUMMOND, CONNIE STUBBS, STEVE WOODS,
JOE KAREM AND JENNIE LOOSE

CRANBERRY FRUITWORM MONITORING - 1996 LATE WATER PROJECT

CRANBERRY FRUITWORM EGG MONITORING

C. DeMoranville, H. Sandler, A. Averill, M. Sylvia, J. Mason

Five paired Early Water - Late Water (EW-LW) sites were monitored for the presence of cranberry fruitworm (CFW) eggs during the 1996 growing season. The pairs in this study were specifically selected to be small (3-5 acres) and isolated, to facilitate berry collection and minimize influx of insects from surrounding bogs.

The current control strategy for CFW calls for timing the first spray treatment based on the developmental stage of the cranberries, specifically, percent out-of-bloom. The first spray is triggered 7 days after 50% out-of-bloom (OOB), to target the maximum number of eggs. We began to assess OOB soon after bloom began. Sites were sampled seven days after 50% OOB and 10 days after later. Fifty berries per acre were collected at each sampling date. The calyx end of the berry was examined for the presence and status of CFW eggs.

<u>Results of Berry Inspection</u>		
Average followed by individual results for 5 sites as respective pairs		
Time of berry inspection	Percent infestation with CFW eggs	
	EW	LW
7 days after 50% out of bloom	1.24 (0.5, 2.8, 0, 2.9, 0)	0.20 (1, 0, 0, 0, 0)
10 days later	0.10 (0, 0, --, 0.5, 0)	0 (all sites)

Late water floods tend to reduce CFW populations in the year of late water. At one site (Site 3), no CFW eggs were detected at either the EW or LW bog. At the remaining four sites however, three of the LW bogs had lower percentage infestations of CFW eggs than their EW companion (Sites 2, 4, and 5). Current EW CFW management practices recommend a pesticide application 7-10 days after 50% OOB. By that time, two of the EW bogs in this study had approximately 3% infestations, well above the 1% action threshold. However, 2 of the 5 EW bogs did not reach the 1% infestation level at any collection. Both of these bogs received sprays based on the current timed recommendation.

The very low infestations on the LW bogs resulted in *no recommended pesticide inputs for the LW locations* except at Site 1 which did reach 1% infestation 7 days after 50% OOB. Growers applied no sprays to the LW bogs at Sites 2 and 5. At Site 1 and Site 3, sprays were applied in the middle of July targeting *Sparganothis* fruitworm, a pest not controlled by LW. A second spray at Site 1 was triggered by the 1% CFW infestation.

Egg monitoring results confirmed our earlier studies: LW often entirely suppresses CFW.

STUDIES OF CRANBERRY FRUITWORM ADULT ACTIVITY

A. Averill and N. Sharma

The second approach to the cranberry fruitworm focus is to determine the activity of moths as it potentially could affect a late water managed bog. Some key points follow.

1. Cranberry fruitworm moths are very mobile and likely move back and forth between the bogs and the surrounding uplands. By using a "mark-recapture" technique, we looked at the movement of newly emerged cranberry fruitworm males and females. In five different releases, thousands of moths were dyed with a fluorescent powder and released at dusk. Light traps and pheromone traps were

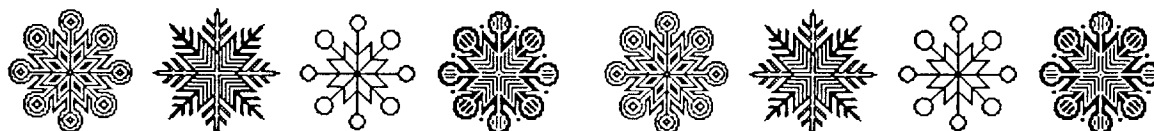
used to recapture the marked moths. When moths were released in the center of the bog, males were recaptured at a distance from the bog. Some were captured about 200 yards into the woods and in traps placed in the tree canopy. Females were recaptured in lower numbers, but also were found in traps placed in the uplands; they apparently move less than males. Because the moths used in this study emerged in the lab, any speculation must be supported by additional field observations.

Our working hypothesis is that virgin females move to upland sites and "call" (release sex pheromone) for males; males "cruise" the uplands seeking these calling females. Mated females probably return to and remain on the bog laying eggs while males remain in the uplands seeking mates. Such a scenario is consistent with some behaviors of a close relative, the European corn borer moth, which moves to mating areas in moist grass outside of corn fields.

2. Moth populations are abundant in commercial blueberry and could support an invading population if near a late water cranberry bed. Pheromone traps at 4 blueberry stands near cranberry sites were monitored. In 2 unmanaged stands of blueberry, trap catch was higher in blueberry than cranberry. At the 2 managed blueberry sites, trap catch was higher in cranberry. Peak flight of male moths occurred at approximately the same time in both crops, except at one site where flight was earlier in blueberry.

3. The cranberry fruitworm sex pheromone trap is not an effective tool for pest management. This year's work, plus several years of previous work, have shown that there is no consistent correlation between number of males captured in sticky traps (baited with synthetic sex pheromone of females) and peaks of egg laying by females. Growers can more accurately assess treatment timing and necessity based on the standard tools of percent out of bloom calculations and egg monitoring.

4. Conclusions to date. Late water growers are advised to scout for CFW eggs even if none are found soon after fruit set. The mobile populations of moths may invade from adjacent early water sites and alternate hosts such as commercial blueberry.



GROWERS SOUGHT FOR UMASS SCOUTING PROGRAM

The UMass IPM Program provides the full range of scouting services to a small number of growers each year. Weekly sweep netting, pheromone trap monitoring, fruit inspection for fruitworm eggs, weekly scouting reports, leaf tissue sampling, and discussions concerning management options are among the services we will provide.

We are looking to include several small acreage bogs (~ 6-10 acres each) in the 1997 scouting program. Our fee is \$75 per acre. Our services may be particularly useful for new growers who may want to receive one-on-one instruction.

If you would like to contract our scouting services for the 1997 season, please call me at the station as soon as possible as availability for the scouting program will be limited. If you have any further questions, please feel free to call.

HILARY SANDLER

1997 UMASS Annual Cranberry Research and Extension Update

at the Sea Crest Oceanfront Resort and Conference Center in North Falmouth

Tuesday - March 4, 1997 8:30 AM - 4:30 PM

4 contact hours (cranberry category) will be offered for the day towards pesticide re-certification.

\$22.00 charge includes coffee breaks and a deli buffet lunch.

MEETING SCHEDULE

8:30 (60) Introduction and Proposed Weed Projects, Tom Bewick, Station Director

9:30 (30) Cranberry Disease and Dodder Mycoherbicide Studies '96, Frank Caruso

10:00 Coffee and danish break (20)

10:20 (30) IPM Studies - Vapor Gard and Weed Survey '96, Hilary Sandler

10:50 (15) Southern Red Mite Control Alternatives, Rob Skinner, Ocean Spray

11:05 (15) Food Quality Protection Act, Jere Downing, Cranberry Institute

11:20 (20) Fertilizer Update, Carolyn DeMoranville

11:40 (20) To be announced

12:00 - 1:00 Deli Buffet Lunch

1:00 (50) Insect Research including Tipworm and Grubs, Anne Averill

1:50 (20) Frost Project Update, Carolyn DeMoranville

2:10 (30) Potential for BioControl on Weeds in Cranberry, Tom Bewick

2:40 Coffee and cookie break (20)

3:00 (60) Late Water Project, DeMoranville, Sandler, Averill, Caruso

4:00 (30) Wrapup and Paperwork for Credits

REGISTRATION FORM

1997 UMASS Annual Cranberry Research and Extension Update Meeting

Tuesday - March 4, 1997 at the Sea Crest Conference Center, 8:30 AM - 4:30 PM

Name _____

Name _____

Phone _____

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Name _____

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Make checks payable to University of Massachusetts, \$22.00 per person

Return completed form with payment no later than February 21, 1997

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East Wareham, MA 02538

1997 UMASS ANNUAL CRANBERRY RESEARCH AND EXTENSION UPDATE

Sea Crest Resort and Conference Center in North Falmouth

March 4, 1997 8:30 - 4:30 PM

DIRECTIONS TO SEA CREST.

Take **495-25** South over the Bourne Bridge

At the rotary, get onto Route **28** South.

Follow Route **28** thru the Otis Rotary and take the next exit, Route **151**.

Take a **left** off the exit ramp. At 1st set of lights take a **left**.

Go one mile to a rotary.

Take a sharp **right** from the rotary onto Quaker Road.

Follow Quaker Road one mile and Sea Crest is on the **right**.

REGISTRATION AND PAYMENT IS REQUIRED FOR THIS MEETING - SEE REGISTRATION FORM ON OTHER SIDE.

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