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University of Massachusetts • Extension Cranberry Station Newsletter



March 1996
Cranberry Experiment Station
Glen Charlie Road
East Wareham, MA 02538



BEGINNER'S CRANBERRY SCHOOL

April 17th, 1996
8:30 AM - 12:00 Noon

at the
Cranberry Station Library

A Beginner's Cranberry School will be offered for those who need to learn or review the basics of cranberry management. Most facets of cranberry growing will be covered. 2 contact hours will be offered towards pesticide recertification.

Please call the Station to preregister.

- 8:30 - 9:00 **Concepts of IPM**
Hilary Sandler
- 9:00 - 9:25 **Nutrition of the Cranberry Plant**
Carolyn DeMoranville
- 9:25 - 9:45 **Frost Tolerances and Protection**
Carolyn DeMoranville
- 9:45 - 10:00 **Coffee Break**
- 10:00 - 10:30 **Weeds on the Cranberry Bog**
Hilary Sandler
- 10:30 - 11:15 **Identifying Cranberry Pest Insects**
Anne Averill
- 11:15 - 11:45 **Identifying Cranberry Diseases**
Frank Caruso
- 11:45 - 12:00 **Question and Answer Session**

NEW INSECT FACT SHEET

A Field Guide: Insect Pests of MA Cranberry Bogs is a laminated fact sheet written by Monika Weldon with color illustration by Meridith Albright. It is an excellent guide to have as sweep-netting season approaches. This new publication is now available at the Cranberry Station or the CCCGA for \$5. The money collected will go back into the research funds at the CCCGA.

ILL AFTER THE TAUNTON HOLIDAY INN MEETING?

Over 75% of attendees at the 1996 Annual Research and Extension Update at the Taunton Holiday Inn suffered flu-like symptoms 24-48 hours after the meeting. The symptoms ranged from mild stomach upset to violent vomiting and diarrhea.

The Boston Globe reported that a food-borne virus is to blame for the illness. However, much test information remains to be completed and the Board of Health has not released a statement at this time.

In coordination with the MA Board of Health, we have mailed out a survey to all attendees in hopes of better understanding what caused the illness. If you attended the meeting, please fill out the survey and return to the Board of Health whether you were sick or not. Contact the Station if you attended and did not receive a survey.

We certainly apologize for any inconvenience and suffering caused by the sickness. The Station was reduced to a ghost town - we all suffered too.

BEST MANAGEMENT PRACTICES GUIDE

A Best Management Practices Guide for Massachusetts Cranberry Production is now available from the Cranberry Station. The guide is designed as a reference resource for cranberry growers, particularly for new growers. The guide is a series of 12 'stand-alone' practices covering topics such as sanding, bog construction, pesticide application and erosion control.

The 1996 edition of the BMP guide is provided to Massachusetts cranberry growers and other interested state residents free of charge due to the generous support of the MA Department of Food and Agriculture, the Cape Cod Cranberry Growers' Association and Ocean Spray Cranberries. Persons from other states may purchase the guide for \$10 (\$12.50 for Canadian addresses) including postage. Anyone interested in obtaining a guide should call or write the Cranberry Station.

DODDER MYCOHERBICIDE STUDIES IN 1996

I will be conducting field trials with the fungal pathogens of dodder similar to those conducted in 1995. I will need two sites for the pre-emergence formulation/treatment and two sites for the post-emergence formulation/treatment. Ideally, the sites should not be too far away from the Cranberry Station and would be in a cranberry bed which will not be harvested in 1996. Because the mycoherbicide is unregistered at this point and because more than three Bravo applications will be sprayed on the borders and the control plots, the crop will need to be destroyed where the plots are located. The registrant of the mycoherbicide, United Agri Products, has budgeted for this crop loss and will reimburse the grower(s). A new cranberry bed would circumvent this problem. If you would like to participate in this research, please call me within the next two weeks. I would like to visit the prospective bed(s) and Casoron CANNOT be applied to the bed.

LIME-GREEN VINES!!

Five and six years ago, I observed lime-green colored vines in small patches in several beds in early May as the vines grew out of their winter color. This condition had apparently been there in previous growing seasons. The vines eventually colored up normally, and were indistinguishable by June. I am curious whether these spots still exist in those beds (you know who you are!) and whether you ever associated any crop loss with the condition. I must presume since no one has been knocking on my door that the condition has not enlarged in scope. I never really figured out what caused the odd color, although it was very similar to symptoms induced by some plant viruses.

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March 1996 Issue

Martha M. Averill, Editor

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UMass Extension Mailing Signoff


Anne L. Averill, Small Fruit Specialist

AFTER-EFFECTS OF CARBAMATE

Carbamate fungicide does an excellent job controlling fairy ring disease under most circumstances. The cranberry vines respond almost immediately with regrowth and by the next growing season, the vines have filled in many of the bare spots created by the disease. The vines also respond to the treatment by turning a deep and vivid green color. However, during subsequent growing seasons after revining, little or not crop is produced on these vines. I am interested in trying to figure out why these vines are unproductive (with Carolyn's help!). Consequently, I will need to locate sites where vines recovering from fairy ring disease fit the description above. If you have such a situation, please call me and I will compile a list of prospective beds to study as we get deeper into the growing season.

DIRECTOR SEARCH - PATIENCE IS A VIRTUE

From now until the end of April, we will be interviewing four candidates for the position of Director of the Cranberry Station. Everyone here at the Station will be involved in this process. If we can't get out to view a particular problem in your beds, please be patient. We'll get there eventually.

FRANK L. CARUSO, CRANBERRY PLANT PATHOLOGIST

SPRING SOIL AMENDMENTS AND YELLOW-VINE SYNDROME

In the November newsletter, I provided some thoughts on stress in general and yellow-vine in particular. In that article, I suggested that on bogs with yellow-vine, use of large amounts of K-containing fertilizers should be avoided. This recommendation is based on a review of tissue tests from yellow-vine bogs which show high K and low Mg. When you add large amounts of K or Ca to the soil, you may decrease the uptake of Mg by the cranberry plants. Based on this *theory*, I suggested that the use of KCal™ should be avoided or limited on such bogs. In fact, any use of K, including SulPoMag or similar products should be limited or avoided on these bogs. Epsom salts (MgSO₄) may be substituted. My apologies for any misunderstanding and failure to previously note that KCal™ is a registered trademark.

Joan Davenport and I plan to further study yellow-vine this season. If you have a history of this problem and wish to participate in the study - call me at the Station (508-295-2212).

CAROLYN DEMORANVILLE

TIPS ON USING PRE-EMERGENCE APPLICATIONS OF DICHLOBENIL

Dichlobenil is the chemical name for herbicides sold under the trade names, Norosac® and Casoron®. Norosac is manufactured by PBI Gordon, and Casoron is manufactured by Uniroyal Chemical Company. Norosac and Casoron are broad spectrum herbicides affecting many annual and perennial plants. These granular herbicides are labeled as 'Caution' and contain 4% active ingredient. The REI is 12 hours. Below are some tips on getting the most from your preemergence applications of dichlobenil.

ALWAYS READ THE LABEL AND FOLLOW THE INSTRUCTIONS PRIOR TO USE.

General Information. Dichlobenil, the active ingredient in these herbicides, is effective because it inhibits the formation of *cellulose*, the main ingredient of plant cell walls. Since it interferes with actively growing tissues, dichlobenil hinders seed germination and seedling growth of many weeds. It also inhibits the growth of emerging shoots of many perennials.

When the herbicide is applied to the soil, the granules disintegrate under the influence of moisture, and the dichlobenil is gradually released. It forms a vapor barrier in the top 2-4 inches of the soil which can affect any plant growth that occurs within this zone. Dichlobenil is poorly soluble in water and does not leach into deeper soil layers. As a result, weeds with root systems below this vapor barrier may not be controlled.

Fate in Soil. Several processes will affect the longevity of the herbicide in the soil. Some of the dichlobenil will evaporate. The rate of evaporation will depend upon soil type, soil moisture, temperature, rainfall, etc. Secondly, some of the dichlobenil will be adsorbed to soil particles. In addition, dichlobenil can also be degraded microbiologically. The combined effects of evaporation and degradation can cause a 50% loss of herbicide availability in several weeks.

Managing Herbicide Use. Continued use of dichlobenil can be harmful to overall vine health. Try to determine what the *lowest effective rate* is for weeds on your bog. Try not to use dichlobenil every year. Rotate other preemergence herbicides into your management plan or eliminate them entirely every so often to allow the vines a chance to recover. Consider using other methods of weed control (especially for difficult perennials) whenever possible.

Target Weeds. Weeds which can be controlled by dichlobenil include: ferns, dodder, mare's tail, tear thumb, loosestrife, narrow-leaved goldenrod, ragweed, asters, mosses, and some grasses. Check the label and the Cranberry Chart Book for a complete list of target weeds. Bear in mind that control of some of these weeds may only be partial.

Calibration. Calibrate your spreader every year to make sure you are delivering the correct amounts. This is particularly important when applying low rates for dodder control. According to the manufacturer, thorough and even distribution of the granules with most ground application equipment is more difficult when the amount of material to be applied is less than 35 lb/A of product.

Sanding. Do not sand (spring or fall) immediately after a dichlobenil application. Growers have reported minimal vine injury when applying the herbicide to bogs in the fall prior to winter ice sanding or in the spring after ice sanding. Applications can be made on top of sand, but must be watered in immediately. Both sanding and dichlobenil applications are stressful to the vines. This combination of practices may not be prudent for all situations. The interactions of barge sanding and applications of dichlobenil are not known at present.

Late Water. Dichlobenil may be used *prior to* the late water flood. For best results, allow an interval of at least 7 days (10 or more is preferable) between application of the herbicide and the introduction of the flood. The herbicide must be watered in prior to the flood to insure maximum effectiveness. Applications of dichlobenil are not recommended after the late water flood is withdrawn.

see over -->

CASORON 4G LABEL CHANGE

A label change has been recently approved for **Casoron 4G only** permitting multiple applications as needed, not to exceed 100 lb/A per any 12 month period. Allow an interval of 3-6 weeks between treatments.

For example, the label change would permit the following scenario: a moderate-rate application in mid-March (e.g. 50 lb/A), targeting perennial and annual weeds, and a low-rate application (e.g. 30 lb/A) targeting dodder in mid to late April. Be cautious! Multiple applications in a 12 month period may result in high cumulative doses. These doses may lead to vine injury.

All Casoron 4G packaged in 1996 will have the old label. Growers may use 'old-label' Casoron in the new way if they have a copy of the new label in hand. New labels may be obtained from local ag suppliers.

Norosac Rates. The Norosac label has *not* been changed for the 1996 season. Spring applications of up to 100 lb of dichlobenil per acre per year and fall applications of 100-150 lb of dichlobenil per acre per year after the crop has been harvested are permitted. Do not make spring application if treatment was made the previous fall. Fall applications are not permitted if application was made the previous spring.

Chart Book Rates. The 1996 Cranberry Chart Book recommendations for most weeds (except dodder) call for 'up to 100 lb/A'. Keep in mind that repeated use of high rates of dichlobenil will inhibit root growth of cranberries. Use the lowest effective dose to minimize chronic vine stress. Plants with weakened root systems are more susceptible to other stresses such as drought.

Low-rate (30-60 lb/A) applications of dichlobenil can inhibit the germination of dodder. Applications are typically made mid to late April. The herbicide is most effective when applied as close as possible before seed germination.

Shelf Life. Maximize the shelf life of the herbicide by storing the bag in a dry sealable barrel. According to the manufacturer, the herbicide is stable for at least two years when stored in a cool and dry place in closed aluminum-coated containers. Dichlobenil is not sensitive to frost.

Timing/Application. Applications should be made during the cool temperatures of the early spring while perennial weeds are still dormant and annual weeds have not started to germinate. Applications can also be made in the fall after harvest. When the soil temperature reaches 60°F or above, the herbicide vaporizes, forms the vapor barrier, and is held in place by the upper layers of the soil by the organic matter.

- *Apply the herbicide uniformly at the correct rate.* Do not overlap.
- *Apply when the vines are dry.* Granular materials tend to stick to wet leaves instead of falling through the canopy and reaching the bog floor. Adherence to wet cranberry leaves may cause injury.
- *Dichlobenil must be washed in by irrigation or rainfall as soon as possible after application.* Effectiveness may be reduced due to increased evaporation, especially during warm or sunny weather.
- *Do not apply after vines start to bloom;* this may cause a yield reduction.
- *Do not apply to young beds* (less than 3 years old) or on bogs prior to or immediately after mowing vines.
- *Avoid applying dichlobenil during warm temperatures* as vine injury may occur. If you must make an application during warm temperatures, water the herbicide in immediately to minimize volatilization.
- Vines may redden temporarily with late spring applications or when applied to sandy bogs.

References

Else, M.J. 1993. *Getting good weed control with Casoron.* UMass Fact Sheet. Cranberry IPM Notebook.

Sandler, H.A., I.E. Demoranville, and R.M. Devlin, 1996. *Weed Management*, in Cranberry Chart Book-Management Guide for MA. UMass Extension System, East Wareham, MA.

Technical Bulletin, 3rd Edition. *Casoron G.* Crop Protection Division. Duphar B.V. Netherlands.

HILARY A. SANDLER, IPM SPECIALIST

ROW PLANTING VS. DULL DISC

By Maine Grower - Michael Macfarlane

As a new cranberry grower in Maine, I was looking for a way to cut costs when planting vines. I'd never been to impressed with dull-disc planting, and had seen tragic results from it, due to weather conditions, vine quality, or just scrappy planting. Too many times I'd hear growers say "Shoulda used two ton/acre" after a poor 'take'.

I wanted a way to plant the vine more deliberately, standing a better chance of taking. I could also use a whole lot less vine. I heard about the SARE grant program that would finance innovative ideas that benefit farming. I applied and got a grant. It covered a row planting experiment I want to tell you about.

I purchased 500 lbs of Ben Lear from a local grower here in Maine for \$1000. I wanted fresh vine that had already adapted to the area. At planting, we cut furrows 18" apart (yes, we hand planted - it was only .5 acre) and spread the vine thinly into the furrow. We then lightly covered the vine with sand, tamping the planting as we went. Every 5-10 rows we readjusted the amount of vine we spread to make sure we had enough vine with none left over. The half acre took 100 man hours.

Row Planted .5 acre

500 lbs vine	\$1000
100 man hrs @ \$6/hr	\$600
	\$1600

Conventional dull-disc .5 acre

1000 lbs vine	\$2000
man hrs + equipment	\$200
	\$2200

The results impressed me. With standard maintenance, I got a healthy stand of plant with good runner growth and 33-40% coverage that first year. An added advantage was that we were able to mechanically cultivate weeds until the runner growth was well under way. In larger plantings, I'm sure a 'seat-behind' type planter could be easily modified to furrow, hand plant and tamp in one operation. In future plantings we may try closer row spacing with less vine/row.

Bottom line, it worked and worked well. Here are my conclusions: 1) **PLANT EARLY.** Have your site ready to plant the year before. Don't wait to spread your sand the year you plant. 2) **USE FRESH VINE.** It's common sense. Fresh cut is most vital and less dehydrated. 3) **USE LOCAL STOCK.** Its growth is just what it should be when you plant it. 4) **ROW PLANT.** Put your vine in the sand. That's where it grows. Vine is too expensive to waste or use as mulch.

Partial funding for the work reported here was provided by a grant from the USDA Sustainable Agriculture Research and Education Program (SARE, formerly LISA). Contact Frank Caruso if you have interest in getting involved with this program.

WHAT'S NEW IN PHOSPHORUS RESEARCH?

I have been studying P fertilizers since 1992 in field plots at six locations; two each EB, Howes, and Stevens. This research was supported by CCCGA and Ocean Spray. The research focused on three questions: 1) If P dissolves more slowly, will more get to the cranberries (less tie-up); 2) If P is applied in slow-release or organic forms, will more get to the cranberries (less tie-up); and 3) What impact do P rates and timing have on cranberry yield?

While we do not yet have all the tissue analyses and cannot say if more P got into the plants, we can say regarding yield in plots treated with the various P forms:

- Slowly soluble P works as well as quickly soluble P- rock phosphate and triple super phosphate plots had similar yield.
- Plots treated with foliar phosphoric acid at bloom had increased fruit rot.
- The only organic P plots with high yield were those treated with bone meal.
- Osmocote™ slow-release plots did as well as those receiving 10-20-10 - and at lower rates.

In the P rates and timing experiment, P was applied at 0, 20, 40, or 60 lb/A actual P. The application was split over different combinations of times: roughneck, bloom, fruit set, and/or bud development. All applications were made during the active growing season when the soil moisture was at field capacity (well-drained). Conclusions:

- There was no difference in yield among any of the timing regimes tested.
- Yield was lowest with the '0' P rate. Yields for the other three rates were similar but higher than with '0'.
- P addition to the soil is required for optimum cranberry production BUT low doses work as well as high doses. Timing of application during the growing season is not critical.

In 1995, Joan Davenport (Ocean Spray) and I received a grant from MA-DFA to study P chemistry in the cranberry soils and develop a BMP for P management in cranberry systems. Highlights of the BMP:

- Sandy bogs hold and release P poorly - fertilize with up to 40 lb P/A for the season applied in many small doses.
- Traditional, established bogs (layered soil from sanding) release P in the early spring (when soil is wet from flood drainage and frost irrigating - add no P fertilizer before roughneck. These bogs release little P once the soil is well-drained (mid-season) - add 20 lb P/A split over 2-3 applications beginning no earlier than roughneck stage.
- The Bray soil test is best for cranberry soil P determination but only if the soil is well-drained. Spring tests for soil P are unreliable - it is preferable to test at the same time as tissue tests are done (late summer). If soil iron is above 200 ppm - soil test P values are not useful - the P is tied to iron in the soil and is not available to the plants regardless of what the soil test indicates.

CAROLYN DEMORANVILLE

HERBICIDE NEWS

• **New glyphosate product available - Roundup Ultra.** Monsanto has introduced Roundup Ultra to the market. It has the same amount of active ingredient as Roundup and should be diluted at the same rates. It is not necessary to mix Roundup Ultra with any additional surfactants, additives, or buffers. However, you should still use a dye to track your leaf coverage.

Roundup Ultra is rainfast 1-2 hr after application. It has a 'Caution' label; other glyphosate products have a 'Warning' label. When using Roundup Ultra, protective eyewear is not mandated, and the restricted entry interval is reduced to 4 hr from 12 hr (the REI for all other glyphosate products).

• **Casoron 4G label has been changed.** Multiple applications are now permitted as needed, not to exceed 100 lb/A per any 12 month period. An interval of 3-6 weeks must pass between applications. Growers with 'old label' packaging may use Casoron in the new way if they have a new label in hand. Please see box on page 5.

• **The registration for Fusilade® has been cancelled.** Remaining supplies may be used up during the 1996 season. Other herbicides available to control grasses on non-producing bogs include Poast® (see below) and Prism®.

• **EPA has revoked the tolerance for all MH-30 products.** These products cannot be used for any pest management purpose. Any remaining products are considered hazardous waste and must be disposed of properly.

• **Poast may be used to control grasses on producing and non-producing bogs.** In the late spring of 1995, Poast was approved for use on producing cranberry bogs. By the time the news got out last year, growers were scrambling to try this herbicide before weeds got too mature. Poast may be applied any time grasses are actively growing. However, if the weeds are flowering or have gone to seed, they will not be controlled. Consult the 1996 Cranberry Chart Book for details on using Poast.

HILARY A. SANDLER, IPM SPECIALIST

SPRING FROST TOLERANCES - CAROLYN DEMORANVILLE

I have prepared an extensive summary of results to date of the frost tolerance project conducted by Dee and me. This summary was available at the Holiday Inn meeting. If you did not get one, copies remain available at the Station.

Frost tolerances were associated with certain developmental stages in cranberry growth by Henry Franklin. These are the stages shown on the color Frost Tolerance Fact Sheet sold at the Station. Our research showed that the Fact Sheet was accurate for Early Black and Howes, but not for Ben Lear and Stevens which have larger buds. Based on this new information, we present the following key to frost tolerances based on visual appearance of the spring buds.

Appearance of the bud	Frost Tolerance EB and Howes	Frost Tolerance Ben Lear	Frost Tolerance Stevens
Spring dormant (bud reddish)	18°F	20°F	18°F
White bud stage (loss of dormant color in bud)	20°F	22°F	20°F
Slight loosening of bud scales (no bud swell)	22°F	25°F	25°F
Bud swell (cabbage head or popcorn stage) 2mm bud	25°F*	27°F	27°F
Bud elongation bud is growing out (or up)	27°F**	29.5-30°F	29.5-30°F
Roughneck (more than 1/2 inch new growth) through hook stage	29.5-30°F	29.5-30°F	29.5-30°F
*After 5-7 days - increase to 27°F even if no change in appearance.			
** After 5-7 days - increase to 29.5-30°F even if no change in appearance.			