Cranberry Station Newsletter

APRIL 2000

UMass Cranberry Experiment Station
1 State Bog Road
P.O. Box 569
East Wareham, MA 02538
http://www.umass.edu/umext/programs/agro/cranberries

Beginners Cranberry School

Cranberry Station Library
Tuesday - April 25, 2000
5:00 - 8:30 PM

Meeting Schedule

4:45	Registration
5:00	Introduction - Frank Caruso, Acting Station Director
5:05	IPM - Hilary Sandler
5:30	Nutrition - C. DeMoranville
6:00	Diseases - Frank Caruso
6:30	**Coffee, Juice Break**
6:45	Insects - Anne Averill
7:15	Frost - C. DeMoranville
7:30	Water mgmt. -B. Lampinen
8:00	Weeds - Thomas Bewick

Preliminary Keeping Quality Forecast

A separate mailing in early April will have information on the Preliminary Keeping Quality Forecast (KQF). We should receive the necessary weather data on or about April 3. As soon as the calculations are made, a newsflash will be distributed to our mailing list. The KQF will also be posted to our Web Site.

NEW!!

Twilight Bogside Workshop
5 -7 PM

This season, we will be hosting twilight bogside workshops in May, June, and July. These workshops will replace the old 'open-lab' morning workshops held in previous years but will cover similar topics and current happenings. We hope that by having the workshops in the early evening, more of you will be able to participate. A list of topics and workshop dates follows. In addition to those speakers scheduled, all of the Station Faculty will make an effort to attend. Let us know if there are other topics you wish us to address. We are always open to suggestions.

Workshop 1 Tues., May 16 (rain date May 18)
5:00 to 7:00 PM Location - State Bog

Topic	Presenter
Irrigation	Bruce Lampinen
Weeds - dodder	Hilary Sandler
Sparganothis	Anne Averill

Workshop 2 Tues., June 13 (rain date June 15)
5:00 to 7:00 PM Location - TBA

Topic	Presenter
Diseases	Frank Caruso
Fertilizers	C. DeMoranville
Cranberry fruitworm	Anne Averill

Workshop 3 Wed., July 5 (rain date July 6)
5:00 to 7:00 PM Location - TBA

Topic	Presenter
Weeds - post emerg.	Hilary Sandler
Fall floods	C. DeMoranville
Current topics	

STATION TIDBITS

· Handouts are available for pick up for anyone who registered for the Cranberry Production Training (Sheraton Inn, Plymouth) and was unable to attend.

· Handouts for the Research Update Meeting (Sea Crest, Falmouth) are available on the Web or at the Station.

· Please check out our New Web Site: http://www.umass.edu/umext/programs/agro/cranberries

· Keeping Quality Reports will be available on the web as soon as all weather data is available.

· Pesticide exam package now available on the web: http://www.massdfa.org/pesticide/htm

· Cranberry Insects of the Northeast, a new publication by Anne Averill and Martha Sylvia is available at the Cranberry Station for $28.00.

WORKER PROTECTION TRAININGS CRANBERRY STATION LIBRARY STARTING IN APRIL 2-4 PM

Worker Protection Trainings for cranberry workers in the Handler category will be offered in the spring: April 26, May 31, and June 28. Anyone working on the bog must be trained unless they are a family member or already have a pesticide license. There will be a $5.00 charge that includes training book and EPA verification card. Contact Debbie (ext. 10) or Marty (ext. 20) to sign-up.

UMass Cranberry Experiment Station
1 State Bog Road, P.O. Box 569
East Wareham, MA 02538
(508) 295-2212 FAX (508) 295-6387

Dr. Frank L. Caruso, Acting Director

APRIL 2000 Issue

Deborah Cannon, Editor

Frank L. Caruso, Acting Director

IPM PHONE MESSAGE

The IPM Phone Message (ext. 61) will begin posting information as soon as the scouting season begins. It is anticipated that messages will be starting in mid-May. The Phone Message is available 24 hours a day, 7 days a week. The message will also be posted on the Web page. This year, the messages will be much shorter than in past years. The content will focus solely on which pests are out and any specific problems. Additional IPM information (such as management and treatment options, pest life cycles, ect.) will be published in future issues of the Cranberry Station Newsletters.

LATE WATER REMINDERS

The following is a checklist for planning late water use in 2000. Also review the Feb. 2000 newsletter and the Chart Book (pp. 46-47).

When should I apply the flood?
When the plants have begun to green-up but the buds are still red and tight. If warm temperatures are forecast or plants are well greened-up, choose the earlier date.

Inland locations -- April 10-15
Coastal locations -- April 15-20
Cape Cod -- April 20-25

What should I monitor during the flood?
Scout ditch edges for algae, particularly if you have had problems in the past or temperatures are warmer than normal. By the third week, check water temperatures periodically. If temperatures are consistently greater than 65ºF early in the day, consider early termination of the late water.

When should I pull the flood?
Remove the flood after 30 days. However, if it is very warm near the end of the time, pull early. If frost is predicted at the end of 30 days, the flood may be held for an additional day or two. Remember that after 30 days of late water, the bud tolerance is 30ºF.

What if I have to pull the flood early?
If you cannot keep all vine tips submerged or if water temperatures get too high, you may need to remove the flood early. Flooding up to 2 weeks does not affect frost tolerance -- protect based on bud appearance. After 2-3 weeks of flooding, protect for 25ºF. After longer floods, protect for 30ºF.

CAROLYN DEMORANVILLE

WINTER INJURY

As cranberry vines emerge from their dormant state, it appears that some vines were adversely affected by the extreme cold temperatures that occurred during the middle and latter part of January. Numerous beds were not flooded during portions or all of that period. Affected vines have an orange cast and closer inspection shows that the buds look abnormal. If you are curious how much damage has resulted in these situations, you can dig up some vines, place them in a pot and "force" them to come out of dormancy inside your home. You will be able to see how many of the buds were affected. Of course, if the Cranberry Marketing Committee decides to reduce the 2000 crop by 15%, beds affected with these symptoms may be ready to go.

STEVENS VINES NEEDED

We will need 14 tons of Stevens vines for the planting of both the North and South Bogs at Rocky Pond Bog in the Myles Standish State Forest. Because of the special nature of this project, the procurement of these vines needs to go out to bid. To obtain the total quantity of vines required, we do not necessarily have to purchase the vines from one source, as we realize some of you may not be able to provide 14 tons. Please send your bid (by May 1) including the quantity available, history of production, location of the bed(s), the date you will likely be pruning the vines, price per ton, any other specific information, and your name, address, phone and fax numbers to:

Dr. Richard T. Burke
Research, Grants and Sponsored Programs
University of Massachusetts
285 Old Westport Road
North Dartmouth, MA 02747-2300
Phone: 508-999-8042
Fax: 508-999-8868

We would like to get the vines around May 25 or so for planting very shortly thereafter. If you have any questions, please call me (508-295-2212, ext. 18) or Jeff LaFleur (508-295-4895, ext. 11) between April 8-16 when I will be on vacation.

FRANK L. CARUSO

PLANNING YOUR DODDER MANAGEMENT OPTIONS

Over the last two years, we have collected three data sets pertaining to dodder emergence patterns. In the first year, ten 5-gal buckets were planted with thousands of dodder seeds. The buckets were placed outside in the fall, and dodder emergence in the spring was monitored. In the second year, we again monitored the first set of buckets and 10 new buckets were established and monitored for dodder emergence in the spring. What we have seen is that the dodder emergence pattern was very similar for both experiments, even though the spring weather was very different. In all three observation sets, the first dodder seedlings emerged during the first week in April. Between the first week in April and the second week in May, about 10% of the dodder seedlings emerged. Then during the second week in May, there was a very rapid, large increase in the total number of dodder seedlings that emerged. This began leveling off around the first week in June. A second peak of dodder emergence occurred around the second week in June. The second peak was much smaller than the first, but was certainly substantial in terms of number of dodder seedlings that emerged.

What does this mean in terms of managing dodder? The most economical option is to get maximum benefit from a single herbicide application. Additionally, the herbicide application should provide dodder suppression for the longest period of time possible. Based on our most recent observations, it is best to wait for a period of 2 to 4 weeks after the first dodder seedlings have been observed on the bog before an herbicide application is made. Several natural mortality factors will prevent most of these early-emerging seedlings from successfully parasitizing a host.

By delaying herbicide application, you will reap two benefits. First of all, the herbicide will be present at maximum effectiveness during the period when most of the dodder seedlings are trying to emerge. Secondly, by waiting until a little later in the season, most of the herbicide will be retained in the upper portions of the soil layer (where the dodder seedlings are emerging). The herbicide will not be leached below the emergence zone by either rainfall or frost protection, which will result in at least 4 weeks of dodder suppression. Regardless of which herbicide you choose to combat dodder (there are two available again this year), you will obtain maximum effectiveness from a single application by delaying your application until as close as possible to the period of maximum dodder emergence.

TOM BEWICK
HILARY SANDLER

NEWLY REVISED BMP GUIDE AVAILABLE IN APRIL 2000

In 1996, we published the first 'Best Management Practices Guide for Massachusetts Cranberry Production', a series of 12 BMP fact sheets to be used as a basic guide for growing cranberries within modern environmental and social constraints. Fact sheets on Nitrogen and Phosphorus Management were added later. The BMP Guide has been used by growers and by the Conservation Districts and the USDA Natural Resources Conservation Service as part of the Farm Planning Process.

It was our intention to revise and expand the Guide periodically to encompass changes in cranberry farming practices. In 1999, we began the first revision process. With support once again from the Massachusetts Department of Food and Agriculture Agro-Environmental Technology Program (for printing costs), Hilary and I convened a group of growers, NRCS scientists, Station faculty and handler representatives to chose the BMPs to revise and new ones to add. Additional support was provided by CCCGA Environmental Committee and UMass Extension.

The group decided to retain the original BMPs for nutrient, disease, insect, and weed management, neighbor relations, prevention of fuel spills, and IPM. The BMPs for bog construction and renovation, erosion control, and sanding were chosen for revision. As a result of this process, we have produced a supplemental set of 15 BMP fact sheets to be added to the previous BMP Guide. Some are replacements and others are entirely new. Key features of the revised and expanded BMP Guide include expanded information regarding water use and protection (irrigation, water resource protection and enhancement, water control structures) and the handling and use of pesticides (chemigation, mixing, and loading, storage). In addition, we have produced new BMPs for the management of pest animals and harvest and post-harvest management.

Due to support from DFA, CCCGA, and UMass Extension, we will be mailing the packet of revised BMPs to Massachusetts growers free of charge. We anticipate mailing in April. At that time we will let you know which of the originals to discard and replace. Complete BMP sets will also be available at the Station. Massachusetts residents will again receive BMP packets free of charge ($10 plus postage for others).

CAROLYN DEMORANVILLE

LOW COST CRANBERRY MANAGEMENT

At the Station's Cranberry Production Training in January and at the CCCGA winter meeting in March, I spoke about considerations to keep in mind when trying to reduce costs or when managing a bog with minimal (or no)crop. If a bog is producing well above 200 bbl/A consider continuing with your previous management plan. If a bog is producing around or just above State average (135-150+ bbl/A) then the lost cost strategies below may work for you. If a bog is producing below State average, you may wish to consider managing for no crop in 2000 (see last section of this article).

Low cost management strategies

If you are planning to produce a crop but are looking to lower costs as much as possible, these suggestions may be useful. Certain activities can not be neglected if you expect to produce a normal crop. However, you may wish to consider the use of higher-risk practices that can lower costs but may reduce crop a bit. An example of such a practice is the use of late water (see the February 2000 newsletter and the Chart Book for more information on this practice).

Water management.

- Frost and irrigation must be applied as always.
- Flooding practices may help to lower management costs. In addition to late water, the harvest flood may be held for 4 weeks to control dewberry, cranberry girdler, and cranberry fruitworm. Short floods may be used for insect control but are riskier (consult Anne or Marty for help with these).

Pest control.

- Do not cut back on scouting to the point that outbreaks are missed.
- Evaluate everything in an IPM approach (benefit vs cost).
- Apply 2 cranberry fruitworm sprays, properly timed and then look for eggs.
- Control dodder but use no other pre-emergence herbicides.
- Use the lowest cost fungicides for fruit rot control and apply based on keeping quality forecast, rot history, and wet vs dry harvest.
- Use cultural management (improve drainage) for beds with Phytophthora.
- Consider late water.

Continued--

Fertilizer management.

- Compare costs of application methods.
- Compare costs of products. Slow-release products cost about 2x the regular granular price. You can reduce rates some (10-20%) but unless you think you will make up the rest of the cost in application savings,this may not be the material of choice. 12-24-12 with KCl is less expensive than the product with K_2SO_4 (considered preferable). Based on 1999 prices, I calculate that dropping the rate from 300 lb/A to 250 lb/A would allow you to use the premium product for the same price as the cheaper product at the higher rate. However, the KCl based product should pose no risk of crop reduction in the short term (2-3 year of use).
- Blended fertilizers are cheaper than ammoniated products but can distribute very poorly during application if not of the highest quality with very uniform particle size.
- Research has shown that the spring application and late season applications can be applied as liquid fish. Savings in application costs may make this cost effective. See the Chart Book (pg. 41) for rate information.
- In grower and research trials, substitution of 0-52-34 (10 lb/A foliar application at hook stage) for the spring application of 12-24-12 did not reduce yield. However, if spring growth is poor do not eliminate spring N.
- Do not use CaB unless you suspect poor fruit set is a problem.
- Do not use SulPoMag unless you have stressed (crunchy) vines or if soil test shows low K or Mg. If you do use it, 100 lb/A should suffice.

Management for crop elimination (plants and bog remain viable)

In order to remain classified as a farm for purposes of property taxes (Chapter 61A) and to qualify for the agricultural exemption for certain management activities, it is crucial that your operation not become classified as an abandoned bog. Normal and continued maintenance activities associated with preserving the beds for future production should suffice to keep an agricultural classification. However, a property must generate some gross income from farming in order to qualify for Chapter 61A classification. For further information on Chapter 61A issues, contact CCCGA or Massachusetts Farm Bureau.

There are three alternatives if you choose not to grow a crop on a bog:

1. Flooding to eliminate flowers (short or long flood in the summer);
2. Mowing to remove all flower buds;
3. Bog renovation (if you can afford it, this is an opportunity to replant to a more productive cultivar).

Short summer flood. If using this method, do not protect from frost in the spring unless a so-called 'black frost' (temperature at least 5º below tolerance, rapid temperature drop, low dew point) is predicted. This may eliminate some flower buds (depending on how the frost season goes). Time the summer flood to begin when most flowers have opened or are at the pinhead stage (unopened pods will survive the flood). Hold a deep flood for 7-10 days (minimum 4 days).

Traditional long summer flood. This flood will also control soil insects and briars (partial control of dewberry). Keep the bog well drained in the early spring. Flood on May 12 — remove the flood on July 20. This flood is very tough on the vines and will likely reduce crop next year as well. If you do not need to control the target pests, this flood is NOT recommended. Scout carefully for large cutworms after the flood. Use no fertilizer in the year of the summer flood.

Mowing the bog. Mowing will eliminate all crop this year. The new growth that follows mowing is vegetative and may set bud poorly so next years crop will also be reduced. A good crop in the third year should be expected.

Management Practices Checklist:

- ✓ Maintain dikes and flumes. Keep ditches clear enough to avoid drainage problems.
- ✓ Irrigate so that the plants are preserved. Use a tensiometer or water level float for scheduling. Take the opportunity to manage the water table so that rooting depth is increased. Production of deeper roots takes energy from other plant processes such as fruit production, but when crop is eliminated, this is not a problem. With deeper roots, the bed should be more productive in later years.
- ✓ Consider frost protection only when the prediction is for more than 5º below tolerance or a severe frost warning is issued for the uplands.

Continued--

- ✓ Scout for and control foliage chewing insects such as cutworms, army worms and especially fireworms.
- ✓ Control dodder. A short flood may work for this. Failing to control dodder will lead to run-away infestations and reduced plant vigor (poor bud production) for next year.
- ✓ Control diseases as needed, consider one fungicide application to prevent buildup of fruit rot fungi that may also cause upright dieback.
- ✓ Use 1/3 to 1/2 the fertilizer rate as that for a producing bog (none if using long summer flood). Split apply in late spring and mid-July.

CAROLYN DEMORANVILLE

**** HELP WANTED ****

Experienced cranberry grower/employee to assist in establishment and maintenance of containerized cranberry "bogs". The successful candidate will also participate in maintenance and treatment of greenhouse cranberry plants and work on other ongoing projects as needed.

I am looking for somebody with experience in cranberry growing, basic carpentry/construction skills, and experience operating tractors/bobcats, etc. This project involves constructing frames lined with landscape pond liners to hold bog units (approx. 4 x 4 ft) for flood treatments (carpentry/construction experience). The units will be established in the State Bog so that they can be irrigated and flooded. Cranberry sods will be removed from existing areas and transplanted into the containers (tractor/bobcat experience).

In a related study, we have established 1200 pots of cranberries in the greenhouse. This position will include working with these plants as well. Other responsibilities will include applying fertilizers to plots and gathering data in field trials.

Position available immediately until suitable candidate is found. Terms: $10/hour, up to 40 hours/week, flexible scheduling available, no benefits. If interested call Carolyn DeMoranville at 508-295-2212, ext. 25 for an interview.

FROST PROTECTION AND DRAINAGE

As springtime arrives and soil temperatures begin to climb, it is time to think about frost protection and soil moisture conditions during the frost season. Remember to refer to the Frost Protection Guide to determine the frost tolerance for your particular cultivar and development stage. On nights when temperatures are forecast to fall below the tolerance, it is important to monitor vine level temperature in the coldest area on your bed and turn the irrigation system on when temperatures drop to about 2-3°F above the tolerance. The system should then be turned off when the air temperature rises above the tolerance (usually just after sunrise).

An important consideration during frost season is maintaining adequate drainage in the root zone. As of March 27, 2000, soil temperatures at the 2-inch depth at State Bog were climbing above 50°F during midday. Since 50°F is thought to be the critical temperature for root growth to begin, it is time to start thinking about drainage during the frost season. Extensive frost protection required during spring 1999 led to water logged conditions on many beds well into the period when root growth began. Many beds that showed water stress related damage later in the summer had very shallow (~0.5 inch) root development. This shallow rooting was most likely caused by saturated conditions resulting from frost protection and/or rainfall. Roots will not grow in anaerobic conditions, and hence with a water table present, roots will only grow down to about 2-3 inches above the water table. It is important to try to maintain drainage in the root zone during the May/June periods to allow adequate rooting depth to be established.

The amount of leaf area development by mid-July has been found to be critical to the ability of an upright to support fruit development and the leaf area development is dependent on adequate root growth. It is critical to pay attention to the water table level in the center of beds since this is the most likely location for the highest water table. If you walk out onto your bed in the morning after running frost protection and find standing water near the center, you should make an effort to provide better drainage. This can be accomplished by keeping the ditches free of obstructions and dropping the ditch water level to increase the gradient for water draining from the bed.

BRUCE LAMPINEN

CHOOSING HERBIDIDES: CONSIDER COST AND TARGET SPECIES

Several pre-emergence herbicides are available for use in cranberry production. These include Casoron, Devrinol, Evital, and Kerb (Section 18 permit). Many of these materials are expensive to purchase and apply. Depending on the weeds that you are targeting on your bog, seriously consider the use of postemergence herbicides. These materials typically cost less than preemergence herbicides and can be more effective since they are applied directly to the target plant. Listed below are several available herbicides, lists of target plants (with postemergence alternatives in parentheses where appropriate), and cost comparisons.

Target plants for Casoron include:

• Asters, pitchforks, sorrel (consider postemergence applications of Stinger).

• Crabgrass, summergrass (consider postemergence applications of Poast on non- or producing bogs; Select or Fusilade on non-producing bogs).

• Dodder (consider pre-emergence applications of Kerb).

• Haircap moss, hawkweed, loosestrife, nut sedge, woolgrass (sedge), rushes, and ferns.

Target plant for Kerb is dodder. This is a Section 18 material. You need to obtain paperwork and 2000 label for use this season.

Cost comparison between Kerb and Casoron (per acre basis)

	Rate	Appl. labor	Total
Casoron	**$67 (40#)**	**+ $45**	**= $112**
Kerb	**$47 (1.5#)**	**+ $12**	**= $59**

Target plants for Devrinol include:

• Asters, pitchforks, sorrel, clover (consider postemergence applications of Stinger).

• Rice cutgrass, poverty grass, barnyard grass, corn grass or fall panicum (consider postemergence applications of Poast, Select or Fusilade).

• Soft rush (*J. effusus*), nut sedge.

Target plants for Stinger include:

• Wild bean, asters, pitchforks, sorrel, clover, smartweed, narrow-leaved goldenrod**.**

Cost Comparison between Devrinol and Stinger (per acre basis)

	Rate	Appl. labor	total
Devrinol	**$176 (75#)**	**+ $45**	**= $221**
Stinger (hand-wipe)	**$36 (0.5 pt)**	**+ $31[1]**	**= $ 67**
Stinger (power wiper)	**$36 (0.5 pt)**	**+ $10[2]**	**= $ 46**

[1] **2.5 hr @ $12.50 per hour**

[2] **0.75 hr @ $12.50 per hour**

Target plants for Roundup Ultra include most green plants. (non-selective postemergence material)

Target plants for Poast, Select, and Fusilade include many annual and perennial grasses. (selective postemergence material) Fusilade and Select may only be used on non-producing bogs. None of these materials may be applied through the chemigation system.

Cost Comparison between Devrinol and Poast (per acre basis)

	Rate	Appl. labor	Total
Devrinol	**$176 (75#)**	**+ $45**	**= $221**
Poast (spray)	**$12 (1 pt)**	**+ $25[1]**	**= $37**
Poast by air	**$12 (1 pt)**	**+ $35**	**= $47**

[1] **2 hr @ $12.50 per hour**

Cost Comparison between Roundup Ultra and Poast (per acre basis)

	Rate	Appl. labor	Total
Roundup (hand wipe)	**$10 (1:4)**	**+ $31[1]**	**= $41**
Roundup (power wiper)	**$10 (1:4)**	**+ $10[2]**	**= $20**
Poast (spray)	**$12 (1 pt)**	**+ $25[3]**	**= $37**
Poast by air	**$12 (1 pt)**	**+ $35**	**= $47**

[1] **2.5 hr @ $12.50 per hour**

[2] **0.75 hr @ $12.50 per hour**

[3] **2 hr @ $12.50 per hour**

Obviously, factors other than cost must be considered when making herbicide applications. For example, even though Kerb may be less expensive than Casoron on a per acre basis, Kerb should only be considered as a viable option on bogs that have a good coefficient of uniformity. I would be happy to discuss your weed management options with you. Please feel free to call me at ext. 21.

HILARY SANDLER

Registration Form for
Beginners Cranberry School
Tuesday, April 25, 2000 5-9 PM
Cranberry Station Library

Please register for the meeting using this form.

COMPANY_____

CONTACT_____

PHONE_____

NAMES OF ATTENDEES_____

_____

_____

_____

Attach additional sheets as necessary.

Return complete form with payment by **April 10th, 2000,** include check made out to **UMASS, $5 per person.**

Return to: Cranberry Experiment Station
P.O. Box 569
East Wareham, MA 02538

COOPERATIVE EXTENSION
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