



Cranberry Station Newsletter

February 2003

UMASS CRANBERRY STATION

1 STATE BOG ROAD

P.O. BOX 569

EAST WAREHAM, MA 02538

<http://www.umass.edu/cranberry>

NEW URL: !!!

NEW FUNGICIDE REGISTERED FOR FRUIT ROT CONTROL

ABOUND

I gave this report at our meeting in January. Here it is for those who were not present.

The 2003 growing season has an additional tool for the management of fruit rot. Abound F fungicide is specifically registered for the control of fruit rot, and for cottonball disease and Lophodermium twig blight, diseases that are not present in Massachusetts. This fungicide is in a group termed the strobilurins, fungicides that have an active ingredient that either is, or closely resembles, chemical compounds produced by certain wood-decaying Basidiomycete fungi (those producing mushrooms). These anti-fungal products help such fungi compete with other fungi for nutrients in their environment. The active ingredient in Abound is azoxystrobin. Azoxystrobin was selected from over 1,400 fungicidal compounds in the late 1980's. The first registration of the fungicide was on tomatoes in 1998, followed by numerous other registrations in the following four years. We conducted residue trials in cranberry in 1999 (as well as other sites in NJ, WI and WA).

Abound (1) has low acute toxicity and is non-carcinogenic and non-teratogenic; (2) is safe to non-target species and highly suitable for inclusion in an IPM program; (3) is not persistent in the environment; (4) has low leaching potential; (5) will not leave significant crop residues; (6) exhibits excellent crop safety (signal word is CAUTION); and (7) has a re-entry interval (REI) of 12 hours and minimal PPE are required.

Six applications are allowed, but no more than two consecutive applications are recommended. The pre-harvest interval (PHI) is 3 days. Applications can be begun at 5-10% bloom and repeated at 7-14 day intervals. The registered rate is 6.2 – 15.5 fluid ounces.

The fungicide has good 'rainfast' properties, and is retained primarily in the waxy cuticle of the treated

leaves, flowers and berries. It diffuses through the waxy cuticle to provide a uniform dose across the surface. It has 'surface systemic' activity; i.e., it can move from the treated side of the leaf to the untreated side. It prevents fungi from sporulating; consequently, it does not allow for secondary infections by the fungal pathogens. It is an excellent protectant fungicide when it is applied prior to an infection period. It has only limited post-infection (eradicant) activity against most fungi.

Because this is a fungicide that has a very narrow range of activity in the target fungi, the development of resistance to azoxystrobin by the fruit rot fungi is a very real and serious threat. Resistance has already been observed in some of the other crops where the fungicide is registered. We are not certain at this point which of the fruit rot fungi are more prone to resistance development. One of our research projects has field plots established in both Early Black and Crowley in State Bog. Abound was applied three times at the maximum rate to the same vines in 2001 and 2002, and will again be applied three times in 2003. The fungi in these berries will be cultured and assayed for possible reduced sensitivity to the active ingredient at the end of the growing season.

Due to the possibility of resistance development, Abound should be used sparingly and carefully to allow for its maximal effect on fruit rot. No more than two applications per growing season are recommended. Abound should be used for the first (if one application) or first and second (if two) applications. This targets the fungicide for application prior to fungal spore germination and initial infection. Resistance is more likely to develop when the fungicide is applied to the growing fungus. Hence, Abound should not be used for the later applications. The other fruit rot fungicides can be used for subsequent applications in the fungicide schedule.

Abound is highly phytotoxic to McIntosh apples. If there are McIntosh apple trees in the vicinity or on an adjacent property, the fungicide should not be used, or drift must be totally eliminated to avoid potential injury.

In field trials conducted in Massachusetts and New Jersey over several growing seasons, Abound has been shown to be inferior to chlorothalonil, maneb or mancozeb in the control of field rot and storage rot. Nonetheless, when used with these and the other registered fungicides, it will be an excellent addition to the fruit rot management scheme. The selection of the rate of Abound will depend on the history of fruit rot in the individual bed and on the final keeping quality forecast. As always, call me if you have any questions on the proper use of this new fungicide.

FRANK L. CARUSO
PLANT PATHOLOGY

Guidelines Available for Strawberries

Sonia Schloemann, Hilary Sandler, Jeff LaFleur, and Susan Phinney have put together guidelines for growing day neutral strawberries as an alternative crop in cranberry uplands. This work was supported in part by monies provided by the DFA AgroEnvironmental Technology Grants Program. Print copies are available upon request through Sonia (414.545.4347). Copies are also available (in PDF format) on the UMass Fruit Team's web site, <http://www.umass.edu/fruitadvisor>. Any other questions can be directed to Sonia or Hilary.

Request for Flood Sites

We need several research sites for 2003!! If you would be interested in trying the dodder flood or the short summer flood for weed control, (see next column) please contact Hilary (ext.21) or Joey (ext.27).

For the dodder study, we would need two pieces of bog with comparable dodder pressure. Preferably, they should be located near each other. We would probably come on-site about 3 or 4 times. For the summer flood, we would also need a pair of bogs, relatively comparable in weed populations. This project would only have us on-site twice during the year.

Thank you for thinking about participating in our research.

Hilary Sandler

Use of short and long-term floods for weed control in commercial cranberry production

H.A. Sandler and J. Mason

Supported in part by monies provided by EPA Region 1 Agricultural Initiative Grant Funds

Based on interactions with the AD Makepeace Company and the Slocum-Gibbs Cranberry Company, a project was started in 2002 to determine the efficacy of short-term floods (24-48 hr) for the control of dodder (*Cuscuta gronovii*) and evaluate the effect of a long-term summer flood on broadleaf weed populations.

Dodder Floods. Seven (7) paired sites were selected for the dodder study. Test sites were flooded for at least 24 hr and no more than 48 hr during the time period May 3-6, 2002. Floods went on slightly earlier than planned since the floods were actually put on these sites to help manage an infestation of black-headed fireworm.

Approximately 10 weeks post-flood, we inspected the entire bog for the presence of dodder and selected areas of representative dodder growth on each pair. Six 0.5 ft² quadrats were randomly placed on the bog and all dodder growth was removed from the uprights in the field (by hand) when possible. If the dodder was closely attached to an upright, the upright was cut and taken back to the lab. Each paired site was harvested on the same day. Fresh and dry weights were obtained for all samples.

There were some problems with the sampling procedure. Since the floods went out sooner than planned, we could not place a known amount of dodder seed on the bog prior to the flood. We had to collect from the infestations that were available. Often, a bog would have only a few patches of dodder (typically on the edge), and we would have to collect all of our samples from these few available spots. We also had no way of gauging the relative success of the flood. For example, stem weights were higher on G1 (flooded) compared to G2 piece (nonflooded: see page 4). Was this due to the failure of the flood or very high dodder pressure? Did the flood reduce the *potential* dodder pressure on G1? The use of the pouches would have aided in the assessment of the relative success of the flood. To better evaluate the project, we obtained historical information on the dodder populations for each member of the paired site.

Lower stem dry weights were collected on the flooded bog at three locations: A1, D1, and F1 (see table 1, page 4). In these three instances, the short-term flood worked well even though the historical infestation of dodder on the nonflooded was either equivalent to or less than the flooded piece. On B1/B2, the flooded piece had lower stem weights, though not statistically significant. This pair was considered to have moderate dodder pressure. In two instances, C1/C2 and G1/G2, the flooded piece had higher stem weights than the nonflooded piece. C2 historically has had low dodder infestations and this may account for the apparent “increase” on the C1 site. Similarly, G2 has been flooded for dodder control the past few years and likely had low dodder pressure, perhaps leading to apparent higher dodder stem production on G1.

Did these floods have any impact on the reproductive potential of dodder? Seed, from 6 random 0.5 ft² quadrats, was collected from 4 of the 7 paired sites. Seeds were hand separated from the capsules and counted. No effect of treatment was seen on the number of seeds produced. The impact of these short-term floods on the reproductive capacity of dodder should be explored further before conclusive statements can be made. Seed number may not be the best assessment of reproductive impact. For instance, no tests were run to determine any differences in seed viability.

Summer Flood. A 10-day flood was kept on a 2.3 acre Howes bog in South Carver, MA from July 2-11, 2002. A 0.6-acre Howes bog (directly across the dike road) was used for comparison. The grower had intended to keep the flood on longer, but unusually high temperatures and evidence of scum forced him to remove the flood early. In spite of this change, several positive results were noted. To evaluate species community composition, 10 random meter-square quadrats were placed on the flooded and nonflooded bog prior to the flood (June 20, 2002) and after the removal of the flood (July 24, 2002).

Identified plant species were assigned to a cover class (based on the percent of the ground that they covered). These cover class values were used to calculate several parameters: mean species value (MSV), total species value (TSV), number of species, and Shannon’s diversity index. MSV and TSV are indices that give an estimate of weed coverage.

Judging by MSV and TSV, the nonflooded bog had higher initial weed densities in general. All measured parameters were lower for the flooded bog after the flooding treatment. Percentage weed cover, number of weed species, and the diversity of the community were lower post-flood. No change in the measured survey parameters was noted for the nonflooded bog. Several weed species were dead or not detected after the flood. Species not detected post-flood: wild bean, asters, narrow-leaved goldenrod, chokeberry, and poison ivy.

Even though the flood was held for a shorter time than planned, the flood had a detrimental effect on several weed species and reduced overall weed coverage. Some negative impact of cranberry was noted (e.g., bog edges were severely impacted from the warm water). Surveys will be conducted in 2003 to determine any changes in percentage weed cover in the year following the flood.

Identified species included: *Acer rubrum* (red maple), *Apios americana* (wild bean), *Asters spp.* (aster), *Carex spp.* (sedge), *Cyperus strigosus* (sedge), *Euthamia tenuifolia* (narrow-leaved goldenrod), *Leersia oryzoides* (cutgrass), *Lysmachia terrestris* (yellow loosestrife), *Pyrus melanocarpa* (chokeberry), *Rubus hispoides* (bristly dewberry), *Smilax glauca* (silverleaf), *Spirea spp.* (meadowsweet or steplebush), *Toxicodendron radicans* (poison ivy), *Vaccinium macrocarpon* (cranberry).

Thanks to the AD Makepeace Company and the Slocum-Gibbs Cranberry Company for their excellent cooperation and commitment of resources with this research project.

Fresh fruit BMP

- A draft of a Best Management Practices guide for
- fresh fruit production was distributed at the Station’s
- January meeting in Plymouth. If you are a fresh
- fruit grower, I encourage you to read through the
- BMP and submit comments to me in the next few
- weeks. We hope to have a final draft available for
- discussion at our April meeting. Please help us to
- make this document as useful and accurate as
- possible. Carolyn (x25).

Table 1. Weight of dodder stems and seeds collected from 0.5 ft² quadrats on MA cranberry bogs that were flooded (F) or not flooded (NF) in 2002. Stems were collected 9 to 11 weeks post-flood. Seed samples were collected 19 to 20 weeks post-flood (N=6).

Location	Status	Dates (May)	Hours	Fresh stem Wt. (g)	Dry stem Wt. (g)	Seeds (no.)	Historical infestation
A1	F	3-5	36	3.53	0.90	575.8	high
A2	NF			5.10	1.42*	314.5	moderate
B1	F	13-15	48	5.14	1.51	234.0	moderate
B2	NF			7.88	2.10	242.7	moderate
C1	F	14-16	36	3.92*	0.92*	nd	high
C2	NF			1.57	0.42	nd	low
D1	F	3-5	36	0.59	0.16	111.8	low
D2	NF			3.83*	0.97*	308.3	low
E1	F	10-11	36	2.62	0.69	258.2	moderate
E2	NF			1.17	0.37	188.0	low
F1	F	10-11	36	1.72	0.41	nd	high
F2	NF			3.50*	0.71*	nd	low
G1	F	6-7	24	2.00	0.54*	nd	moderate
G2	NF			1.01	0.30	nd	low

* indicates significant difference between treatment pairs at P<0.05 according to Student's t-test.
nd = no data collected.

Table 2. Effect of 10-day summer flood (July 2-11, 2002) on several plant community parameters on a commercial cranberry bog (N=10).

Measured parameter	Unflooded		Flooded	
	Pre	Post	Pre	Post
MSV	1.11	1.17	0.91	0.67*
TSV	24.50	25.70	20.00	14.70*
Species richness	.30	6.00	4.50	2.50*
Diversity	1.61	1.59	1.22	0.73*

* denotes significant difference between pre- and post-flood values at P<0.05 according to Student's t-test.

MSV=mean species value; coverage value divided by the number of species in the treatment.
TSV= total species value; sum of the coverage values for all plots.
Species richness=mean number of different species present per plot.
Diversity=Shannon's diversity index.

Southeastern Massachusetts Agricultural Partnership 2003 Business Workshop Series

Southeastern Massachusetts Agricultural Partnership (SEMAP) and the Cape Cod Cooperative Extension Service recently announced a series of agricultural business courses designed for both the experienced and beginning farmer:

The Business Overview Series - consists of four workshops:

Business Law: Things You Should Know	February 11, 2003
Agricultural Marketing: Sell What You Sow	February 23, 2003
Computers in Agriculture – The Basics	March 4, 2003
Computers in Agriculture – More Advanced Applications	March 11, 2003

Additional Business Workshops - building on the basis of topics presented in the Overview sessions, two additional workshops will focus on :

“Farm Works” a comprehensive computer software package	March 12, 2003
Employee and workforce development.	February 27, 2003

Space may still be available in these workshops (\$10 each). All courses will take place at the Cranberry Station. For detailed course descriptions, please visit the SEMAP website: www.umassd.edu/semap.

If you have not signed up and are interested - call Rick Connole, SEMAP, (508) 295-2212 ext. 50 or email rconnole@umassd.edu to check on availability. Original deadline to register was February 10.

Help wanted

Bookkeeper for the Cranberry Station
Part-time, year-round

Duties: Under the direction of the Station Director, perform bookkeeping and related duties including monitoring and reconciling account statements for all unit operating accounts and grant accounts; assist in purchasing and receiving of goods (including preparation of purchase orders); prepare personnel requisitions and personnel action forms; assist in preparation of unit and grant budgets; and perform other related tasks as required.

Qualifications: Ability to work with figures and reconcile financial statements, basic typing, proficiency in e-mail and Excel or similar spreadsheet program, good interpersonal skills.

Terms: Available mid-March, up to 25 hours/week, \$12.50 per hour, no benefits.

To apply: Call Deb at x10 to request a job description and application form or stop by the Cranberry Station.

UMass Extension Mailing Signoff

Dr. Carolyn DeMoranville, Director

Pest Management Workshop Wareham Elks, April 9th

The Cranberry Station will host a grower meeting at the Elks Lodge in East Wareham, from 8:00 am to Noon, on April 9, 2003. The meeting will focus on pest management and environmental quality issues — 4 pesticide credits will be available. The cost is \$25. Tentative agenda is:

- Pesticide registration - Section 18s and the IR-4 Program
- Dodder Management
- Newly registered pesticides - how to use them effectively
- Insect Management in 2003
- Fruit rot management - designing a fungicide program in concert with the KQF
- Fresh fruit best management practices
- Managing phosphorus fertilizer — impact the crop, not water quality

**BE SURE TO RETURN
THE REGISTRATION FORM ON
PAGE 6 BY APRIL 2, 2003**

Registration Form for Pest Management Workshop
Wednesday, April 9, 2003
8:00 AM - NOON
Wareham Elks Lodge

Please register for the meeting using this form.

COMPANY _____

CONTACT _____

PHONE _____

NAMES OF ATTENDEES _____

Return complete form with payment by **April 2nd, 2003**, include check made out to **UMASS, \$25 per person.**

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

Attach additional sheets as necessary.

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