DISEASE CLINIC HAS NEW DIAGNOSTICIAN

Sr. Mary Francis Heimann, Distinguished Outreach Specialist and director of the Disease Clinic in the Plant Pathology Department at the UW-Madison will be retiring July 1 after more than 20 years of service. As her replacement, we are pleased to have Dr. Brian Hudelson on board as of June 1. Brian was hired after interviewing highly qualified applicants from around the U.S. and Canada.

Brian earned his B.S., M.S., and Ph.D. degrees from UW-Madison. His B.S. is in Botany, Bacteriology, and Molecular Biology; M.S. in Biometry; and Ph.D. in Plant Pathology. He has practical experience with a wide range of pathogens on diverse crops. His degree work focused on bacterial diseases of beans. More recently he has done research, disease diagnosis, and outreach teaching on ginseng, field crops, and forage crops. Dr. Hudelson has been an instructor for IPM Scout Schools and Plant Disease Short Courses. He has experience with pesticide application and is knowledgeable pesticide laws and regulation.

We expect that with his broad background, Brian will hit the ground running in the disease clinic. However, it is a difficult job (identifying any problem on anything in any condition that anyone sends!), so please be patient as the clinic goes through the transition from Sr. Mary to Brian. I stop by the clinic frequently to check up on fruit samples and provide advice as needed. If you have samples to submit, the best way is to go through your county Extension office because they can help you with the paperwork and shipping. If you send samples directly, mail to: Extension Plant Pathologists, Disease Clinic, 1630 Linden Drive, Madison, WI 53706. DO NOT put my name on the package—if I'm out of town, nobody will open it, and it will sit there ignored until I return! Include Feel free to call me if you have special concerns or questions about your problem.

Patty McManus, UW-Madison, Extension Plant Pathologist

NEWSLETTER ON THE INTERNET

This newsletter is now on the Internet. The URL is:

www.hort.wisc.edu/cran/

I will try to get each edition posted as soon as the paper version is sent off for copying. Provided I meet my own schedule the Internet version should be available first.

The newsletter can also be received via e-mail through the cranberry-list e-mail list. If you would like to be included send me an e-mail—trroper@facstaff.wisc.edu

Teryl Roper, UW-Madison, Extension Horticulturist.

AG CLEAN SWEEPS PLANNED

Clean Sweep programs will be held in several counties this year along with several permanent sites that will operate throughout the year. Following are cranberry counties and locations for 1998.

County	Location	Dates
Waushara	Wautoma fairgrounds	June 12-13
Waupaca	Co. PTF, Little Wolf	June 11
Wood	Marshfield fairgrounds	July 24-25

Several permanent locations are also available for cranberry growers.

Counties	Location	Hours
Lincoln Marathon	Wausau	2 & 4 Fridays from 2-7 pm. 2 & 4 Sat. from 9 am- 2 pm
Northwest Reg. Planning Council	29 locations between 4/30 & 9/18	Call Dale Cardwell 715-635-2197 for details

Please avail yourselves of these clean sweeps to remove old or unusable pesticides from your marshes. Doing so will increase your safety and remove a great liability from your property.

PESTICIDE PHYTOTOXICITY

Here are a few hints on how to avoid plant injury or phytotoxicity when using spray equipment and choosing pesticide formulations.

Common causes of phytotoxicity

Oil based formulations such as Pyrenone, Diazinon AG500, and Lorsban 4E may cause plant injury when applied at low gallonage. This condition is classified as phytotoxicity.

Every year growers report cases of burned foliage or fruit spotting after the application. Methods of application involve booms, misters and aircraft. Common conditions for injury usually involve application overlap, extreme heat and dry vines.

Use Special Care

Be especially careful when using mister applicators. The extreme force of air currents generated by misters can actually cause the tender new growth to be bent backwards and expose the most susceptible plant parts: the less waxy underside of the leaves as well as hooks and young fruit. Cranberry leaf undersides and hooks are particularly susceptible to chemical injury early in the season when new growth is tender.

Most pesticides formulations contain adjuvants such as stickers or spreaders to improve effectiveness. Adjuvants can also be added by the applicator to the tank mix. Some pesticide labels recommend this, but not all. Read the label or contact your chemical dealer about adjuvant selection if you are not sure.

Try to avoid adding adjuvants such as stickers when using oil-based products. Not all adjuvants assist pesticides in spreading evenly across the plant's leaf surface and thus can result in concentrated spray droplets that bind to the leaf surface. These droplets may cause some plant injury.

Also, remember that if you do add adjuvants that are not recommended on the label, it is likely that the manufacturer will no longer be financially responsible for any associated plant injury. Consult your product label for the correct rates and any environmental precautions.

Caution with tank mixes

Use caution in tank-mixing pesticides as well as adding adjuvants. The combined effects of two or more

products can cause plant injury. This can occur when the different products are incompatible and will not mix properly. If you must apply two products at the same time, mix the two products together in a jar and see how well the products mix. If you see separate layers, gelling, or solid particles forming, do not use that tank mixture. The few minutes spent performing a jar test can save hours of cleaning clogged sprayer equipment and prevent possible plant injury. Compatibility charts are available. Contact your dealer.

Weather and moisture play a role

Try to avoid applying pesticides during the heat of the day or on mornings when extreme temperatures are predicted later that day. Try to make applications while the vines are still damp. This will aid in product dispersal across the leaf surface and reduce the risk of pesticide related injury.

You may consider applying products on mornings after rainfalls, irrigation or heavy dews. Any additional moisture on the vines should help reduce the risk of injury. If the vines are completely dry consider running your irrigation systems 10-15 minutes beforehand.

Choice of formulations

To minimize the risk of plant injury consider using wettable powder or water based products when available. Wettable powders and water-based products are generally safer than oil-based products and should provide the same amount of pest control. Many manufacturers offer different formulations of their products and you should be able to find the one that fits your needs.

One example of this would be using the wettable powder or the new water-based formulations of diazinon instead of the oil-based formulations like AE or AG500. The water-based formulation has reduced risk of phytotoxic effects and is also somewhat safer to those who handle the product.

Leroy Kummer, Ocean Spray Cranberries.

It is one thing to show a man that he is in error, and another to put him in possession of truth.

John Locke

STINGER & EXPORTS

The downside of a global economy is inconsistency of regulations among different political entities. Stinger is registered for cranberries in the U.S. and Canada has a tolerance for cranberry. Fruit that is destined for marketing in the U.S. or Canada should have no problem with Stinger residues. Shipping fresh fruit treated with Stinger outside the U.S. and Canada could pose a problem. It is unlikely that residues would remain in juice or juice concentrate. Contact your handler for details about residues and their marketing strategies before making Stinger applications

Teryl Roper, UW-Madison, Extension Horticulturist

I place economy among the first and most important virtues, and public debt as the greatest of dangers to be feared. To preserve our independence, we must not let our rulers load us with perpetual debt. We must make our choice between economy and liberty or profusion and servitude.

Thomas Jefferson

MANAGEMENT FOR BUMBLE BEES: FIELD HIVE TRIALS AND COLONY ENEMIES IN CRANBERRY AREAS

Rod P. Macfarlane, *Buzzuniversal*

Summary

Bumble bee use of field hives was poor in 1995, except for one site. To ensure full occupation in a typical season hives should be out in the field by 20-25 April in central Wisconsin and the start of May in N. Wisconsin. The economics of making hives compared with the purchase of commercially reared colonies is often unfavorable. The odd exception may occur in central Wisconsin, where there is a good bumble bee population supported by a favorable sequence of food supply before the cranberries flower.

Populations of natural enemies of bumble bees were often favorable. There were few cuckoo bumble bees. Entry of reared colonies by the bumble bee wax moth was late enough in the season to allow for new queens to be "reclaimed" from the colonies.

Natural enemies of bumble bees

Dried fruit moth *Vitula edmandsii* was the most numerous insect in abandoned reared *B. impatiens* colonies. Colonies in hives with furrowed cardboard retained many *V. edmandsii* in the furrows and around the hives. Most *V. edmandsii* larvae had died during winter probably due to severe cold, but there were still plenty to reinfest bumble bee colonies in 1995. Colonies supplied by Kopperts had no cardboard in or around them and had no dried fruit moths. The dried fruit moths pupated at the end of May and early June and emerged between 11 and 20 June. The earliest moths seen in colonies were at Cutler Cranberry on June 27 th, where bumble bee remnants and presumably *V. edmandsii* from 1994 had not been removed. Pheromone traps for dried fruit moth placed out at four Cranmoor marsh sites from June 13 had not recovered any moths by July 10. At few white ?*Apanteles* pupae were at all sites and 25 near Valley Junction. Over 32 *Apanteles nephoptericis* were recovered from seven old *B. impatiens* colonies. All *Apanteles* had emerged by 4 June. Abandoned remnants of reared bumble bee colonies must be burnt by about mid May in Wisconsin to avoid extra contamination of bumble bee colonies mainly from the dried fruit moth.

By July 15, when reared colonies were being removed from the Fanning cranberry marsh there were Indian meal moths *Plodia interpunctella* (5 of 35 reared colonies) and only two dried fruit moth (one colony). At Dexterville, there were one Indian meal moth and two dried fruit moths among 8 colonies. Over 20 pupae of the bumble bee brood fly *Brachicoma* emerged between 4 and 12 June at field temperatures. It seems that if reared bumble bee colonies are recovered promptly from cranberry marshes after pollination then there are few depradators of any species to remove.

Mice entered and consumed the remnants of a few colonies supplied by both Biopol and Kopperts, because no mice excluders were applied to the entrances of the hardboard shelters supplied to growers. Racoons disturbed 2-3 hives at Bartlings and at the Brockman marsh. These attacks accounted for the loss of one of the colonies started in the hives. Thus reared colonies of bumble bees will not produce

the full quota of new queens unless they have mouse excluders at their entrances. Field hives should preferably be of wood or another solid material and their lids must be held on firmly especially where there are racoons.

Acknowledgments

The Fannings, Dan Brockman, Ryan Walker (Cranmoor area) and Steve Gerbhart made up an appreciable number of hives to test for occupation by bumble bees. Finance from Ocean Spray, the Cranberry Institute, the Wisconsin Cranberry Board, and assistance from Ryan Walker with accommodations and the temporary loan of a vehicle all aided this study.

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It is easier to collect money than to spend it wisely. *Author unknown*

TEMPERATURE GRAPHS

The graph of degree days on the back cover compares this year with last. Based on the thermal time calculation we used (modified base 45), this year is about one month ahead of 1997. Is everything about this year ahead of last by a month? No, a given kind of thermal time works for only one or a few organisms or processes. In fact, we are not even very sure that this modified base 45 calculation is really that useful for cranberry development. The observations and analysis are not yet available.

The data that we used to create this graph was from the automated stations operated by the National Weather Service and by state and federal aviation agencies. We are continuing to study if this data source is adequate for thermal time measurements in Wisconsin, and how the observations compare with the manual measurements made by volunteers for decades.

Bill Bland, UW-Madison, Soil Science

SAFETY SEMINAR FOR SUMMER YOUTH HELP PLANNED

An afternoon seminar for youth summer employees on cranberry marshes will be held on Wednesday June 17 from 2:00 to 4:00 p.m. at Lake Dexter County Park. Lake Dexter County Park is located north of Hwy 54 about ¾ of a mile west of Hwy 80 on the west shore of Lake Dexter. We will meet in the pavilion at the park. In order to plan sufficient materials and refreshments we ask that you call the WSCGA office (715-423-2070) and let them know how many youth from your operation will attend. This safety seminar is sponsored by the University of Wisconsin-Extension and the Wisconsin State Cranberry Growers Association.

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