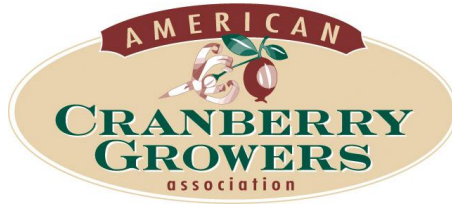
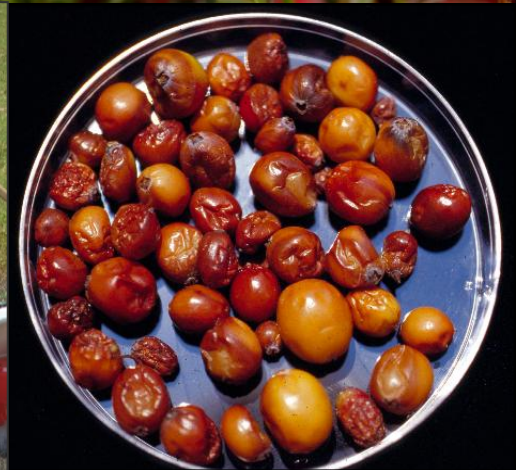


2009 Annual Winter Meeting of the American Cranberry Growers Association



Rutgers Cooperative Extension of Burlington County

Thursday, January 22, 2009



Presentation Summaries

**American Cranberry Growers Association
Annual Meeting Agenda
Rutgers Cooperative Extension of Burlington County
Thursday, January 22, 2009**

8:00 -8:30am **Registration and Coffee**

8:30-8:40 **Welcoming Remarks and Election of New Officers** – *Stephen V. Lee IV, President, ACGA*

Treasurer's Report- *Shawn Cutts Treasurer, Board Member, ACGA*

8:40-9:10 **Weed Control in Cranberries** *Brad Majek, Rutgers University*

9:10-9:40 **Insect Update and Management** *Cesar Rodriguez-Saona, Rutgers University*

9:40-10:10 **USDA Specialty Crop Research Initiative: Breeding and genetics of fruit-rot resistance and polyphenolics in the American cranberry** *Nicholi Vorsa, Jennifer Johnson-Cicalese, Rutgers University*

10:10-10:25 Break

10:25-10:55 **New Developments on Fairy Ring Research** *James Polashock, USDA-ARS*

10:55-11:25 **2008 Revisions to the New Jersey Pesticide Regulations Impacting Cranberry Growers** *Patricia Hastings, Rutgers NJAES Pest Management Office*

11:25-12:00, **Pesticide/Farm Safety** *Ray Samulis; Burlington County Agricultural Agent, Rutgers University Cooperative Extension*

11:55-12:05 **CORE credits**

12:05-1:00 Lunch

1:00 ACGA Public Relations Committee Update

Adjournment-ACGA Board of Directors Meeting

INSECT UPDATE AND MANAGEMENT

Cesar Rodriguez-Saona, Elizabeth Bender, and Robert Holdcraft

The following are the highlights of the 2008 growing season:

- In 2008, three new insecticides became registered in cranberries: Avaunt, Assail, and Delegate. We conducted several field and laboratory studies with these insecticides and results will be presented at the meeting.
- Early in the season, we observed high numbers of gypsy moth. Most growers sprayed at least once pre-bloom for this pest. This marks the third consecutive year of gypsy moth infestation.
- Besides high gypsy moth numbers, the 2008 cranberry season was very quiet as far as insect problems. However, as indicated above, we need to be aware and stay on top of several insects currently considered secondary pests in NJ cranberries, such as cranberry fruitworm and bunt-nosed leafhoppers, to prevent them from reaching major pest status. Growers also need to continue to monitor for *Sparganothis fruitworm*, spotted fireworm, and soil pests (i.e., grubs, rootworm).

Cranberries serve as host for a diverse group of insect pests that feed on all parts of the plant (buds, flowers, leaves, fruit, root, and stem). Insect management in cranberries has relied on broad-spectrum insecticides. These chemicals proved effective against most pests; however, environmental and health risks create public concerns. In addition, use of few insecticides with the same mode of action (i.e., cholinesterase inhibitors) threatens the development of resistant pest populations. Broad-spectrum insecticides may also interfere with the action of biological control agents and inhibit pollinators. Currently, organophosphates and carbamates are being reassessed under the *Food Quality Protection Act* (FQPA).

Since implementation of the FQPA in 1996, the cranberry industry has been investing significant resources towards the registration of new insecticides. New classes of selective, “reduced-risk” insecticides such as Confirm 2F and Intrepid 2F proved successful for control of major lepidopteran pests in cranberries, and are being used by New Jersey cranberry growers. Both Confirm and Intrepid are insect growth regulators. Recent growers’ spray records show that the number of insecticide applications in cranberries ranges from one to two a year in New Jersey, with almost half of growers using at least one selective reduced-risk product. Although cranberry growers are using reduced-risk products for insect control in New Jersey, most use only Confirm or Intrepid. Heavy reliance on insecticides with a single mode of action raises resistance management issues.

Last year three new reduced-risk insecticides: Avaunt, Delegate, and Assail, became available for use in cranberries.

Avaunt (Indoxacarb, DuPont) was registered in cranberries in 2007. Avaunt belongs to a new class of insecticides called the oxidiazines. It works by inhibiting sodium ion entry into the nerve cells that results in paralysis and death of the targeted pest. Avaunt has broad-spectrum activity, with an excellent safety record against non-target organisms. This insecticide has been granted a reduced-risk status.

Delegate (Spinoteram, Dow AgroSciences) is derived from fermentation of *Saccharopolyspora spinosa* (bacteria). It has both contact and stomach activity. Delegate is highly effective against lepidopteran pests. Our 2007 studies showed Delegate to be highly effective against gypsy moth, spotted fireworm, and *Sparganothis* fruitworm under laboratory conditions.

Assail (Acetamiprid, Cerexagri-Nisso) is a new neonicotinoid insecticide with broad-spectrum activity. Our 2007 results showed Assail to have high toxicity against gypsy moth, and moderate-high toxicity against spotted fireworm and *Sparganothis* fruitworm in laboratory assays.

Breeding and genetics of fruit-rot resistance and polyphenolics in the American cranberry

Nicholi Vorsa, Jennifer Johnson-Cicalese, Ajay Singh, Mariusz Tadych,
Dept. of Plant Biology and Pathology, Rutgers Univ., Marucci Center, Chatsworth, NJ
James Polashock, USDA-ARS, Chatsworth, NJ
Kim Patten, Washington State Univ., Long Beach, WA

Cranberry fruit rot poses a serious economic threat to US cranberry growers and is increasing in severity and scope.

- In New Jersey, crop losses of 25% are common even with a full fungicide regimen.
- In Wisconsin, which represents 60% of US production, fruit rot was not a concern until the last decade. Now, there are numerous reports of severe fruit rot, particularly ‘early rot’, which previously was only found in eastern states.
- Since fruit rot pressure is most severe in New Jersey, our program provides the best site for breeding of fruit rot resistance in cranberry.
- We have identified multiple sources of broad-based field fruit rot resistance (FFRR). From initial crosses we have established that FFRR is transmitted to progeny, and appears to be heritable.

Thus, the **ultimate objective of this project** is to develop high yielding cranberry varieties with increased levels of FFRR, and enhanced polyphenolic profiles that are beneficial to human health. These improved varieties will enhance the economic and environmental sustainability of U.S. cranberry production.

Aims of the project:

- Estimate field fruit rot resistance (FFRR) heritability and introgress FFRR into high yielding diverse genetic backgrounds with superior polyphenolic content;
- Determine the relationship of polyphenolics with FFRR during the flowering and fruit development phase, and determine antimicrobial activity of extracts in culture;
- Identify molecular markers (QTLs) linked to FFRR;
- Determine the correlation between horticultural traits (yield, establishment, berry size) and polyphenolic profiles;
- Evaluate breeding material in variable climates in the U.S. (WI, WA, NJ) and determine the effect of climate on polyphenolic profiles.

A project funded by the Specialty Crop Research Initiative, USDA

NEW DEVELOPMENTS IN FAIRY RING RESEARCH

James Polashock, Jennifer Vaiciunas, and Peter Oudemans

Fairy ring is a common disease affecting cultivated cranberries in New Jersey and Massachusetts. The disease can cause significant vine dieback and yield loss. Fungicide control is not very effective and the causal agent is unknown. Affected areas spread over the bogs for years as an advancing 'ring' of symptomatic vines. The first step in developing a more effective control program is to positively identify the casual agent. Symptomatic runners with 'infection pads' have been collected from several active fairy rings. Infection pads are specialized fungal cells that serve as attachment and penetration points on the plant. Further examination revealed fungal strands growing between affected plant cells. The fungus was isolated and tentatively identified as *Helicobasidium* sp. based on DNA sequence analysis. This fungus causes a disease commonly referred to as violet root rot. It has been reported on crops such as carrot, alfalfa and apple. Confirmation of this fungus as the casual agent of this disease is nearly complete. Fungicide trials over the past two years have shown increased efficacy in applications with higher water volume. New tests will be set up to evaluate different fungicide as well as different application methods. Because the fungus is typically found on runners 5-15 cm below the soil surface, control with fungicides is problematic. An alternative method of control may be through the use of fungal viruses. Some pathogens can be debilitated by viruses to the point where they can no longer cause disease. Some species of *Helicobasidium* are known to contain debilitating viruses and show promise for control. If successful this method could provide an effective long-lasting control. In a preliminary screen of cranberry isolates, we identified a double-stranded RNA virus. Further screening of additional isolates is underway.

Overview of the 2008 New Jersey Pesticide Regulation Revisions Impacting Cranberry Growers

Patricia D. Hastings, Pesticide Safety Education Program Coordinator; Pest Management Office; New Jersey Agricultural Experiment Station, Rutgers Cooperative Extension

Introduction

The New Jersey Department of Environmental Protection Pesticide Control Program (NJDEP) regulates the use of pesticides in the Garden State. State pesticide control regulations (NJAC 7:30) outline the requirements of the program. Revisions to these regulations were finalized and published in the New Jersey Register on May 19th 2008.

Overall, these revisions streamline and standardize the processes of certification and licensing for New Jersey; as well as the notification, posting, and record keeping of pesticide applications. An overview of key changes to the pesticide control regulations pertinent to cranberry growers will be presented.

Certification and Licensing

The regulations eliminate the \$10 fee for license exam sign-up. However there is now a \$50 fee if one misses a scheduled pesticide certification exam, without just cause. The license year for all applicators, operators, and dealers now uniformly ends on October 31st.

Record Keeping

In New Jersey, all licensed pesticide applicators and dealers who store pesticides are required to maintain a storage inventory and send it to their local fire department annually before May 1st. This list should include the pesticides stored or likely to be stored during the license year. NJDEP regulations now specify that you must include a written description or diagram depicting the exact location of all pesticide storage areas.

All licensed pesticide applicators in New Jersey are required to maintain application records of any pesticide applied, whether it is a restricted or general use pesticide. The revised regulations now include the requirement for recording the specific 'recipe' used for a pesticide mixture. 'Recipe' means the total amount of pesticide concentrate and the total amount of diluent mixed together, when required by the pesticide's label. If the label specifies a rate per given area, regulations require to also record the size of the area treated.

Previously, Jersey applicators were required to calculate and record the exact formulation per each application. This change in the regulations simplifies record keeping for multiple applications from a single batch mix. For each application made from this batch, simply record the 'recipe' (or a symbol or cross reference to it) you used to make this pesticide mixture. Unnecessary math for applicators and NJDEP inspectors is avoided. Templates for this new requirement are available on both the NJDEP and Rutgers NJAES websites.

Additionally, licensed pesticide applicators must keep listings of pesticides applied as well as record of any training.

For Further Information

Contact the NJDEP Pesticide Control Program by phone at 609-984-6568, or consult the New Jersey pesticide control regulations online (see www.nj.gov/dep/enforcement/pcp/pcp-regs.htm).

Rutgers Cooperative Extension assists the NJDEP in providing outreach resources such as study manuals for certification exams and recertification courses. For resources specific to pesticide applicator training, see the NJAES Pest Management Office website at www.pestmanagement.rutgers.edu/PAT/index.htm, or contact us by phone at 732-932-9802.

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