

1999 Research Projects Address Immediate and Long-term Needs

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Commodity Shines in Research Support

When you scan the list of research projects listed below what strikes you first? The number of projects? The range of topics? The number of sponsoring organizations? All of the above?

Cranberry is a minor star in the North American agricultural universe by most measures (compared to corn, wheat and soybean, for instance, which are planted on nearly three-hundred million acres in the U.S. and Canada). But cranberry growers, handlers and associations outshine most commodities when it comes to supporting agricultural research.

The Wisconsin Cranberry Board (WCB), fueled by a ten cent per barrel check-off and burgeoning production figures, is the biggest player in the commodity-based funding picture. The WCB funded twenty-five 1999 research projects to the tune of \$233,000. Although lower in total funding, associations and councils in New Jersey, British Columbia and Québec also contribute at per-barrel levels similar to their Wisconsin brethren. Massachusetts, Oregon and Washington State all have active research programs as well.

On the industry side of the ledger, Ocean Spray Cranberries, Inc. is a very significant research sponsor. Ocean Spray's Outside Research Grant Program, which is coordinated with ongoing in-house research and development, has funded more than thirty projects for the 1999 field season.

The Cranberry Institute, supported by eight Supporting Members¹, continues to focus on reduced-risk pesticide evaluation and registration, pheromone-mediated mating disruption of *Sparganothis* fruitworm and blackheaded fireworm, and biological control of pests. CI funding for 1999 is set at \$159,800.

Scientists Make Support Work

The commodity is also fortunate to have some of agriculture's best scientists in our camp. We have men and women working in concert with growers to crack the hardest nuts in cranberry production. There are researchers who are working on immediate commodity needs – such as conducting IR-4 residue trials to begin pesticide registration of new products. There are some working on mid-term needs – such as implementation of new insect control strategies, including pheromone-mediated mating disruption and biorational pesticides. And then there are others conducting experiments which poke at the edge of cranberry knowledge – including geographic information systems and varietal improvement.

Many researchers have been very successful at receiving grant money from outside the commodity (see insert). These grants can be very competitive. They also tend to be in healthy portions and support long-term goals of sustainability. And – bottom line – the grants make grower money go further.

Funding Agencies Act in Coordination

All told Cranberry associations, councils and foundations provide approximately \$400,000 for research. Ocean Spray and the Cranberry Institute funds, when combined, nearly match that amount. All that hard-earned cash is spent on high-priority research topics set by growers through committees like the Institute's Environmental Research Committee, the Wisconsin Cranberry Board and CCCGA's Research Committee.

Research coordination, therefore, is very important – particularly to growers who want to be assured that no duplication is occurring between regions. Every penny is important. This past winter an effort to better coordinate the research funding decision-making process was made by all the major funding organizations. While CI acted as the clearing house for research proposal information, proposal coordination could not have been done without the leadership provided by Joseph DeVerna, Ocean Spray Agricultural Research, Tom Lochner, WSGCA/Wisconsin Cranberry Board, Jeff LaFleur, Cape Cod Cranberry Growers Association and others across the U.S. and Canada.

¹ Atoka Cranberries, Cliffstar, Decas, Eagle River, Hiller, Northland, Ocean Spray and Oregon Cranberry Co.

Fortunately there's a lot of organizations funding cranberry research. Unfortunately, to save space, we have to use abbreviations in the research project tables. Abbreviations are listed alphabetically in Table 1.

Table 1. Funding Organization	Abbreviation
Agriculture and Agri-Food Canada	AAFC
BC Cranberry Growers' Association	BCCGA
Cape Cod Cranberry Growers' Association	CCCGA
Clean Sweep Cranberry Consulting	CSCC
Club d'Encadrement Technique Atocas Québec	CETAQ
Cranberry Country Bird Banding Project	CCBBP
Cranberry Institute	CI
E.S. Cropconsult Ltd.	ESC
Institut de Recherche et Développement en Agroenvironnement (Québec)	IRDA
Interregional Research Project Number 4 (minor crop pesticide registration in the US)	IR-4
Massachusetts Cranberry Research Foundation	MCRF
Massachusetts Department of Food & Agriculture	MDFA
Ministère de l'Agriculture, des Pêcheries et de l'Alimentation de Québec	MAPAQ
National Science and Engineering Research Council (Canada)	NSERC
NJ Blueberry Cranberry Research Council	NJBCRC
Ocean Spray Cranberries, Inc.	OSC
Oregon Cranberry Growers' Association	OCGA
Québec Cranberry Growers Association	OCGA
Science Council of British Columbia	SCBC
United States Department of Agriculture – Cooperative State Research Education & Extension Service	USDA - CSREES
University of Massachusetts - Dartmouth	UMD
University of Wisconsin Pesticide Use Risk Reduction Project	UW-PURR
USDA Sustainable Agriculture Research & Education	SARE
Washington State Commission on Pesticide Registration	WSCPR
Washington State Cranberry Commission	WSCC
Wisconsin Cranberry Board	WCB

Table 2. Entomology			
Name	Affiliation	Project Title	Funded by
Dr. Anne Averill	UMass-Amherst	Biology and Management of Cranberry Weevil	CCCGA, CI & OSC
Dr. Anne Averill	UMass-Amherst	Sparganothis Fruitworm Management	MCRF
Frank Drummond, Connie Stubbs and Steve Woods	U of Maine	Impact of herbicides on beneficial insects of blueberry and cranberry	SARE
Dr. Sheila Fitzpatrick	AAFC	Implementation of Pheromone-based Mating Disruption of Blackheaded Fireworm in British Columbia	3M Canada, BCCGA, CI, & OSC
Dr. Sheila Fitzpatrick	AAFC	Improving Pest Management Strategies for Cranberry Girdler in British Columbia	3M Canada, AAFC, BCCGA, CI & OSC
Dr. Deborah Henderson	ESC	Implementing Biological Control of Blackheaded Fireworm with <u>Trichogramma sibericum</u>	BCCGA & SCBC
Dr. Deborah Henderson	ESC	Improving Monitoring and Biocontrol of Cranberry Girdler	BCCGA, CI, ESC, MicroBio & others
Ms. Sibel Ilsever & Dr. Deborah Henderson	ESC	Enhancing Bumblebee Habitat to Improve Pollination in Cranberry	BCCGA, ESC & OSC
Ms. Kristine Keese	Grower	Growing Cranberry-Specific Parasitoids for Application on Organic Cranberry Bogs	NE Region SARE Grower Grant
Dr. Kenna MacKenzie, Dr. Doug Strongman & Ms. Monica Weldon	AAFC, Saint Mary's University & CSCC	Microbial Pathogens of Insect Pests	AAFC
Dr. Kenna MacKenzie	AAFC	Are Alfalfa Leafcutting Bees a Viable Alternative Pollinator for Cranberry? (NJ and Nova Scotia)	AAFC, NJBCRC & OSC
Dr. Kenna MacKenzie	AAFC	Commercial Trials with Alfalfa Leafcutting Bees for Cranberry Pollination	WCB & OSC
Dr. Dan Mahr	UW-Madison	Implementation of Mating Disruption of Blackheaded Fireworm in Wisconsin	CI, WCB, OSC, USDA & UW-PURR

Name	Affiliation	Project Title	Funded by
Dr. Barton Matsumoto	UMD	The Distribution & Parasitism of Cranberry Fruitworm in Non-commercial Cranberry Bogs	UMD
Dr. David McArthur	U of BC	A Reduced-risk Pesticide Based on Plant Essential Oils for Insect/Fungal Pest Management in Cranberry	CI, BCCGA & others
Drs. Kim Patten, Don Weber & Sridhar Polavarapu	WSU, OSC & Rutgers, respectively	Cranberry Insect Pest Management; Implementation of Low-risk Alternatives Under FQPA	USDA-CSREES
Dr. Kim Patten	WSU	Cranberry Insecticide Management	WSCC
Dr. Kim Patten	WSU	Cranberry Insecticide Alternatives & Transition Strategies for the Pacific Northwest	USDA-CSREES
Dr. Kim Patten	WSU	Investigations of the Effect of Orthene and Pyrenone on the behavior of Honey Bees on Cranberry Beds	OSC
Dr. Sridhar Polavarapu	Rutgers	Seasonal Life-History, Development of Population Monitoring Systems, and Management of Soil Insect Pests of Cranberries in New Jersey	NJBCRC
Dr. Sridhar Polavarapu	Rutgers	Integrating Behavioral, Biological and Reduced-Risk Chemical Approaches in Sustainable Insect Management in Cranberry	NE Region SARE
Dr. Sridhar Polavarapu	Rutgers	Management of Sparganothis fruitworm by pheromone-mediated mating disruption in cranberries	CI, NJBCRC, OSC & WCB
Dr. Sridhar Polavarapu	Rutgers	National Workshop on Optimal Use of Insecticidal Nematodes in Pest Management	CI & OSC
Dr. Sridhar Polavarapu	Rutgers	Screening of new insecticides for cranberry insect pest management	CI
Mr. Paul Robbins	Cornell	Management of Soil Scarabs with Sex Pheromones	CCCGA, CI & OSC
Ms. Michele Roy	IRDA	Cranberry fruitworm (<i>Acrobasis vaccinii</i>) management	CI, MAPAQ, NSERC, OSC & QCGA
Dr. Marla Spivak	U of MN	Enhancing Bee Pollination of Cranberries	WCB
Ms. Caroline Turcotte	CETAQ	Evaluation of B.t. (<i>Dipel</i> and <i>Foray</i>) for the control of the spring cutworms and spanworms complex on cranberries	CI
Ms. Monika Weldon	CSCC	Cultural Control of <i>Sparganothis</i> Fruitworm Through the Use of Flooding	OSC

Name	Affiliation	Project Title	Funded by
Mr. Steve Greb	WI DNR	The Feasibility of Using Bottom-Draw Water-Control Structures in a Commercial Cranberry Marsh for Enhancing Thermal Conditions in Cold-Water Receiving Streams	WCB
Dr. Sukalyan Sengupta	UMD	Advanced Oxidation Process for Removal of Trace Concentration of Toxic Organic Contaminants From Cranberry Bog Water Supplies	UMD

Name	Affiliation	Project Title	Funded by
Drs. Carolyn DeMoranville, Anne Averill and Ms. Hilary Sandler	UMass-Amherst	Water Management of Cranberry Insect and Weed Pests	CCCGA, CI, OSC & SARE
Drs. Patty McManus, Teryl Roper & Dan Mahr	UW-Madison	Reducing the Risk of Pesticide Use on Cranberry in Wisconsin	CI, OSC, UW-PURR & WCB
Drs. Kim Patten & Peter Bristow	WSU	Cranberry weed, insect and disease management for Washington using low-risk alternative pesticides	CI, USDA, WSCC & WSCPR
Drs. Kim Patten & Steve Booth	WSU & PCCRF, respectively	Cranberry moss, black vine weevil and cranberry girdler using low-risk alternative pesticides	OCGA
Ms. Caroline Turcotte	CETAQ	Survey and Pollinators of Cranberry Crops in Quebec and Development of a French Guide for the Identification and Detection of the Main Insect Pests of Cranberry in Québec	AAFC, MAPAQ & OSC
Drs. Nick Vorsa, Peter Oudemans & Sridhar Polavarapu	Rutgers	Cranberry & Blueberry Breeding, Disease and Insect Management	CSREES

Table 5. Miscellaneous Research Projects

Name	Affiliation	Project Title	Funded by
Dr. William Bland	UW-Madison	Bog-Specific Temperature Forecast Calibration	WCB
Dr. William Bland	UW-Madison	Cranberry Weather Pages on the WI-MN Cooperative Extension Agricultural Weather Web Page	WCB
Mr. William Frantz	OSC	Summary of 1998 Pesticide Use	CI
Ms. Joanne Mason	CCBBP	Osprey Anti-electrocution Program	CCCGA & CI
Drs. Patty McManus, Dan Mahr & Teryl Roper	UW-Madison	Supply and Expense Support for Extension Fruit Specialists	WCB
Dr. Peter Oudemans	Rutgers	Use of Remote Sensing to Estimate Variation in Cranberry Yield and Development of a Ground-Truthing System	NJBCRC & OSC
Dr. Lee Estes	UMD	Remote Radiometric Cranberry Bog Stress Research Effort	UMD
Mr. Arthur Poole & Mr. Andy Broaddus	OSU & OSC, respectively	Bandon AgriMet Weather Station Operation and Maintenance	OCGA
Dr. David Wang	UW-Platteville	Engineering Modification of Boom Sprayers and the Development of an Active Boom Suspension System	WCB
WSCGA Research Committee	WSCGA	Cranberry Weather Forecasts	WCB
WSCGA Public Relations Committee	WSCGA	State Fair Booth	WCB
WSCGA Public Relations Committee	WSCGA	Cranberry Promotional Displays	WCB
WSCGA Education Committee	WSCGA	Brochure Printing	WCB
Dr. Teryl Roper	UW-Madison	AGNIC Cranberry Website at UW-Steenbock Library	WCB
Dr. Teryl Roper	UW-Madison	Wisconsin Cranberry Crop Management Newsletter, Volume XIII	WCB
Dr. Teryl Roper	UW-Madison	A Survey of Wisconsin Sand Textures	WCB
Ms. Hilary Sandler & Dr. Frank Caruso	UMass-Amherst	Economic and Biological Aspects of Composting Cranberry Leaf Trash	MDFA
Dr. Ted Wilson	UW-La Crosse	Does Cranberry Juice Inhibit Blood Clotting?	WCB

Table 6. Pesticide Registration

Name	Affiliation	Project Title	Funded by
Dr. Jerry Baron	Office of IR-4	Quality Assurance Support for V. Brookes BC Residue Trials	CI
Ms. Victoria Brookes	AAFC	BC Residue Trials for A8, IClA5504 and RH-2485	CI
Mr. Joe DeFrancesco	OSU	IR-4 residue trials for the Pacific Northwest	IR-4, OR Dept. of Agriculture & WSCPR
Mr. Larry Rossell, Dr. Larry Binning, Dr. Jeff Wyman, Dr. Frank Caruso, Dr. Anne Averill & Dr. Dave Yarborough	Rutgers, UW-Madison (Binning & Wyman), UMass (Caruso & Averill) & U of ME, respectively	IR-4 Residue Trials for the Northeast US	IR-4
Ms. Caroline Turcotte	CETAQ	Reduce the pre-harvest interval of Poast herbicide (Canada)	CI

Table 7. Physiology, Cold Hardiness & Irrigation

Name	Affiliation	Project Title	Funded by
Mr. Charles Armstrong & Mr. Sid Look	U of Maine & Grower, respectively	An Alternative to Flooding for the Winter Protection of Cranberries in Maine	NE Region SARE Grower Grant
Dr. Marshall English	OSU	Irrigation Management for Cranberries in Oregon	OCGA
Dr. Bruce Flugstad	OSU	Improved Methods for Determining Total Water Balance in Cranberry Bogs to Aid in Irrigation Management	OSC
Dr. Bruce Lampinen	UMass-Amherst	Use of Sanding Combined with Gibberellin to Alter Crop Load in Cranberry	CCCGA & OSC
Dr. Bruce Lampinen	UMass-Amherst	Physiological and Horticultural Responses of Cranberry to Sanding, Fertilization and Irrigation Method	CCCGA & OSC
Dr. Bruce Lampinen	UMass-Amherst	Development of Evapotranspiration Data and Crop Coefficients for Cranberry	CCCGA

Name	Affiliation	Project Title	Funded by
Dr. Jiwan P. Palta	UW-Madison	Tolerance of cranberry plant to low temperature: Developing a model for predicting seasonal changes in phenology and cold hardiness of the cranberry plant to manage crop for frost protection	WCB
Dr. Jiwan P. Palta	UW-Madison	Using natural lipids to accelerate ripening (uniform color development) and promote shelf life of cranberries: In season (starting at flowering) application to improve fruit health and yield	WCB
Dr. Jiwan P. Palta	UW-Madison	Develop Model for Predicting Seasonal Changes in Phenology and Cold Hardiness of Cranberry Plant to Manage Crop for Frost Protection	OSC
Drs. Jiwan Palta & Teryl Roper	UW-Madison	Understanding cranberry bud dormancy: Developing a chill unit model to predict in season status of bud dormancy and bud hardiness	WCB
Dr. Kim Patten	WSU	Cranberry Vine Overgrowth Control	WSCC
Dr. Bal Ram Singh	UMD	Light Regulation of Anthocyanin Biosynthesis in Cranberry Plants and Fruits	UMD

Name	Affiliation	Project Title	Funded by
Dr. Brent H. McCown	UW-Madison	Breeding Cranberry For High Yields and Ease-of-Culture When Grown Under Wisconsin Conditions	WCB

Name	Affiliation	Project Title	Funded by
Drs. Peter Bristow, Frank Caruso, Patty McManus & Peter Oudemans	WSU, UMass-Amherst, UW-Madison & Rutgers, respectively	National Fungicide Screening Trials for Fruit Rot, Storage Rot and Cottonball	CI, Rohm & Haas Co. & Zeneca Ag Products
Dr. Frank Caruso	UMass-Amherst	Epidemiological studies of the fungi which cause upright dieback disease in MA	CCCGA (1998 funds)
Dr. Frank Caruso	UMass-Amherst	Management of Fruit Rot With Combination Fungicide Treatments	CI
Dr. Frank Caruso	UMass-Amherst	Evaluation of an Actinomycete as a Biocontrol of Fruit Rot and Upright Dieback	CCCGA
Dr. Donald Kobayashi	Rutgers	Biological Control of Fruit Rot of Cranberry	Eco Soil Systems
Dr. André Levesque	AAFC	Optimization of Fungicide Spray Applications by the Use of Spore Trapping	AAFC & BCCGA
Dr. André Levesque	AAFC	Expansion of the Reverse Dot Blot Assay to Cover all Pathogenic Phytophthora Species	AAFC & BCCGA
Dr. Patty McManus	UW-Madison	Why are Our Cranberries Rotting in the Field?	OSC & WCB
Drs. Jeremy McNeil & Jacques Gobeil	Laval University	Cranberry Insect Survey in Québec	Laval, L & S Cranberry, L.P.
Dr. Peter Oudemans, & Dr. Tom Bicki	Rutgers & OSC, respectively	Development and testing of a research chemigation system	CI
Dr. Peter Oudemans	Rutgers	Testing new fungicides for cranberry fruit rot control	CI
Dr. Peter Oudemans	Rutgers	Detection, Identification and Epidemiology of Fairy Ring Disease	NJBCRC & OSC
Dr. Peter Oudemans	Rutgers	Detection of Root Rot & Other Yield Limiting Variables Using Remote Sensing & GIS	NJBCRC
Dr. Bal Ram Singh	UMD	Design of Phytophthora Cinnamomin as a Natural Pesticide & Development of Biosensor-Based Detection of Phytophthora Root Rot Agents	UMD

Name	Affiliation	Project Title	Funded by
Drs. Valérie Boucher & Yves Desjardins	Laval University	Water Management, Nitrogen Fertilization and Foliar Fertilization	Laval, L & S Cranberry, L.P.
Dr. Joan Davenport	WSU	Use of Soil Moisture Retention Additives and Slow-Release Fertilizers on New Cranberry Plantings in Sand Soils	NJBCRC

Name	Affiliation	Project Title	Funded by
Dr. David McArthur	U of BC	Influence of Mineral Nutrition, Aluminum, Carbohydrate Metabolism and the Natural Plant Hormone Gibberellin on Cranberry Flower Induction and Alternate Bearing	BCCGA & OSC
Dr. Teryl Roper	UW-Madison	Quantifying nitrifying bacteria populations by soil pH in Cranberry beds	OSC & WCB

Name	Affiliation	Project Title	Funded by
Dr. Tom Bewick	UMass-Amherst	Field Evaluation of Selected Chemical Herbicides	CCCGA
Dr. Tom Bewick	UMass-Amherst	Development of Weed Germination and Emergence	CCCGA
Drs. Allan Felsot & Kim Patten	WSU	Herbicide Interactions with Soil & Water: Weed Control & Cranberry Phytotoxicity	OSC
Dr. Brad Majek	Rutgers	Weed Control in New Jersey Cranberry Bogs	CCCGA, CI, NJBCRC, OCGA & OSC
Dr. Kim Patten	WSU	Use of Basamid in Cranberries	Trical Company
Dr. Kim Patten	WSU	Weed Control Systems for Cranberries	WSCC
Dr. Kim Patten	WSU	Low-risk chemical control of weeds through targeted applications	OSC
Ms. Hilary Sandler	UMass-Amherst	Field studies evaluating the efficacy of thiazopyr for control of nutsedge (<i>Cyperus dentatus</i>) in cranberry production	CI
Ms. Hilary Sandler	UMass-Amherst	Determination of Germination Response and the Base Temperature of Dodder	CCCGA
Dr. Bernadine Strik	OSU	Meadowfoam Seedmeal as a Biocide for Weed Management in Cranberries	OCGA

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