

WISCONSIN CRANBERRY BOARD, INC.

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ANNUAL REPORT 2004-2005

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Dear Fellow Growers,

I am pleased to present to you the Annual Report of the Wisconsin Cranberry Board, Inc. for our past fiscal year. The report contains a copy of our financial audit, a summary of progress reports from projects we funded previously and a list of projects we approved for funding in April of 2005.

Our financial position remains strong as we strive to responsibly invest your check off dollars in research, education and marketing activities. The board is focused on making funding decisions based on the merit of each proposal and as a result has been able to work with other groups to jointly fund important projects.

We also continued our commitment to the support of research and communication projects on cranberry health. The partnership with the Cranberry Institute has resulted in a number of interesting and important discoveries about cranberry health. These results have also generated a great deal of publicity and information about the role of cranberries in improving the overall diets of people. It has also led to a project on cranberry health benefits at the National Institutes on Health. The results from these eleven NIH studies will hopefully validate and expand the awareness of the importance of cranberry products in a healthy diet.

We will again look to support worthwhile projects that can help to improve your bottom line. We have been funding projects based upon what we believe are the needs of Wisconsin growers. Your support has allowed us to make significant strides in our research, education and promotion activities.

We appreciate the support received from growers this past year and invite you all to participate in, and comment on, our programs.

Sincerely,

Kay A. Finch
WCB President

WISCONSIN CRANBERRY BOARD, INC.

2004 RESEARCH PROJECT REPORT SUMMARIES

The following progress reports were provided to the Wisconsin Cranberry Board, Inc. by the individuals and groups that received project funding during the 2003-04 fiscal year. These reports were presented to the WCB at or prior to the Budget Meeting on April 8, 2005. Copies of the full reports can be obtained from the authors or from the Wisconsin Cranberry Board, Inc. office.

Crop Research

Irrigation Scheduling and Soil Moisture Management

Principal Investigator: Leroy Kummer, Ocean Spray Cranberries, Inc.

Cooperators: Habelman Brothers, Elm Lake Cranberry, Twin Lake Cranberry, Prairie Vista Cranberry, Engelnook Cranberry, Cranmoor Cranberry and Ken Rezin Cranberry Co.

Objectives: Monitor cranberry plants grown on a variety of soil types throughout Wisconsin. Use commercially available soil moisture monitoring equipment to discern how soils react to various water management practices. Demonstrate how commercially available tools can aid cranberry producers with their irrigation management decisions. Document the effect of “Capillary Rise” or “Water Wicking” on cranberry root zone with moisture levels. Discuss possible irrigation scheduling and water holding techniques with grower cooperators.

Summary: Soil moisture monitoring equipment was placed on the cooperator marshes with various soil types to track water movement and soil moisture. The results of the work gave new insights on how soil moisture levels can be affected by water management practices. Sandy soils have very limited water holding capacity. Most irrigation systems can adequately rewet the critical root zone in a relatively short period of time. Wetland soils have an adequate ability to draw moisture from underlying water table to the root zone. Soils with finer textures had greater wicking abilities. Growers should consider using tensiometers in drier beds to help interpret the soil’s water holding abilities and learn how quickly the root zones have been rewetted.

Breeding Cranberry for High Yields and Ease of Culture When Grown Under Wisconsin Conditions

Principal Investigators: Brent H. McCown, Department of Horticulture, UW-Madison; Eric Zeldin, Researcher

Cooperators: Irwin Goldman (Professor, Horticulture), Wisconsin cranberry growers, Ocean Spray Cranberries, Inc.

Objectives: Whole project: (1) To develop cranberry cultivars that have a consistently higher fruit yield per acre than “Stevens” when grown in Wisconsin. (2) To reduce the sensitivity of the yield of high color “Ben Lear” types to flooding/late winter injury. (3) To isolate some of the genetically determined components of yield, pest resistance and ease-of-culture of cranberry by a detailed study of carefully designed populations of seedlings from highly focused crosses. (4) To determine the inheritance of herbicide tolerance genes previously inserted into cranberry and then integrate such genetic engineering successes into the conventional breeding program. 2004-05 year: (1) To maintain established plots for the evaluation of new selections of cranberry. (2) To continue to breed and evaluate polyploid cranberries to produce populations that will be screened for pollen and ovule fertility, high fruit set, large fruit set and vine vigor. Begin field evaluation of polyploid selections.

Summary: HyRed has been expanded to the point where there are enough locations with sufficient fruit that a number of samples over the ripening period could be secured. One data set showed that HyRed was about three weeks ahead of a similar planting of “Lemunyon” variety. There are now about 16 grower licenses for HyRed and significant scale up is anticipated in 2005. An individual from the

original “Stevens” x “BL8” cross (coded A-X15) showed strong potential for increased yield in performance plots. A model for yield trials was needed so vines were planted and heavily fertilized to yield about one ton of vines to be used this season for a conventional planting of one half acre. Two new sets of progenies have been initiated based on specific yield traits. The evaluation of the effect of diploid pollen sources on tetraploids showed little or no fruit set. Conversely fruit set on diploid plants pollinated with pollen from tetraploid plants was nearly 100%.

Weed Control in Cranberry Bogs

Principal Investigator: Bradley A. Majek, Extension Specialist, Rutgers Agricultural Research and Extension Center

Cooperators: Rutgers Blueberry/Cranberry Research Farm, various growers

Objectives: (1) Cooperate with IR-4, manufacturers, state and federal agencies to receive registrations for three specific products that are not phytotoxic to the crop, control troublesome weeds and are environmentally safe. (2) Integrate effective herbicides into the current cranberry practices to improve control of yellow loosestrife, sedges and other weeds, prevent crop phytotoxicity and maintain the longest possible pre-harvest interval. (3) Evaluate herbicides with potential to control specific weeds identified as troublesome in cranberries for efficacy, and phytotoxicity in the cranberry production system. (4) Screen herbicides registered on other crops and experimental herbicides for phytotoxicity to cranberries.

Summary: Section 18 Registrations have been issued for use of pronamide in NJ, and a Section 24(c) for clopyralid. The long term herbicide screening and trial at the Rutgers station has continued. The trials have shown promise in relation to crop injury and will be evaluated again this year for production. Three compounds have shown efficacy for control of yellow loosestrife, other annual weeds, sedges, rushes and redroot. Experiments established this year to evaluate weed control on growers bogs will be evaluated for the final time next year.

Using anion exchange membranes as an alternative to chemical soil testing to estimate plant available phosphorous in cranberry beds

Principal Investigator: Teryl R. Roper, University of Wisconsin-Madison, Department of Horticulture

Cooperators: Bill Schmitt, Armand Krueger, Research Technicians

Objectives: (1) Assess the application and effectiveness of anion exchange membranes (AEM) to measure P concentrations of cranberry soils under minimal disturbance conditions. (2) To determine the relationship if any between plant available P in soils determined by standard Bray extractant and AEM. (3) To determine the relationship between tissue test P and AEM extractable P. (4) To determine the relationship between yield and AEM extractable P.

Summary: The project is in its second year of investigating an alternative soil test to measure available P in cranberry soils. The currently used Bray 1 soil extraction test is not a reliable tool for measuring available P in most cranberry soils. This alternative has shown promise in providing a new tool for growers to use. Progress the past year includes determination of methodology for use of the anion exchange membranes and good data to allow a correlation between P values in the soil test and tissue P concentrations. If data holds in 2005 a commercially available test may become practical and acceptable in nutrient management planning.

Evaluation of Promising Herbicides under Wisconsin Conditions

Principal Investigator: Teryl R. Roper, University of Wisconsin-Madison, Department of Horticulture

Cooperator: Bill Schmitt, University of Wisconsin-Madison, Department of Horticulture

Objectives: (1) To develop data on herbicide efficacy and crop safety for requesting Section 18 exemptions from DATCP and EPA. (2) To evaluate other herbicides with potential for IR-4 residue testing that show promise for Wisconsin.

Summary: Three herbicides were evaluated with two showing efficacy against goldenrod and horsetail. No phytotoxicity was observed. The data was used in application for a Section 18 for one of the compounds with the objective to obtain its use in the 2005 growing season.

Yield Component Analysis with Emphasis on Upright Vigor

Principal Investigator: Teryl R. Roper, University of Wisconsin-Madison, Department of Horticulture

Cooperators: Eric Zeldin and Bill Schmitt, University of Wisconsin-Madison, Department of Horticulture, Valley Corporation

Objectives: (1) To sample multiple cultivars at multiple sites for two years to investigate yield components on a fruiting upright basis. (2) To statistically determine the contribution of each yield component to total yield. (3) To make conclusions for the development of future research to advise growers how to maximize yield based on individual components. (4) To make conclusions for the development of new cultivars aimed at maximizing specific yield components.

Summary: Samples were collected from four marshes in Wisconsin. Data was collected on fruit size and count, upright density, upright weight and whether the terminal bud appeared to fruiting or non fruiting. The data awaits statistical analysis.

Field tests of tannin bound protein fertilizer: a potential tool for combining nitrogen fertilization with weed management

Principal Investigator: Kevin R. Kosola, University of Wisconsin-Madison, Department of Horticulture

Objective: To carry out field tests of the potential for developing tannin bound protein as a fertilizer nitrogen source that would be available to cranberries but not most cranberry weeds.

Summary: Experimental plots were established at four marshes; two conventional marshes and two organic marshes. Treatments were made with 3 different materials. Uprights and fruit were harvested and current season growth, fruit yield and bud status were analyzed. Tissue analysis was also conducted to determine N levels. Weed populations were characterized by visual surveys. The fertilizer treatments gave results equivalent to the control plots. No treatment effects on weed cover were seen in the first year nor were any expected. Data will continue to be collected in year two and additional tannin bound preparations will be developed that can be applied and evaluated in year 2.

Determining the correct phosphorous rate for productive cranberries

Principal Investigators: Carolyn DeMoranville, UMass-Amherst Cranberry Research Station, Teryl R. Roper, University of Wisconsin-Madison, Department of Horticulture, Joan Davenport, Washington State University-Prosser

Objectives: (1) Establish plots in MA and WI to determine P rates needed for sustainable cranberry production. Compare slow release to traditional P sources. (2) Evaluate promising soil testing procedures for plant available P using cranberry soils from test plots. Evaluate relationship among soil test result, tissue P and yield.

Summary: Two plots comparing P rates and slow release were established in WI and two replicated plots in MA. In addition 3 plots comparing triple super phosphate (TSP) rates have been established in MA. There was no treatment effects of the rate or form of P applied on total yield in the WI plots. Tissue P in the WI plots varied with highest levels in the plots receiving 20 lb P and lowest in the control plots but in all cases levels were above the 0.1% critical level. Yield differences were found in the MA plots but whether they were meaningful is questioned by the investigators. In the short term there does not appear to be yield impacts at rates of P at 20lb P per acre per year. The anion exchange membrane work was coordinated with Dr. Roper as part of this project. Results are discussed in the report by Dr. Roper.

Ecology and Integrate Pest Management of Cranberry Girdler

Principal Investigator: Dr. Sheila Fitzpatrick, Agriculture and Agri-Food Canada

Objectives: (1) Finish experiments on the effectiveness of flooding for control of cranberry girdler larvae. (2) Study the feeding behavior, mobility and food preferences of larvae. (3) Compare survival of larvae reared on grass without fungal endophytes vs. survival of those reared on grass with endophytes. (4) Search for predacious arthropods that might prey on girdler eggs and young larvae in trash layer. (5) Begin study of flight behaviors of male girdler moths attracted to natural and synthetic pheromone sources.

Summary: The larvae subjected to flooding showed higher mortality in 2004 than the previous year. The researcher speculated that this may be due in part to a viral or bacterial infection coupled with lower dissolved oxygen levels in the water. The feeding behavior study showed that the neonates preferred grass to cranberry and had higher survival rates on grass. Seven species of beetles fed on girdler eggs or neonates and there is a good likelihood that if they are found on marshes they would feed on them there too.

Use of Lignocellulosic Materials as Sorbents for Pesticide and Phosphate Residues

Principle Investigator: Mandla A. Tshabalala, USDA Forest Products Laboratory

Cooperators: USDA Forest Service Forest Products Laboratory, Cape Cod Cranberry Growers Association, Massachusetts Department of Food and Agriculture Agro-environmental Technology Grant Program and the Cranberry Institute.

Objectives: The long-term goal of this project is to develop low cost filtration sorbents from modified lignocellulosic materials. Such filtration systems can be used by the industry to remove residual pesticides and phosphates from irrigation water before discharging into receiving waters. The short-term objective of this project was to design and construct a filtration system for limited field trials.

Summary: Due to difficulty in getting final language approval for a contract the project will not be completed until 2006.

Annual Projects

Wisconsin Cranberry Crop Management Newsletter – Volume XVIII

Project Coordinator: Teryl R. Roper, Department of Horticulture, UW-Madison

Cooperators: University faculty and staff, private cranberry consultants, Ocean Spray Cranberries, Inc., Cliffstar Corp.

Summary: Ten issues of the CCM Newsletter were published between May and September of 2004. Copies were sent at no charge to managers of all known cranberry marshes in the state. The newsletter was also made available on the internet and the text was distributed via the cranberry e-mail list as well.

New Recipe Brochure

Project Coordinator: Wisconsin State Cranberry Growers Association

Objective: To develop, print and distribute a new printed material containing recipes and health information on cranberry consumption.

Summary: The WSCGA Education Committee has begun to collect recipes and develop copy for the new brochure. Plans are for the release to take place in time for the 2005 Wisconsin State Fair.

Cranberry Digital Library

Project Coordinator: Wisconsin State Cranberry Growers Association

Objectives: Create a high quality digital library of photos of all aspects of cranberry production, generic products and industry interest.

Summary: The library will be incorporated into the Wetherby Cranberry Library at the Wisconsin Cranberry Discovery Center.

Cranberry Weather Forecasts

Project Coordinator: Wisconsin State Cranberry Growers Association

Objective: To provide Wisconsin cranberry growers with accurate, regional weather forecasts.

Summary: The WSCGA worked with a private weather forecasting consultant to develop regional cranberry weather forecasts. These forecasts were available to growers via a toll-free number and online at the WSCGA website www.wiscran.org . Service was available from April 15 through October 31.

Brochure Printing

Project Coordinator: Wisconsin State Cranberry Growers Association

Objective: Provide members of the general public with information on cranberries through high-quality, professionally produced brochures.

Summary: The grant was used to print and distribute seven thousand five hundred (7,500) copies of the brochure 2004 Cranberry Harvest, ten thousand (10,000) Activity Booklets. The WSCGA also worked with the CMC to add a panel with information on cranberry production in Wisconsin to the brochure “Cranberries – They Make it Easy to be Good” and print 4,000 copies.

Cranberry Product Promotion

Project Coordinator: Wisconsin State Cranberry Growers Association

Objectives: The project included a number of separate activities all designed to provide the general public with information on cranberry production and cranberry consumption. The overall objective was to promote the use and consumption of cranberries and cranberry products. The projects included continuation of a booth and activities at the Wisconsin State Fair, implementation of a fall harvest communication program, updating and maintaining the cranberry website www.wiscran.org .

Summary: The Wisconsin State Fair promotion continued this year. The growers association contracts with Wisconsin State Fair Park for space in the Wisconsin Products Pavilion. A booth is set up which includes educational information on cranberry cultivation featuring a scale model cranberry marsh, display boards, cranberry vines and a videotape presentation on the Wisconsin cranberry industry. The other portion of the booth is utilized for sales of unique cranberry products. These products include cranberry white chocolate chunk cookies, cranberry muffins, chocolate covered cranberries, cranberry juice cocktail, sweetened dried cranberries, cranberry mustards, cranberry chutney and cranberry jams and jellies. The promotion also includes a cranberry mascot who appears each day in the parades and is in the booth at various times during the 10 day run of the Fair. The association, through a public relations agency, also provides products to the various media outlets at the Fair. This led to discussion of the products on air and increased visits to the booth by people coming to the Fair. WSCGA also secured time slots on a demonstration stage in the Wisconsin Products Pavilion to conduct cooking demonstrations utilizing recipes from the recipe brochure.

The fall harvest communications program entailed working with a public relations firm to develop key messages and themes for the fall harvest promotion. The promotion this year was to construct the world’s largest floating flag on the Wetherby Cranberry Marsh. Working with the Tomah High School Ag Class the project was built and received national exposure.

While it is difficult to quantify the results of promotions like this it is significant that business at the Wisconsin State Fair Booth was increased dramatically over previous years, by almost 30%. The requests for brochures from the WSCGA indicate great interest in information on recipes for the use of cranberry products. In addition, numerous articles appeared throughout the fall harvest season as a result of the efforts of the association and its fall communications program.

Badger Sports Corporate Partnership

Project Coordinator: Wisconsin State Cranberry Growers Association

Cooperator: Badger Sports Properties

Objectives: (1) Continue paid advertising campaign to communicate health, environmental and promotional messages on a regional basis. (2) Establish relationship between healthy sporting activities and cranberries. (3) Link cranberry growing tradition with other major state traditions. (4) Improve the image of the industry throughout the state.

Summary: For the second year the WSCGA used a grant from the WCB to sponsor radio spots during University of Wisconsin Badger sports including football and basketball. The program featured four 30 second spots on the regional broadcast of each game on WTMJ of Milwaukee. A ten second in game mention on the statewide network was included as well. The broadcasts focused on the health benefits of cranberry consumption.

Milwaukee Brewers Radio Network Sponsorship

Project Coordinator: Wisconsin State Cranberry Growers Association

Objectives: (1) Launch paid advertising campaign to communicate health, environmental and promotional messages on a regional basis. (2) Establish relationship between healthy sporting activities and cranberries. (3) Link cranberry growing tradition with other major state traditions. (4) Improve the image of the industry throughout the state.

Summary: Wisconsin cranberry growers sponsored the Umpire Report before the opening pitch of each Brewer radio broadcast on the 36 station statewide network. The WSCGA also was able to participate in a "Cranberry Night at Miller Park" promotion. That featured announcements at the stadium, on the radio, throwing out the first pitch and Cary Cranberry participating in the sausage race.

Green Bay Packer Radio Network Sponsorship

Project Coordinator: Wisconsin State Cranberry Growers Association

Objectives: (1) Launch paid advertising campaign to communicate health, environmental and promotional messages on a regional basis. (2) Establish relationship between healthy sporting activities and cranberries. (3) Link cranberry growing tradition with other major state traditions. (4) Improve the image of the industry throughout the state.

Summary: The industry received title sponsorship during the Green Bay Packer pre game show within 30 minutes of kick off and a follow up live read of a message developed by WSCGA. The Packers also provided a link from their website to cranberry recipes.

Nutrient Education Concerning Physical Activity and Antioxidant Uptake

Project Coordinator: Sherry A. Tanumihardjo, University of Wisconsin-Madison, Department of Nutritional Sciences

Objectives: (1) To purchase pedometers for physical activity campaigns. (2) To reproduce fruit and vegetable flyers for adolescent children. (3) Partial support for reproduction of "How does your garden grow?" (4) To continue to incorporate cranberries in outreach activities.

Summary: Pedometers were purchased and used in a USDA funded weight loss trial. They were used as an educational tool on activity for those involved in the trial. 3,000 copies of a set of 6 flyers were distributed to elementary school students as part of presentations by the project coordinator. Extension

educators have used over 40,000 copies of the “How does your garden grow?” brochure through nutrition programs. Plans are finalized for the reproduction of the brochure in time for the 2005 farmers markets across the state. The project also supported articles in a family nutrition newsletter, and presentations around the state.

Alice in Dairyland Media Blitz

Project Coordinator: Wisconsin DATCP

Objectives: (1) To raise consumer awareness regarding the health benefits of consuming cranberries and cranberry products. (2) To demonstrate the versatility of the Wisconsin cranberry and the many products that are created from it. (3) To promote the industry website as a means of further educating the public about Wisconsin cranberries and their uses, benefits, etc. and (4) To foster an appreciation, especially among urban audiences for the economic importance of the cranberry industry to the state.

Summary: From August 23 to September 8 the 57th Alice in Dairyland traveled throughout the state on a media blitz to promote cranberries. The resulting effort created over \$96,000 in media value.

Health Communications Projects

Project Coordinator: Cranberry Institute

Objectives: (1) Attend and display at Wisconsin Dietetic Association Conference. (2) Host health research conference.

Summary: The Cranberry Institute attended and provided an exhibit at the 2004 WDA Conference in Oconomowoc, April 29, 2004. The WDA Conference is annually attended by over 500 dietitians from around the state. Materials and information on cranberry health were provided as part of the exhibit. The CI also held the second cranberry health researcher’s conference in mid October in Lake Geneva. 30 participants in the conference heard presentations on areas of current research, interest and future plans. The conference identified several new promising research areas, provided valuable information on the National Institute of Health’s cranberry initiative and allowed the industry to create a press release on the results presented at the seminar.

Extension Related to Cranberry Diseases and Disorders in Wisconsin

Project Coordinator: Patricia McManus, University of Wisconsin-Madison, Department of Plant Pathology

Objectives: Provide extension services to Wisconsin cranberry growers.

Summary: The grant allowed for the provision of extension services to Wisconsin cranberry growers. Activities by the Extension Specialist included participation in the Wisconsin Cranberry School, on site farm visits to investigate specific problems, conducting diagnoses of problems, production of bulletins and submitting Section 18 petition for use of Orbit fungicide.

Examination of Cranberry Press Cake as a Source of Antioxidants in Food Systems

Principal Investigator: Mark P. Richards, University of Wisconsin-Madison, Department of Animal Sciences

Objectives: (1) Determine the ability of different cranberry extracts to inhibit lipid oxidation in mechanically separated turkey and various muscle products manufactured by Tyson-IBP. (2) Determine the ability of different cranberry extracts to maintain red color in processed bacon after vacuum seal is broken.

Summary: A variety of extracts were developed and evaluated for their potential to inhibit oxidation. Cranberry extracts gave a desirable color to meats and showed less discoloration than the controls. It also showed lower microbial counts than other treatments and along with other treatments was deemed to be an effective antioxidant. There appeared to be somewhat of an atypical odor with the cranberry treatment but researchers believe that this can be addressed. The work on bacon is yet to be undertaken.

Consumer Survey

Project Coordinator: USDA Cranberry Marketing Committee

Cooperators: USDA CMC, Cranberry Institute and Mass. Dept. of Food and Agriculture.

Objectives: (1) Complete a national survey of US consumers targeting a representative sample that is projectable to the entire population. (2) Identify markets and opportunities for increasing cranberry consumption among US consumers. (3) Identify barriers to greater cranberry consumption and potential means of removing those barriers. (4) Communicate survey findings broadly throughout the US cranberry industry so that all promotional efforts can benefit from the information.

Summary: Progress was delayed by the CMC in August of 2004 over concerns regarding the selection of a contractor to complete the work. Subsequent to that action the concerns were resolved and plans are underway to complete the project by June 30, 2005.

WISCONSIN CRANBERRY BOARD, INC. – CRANBERRY INSTITUTE HEALTH RELATED RESEARCH - PROJECT REPORT SUMMARIES

The Wisconsin Cranberry Board, Inc. and Cranberry Institute have partnered for the past three years to fund a variety of research projects related to the health benefits of cranberry consumption. Under this partnership the organizations issue a joint request for proposals. Researchers submit applications to the Cranberry Institute. The applications are reviewed by a Technical Committee of the Cranberry Institute which makes recommendations for projects deserving funds. Those projects deemed worthy of funding are then jointly funded by Wisconsin Cranberry Board, Inc. and the Cranberry Institute. The Cranberry Institute then manages the research projects. In 2004 four projects totaling \$112,703 were funded by the WCB through the CI. The following are summaries of the reports of the projects funded by the partnership in 2004.

Potential for Oral Health Benefits from Cranberry Constituents

Principal Investigator: Daniel Grenier, University of Laval-Quebec

Objectives: The project is to test the hypothesis: Cranberry juice contains molecules with antimicrobial and anti-inflammatory effects and thus represents a potential and innovative product to maintain and or restore periodontal health.

Summary: The project is still in progress. Fractions for testing were prepared and secured. Experimental protocol was developed and validated. Preliminary work has demonstrated the capacity of the cranberry fractions to inhibit enzymes that contribute to periodontal disease. The project will continue to investigate the hypothesis in the coming months.

Effect of Cranberry on Polymorphonuclear Function and Epithelial Cell Colonization by *Staphylococcus aureus* and *Escherichia coli*.

Principal Investigator: Dr. Moussa S. Diarra, Agriculture and Agri-Food Canada

Objectives: (1) To evaluate the in vitro anti-adhesion activity of cranberry extract. (2) To investigate the immuno-modulatory activity of cranberry. (3) To evaluate the in vivo effect of cranberry extract in a broiler chicken model.

Summary: The project did not begin until execution of a contract on February 27, 2005. Since the signature of the contract a master student has been identified and hired to begin work on the project. A final report will be provided when the project is completed.

Does Cranberry Affect the Progression and Severity of Atherosclerosis?

Principal Investigator: Catherine C. Neto, UMass, Dartmouth

Objectives: (1) To determine the effect of dietary cranberry polyphenolics on the development of atherosclerosis in ApoE deficient mice. This will include the evaluation of biological markers relating to specific cellular and enzymatic mechanisms. (2) To determine the ability of specific phenolic fractions from cranberry to prevent proliferation of vascular smooth muscle cells and induce apoptosis in proliferating cells.

Summary: Some in vitro data show that cranberry inhibits proliferation of cells associated with the development of atherosclerosis. The in vivo phase of the study is just underway.

Cardioprotective Effects of Chronic Consumption of Dried Cranberries in Human Subjects

Principal Investigator: Heidrun P. Gross, UC Davis

Objectives: The hypotheses of the project are: (1) chronic consumption of dried cranberries exerts cardioprotective effects by lowering oxidized low density lipoprotein in plasma of human subjects and (2) plasma profiles of phenolic compounds and plasma lipid profiles can be correlated with the cardioprotective effects observed with cranberry consumption.

Summary: Due to the delay in review procedures at UC Davis the human subject protocol did not receive approval until December of 2004. Since the approval, recruitment of human subjects has begun.

Projects Funded in 2005 –

Funding for the following projects was approved by the board during the past fiscal year.

Crop Production Funding: Continuing Projects 2005

Patricia McManus, UW-Madison

Extension Related to Cranberry Diseases and Disorders in Wisconsin (\$3,450)

The grant will be used to support the Extension activities of Dr. McManus in working with Wisconsin growers. Funds will be used for travel, laboratory supplies and support, labor to help with diagnoses, postage, telephones and equipment maintenance.

Bradley A. Majek, Rutgers

Weed Control in Cranberry Bogs (\$8,000)

This grant supports the efforts of Dr. Majek to screen new weed control tools for Wisconsin growers. Efficacy trials are the first step in the registration process. The Cranberry Institute, New Jersey Blueberry and Cranberry Research Center and Ocean Spray Cranberries are providing co-funding.

Brent H. McCown, UW-Madison

Breeding Cranberries for High Yields and Ease of Culture When Grown Under Wisconsin Conditions (\$23,974)

This grant continues support for the breeding program at UW Madison. Emphasis will be on maintaining established plots for evaluation of new selections, scale up plots from selected individuals and new crosses and to continue breeding and evaluation of polyploid cranberries including field evaluations. Ocean Spray cranberries, Inc. is providing support for the project as well.

Kevin Kosola, UW-Madison

Field Tests of Tannin Bound Protein Fertilizer: A Potential Tool for Combing Nitrogen Fertilization with Weed Management (\$9,146)

This proposal will fund small plot field tests of the efficacy of tannin bound protein as a fertilizer for cranberry and the simultaneous effects on weed growth. The Cranberry Institute is providing co-funding for the project.

Teryl R. Roper, UW-Madison

Yield Component Analysis (\$3,750)

This continues the work to determine the different components of yield and attempts to identify them. The information will be incorporated into the breeding program at the UW Madison.

**Carolyn DeMoranville, Teryl Roper, Joan Davenport
U-Mass, UW-Madison, Washington State U.-Prosser**

Determining the Correct Phosphorous Rate for Productive Cranberries (\$300)

This is to support a portion of the Wisconsin component of the national effort on phosphorous in cranberries. This research project is intended to develop alternative soil test for plant available phosphorous and to determine the phosphorous rates needed for sustainable cranberry production. Additional funding is provided by the WSCGA/NRCS Farm Planning Program, Cranberry Institute, CCCGA, Washington State University and the UMass Cranberry Experiment Station.

Crop Production Funding: New Projects For 2005

Patricia McManus, UW-Madison

Pesticide Screening for Cranberries (\$30,427)

The grant will be used to fund a pesticide screening and registration program at UW Madison for cranberries. The program will hire an academic staff person to serve as a technician to set up field plots conduct trials, coordinate with screening programs nationally and with IR4. The screening program will look at insect pests, weeds and diseases of importance to Wisconsin cranberry growers. The Cranberry Institute is co-funding the program.

Kevin Kosola, UW-Madison

Inexpensive Tools for Quantifying Irrigation Water Replacement of Fertilizer Requirements In Upland Beds (\$10,208)

The proposal will document nitrogen inputs in irrigation waters and provide growers with inexpensive tools to allow them to estimate nitrogen credits due to inputs from irrigation and validate the performance of these methods. The Cranberry Institute is co-funding the project.

Education and Promotion Funding - 2005

Teryl R. Roper, UW-Madison

Wisconsin Cranberry Crop Manager Newsletter, Volume XIX (\$900)

The grant will be used to publish and mail ten issues of the CCM Newsletter to all known Wisconsin cranberry growers. Ocean Spray Cranberries, Cliffstar Corporation and Clement Pappas & Co., Inc. are providing additional financial support.

Sherry A. Tanumihardjo, UW-Madison

Nutrition Education Initiatives in 2005-06 (\$7,500)

The funds will be used to produce UW Extension materials including brochures, bulletins and displays to incorporate cranberries in outreach activities including reproduction of fruit and vegetable cards for teachers.

WSCGA

Cranberry Weather Forecasts (\$13,550)

The association will continue to provide specialized weather forecasts for cranberry producers via a toll free telephone call or the internet at www.wiscran.org.

WSCGA

Brochure Printing (\$2,500)

The grant will be used to reproduce and distribute copies of the WSCGA Cranberry Activity Book and Wisconsin's Cranberry Harvest-Fall 2005.

WSCGA

Cranberry Communications Program (\$45,500)

The funds will be used to support promotion efforts at the 2005 Wisconsin State Fair, a new costume for Cary Cranberry the mascot used at State Fair to promote the industry, maintain the industry website at www.wiscran.org and to conduct fall harvest communication efforts.

WSCGA

Cranberry Marketing Program

The grant funds are used to support paid advertising programs to communicate health, environmental and promotional messages on a regional basis. The program also attempts to establish a link between healthy sporting activities and cranberries and to enhance the image of the industry throughout the state. The programs feature three components.

Badger Sports Properties (\$30,200)

The industry purchases four spots per game of all UW Badger football and basketball broadcasts on WTMJ Milwaukee. The package also includes in game mentions and promotions on the statewide network. This is the third year of the program with Badger sports.

Milwaukee Brewer Radio Network (\$21,482)

This grant will provide sponsorship of the "Cranberry Grower Umpire Report" at the beginning of each Milwaukee Brewer radio broadcast on the statewide network. The promotion also features a "Cranberry Night at Miler Park".

Website Ads (\$3,500)

The grant will be used to purchase banner ads on key state, food related websites.

Roundy's Food Store Promotion (\$20,000)

The grant funds will be used to conduct an in store promotion program with the state's largest grocery store chain. Activities included in the promotion include development of a CD library of photos of cranberries, recipes, fun facts and information on health benefits of cranberries to be used in store advertisements. A point of purchase recipe card will be developed. Radio spots would also be produced. In store demonstrations at selected high traffic stores will be conducted.

WSCGA

Cranberry Digital Library (\$2,250)

These funds will be used to enhance the digital library of photos and images housed at the Wetherby Cranberry Library at the Wisconsin Cranberry Discovery Center in Warrens.

Mark Richards, UW-Madison

Methods to Increase the Ability of Cranberry Presscake Components to Inhibit Quality Deterioration in Muscle Foods (\$17,412)

The grant will be used to examine the possibility of using cranberry presscake extracts to extend the shelf life of muscle foods.

Matthew Lippert, Wood County Extension

Professional Improvement for Cranberry Research & Extension Workers (\$800)

The funds will be used to cover a portion of expenses to participate in the National Cranberry Research and Extension Workers conference for UW Extension personnel.

Lorry A. Erickson, Wisconsin Cranberry Discovery Center

Taste Test Kitchen Promotions (6,275)

The funds will be used as part of the Wisconsin cranberry Taste Test Kitchen promotions at the Wisconsin Cranberry Discovery Center. Specific activities include recipe brochure printing and distribution, cooking and baking demonstrations, news releases and product sampling.

Health Related Research Funding - 2005

The Wisconsin Cranberry Board, Inc. continued its partnership with the Cranberry Institute to fund research to explore the health benefits of cranberry consumption. This year the board provided \$75,000 to support two projects.

Jess D. Reed and Mark E. Cook

University of Wisconsin-Madison

Cranberry polyphenols, cyclooxygenase-2 inhibition and inflammation (\$25,000)

Steven M. Lipson

St. Francis College, New York

*Investigations into the cellular and molecular mechanisms of reovirus inactivation by the American cranberry (*V. macrocarpon*)* (\$50,000)

WISCONSIN CRANBERRY BOARD, INC.

Statements of Financial Position Fiscal Year Ended August 31, 2005

| ASSETS | |
|---|--------------------------|
| Cash | 58,889 |
| Other temporary investments | 196,742 |
| Interest Receivable | 1,890 |
| Assessments Receivable | <u>1,111</u> |
| TOTAL ASSETS | <u>\$ 258,632</u> |
| LIABILITIES AND NET ASSETS | |
| LIABILITIES | |
| Administrative Services Payable | \$ 1,344 |
| Grants payable | <u>168,867</u> |
| Total Liabilities | 170,211 |
| NET ASSETS | |
| Unrestricted | <u>88,421</u> |
| TOTAL LIABILITIES AND NET ASSETS | <u>\$ 258,632</u> |

Statement of Cash Flows Fiscal Year Ended August 31, 2005

| CASH FLOWS FROM OPERATING ACTIVITIES | |
|---|------------------|
| Changes in net assets | \$ (5,779) |
| Adjustments to reconcile changes in net assets to net cash used by operating activities: | |
| Effects of changes in operating assets and liabilities: | |
| Interest receivable | (924) |
| Assessment receivables | 221 |
| Administrative services payable | (11,503) |
| Grants payable | (46,302) |
| Refundable assets | -0- |
| Deferred grant revenues | <u>-0-</u> |
| Net cash used by operating activities | (64,287) |
| CASH FLOWS FROM INVESTING ACTIVITIES | |
| Net (increase) decrease in investment in certificates of deposit | <u>(396)</u> |
| NET DECREASE IN CASH | (64,683) |
| CASH, BEGINNING OF YEAR | <u>123,572</u> |
| CASH, END OF YEAR | <u>\$ 58,889</u> |

Statements of Activities Fiscal Year Ended August 31, 2005

| UNRESTRICTED REVENUES | |
|--|-------------------|
| Grower assessments | \$ 329,183 |
| Interest income | 8,078 |
| Specialty Crop Block Grant | <u>-0-</u> |
| Total Unrestricted Revenues | <u>337,261</u> |
| MANAGEMENT & GENERAL EXPENSES | |
| Administration – WSCGA | 21,489 |
| Administration - Dept of Ag | 2,737 |
| Audit and tax preparation fees | 1,280 |
| Meeting and miscellaneous | 1,083 |
| Bonding | 373 |
| Office supplies | 12 |
| Printing and copying/typing | 284 |
| Post office box rent | 38 |
| Filing fee | 20 |
| Total management and general expenses | <u>27,316</u> |
| Excess of unrestricted revenues over expenses before grant disbursements | \$ <u>309,945</u> |
| PROGRAM EXPENSES - GRANT DISBURSEMENTS | |
| Wis State Cranberry Growers Association | 138,982 |
| University of Wisconsin | 101,964 |
| Cranberry Institute | 95,805 |
| USDA Forest Service | 10,000 |
| Cranberry Museum, Inc. | 6,275 |
| Averill Grant-University of Massachusetts | 4,000 |
| Wisconsin DATCP | 4,000 |
| Minister of Agriculture & Agrifoods-Canada | <u>1,000</u> |
| Total program expenses – grant disbursements | <u>362,026</u> |
| (Deficit) excess of unrestricted revenues over expenses and grant disbursements | (52,081) |
| Decrease (increase in grants authorized but unpaid) | <u>46,302</u> |
| CHANGE IN UNRESTRICTED NET ASSETS | (5,779) |
| UNRESTRICTED NET ASSETS, BEGINNING OF YEAR | <u>94,200</u> |
| UNRESTRICTED NET ASSETS, END OF YEAR | <u>\$ 88,421</u> |

SUMMARY OF SIGNIFICANT ACCOUNT POLICIES

The Wisconsin Cranberry Board, Inc. (the "Organization") is a not-for-profit corporation operating in Wood County, Wisconsin. They are an agricultural marketing and research organization authorized under the Wisconsin Agricultural Marketing Act which became effective September 1, 1983. The Organization collects grower assessments mandated by the Cranberry Marketing Order and uses those funds to promote market research and development and industrial research and educational programs. The Organization's fiscal year ends on August 31. Significant accounting policies followed by the Organization are presented below.

BASIS OF PRESENTATION

In accordance with generally accepted accounting principles, net assets and revenues, expenses, gains and losses are classified based on the existence or absence of donor-imposed restrictions. Accordingly, net assets of the Organization are classified and reported as follows:

Unrestricted net assets - Net assets that are not subject to donor-imposed stipulations. Designated unrestricted net assets are those assets set aside for specific purposes by the Board.

Temporarily restricted net assets - Net assets subject to donor-imposed stipulations that either expire by passage of time or can be fulfilled and removed by actions of the Organization pursuant to those stipulations. The Organization does not have any temporarily restricted net assets.

Permanently restricted net assets - Net assets subject to donor-imposed stipulations that they be maintained permanently by the Organization. The Organization does not have any permanently restricted net assets.

USE OF ESTIMATES IN PREPARING FINANCIAL STATEMENTS

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

CASH EQUIVALENTS

The Organization considers all liquid investments with a maturity of three months or less when purchased to be cash equivalents.

OTHER TEMPORARY INVESTMENTS

Other temporary investments consist of certificates of deposit with original maturities from three months to one year. These investments are stated at cost, which approximates market.

REVENUE RECOGNITION

Grower assessments are recognized in the period they are due. Assessments are based on barrels of production. The charge was ten cents per barrel for the fiscal year ended August 31, 2005.

GRANT DISBURSEMENT AND PAYABLE

Grants to others are recognized as an expense and as a liability when the promise is made.

INCOME TAXES

The Organization is a not-for-profit organization exempt from state and federal income tax under Internal Revenue Code Section 501(c) (5).

NOTES TO FINANCIAL STATEMENTS – AUGUST 31, 2005

Note 1 – Grants Payable

The following is a summary of grants authorized and payable at August 31, 2005:

| | |
|--|-------------------|
| University of Wisconsin research | \$ 107,067 |
| Cranberry Institute research | 37,500 |
| Bradley A. Majek – weed control research | 16,000 |
| USDA Cranberry Marketing Committee | 7,500 |
| Matthew Lippert – UW Extension | 800 |
| | <u>\$ 168,867</u> |

Note 2 – Concentration of Credit Risk

The Organization maintains its cash and certificate of deposit balances with several financial institutions. All of the institutions are insured by the Federal Deposit Insurance Corporation up to \$100,000. Accordingly, on August 31, 2005 the Board's uninsured cash balance \$-0-.

Note 3 – Related Parties

During the year ended August 31, 2005, the Organization reported assessment revenue from board members of \$19,527. As of August 31, 2005, the organization was not owed anything from board members.

WISCONSIN CRANBERRY BOARD, INC.
PO Box 1351
WIS RAPIDS, WI 54495-1351

Annual Report