

MEMORANDUM OF AGREEMENT
BY AND AMONG
THE
COMMONWEALTH OF MASSACHUSETTS,
DEPARTMENT OF AGRICULTURAL RESOURCES
AND
COMMONWEALTH OF MASSACHUSETTS,
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND
THE CAPE COD CRANBERRY GROWERS' ASSOCIATION
AND
UMASS CRANBERRY STATION
REGARDING
DEVELOPMENT OF BEST MANAGEMENT PRACTICES FOR NUTRIENT
APPLICATION,
WATER USE AND RETURN FLOWS

PARTIES

The Parties to this Memorandum of Agreement (“MOA”) are the Commonwealth of Massachusetts, Department of Agricultural Resources (“DAR”), 251 Causeway Street, Suite 500, Boston, Massachusetts 02114, acting by and through its Commissioner Scott J. Soares, the Commonwealth of Massachusetts, Department of Environmental Protection (“MassDEP”), One Winter Street, Boston, Massachusetts 02108, acting by and through its Commissioner Laurie Burt, Cape Cod Cranberry Growers’ Association (CCCGA), 3203-B Cranberry Highway, East Wareham, Massachusetts 02538 acting by and through its Executive Director Jeffrey LaFleur and UMASS Cranberry Station (UMASS), 1 State Bog Road, East Wareham, Massachusetts 02538, acting by and through its Station Director Carolyn DeMoranville.

WHEREAS: DAR supports, promotes and enhances the long-term viability of Massachusetts agriculture with the aim of helping the Commonwealth’s agricultural businesses become as economically and environmentally sound as possible;

WHEREAS: DAR, working independently and through partnerships with other organizations, such as CCCGA and UMASS, seeks to provide technical and financial assistance to Cranberry Growers for the adoption of conservation practices that will promote both economic and environmental sustainability while at the same time assisting the Pilot Program Participants (as defined herein) in meeting the conditions set forth in this agreement;

WHEREAS: This MOA will further extend the cooperative work undertaken by DAR, MassDEP, CCCGA, and UMASS;

WHEREAS: DAR, MassDEP, CCCGA & UMASS seek to facilitate the development and implementation of Best Management Practices (“BMPs”) and create a pilot program to develop practices for nutrient management, water use and return flows in association with cranberry cultivation that are intended to mitigate the impact of cranberry cultivation on the waters of the Commonwealth;

WHEREAS: MassDEP’s responsibilities include, among other things, managing water withdrawals, licensing of certain structures on rivers and ponds, protecting wetlands, protecting water quality, and developing planning documents for impaired water bodies and basins to meet water quality standards;

WHEREAS: MassDEP recognizes that opportunities exist for development and implementation of BMPs that have the potential to reduce the impacts of cranberry cultivation on the waters of the Commonwealth;

WHEREAS: CCCGA is working to ensure the furtherance of cranberry farming as an important component of the Commonwealth’s agricultural and economic profile and that open space and clean water, vital to cranberry growing, will be preserved;

WHEREAS: The mission of the UMASS Cranberry Station is to maintain and enhance the economic viability of the Massachusetts cranberry industry through research and extension and to serve the public welfare by supporting economic development and protection of the environment;

WHEREAS: The release of irrigation return flows to surface water bodies from cranberry bog farming practices has the potential to cause eutrophication if excessive nutrients are present in return flows.

WHEREAS: White Island Pond, located in Plymouth and Wareham, is listed on the Massachusetts 2006 Integrated List of Waters, as a “Category 5 water” that does not meet state surface water quality standards with respect to, inter alia, nutrient levels, therefore requiring MassDEP to establish a Total Maximum Daily Load (“TMDL”) for nutrients coming from all land sources including agricultural, residential and other non-point sources.

NOW, THEREFORE, WITNESSETH in consideration of mutual covenants herein contained, the Parties agree as follows:

PURPOSE

The purpose of this MOA is to establish a pilot program in which DAR, DEP, CCCGA & UMASS work cooperatively with certain Cranberry Growers in Massachusetts to develop and implement practices with the potential for reducing the discharge of nutrients associated with cranberry cultivation in order to meet applicable water quality standards. In anticipation of the Final TMDL for White Island Pond, the parties agree to work towards development and implementation of horticultural practices with the intention of meeting the TMDL for White

Island Pond. These practices, if successful, may provide a menu of options that may be able to be utilized in other locations as BMP's where irrigation return flows are discharged to surface water bodies from cranberry farming practices. A copy of the *Draft Total Maximum Daily Load of Phosphorus for White Island Pond* is attached as Appendix A.

TERM

The initial term of this MOA shall be for the period starting on the date of execution of the MOA by all Parties and terminating on December 31, 2011 and may be extended by written agreement of all involved parties.

AGREEMENT

DAR's obligations:

1. DAR, through its relationship with MassDEP, CCCGA & UMASS shall facilitate the establishment of a pilot program to evaluate the effectiveness of practices for nutrient application, water use and return flow management ("Pilot Program"). CCCGA and UMASS, in consultation with MassDEP and DAR, shall develop and administer the Pilot Program. The Pilot Program shall include two Pilot Farms (collectively, the "Pilot Farms" or the "Pilot Program Participants"). The Pilot Farms shall consist of two cranberry growers located on White Island Pond, who have expressed a willingness to develop and implement BMPs intended to reduce their impact on White Island Pond and meet the goals of the Final TMDL as related to their discharges. The data generated from this Pilot Program may be applicable to other similarly situated Cranberry Growers who discharge irrigation return waters to surface waters of the Commonwealth. The Pilot Program shall include the Pilot Program Participants' complete implementation of the existing BMPs (as defined below under "Previously Implemented Practices") and additional practices identified below.

2. The Pilot Program Participants:

A.D. Makepeace Company ("Makepeace") has been in the business of cultivating cranberries for five generations and currently farms approximately 1,900 acres of bog in the towns of Carver, Plymouth, Rochester and Wareham, in Southeastern Massachusetts, including approximately 42 acres of bogs north and west of White Island Pond in Plymouth (the "Makepeace White Island Pond Bogs"); and

Federal Furnace Cranberry Company ("Federal Furnace") currently farms 254 acres of bogs in the towns of Carver and Plymouth including approximately 47 acres of bogs north and east of White Island Pond in Plymouth (the "Federal Furnace Ware Bogs").

Both growers release irrigation return flows to White Island Pond.

3. Prior to December 31, 2011, DAR in association with CCCGA, UMASS and the Pilot Program Participants shall provide MassDEP with a report, to be prepared by CCCGA and UMASS, that summarizes the implemented practices and evaluates the efficacy of the implemented practices toward the reduction of nutrients discharged from the Pilot Program Participants' bogs in an effort to improve White Island Pond water quality and meet the goals of the Final TMDL. The report shall include results from a monitoring program to be developed for White Island Pond and discharges thereto from the Pilot Program Participants, and the possibility of incorporating the Pilot Program results into BMP guidance documents.
4. DAR agrees to work with MassDEP, CCCGA, UMASS and the Pilot Program Participants throughout the term of this MOA to evaluate the effectiveness of the implemented practices. MassDEP further agrees to work with DAR, CCCGA, UMASS should modifications to certain practices or additional practices be contemplated.

MassDEP's obligations:

1. For the term of this MOA, MassDEP agrees to extend enforcement forbearance to the Pilot Program Participants with respect to their compliance with Massachusetts General Laws Chapter 21 and Chapter 91 and 314 CMR 4.00 and 310 CMR 9.00 provided that (1) the Pilot Program Participants fully comply with the terms and conditions of the Pilot Program and (2) the implementation of this MOA does not result in a significant and/or immediate threat to public health, safety, welfare or the environment. This paragraph shall not preclude MassDEP from investigating complaints it receives regarding a Pilot Program Participant, nor from responding with appropriate enforcement to evidence that the Pilot Program Participant may have violated MassDEP's regulations or otherwise created a significant and/or immediate threat to public health, safety, welfare or the environment. MassDEP agrees to work cooperatively with DAR to provide compliance assistance to Pilot Program Participants prior to undertaking any enforcement action.
2. MassDEP agrees to work with DAR, CCCGA, UMASS and the Pilot Program Participants throughout the term of this MOA to evaluate the effectiveness of the implemented practices. MassDEP further agrees to work with DAR, CCCGA, UMASS should certain practices be modified, or additional practices be contemplated.
3. MassDEP agrees to analyze and review the data generated by this Pilot Program and prepared by CCCGA and UMASS in a timely manner in order to evaluate whether the practices are effective at meeting the requirements of the Final TMDL and Water Quality Standards for White Island Pond.

Joint Obligations of DAR, MassDEP, the CCCGA and UMASS:

1. DAR, MassDEP, and UMASS shall support the efforts of CCCGA to use the Federal Clean Water Act § 319 Non Point Source Grant to collect and assemble scientific data and provide potential engineering solutions to mitigate the discharge of phosphorus into White Island Pond using the White Island Pond complex as an "in situ laboratory." The

scope of work for the § 319 Non Point Source Grant project is attached as Appendix B to this MOA. In addition, CCCGA and UMASS shall work to ensure that any non-emergency discharge to White Island Pond, including winter flood releases, shall be sampled and analyzed to determine phosphorus concentration. CCCGA agrees to submit quarterly reports of the available analytical data to the Parties.

2. Upon MassDEP's issuance of the Final nutrient TMDL for White Island Pond, should it be determined that the provisions of this Agreement and the TMDL are inconsistent or differ in any way, the Parties to this MOA shall work together to re-evaluate the terms of the MOA to determine if any modifications or termination of the agreement should occur.
3. All Parties are hereby committed to work together to ensure implementation and evaluation of practices already in place, as well as to implement additional practices as follows:

PREVIOUSLY IMPLEMENTED PRACTICES:

1. During 2008, Makepeace undertook the following steps to reduce phosphorus discharge to White Island Pond:
 - A. Reduced phosphorus applications to a rate lower than the UMASS recommendation of 20 pounds per acre (lbs/ac) provided tissue test results indicated that phosphorus in the plants are being maintained within the adequate range;
 - B. Ceased fall fertilization;
 - C. Used slow-release, encapsulated phosphorus fertilizer;
 - D. Timed discharges of flood waters; and,
 - E. Conducted periodic tissue testing of cranberry plants to determine if any adjustment of phosphorus application is warranted.
2. During 2008, Federal Furnace undertook the following steps to reduce phosphorus discharge to White Island Pond:
 - A. Reduced phosphorus applications to a rate lower than the UMASS recommendation of 20 lbs/ac provided tissue test results indicated that phosphorus in the plants are being maintained within the adequate range;
 - B. Captured irrigation return flows when practical, and pumped these waters to an upland area over 1000 feet from White Island Pond where it seeps naturally into the ground;
 - C. Reduced the amount of harvest water pumped from White Island Pond by circulating water within the bog structure with pumps and flumes;
 - D. Added a new drainage line to increase pumping capacity from the drainage pump to the upland area, and
 - E. Conducted periodic tissue testing of cranberry plants to determine if any adjustment of phosphorus application is warranted.

PILOT PROGRAM PRACTICES UTILIZED IN THIS MOA

In addition to continuing to implement their respective practices described above, Makepeace and Federal Furnace agree to follow the guidance provided in the UMASS Cranberry Station BMPs and Chartbook; these documents can be accessed at:

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

In addition, Makepeace and Federal Furnace agree to implement the following:

Makepeace

1. Makepeace shall take the following steps with respect to the Makepeace White Island Pond Bogs consisting of Bog 1, Bog 2, Bog 3, Bog 4, and Bog 5 (as shown on Exhibit A, attached hereto), in an effort to achieve a maximum total annual discharge load of 9 kg total phosphorus (NOTE: the Draft White Island Pond TMDL assigns 9kg of total phosphorus as the maximum annual load that can be discharged from the Makepeace White Island Pond bogs, see Appendix A):
 - A. Take Bog 3 out of production, and convert this area into a new tail water retention pond ("New Retention Pond").
 - B. Redirect irrigation return flows, except for winter flood water, emanating from Bog 1, Bog 2, Bog 4 and Bog 5 into New Retention Pond.
 - C. A calculation of the volume of any release from Bog 1, Bog 2, Bog 4 and Bog 5 to White Island Pond (such as winter flood water) shall be provided in order to calculate phosphorus loads entering White Island Pond based on available phosphorus concentrations of such releases. The volume of flowed water shall be estimated based on acre-feet, and, where feasible, pumped water shall be metered.
 - D. If in any year the amount of irrigation return flow from Bog 1, Bog 2, Bog 4 and Bog 5 to the New Retention Pond exceeds the capacity of the New Retention Pond, then
 - (i) water in excess of New Retention Pond capacity will be pumped to uplands, and
 - (ii) the following year, Makepeace will install a sprinkler pump in the New Retention Pond and excess New Retention Pond water can be used to irrigate the Makepeace White Island Pond Bogs.
 - E. If, after December 31, 2011, Makepeace determines that all of New Retention Pond capacity is not needed to hold return irrigation flows from Bog 1, Bog 2, Bog 4 and Bog 5, then Makepeace may dike a portion of the New Retention Pond and convert and/or allow a portion to revert back into cranberry bog, following notice to DAR and MassDEP.

Federal Furnace

1. Federal Furnace shall take the following steps with respect to the Federal Furnace Ware Bogs, in an effort to achieve a maximum total annual discharge load of 10 kg total phosphorus (NOTE: the Draft White Island Pond TMDL assigns 10kg of total phosphorus as the maximum annual load that can be discharged from the Federal Furnace White Island Pond bogs, see Appendix A):
 - A. Capture irrigation return flows, with the exception of winter flood water, and pump these waters to an upland area over 1000 feet from White Island Pond, thereby eliminating any direct discharge of irrigation return waters from the Federal Furnace Ware Bogs to White Island Pond. The recharge of the irrigation waters allows the naturally occurring treatment of soluble phosphorus by the soils in the upland area.
 - B. Reduce the amount of harvest water pumped from White Island Pond by circulating water within the bog structure with pumps and flumes.
 - C. Install a second drainage pump to increase pumping capacity to the upland area in case of excess rain and to have a backup system available.
 - D. A calculation of the volume of any release from the Federal Furnace Ware Bogs to White Island Pond (such as winter flood water) shall be provided in order to calculate phosphorus loads entering White Island Pond based on available phosphorus concentrations of such releases. The volume of flowed water shall be estimated based on acre-feet, and, where feasible, pumped water shall be metered.

MODIFICATIONS

The terms of this MOA may only be modified by written agreement signed by all Parties.

TERMINATION

This MOA may be terminated by any Party, with or without cause, upon thirty (30) calendar days written notice to the other Parties.

If any Party fails to materially comply with any term of this MOA, such failure shall constitute a breach. The non-breaching Parties may then terminate the MOA upon five (5) calendar days written notice to the breaching Party.

Upon termination of this MOA for any reason, the Pilot Program Participants shall be subject to all applicable laws and regulations in effect at the time of termination.

MERGER CLAUSE

The provisions of this MOA shall constitute the agreement among the Parties for the above-described pilot project. Any prior or contemporaneous oral or written statements that alter, contradict, or are in addition to the terms of this MOA, are inadmissible.

In the event of a conflict between any provision of this MOA and any communication or assertion by the Parties, the provisions of this MOA shall govern.

SEVERABILITY

If any part of this MOA is determined to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality, or enforceability of any other part of this MOA, and the remaining parts of this MOA shall be enforced as if such invalid, illegal, or unenforceable part were not contained herein.

NOTICE

Any notice given pertaining to this MOA shall be sent in writing, by hand delivery or first class mail, to the following representatives of the Parties:

If to DAR:

Scott J. Soares, Commissioner
Department of Agricultural Resources
251 Causeway Street, Suite 500
Boston, Massachusetts 02114

And to:
Gerard Kennedy, Director for the Division of Technical Assistance
Department of Agricultural Resources
251 Causeway Street, Suite 500
Boston, Massachusetts 02114

And to:
Bob Ritchie, General Counsel
Office of the General Counsel
Department of Agricultural Resources
251 Causeway Street, Suite 500
Boston, Massachusetts 02114

If to MassDEP:

Laurie Burt, Commissioner
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

And to:
David Johnston, Acting Regional Director
Department of Environmental Protection
SERO
20 Riverside Drive
Lakeville, Massachusetts 02347

And to:
Jonathan Hobill, Acting Deputy Regional Director, Bureau of Resource Protection
Department of Environmental Protection
SERO
20 Riverside Drive
Lakeville, Massachusetts 02347

And to:
Office of the General Counsel
Attention: Daniel d'Hedouville
Department of Environmental Protection
SERO
20 Riverside Drive
Lakeville, Massachusetts 02347

If to CCCGA:

Jeffrey LaFleur, Executive Director
Cape Cod Cranberry Growers Association
3203-B Cranberry Highway
East Wareham, Massachusetts 02538

If to UMASS:

Carolyn DeMoranville, Station Director
UMASS Cranberry Station
1 State Bog Road, P.O. Box 569
East Wareham, Massachusetts 02538

Any Party may change a notice recipient by providing prior written notice of such change to the other Parties.

SIGNATORIES

The parties herein have read the above terms and conditions and hereby agree and approve same.

DEPARTMENT OF AGRICULTURAL RESOURCES Scott J. Soares Commissioner Department of Agricultural Resources 251 Causeway Street, Suite 500 Boston, Massachusetts 02114 Date: _____	DEPARTMENT OF ENVIRONMENTAL PROTECTION Laurie Burt Commissioner Department of Environmental Protection One Winter Street Boston, Massachusetts 02108 Date: _____
CAPE COD CRANBERRY GROWERS ASSOCIATION Jeffrey LaFleur Executive Director Cape Cod Cranberry Growers' Association 3203-B Cranberry Highway East Wareham, Massachusetts 02538 Date: _____	UMASS CRANBERRY STATION Carolyn DeMoranville Station Director UMASS Cranberry Station 1 State Bog Road, P.O. Box 569 East Wareham, Massachusetts 02538 Date: _____

APPENDIX A – *Draft Total Maximum Daily Load of Phosphorus for White Island Pond*

APPENDIX B – Scope of Services, *Phosphorus Mitigation Program for Cranberry Bogs on White Island Pond*, Project #09-05/319

Exhibit A – Makepeace White Island Pond Bogs

File: CRANBERRY MOA 5-6-2009