

2016

# The Massachusetts Cranberry Revitalization Task Force

*Final Report*

*A review of the Massachusetts cranberry industry, the complex challenges ahead, and recommendations geared towards stabilizing and revitalizing this critical sector of agricultural production.*



# Introduction

2016 represents the 200<sup>th</sup> anniversary of commercial cranberry production in Massachusetts. A native species, this iconic berry first started to be recognized as a commercial enterprise along the dunes of Cape Cod in 1816. Today, the Commonwealth's signature fruit and number one agricultural food commodity continues to be an integral part of the environment and economy of southeastern Massachusetts. However, recent trends in the cranberry industry have threatened the vitality of many Massachusetts cranberry growers.

The Cranberry Revitalization Task Force, created by an act of the Massachusetts Great and General Court, and comprised of members representing the Executive and Legislative branches of the government of the Commonwealth of Massachusetts and stakeholders within the cranberry industry, was convened in early 2016. The objective was to examine the status of the industry and the complex challenges ahead, and to develop a multi-pronged action plan geared toward stabilizing and revitalizing this beleaguered industry.

Cranberry growers in Massachusetts as a whole are not confronted by a single problem. The external challenges, be they a lack of capital, production costs per barrel increasing while crop values decrease, less productive bogs and other issues, are onerous. The Task Force, through this Final Report, identified potential strategies to support the industry. Through the work of its members, the Task Force focused on three main categories: 1) Renovation, 2) Technology & Innovation and 3) Exit Strategies. Solutions relative to Renovation and Technology & Innovation seek to address the efficiency and cost of production, a more controllable variable than the uncertainty of fluctuating prices per barrel. Additionally, Exit Strategies provide potential options to retire bogs and provide an economic incentive for growers to maintain land for conservation purposes.

This Final Report is not the voice of the administration or of one agency, individual grower or legislator, but rather the consensus of opinion developed by the Task Force's thoughtful and deliberative endeavors. This Report is not designed to be the end of the conversation, since like other sectors in agriculture, Massachusetts cranberry growers will undoubtedly continue to be challenged in the future. The Task Force recommendations for addressing immediate concerns, while laying the best possible framework for long-term, are reflected in this report for sustained revitalization of the Commonwealth's most valuable and historic agricultural commodity.



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## I. Industry Background

### a. The Economic & Environmental Value of the MA Cranberry Industry

Southeastern Massachusetts is Cranberry Country. The cranberry is the Bay State's number one agricultural food crop and Massachusetts is the oldest cranberry growing region in the country. In 1816, Captain Henry Hall first cultivated cranberries in Dennis, Massachusetts. Today there are approximately 13,500 acres of commercial cranberry bogs in the state, primarily in Plymouth, Bristol, and Barnstable counties. Since that initial crop, the state has become a leading producer, representing 15 percent of the world's cranberries. Massachusetts boasts some of the smaller growers with 70 percent of the state's growers being small family farms with less than 20 acres of bogs. Massachusetts residents take immense pride in this heritage of cranberry production: cranberry is the official state berry and color, and cranberry juice cocktail is the official state drink. Currently, five states produce the majority of the cranberries in the United States: Massachusetts, New Jersey, Oregon, Washington and Wisconsin (1).

According to the Cranberry Marketing Committee, cranberry production totaled 42,761 acres in those five states in 2014 (2). Massachusetts represents 31 percent of the total U.S. cranberry acreage. There is an additional 17,500 acres in Canada and Chile.

Although Massachusetts remains the second largest producer of cranberries in the United States, it has fallen behind Eastern Canada in total production. In 2014, Quebec, Canada outproduced Massachusetts for the first time with just over 2.4 million barrels of cranberries, while Massachusetts produced less than 1.9 million barrels (3). Wisconsin remains the top cranberry state with 4.9 million barrels produced in 2014 and 4.6 million barrels in 2015.

## **b. Economic Impact Analysis**

The following profile illustrates the cranberry industry's total economic impact in Massachusetts, based on data from a 2012 economic analysis conducted on Northeast Agriculture by Farm Credit East (4). In 2012, the total value of utilized Massachusetts cranberry production was \$99.8 million. While this study estimated economic value, it does not consider the value of non-market benefits, such as open space, scenic vistas or the positive impact the industry has on tourism.

Because the cranberry industry employs local labor and the purchase of goods and services from various industries, its economic impact cascades through the state economy, resulting in a "multiplier," or economic stimulus effect. Employment in the cranberry industry includes jobs on the farm/bog operations as well as in sectors that provide services and inputs to producers and processing and marketing entities. Without a strong cranberry production, the employment in cranberry related input and processing sectors will move to other states.

As with many agricultural sectors, there are more jobs created off-the-farm. While there are 2,114 full-time equivalents associated with cranberry farming in the Commonwealth, there are an additional 4,794 jobs in the support and processing sector that are dependent on cranberry production, resulting in a total of 6,908 jobs. The full economic impact to the state is some \$1.431 billion, critical to the overall strength of the Massachusetts economy and vital to dozens of communities and non-farm businesses.

## **c. Cranberry Processing in Massachusetts**

Massachusetts has five major cranberry receiving and processing facilities and several smaller businesses that grow and handle their own crops. The major handler/processors all have receiving stations and/or manufacturing facilities in Massachusetts, and include Lassonde Pappas & Company, Inc., Cott Corporation, Decas Cranberry Products, Inc. and Ocean Spray Cranberries, Inc. Combined, over 850 people work in this sector of the industry.

Massachusetts is the home of the grower owned cooperative, Ocean Spray Cranberries. Headquartered in Lakeville-Middleboro, Massachusetts, the corporate office employs people in marketing, sales, finance, IT, operations, ingredient technology, supply chain management, agricultural supplies, research & development, human resources, legal and communications. Ocean Spray also has the largest cranberry processing facility in the world based on size and barrels handled in a 610,000 square foot production and storage facility in Middleboro. The Middleboro plant has been in operation since 1966. Today it produces over 65 million pounds of dried cranberries and more than 2.2 million gallons of cranberry juice concentrate annually. In addition, two pilot plants on site develop new and innovative Ocean Spray products.

Decas Cranberry Products, Inc. operates a state of the art processing facility in Carver that produces a full line of cranberry products including cranberry concentrate, sweetened dried cranberries, and retail and fresh whole cranberries. They contract with over 125 independent growers in Massachusetts. Decas is one of the largest cranberry companies in the world, handling over 60 million pounds of cranberries. Cranberries processed and sold by Decas can be found in over 35 countries worldwide.

Cott Corporation and Lassonde Pappas & Company, Inc. have receiving operations in Massachusetts where fruit is received from growers, then cleaned, sorted and packed for shipment to freezers and

processing facilities out of state. Cott and Clement Pappas are publicly traded private label beverage manufacturing companies.

In addition, The “Buy Local” movement has sparked nearly a dozen growers to develop direct marketing business opportunities. Product lines represented include fresh frozen cranberries, cranberry condiments and cranberry wine.

#### **d. Investment in “Retooling” Cranberry Bogs: The Renovation Impact**

The demand for large size fruit used in the manufacturing of sweetened dried cranberries and the need to insure the long term survival of Massachusetts growers has sparked a “retooling” or renovation of many old style cranberry bogs. Massachusetts is the oldest commercial growing region in North America. Many of the cranberry bogs have been continuously producing for over 120 years and have cranberry varieties that were selections from the wild. While Massachusetts cranberry bogs have been resilient in their ability to continuously produce, they need to be “retooled” with newer, higher-yielding, modern varieties in order to compete long term with other growing regions such as Quebec and Wisconsin that have new, more productive varieties.

Investing in renovation of cranberry bogs has a direct local impact. It is a capital intensive endeavor that requires expensive skilled labor to operate equipment and investments in new irrigation equipment, as well as the purchase of raw materials such as sand and cranberry vines to rebuild the bogs. According to a 2008 study (5), the median cost to renovate cranberry bogs is \$33,317/acre. Since 2007, over 1,849 acres of Massachusetts cranberry bogs have been renovated, 14 percent of the active acreage in the state. The direct impact into the economy is valued at over \$61.5 million.

Renovation also has important environmental benefits. Many old bogs were significantly out of grade required large volumes of water to completely cover the beds for harvest or winter protection, New technology allows growers to design highly efficient systems that are laser-leveled, with state of the art irrigation and water management systems that greatly reduce water use. The renovation of many Massachusetts bogs has resulted in a net gain of 375 million gallons of water being conserved annually.



#### **e. Local Land Perspective: Carver, Massachusetts**

The Town of Carver has the largest cranberry production in Massachusetts, with over 2,500 acres of cranberry bogs. According to the Town of Carver 2010-2015 Open Space and Recreation Plan (6), the Town has approximately 11,987 total acres owned and controlled by the cranberry industry enrolled in

Chapter 61A (agricultural land taxation), under 80 different owners. This represents roughly 48 percent of the total land area in the town.

Forested uplands owned by the cranberry producers are developable land. Real estate developers often tout a bog view as an asset in a new home. This land is often at risk during times of economic decline in the industry, and when housing development needs increase. According to the 2001 Town of Carver Master Plan (7), the amount of adjacent land per one acre of cranberry bog had substantially declined from three to two acres. This occurred during the cranberry price crash experienced by the industry in 1999-2001; many growers were forced to sell off adjacent uplands for development.

The Town of Carver is vulnerable during an economic downturn in the cranberry industry, according to the town's Open Space plan. The long term success or failure of the cranberry industry could make a 50% difference in Carver's eventual population size. The 2014 Massachusetts Audubon Society report "Losing Ground (8), Planning for Resilience," stated that Carver is one of the top ten towns in Massachusetts experiencing new housing growth.

## **f. The Cranberry Bog System Provides EcoSystem Services**

Every acre of active cranberry bog is supported by roughly three-five acres of uplands and wetlands. These support lands and the cranberry bogs themselves provide a unique environment for many species of animals and plants. A six-week long spring wildlife utilization study called "Wildlife Utilization and Ecological Functions of Three Commercial Cranberry Wetland Systems in Eastern Massachusetts (9)" conducted on cranberry bog systems identified over 65 species of birds, 11 species of mammals, six species of reptiles, six species of amphibians and 11 species of fish. The diversity of wildlife compares favorably to other wetland systems. The variety of land including the bog and surrounding habitat include transitional grass areas, low shrub wetlands, forested uplands, open ponds and reservoirs that create a system with many important ecological functions.

## **g. Cranberry Tourism: Cranberry Industry Defines a Region**



An October 21, 2012 Boston Globe article "Tourism expands at plentiful cranberry farms (10)" featured the cranberry harvest as a perfect seasonal tourism opportunity for Southeast Massachusetts and a complement to the fall foliage season. Considering the public interest in connecting with "Know Your Farmer, Know Your Food" (11), the annual Cranberry Harvest Celebration held in Wareham draws thousands of visitors every Columbus Day weekend. Other

cranberry farmers provide visitors with the unique experience of harvesting berries in the bog during the season, as well as conducting cooking demonstrations with local chefs to highlight the versatility of the Commonwealth's official berry.

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## II. Cranberry Revitalization Task Force Background

The Cranberry Revitalization Task Force was formed by the Legislature through the passage of the Fiscal Year 2016 budget bill, signed into law on July 17, 2015. Through the enabling legislation (see appendix), the Task Force was to be comprised of the Secretary of Energy and Environmental Affairs or a designee, who would serve as co-chair; the Commissioner of Agricultural Resources or a designee; who would serve as co-chair; the Commissioner of Energy Resources or a designee; the Commissioner of Environmental Protection or a designee, the Commissioner of Fish and Game or a designee, three members of the House of Representatives, one appointed by the minority leader; three members of the Senate, one appointed by the minority leader; three representatives from the Cape Cod Cranberry Growers Association appointed by the Governor from a list of six names submitted by the Association; one representative of Ocean Spray Cranberries, Inc. to be appointed by the governor; one representative of an independent cranberry handler company to be appointed by the governor; one researcher from the University of Massachusetts at Amherst Cranberry Station to be appointed by the Governor; and one agricultural economist to be appointed by the Commissioner of Agricultural Resources. The Task Force was empowered to investigate short-term and long-term solutions to preserving and strengthening the commonwealth's cranberry industry.

The Task Force was established to bring the public and private sectors together to examine methods to promote innovation in and the revitalization of the cranberry farming community including, without limitation, examining the impact of increased fixed costs borne by the cranberry growing community, alternative and renewable energy uses for growers, and an investigation of the unique geography, culture, and needs of the cranberry industry.



## **a. Massachusetts Cranberry Revitalization Task Force Members**

*Co-Chair Secretary **Matthew Beaton**, Executive Office of Energy and Environmental Affairs  
(Designee – Deputy Undersecretary **Daniel Sieger**)*

*Co-Chair Commissioner **John Lebeaux**, Massachusetts Department of Agricultural Resources  
(Designee – Assistant Commissioner **Jason Wentworth**)*

*Senator **Viriato deMacedo**, Plymouth, Appointed by the Minority Leader of the Senate, Bruce Tarr*

*Senator **Marc Pacheco**, Taunton, Appointed by the President of the Senate, Stanley Rosenberg*

*Senator **Michael Rodrigues**, Westport, Appointed by the President of the Senate, Stanley Rosenberg*

*Representative **Susan Williams Gifford**, Wareham, Appointed by House Minority Leader, Bradley Jones*

*Representative **Paul Schmid**, Westport, Appointed by the Speaker of the House, Robert DeLeo*

*Representative **William Straus**, Mattapoisett, Appointed by the Speaker of the House, Robert DeLeo*

*Commissioner **Judith Judson**, Massachusetts Department of Energy Resources  
(Designee- Deputy Commissioner **Dan Burgess**)*

*Commissioner **George Peterson**, Massachusetts Department of Fish and Game  
(Designee – Deputy Director **Jack Buckley**)*

*Commissioner **Martin Suuberg**, Massachusetts Department of Environmental Protection  
(Designee – Deputy Regional Director **David Johnston**)*

***Dawn Gates-Allen**, Grower, Freetown Farms, Freetown*

***Matthew Beaton**, Grower, Beaton's, Inc., East Sandwich*

***Daniel Crocker**, Vice President, Cooperative Development & Special Counsel, Ocean Spray  
Cranberries, Inc.*

***Carolyn DeMoranville**, University of Massachusetts Amherst Cranberry Station*

***Catherine deRonde**, Agricultural Economist, Massachusetts Department of Agricultural Resources*

***Parker Mauck**, Director of Grower Relations and Corporate Purchasing, Decas Cranberry Products*

***Susan Meharg**, Grower, Cedar Meadow Cranberries, Plymouth*

## **b. Subcommittees and Members**

Due to the unique characteristics and extensive, diverse needs of the industry, as well as a very condensed timeline to adequately prepare a final report, the Task Force formed three subcommittees to address three major topics of industry concern:

### **1) Renovation**

Matthew Beaton, grower, Subcommittee Chair  
David Johnston  
Parker Mauck  
Susan Meharg  
Senator Michael Rodrigues

### **2) Technology & Innovation**

Dan Burgess  
Daniel Crocker  
Carolyn DeMoranville  
Catherine DeRonde, Chair  
Dawn Gates-Allen  
Representative Paul Schmid

### **3) Exit Strategies**

Jack Buckley, Chair  
Representative Susan Gifford  
Dan Sieger  
Representative William Straus

Each subcommittee was composed of three-five Task Force members including industry, agency and legislative members who met both between and during the scheduled Task Force meetings to 1) identify and develop viable options and 2) create detailed reports outlining each of the options developed. The subcommittee structure allowed for an in-depth analysis on specific components that challenge the industry. Recommendations from the Task Force are the result of the subcommittee work to both focus on specific topics as well as to understand the collective impacts on the industry as a whole.

### III. Findings

The Task Force reviewed and contemplated options available to support the cranberry sector. The background on the current market and supply status impacting Massachusetts cranberry growers was investigated. The Task Force discussed presentations about new marketing and product development initiatives underway by industry handlers and trade associations. The economic situation in the cranberry industry is multifaceted and complex considering the marketing infrastructure and geographic diversity of the production regions.

The cranberry industry experienced a severe economic collapse in 1999-2000, which impacted the entire industry regardless of geography or marketing affiliation. The industry sought and received federal assistance including direct cash payments to growers; USDA purchases of surplus cranberry products for federal food aid programs; and mandatory production restrictions imposed by USDA. The economic situation currently taking place in the industry has impacted growers in ways very specific to their marketing affiliations and production capabilities, thus it is not as dramatic a downturn to the whole industry as the collapse of 1999-2000. Furthermore, when the industry requested a production restriction in 2014, as they had in 2000 and 2001, USDA and DOJ rejected the request.

Massachusetts today, with the largest number of commodity producers receiving below cost of production returns, is in dire straits. Massachusetts also has the lowest yields per acre of the major growing regions due to proportionally larger numbers of acres planted to lower-yielding cranberry varieties. With a focus on Massachusetts growers, the Task Force was determined to develop solutions for the industry that include an array of options that a grower could choose, depending on their individual business situation. The options were narrowed down to focus on mechanisms: a) for those growers who plan to stay in the industry to remain competitive; and b) for those who for personal or financial reasons need to exit the industry to do so in a financially and environmentally viable way.

The cranberry industry owns and controls nearly 62,000 acres of land in a concentrated geographic region of southeastern Massachusetts. The ultimate disposition of the land resources owned by the industry could have long lasting impacts on development pressures as well as negative environmental consequences. The Task Force investigated options that could provide exit strategies for growers that at the same time provided solutions to environmental issues in the region. For example, cranberry acreage going out of production could provide viable solutions for wetland mitigation and water use challenges faced by the region.

Maintaining a viable Industry was focused on two areas: 1) improving production of individual grower acreage and 2) the utilization of technology and innovation.

Massachusetts growers seeking to remain competitive need to renovate older poorly producing acreage and to improve yields to compete with other growing regions with the new varieties of cranberries that can increase yields. Roughly fifty percent of the cranberry acreage in Massachusetts is planted with native, small fruit varieties with inherently low yields and limited utilization in the current marketplace. Sweetened dried cranberries are a growing market category, and require a specific size and quality cranberry from the newer hybrid varieties. Renovation of existing bogs, for the purpose of establishing



a different variety, can also provide an environmental and economic benefit to the region. The largest obstacle for cranberry growers to renovation their bogs is access to credit.

The University of Massachusetts Amherst has a long history of providing critical research and technical support to improve the economic and environmental sustainability of cranberry production and can be expected to be a critical resource for growers undertaking renovations and other activities to improve long-term sustainability. The Task Force identified state investment in support of horticultural research, conducted by UMASS, as a tool to improve the economic standing of growers. Investments in health benefit research being conducted by the University of Massachusetts-Dartmouth are also critical to drive demand for cranberry products. In this report, recommendations are made to address the unique requirements of the Massachusetts cranberry industry.

## IV. Recommendations: Legislative

### a. Pilot Cranberry Wetland Banking Program

The Task Force investigated a pilot program for an exit strategy that uses abandoned bogs for wetlands mitigation. Many Massachusetts cranberry bogs, particularly those in Plymouth County, are built on bogs mined for iron ore in the 1800's. Most of those on Cape Cod were developed in previously undisturbed peat bogs. These wetland bogs offer a unique opportunity to provide wetlands functions and values with minimal restoration. Massachusetts Wetland Protection regulations require wetland replication, provided as compensation for permitted wetland impacts. Such replication typically involves excavation of upland soils to a depth where the naturally occurring water table can support wetland vegetation. By substituting a "retired" wetland cranberry bog for such an artificial replicated wetland, the potential to actually replicate the function of the original wetland could be enhanced.

**The Task Force recommends that the legislature provide EOEEA authority to create a "pilot cranberry wetlands banking program" in watersheds within which cranberries are grown.** A public or private project proponent could purchase mitigation on a cranberry bog to be retired for the purpose of replacing the functions and values lost at the proponent's project site.

### b. Amend 61A: Cranberry Land Assessment for Conversion to Permanent Protection

Massachusetts M.G.L. Ch. 61A offers a property tax break for landowners willing to commit to keep some or all of their land undeveloped for a specified period of time. Cranberry acreage enrolled in Ch. 61A agricultural land assessment are required to pay a roll-back tax when those lands are converted to non-agricultural use. The rollback tax is assessed if the land use changes while enrolled in Ch. 61A or within 5 years of withdrawal from the Ch. 61A program. Rollback taxes are the difference between what the property tax would have been at the full assessment, known as Ch. 59 taxes, and the tax paid under Ch. 61A, plus 5% simple interest per year. The intent is to penalize landowners who utilized Ch. 61A for preferential tax treatment when the land was converted it to a potentially high value use such as a housing development. The Task Force identified that the same roll-back may be assessed even though the land may be converted to a conservation use through a federal conservation program, permanently protecting the land through an easement. This seems to counter the intent of Ch 61A which is to encourage continuance of open space.

Federal agencies such as the USDA Natural Resource Conservation Service have existing programs that purchase agricultural rights from prior converted wetlands such as cranberry bogs and restore them to their previous wetland function. **The Task Force recommends that Ch 61A section 12 be amended to insure no conveyance or rollback tax shall be assessed if the land involved, or a lesser interest in that land, is acquired for a natural resource purpose by a federal agency.** The law already exempts the change of use for natural resource purposes if the property or a lesser interest is acquired by a city or town, the commonwealth or a land trust.

### **c. Extension of Minimum Gross Sales Requirement Exemption**

In 2014 the Massachusetts State Legislature amended the M.G.L. Ch. 61A program by allowing an exception for cranberry producers to still remain in the program even if they are not producing a crop. The 61A program stipulates that a minimum of \$500 must be produced each year to remain eligible. With many cranberry growers not producing a crop, this eligibility cannot be achieved. The law was amended to enable growers to stay in the program through 2017, even with no income generated from the sale of a crop. With the immediate financial outlook for many growers still dire, there will be cranberry farmers not growing a crop beyond the 2017 harvest. **As a result, the Task Force recommends that the language allowing for inclusion in the program for cranberry growers with no crop produced be extended to calendar year 2020.**

### **d. Renovation Programs**

For growers looking to maintain long-term viability and better compete with the low-cost, high-yielding growing regions of Wisconsin and Quebec, bog renovation offers many benefits including the redesign of the physical dimensions for more efficient growing and harvesting; utilizing less fuel; and water and cutting harvest time. Renovation allows for the installation of automated irrigation systems and precise new bog layouts, employing lasers on the earthmoving equipment to guarantee the most level surface possible. Additionally, renovation offers an opportunity to cultivate and bring to harvest new cultivars that are either more desirable in the marketplace (utilized for sweetened dried products, large whole fruit, etc) and/or are a heartier strain. **Because these initiatives could increase yield and decrease the cost of production per barrel, the Task Force highly recommends bog renovation as a potential option for growers.**

#### **1). Renovation Loan Guarantee Program**

**The Task Force recommends the industry educates and informs the grower community of the availability of a guarantee loan program.** Many growers don't have access to capital in order to undertake the expensive task of renovating their bogs. The Task Force recommends that a guaranteed, low-interest loan program be created, enabling a public/private partnership to be created for the benefit of growers needing to retool their bogs. The state would provide the financial loan guarantee, allowing private banks to reduce their lending requirements, enabling growers that ordinarily are not eligible for capital improvement loans to qualify. The industry shall work with MassDevelopment to utilize existing programs to develop procedures for growers to take out private loans for bog renovation. MassDevelopment has committed to allowing cranberry growers to utilize their programs and will work with private banks to insure program success.

## 2). Renovation Tax Credit

**The Task Force recommends the creation of a tax credit program to help stimulate bog renovation.**

Growers that are able to retool their bogs through renovation are at an initial disadvantage due to significant assets spent on the renovation and a lack of income for several years until the bogs begin producing a cranberry crop. The Task Force recommends that a renovation task credit program be established for growers renovating their bogs. The details of such a program need to be researched and



established as legislation. The concept involves an annual program cap of \$2.0 million dollars, with a per grower cap of approximately \$75,000. If demand outpaces program dollars, a competitive ranking program can be established, which includes environmental considerations. There is consideration of making the tax credit saleable. This would provide immediate cash to the grower, while providing interest amongst private businesses, making the program potentially more beneficial to others in the Commonwealth. Details of this program will be further explored with the assistance of members of the Task Force who have expertise in other industry tax credit programs.

## 3). Grant Program through Ag Innovation Center

MDAR's Agricultural Innovation Center program is currently unfunded but, in 2007, the program provided \$1,500,000 as part of the CCCGA-administered bog renovation initiative. CCCGA was able to leverage these funds with \$3,500,000 in cash and an additional \$2,400,000 in in-kind support from growers themselves. Through this grant program, direct payments were capped at \$10,000 per acre and \$100,000 per producer. As a result, over 160 acres of cranberry bog were renovated, providing higher yields and more efficient methods for participating growers.

**The Task Force recommends that the Legislature seek legislation to fund and implement a Cranberry Innovation Center grant program at MDAR similar to the Ag Innovation Center program, but geared toward cranberry growing with an emphasis on renovation.** The \$10,000/\$100,000 cap proved to be very successful, so the Task Force recommends that the Legislature once again appropriate \$1,500,000 for this purpose with those same conditions.

### e. Cranberry Water Use Transfer Program

**The Task Force recommends the creation of a cranberry water use transfer program to mitigate water withdrawals with cranberry registrations/permits.** A cranberry bog ceasing production and not using its water management registration/permit in the same Tier two or three watersheds as another permitted water withdrawer looking to increase its withdrawal, could be used as mitigation. The Task Force is recommending that legislation be drafted to enable the Executive Office of Energy and Environmental Affairs to create a cranberry water use transfer program within the watersheds of cranberry production. This legislation would provide authorization that cranberry Water Management Act registrations and permits that could be used for mitigation.

## f. Creation of New Position: Economic Development Coordinator

There is a myriad of existing and to be developed programs, grants, and other resources available to cranberry growers from federal and state sources. For many growers, understanding these opportunities is complex and the applications can be daunting. In many cases, growers do not take advantage of these programs or don't pursue them in a logical and efficient manner. In direct grower testimony, the Task Force discovered that there is a glaring need for grower education about the programs including, how they work, what program(s) are the best fit, and how to apply. There is no person within the industry or state agencies that possesses this broad knowledge base. **The Task Force recommends the creation of a position titled "Economic Development Coordinator" that**



**would be managed by the Cape Cod Cranberry Growers' Association.** The MDAR budget will be increased annually for at least the next 3 fiscal years to support this position. The total amount budgeted would be 70% of the cost of the position, up to \$50,000 annually.

## g. Career Technical Cranberry Education Program

In Massachusetts, there are currently twenty Chapter 74 approved Vocational Technical Education programs that include a horticulture concentration. Unfortunately, cranberry agriculture is not a part of any of the curriculums. **The Task Force recommends the creation of a cranberry curriculum for Chapter 74 approved programs within the horticulture framework.** The University of Massachusetts Cranberry Station, UMass Stockbridge School of Agriculture, in conjunction with the Cape Cod Cranberry Growers Association and Fitchburg State University Vocational Technical Teacher Approval Program should consider developing a curriculum incorporated into the horticulture framework. This curriculum would bring a trained workforce to the industry.

# V. Recommendations: Industry

## a. Check-off Program for Research and Promotion

The Task Force discussed the creation of a "check-off" program that would generate funds from a mandatory tax on each individual grower's production. This revenue could be used to fund research, market development and promotion programs. Such a program exists in the Wisconsin cranberry industry and it generates roughly \$400,000 annually. The check off would require statutory authority and approval by the growers through a grower referendum. The industry considered such an endeavor previously, but lacked consensus to move forward. **The Task Force recommends that the cranberry industry first determine if it would support the creation of a mandatory "check-off."** Since that work

will determine the feasibility of moving forward, the Task Force declined to include this recommendation without knowledge of industry consensus.

## b. USDA to Enhance Access to Agricultural Conservation Easement Program for Cranberry Growers

The Task Force recommends that the industry work with the USDA Natural Resources Conservation Service (NRCS) to make the Agricultural Conservation Easement Program more useful for cranberry growers looking to exit the industry or “retire” some of their acreage. The existing program has cap restrictions that make the price unattractive to most growers. The process also takes too long for most growers to be able to wait when they are under severe financial distress. The programs need policy adjustments to be more financially viable and easier to navigate than the current rules allow.

# VI. Recommendations: Executive Office

## a. Farm Technology Review Commission

Created as a result of the Dairy Preservation Act of 2008, the Farm Technology Review Commission was comprised of representatives from various Massachusetts state departments including Environmental Protection, Public Health, and Revenue. Additional representatives included the Massachusetts Technology Collaborative and Governor appointees representing various facets of the dairy industry. The Commission was tasked with studying and recommending options for updating farming technology including, but not limited to, ways to promote energy conservation, collaborative purchasing, purchasing and selling of energy, energy saving technology and alternative options for sustainability and growth. The Commission also analyzed current regulations and statutes to ensure such regulations and statutes were not impediments to the adoption of farming technology.

After submitting its 2009 report as required by the enabling legislation, the Commission met another sixteen times between January 2010 and June 2012, filing two more reports in the process. Though constituted through the Dairy Preservation Act, the Commission came to study various aspects of agricultural technology.



As with other sectors of Massachusetts agriculture, cranberry growers would greatly benefit from a renewed Farm Technology Review Commission, broadening the scope to reflect the diversity of agriculture in the Commonwealth. **The Task Force recommends that the Secretary of Energy and Environmental Affairs exercise authority to re-establish the Commission with the same mandate and governmental agency composition, but to also include representatives from the cranberry industry and other agricultural sectors.** Should this vehicle not be appropriate for re-establishing and broadening the Commission, then similar language should be drafted as legislation.

## b. Environmental Bond Bill Cranberry Bog Restoration Program

House Bill 4375: "An Act providing for the preservation and improvement of land, parks and clean energy in the Commonwealth," section 2300-7020, directed the Department of Fish and Game to establish a program for the restoration and habitat protection of cranberry bogs and associated wetland systems and for the acquisition of land or interests in land by the Department of Fish and Game of environmentally-significant wetland habitats to preserve open space and to improve and protect natural water resources and quality that is essential to cranberry agriculture and plant habitat. The section was authorized at \$30 million. **The Task Force recommends the release of funding to create and fund the program.**

## c. Farm Viability Enhancement Program (FVEP)

The Farm Viability Enhancement Program (FVEP) is administered through MDAR, providing farmers with business planning and capital to implement plans in exchange for farmers' acceptance of temporary non-development covenants. Up to \$25,000 is available for farmers willing to agree to a covenant for a period of five years, and up to \$50,000 to farmers willing to agree to a ten year covenant. In FY2016, FVEP received \$650,000 in funding, receiving another \$125,000 in unexpended funds from another program.

A separate FVEP dedicated to cranberries previously existed, but merged with the current FVEP when participation among cranberry growers dropped. Factors for this decline in program us included program eligibility issues - particularly with regard to upland ratios, and creditors advising growers against the acceptance of covenants. While the program is available for growers seeking planning and financial resources to implement value added production, ag-tourism and crop diversification, the program rules as currently written prevent funds from being used for "on-going operational improvements, upgrades, or maintenance."

**The Task Force recommends that MDAR reevaluate the FVEP eligibility criteria and allow for renovation and custom, industry-specific technology upgrades to be an allowable "farm viability" improvement.** The Task Force is also recommending that MDAR explore establishing a separate Cranberry Viability Program to determine feasibility, potential participation and required resources.

## d. Agricultural Environmental Enhancement Program (AEEP)

MDAR's Agricultural Environmental Enhancement Program (AEEP), supports agricultural operations that are looking to install conservation practices that prevent direct impacts on water quality, ensure efficient use of water, as well as address impacts on air quality. Through a competitive grant process, farmers who are selected to participate in AEEP are reimbursed up to \$25,000 for the cost of materials and labor necessary for the installation of the approved practice.

Because of the water-intensive practices required to grow cranberries, the AEEP program is well-suited to provide support for growers to implement effective new processes. . A snapshot of cranberry projects funded by AEEP in the last three fiscal years shows that funds have been used to support, for example, the purchase and installation of automated irrigation systems to promote water conservation and quality, purchase and installation of lift pumps to perform tailwater recovery for water conservation,

purchase and installation of pesticide storage cabinets to preserve water quality and purchase and installation of a water conveyance system.

MDAR combines capital and federal funds to support the AEEP Program. Over the years, the AEEP Program has had a significant portion of the resources allocated toward cranberry growers due to the significant interconnection between cranberry production and water usage:

Fiscal Year	State Capital	Federal	Total Projects	Cranberry Project Funding (# of projects)
FY14	\$220,000	\$125,000	\$345,000	\$161,952 (17)
FY15	\$250,000	\$ 50,000	\$300,000	\$ 43,000 ( 4)
FY16	\$250,000	\$ 50,000	\$300,000	\$130,300 ( 8)

Because industry-wide adoption of processes and technologies to promote efficient use of water help do not just help to preserve environmental resources but also contribute to a lower cost of production per barrel, **the Task Force recommends that the Executive Branch seek to increase capital funding of the AEEP program and direct a dedicated portion toward cranberry production.**

#### e. UMass-Dartmouth Cranberry Health Research Center

House Bill 4375, "An Act providing for the preservation and improvement of land, parks and clean energy in the Commonwealth," section 7100-3002, contains the following provision: "provided, that \$500,000 shall be expended for a matching grant for health-related research through the Cranberry Health Research Center; provided further, that such funds may be carried over from year to year with subsequent appropriations and matching funds; and provided further, that use of such funds shall be done with the advice and consent of the Cranberry Health Research Center advisory board."

The UMass Dartmouth Cranberry Health Research Center (CHRC) is a collaborative established through a 2011 Science and Technology Initiative grant from the President's Office. The Center research directors are long-time established Dr. Catherine Neto and Dr. Maolin Guo, Department of Chemistry and Biochemistry. The CRHC's purpose is to provide scientific evidence for the role of the cranberry in health and nutrition by fostering collaborative research among the five UMass campuses and with other academic institutions, hospitals and private laboratories throughout the U.S. and Canada.

Initial funding provided seed grants for promising research in the areas of colon cancer and cardiovascular health and collaborations between UMass-Dartmouth, UMass Amherst and the UMass Medical School. Potential projects are contemplated regarding the interaction of cranberry with the gut micro biome, a promising area of research.

An example of the research outcomes to date: Dr. Neto and colleagues at UMass-Dartmouth have found that chemicals derived from cranberry extracts can selectively kill colon tumor cells in laboratory dishes. This led to collaboration with Hang Xiao, Ph.D., of UMass Amherst. His team had developed a mouse model that mimics the type of colon cancer associated with colitis, an inflammatory bowel condition that affects hundreds of thousands of people in the U.S. The researchers mixed cranberry



extracts into the meals of mice with colon cancer. After 20 weeks, the mice given the whole cranberry extract had about half the number of tumors as mice that received no cranberry in their chow. The remaining tumors in the cranberry-fed mice were also smaller. Plus, the cranberry extracts seemed to reduce the levels of inflammation markers in the mice. The dose in the mouse feed would translate for humans to about a cup a day of cranberries.

The CHRC is currently constrained by lack of funding to continue such preliminary research. Their goal is to identify private and public funding sources that will take Center projects to a level where clinical trials can be undertaken. Currently, the Center directors are applying for private foundation funding that would provide up to \$200,000 per year for three - five years. If successful, the private money would provide the matching funds required for the release of the \$500,000 authorized in House 4375, Section 7100-3002.

The Task Force is fully aware of the potential positive impact on the industry of scientifically proven health benefits of cranberry consumption. **The Task Force recommends the release of funds for the Cranberry Health Research Center under the terms of that authorization.**

#### **f. UMass Cranberry Station Facilities Upgrade**

House Bill 4375, "An Act providing for the preservation and improvement of land, parks and clean energy in the Commonwealth," section 7100-3002, contains the following provision: "For the purposes of the UMass Cranberry Station at East Wareham section of the town of Wareham for the design, construction, retrofitting and outfitting of enhanced laboratory space, including associated equipment and support to improve research performed by the station dealing with concerns including, but not limited to: (i) water quality and quantity; (ii) integrated pest management; and (iii) pollinator health and minimization of nutrient and pesticide use with the goal to reduce environmental impacts and at the same time enhance the sustainability of cranberry production in the commonwealth." This portion of the section was authorized at \$5 million.

Since 1910, the UMass Amherst Cranberry Station has conducted critical research and provided practical applications for cranberry growers in the Commonwealth. Today, challenged by the goal of making cranberry production sustainable as environmental concerns and the sprawl of urbanization increase, the Station research and outreach programs remain focused on water, nutrient, and pest management specializing in integrated studies of water conservation, water quality, and low risk pest control agents. As market forces and dietary guidelines change, there is a need for increased efforts in the area of fruit quality research from both a pest management and a plant physiology perspective.

As our climate changes, Massachusetts is becoming more like the New Jersey growing region. It is expected that the fruit rot disease complex will become even more challenging over the next decades. Driven by the requirement for high quality fruit, management of fruit rot already accounts for almost half of all pesticide applications to the crop. This disease complex could become a huge barrier to sustainability in the absence of research-based solutions.

Research efforts in Integrated Pest Management (IPM) have led to implementation of reduced-risk insecticides and low-dose herbicides, reducing environmental and human risks. Recently however, there is indication that new insecticide choices may pose a risk to bee pollinators. Since cranberry production is dependent on bee pollination, research is critical to assure that growers have pest management options that preserve pollinators and other beneficial insects. To reduce dependence on

herbicides, research is needed both in the area of non-chemical management and to identify IPM techniques that reduce weed populations, for example by limiting weed seed production or by enhancing the ability of the cranberry plants to outcompete weeds.

Water management is critical for a crop grown in wetland settings. Research can provide the basis for both improving water quality and for reducing the quantity of water needed in cranberry production. Improved understanding of nitrogen and phosphorus nutrition for new hybrid cultivars, development of protocols for preventing frost damage while using less water, and development and demonstration of techniques to reduce irrigation water needs will all play a role in improving the environmental sustainability of cranberry production.

Funds requested for the Cranberry Station will be used to modernize and expand the research facilities of the Station (including the creation of additional high quality laboratory research space), improve the environmental profile of the facility, and provide the research tools needed to support vigorous programs in cranberry water, pest, and nutrient management. Ultimately, the ability of the cranberry industry to thrive as an economic engine in the Commonwealth will be enhanced by a rigorous research and outreach effort focused on barriers to sustainability.

Using funds appropriated in the FY16 budget, UMass Amherst has engaged an engineering firm to conduct initial feasibility studies to further define the scope and requirements of the renovations/construction and to prepare the groundwork for implementing the project upon release of funds. **The Task Force recommends the release of funding as authorized to accomplish these facility upgrades, in coordination with DOER's Leading By Example Program.**

## **g. Alternative Energy Development**

Through on-farm alternative energy development, cranberry growers can reduce energy consumption, operating costs, emissions, and dependence on fossil fuels and promote farm viability and positive environmental impact. Across agricultural sectors, more farms are exploring alternate energy development for those purposes. However, there are challenges both common to agriculture and unique to the industry that cranberry growers may face.

Currently, the development of renewables on existing cranberry bogs and/or adjacent support lands require Wetlands Protection Authority approval in accordance with the Massachusetts Wetlands Protection Act (WPA). Because the intention of an agricultural alternate energy development project is



to lessen the residual impact of agricultural energy demand on the surrounding environment, the Task Force recommends that the DEP, working closely with MDAR and the CCCGA, explore potential regulatory changes regarding construction of renewables on agricultural use land impacted by the Wetland Protection Act, particularly cranberry bogs and adjacent support land.

Not every alternative energy project works for all, and whether wind, solar, or other, Massachusetts cranberry growers should be informed about available options. **The Task Force recommends that CCCGA and MDAR facilitate collaborations between cranberry growers and the Department of Energy Resources (DOER) and the Massachusetts Clean Energy Center (CEC) to explore renewable opportunities. Additionally, the Task Force also recommends that CCCGA and MDAR work with Mass Save Program Administrators to develop agricultural specific messaging to reduce barriers around electrical and gas reduction energy efficiency programs. The Task Force further recommends that CCCGA and MDAR work to target cranberry growers to promote existing energy efficiency opportunities offered under Mass Save, MDAR’s MA Farm Energy Program, and MDAR’s AgEnergy Grant Program as potential avenues of support.**

Cranberry growers interested in exploring alternative energy development could also face municipal zoning challenges. Renewable energy installations could trigger “change of use” of property if enrolled in Chapter 61A. **The Task Force recommends that MDAR and CCCGA work with the Department of Revenue (DOR) and DOER to identify and mitigate potential issues related to the impact of “change of use” under MGL Chapter 61A. Finally, the Task Force recommends that these agencies work with the Legislature to develop legislation to address any needed changes to the statute.**

## VII. General Recommendations

### a. Young Farmer Program

According to the United States Department of Agriculture (USDA) 2012 Agricultural Census, 31.4 % of Massachusetts farm operators are 55 or older and 17.2 % are 65 or older. The next largest percentage is 10.9%, representing farm operators 45 to 54 years of age. Among cranberry growers, the average age is over 60 years old. While Massachusetts agriculture as a whole is experiencing resurgence, driven predominantly by younger, direct sale-oriented farmers, higher scale commercial and commodity agriculture have largely failed to reap the benefits of this influx.

**The Task Force recommends a more directed, robust effort to identify current cranberry growers interested in succession planning and connect potential new farmers to these potential opportunities.**

The Task Force further recommends that MDAR and CCCGA work in tandem to engage stakeholder organizations such as New Entry Sustainable Farming Project, Land for Good, UMass Extension, Farm Credit East and nonprofits with a strong presence in local agriculture such as the Southeastern Massachusetts Agricultural Partnership, to develop and implement tools and events for new farmer outreach and work with existing cranberry growers to assist them in succession planning. Under the guidance of MDAR and CCCGA, the pooling of these resources drawing from stakeholders working in similar overlapping fields, will help maximize efficacy and provide a bridge between generations to preserve cranberry growing traditions.

### b. Municipal Guide for Understanding Agriculture

During testimony, the Task Force learned that there is a general misunderstanding of agricultural processes, state regulations and laws regarding cranberry agriculture. There is a need to educate municipalities, reducing problems while simultaneously increasing grower efficiencies. **The Task Force**

**recommends that the industry develop a guide that covers common cranberry practices and the relevant state laws that protect these practices.** This guide should be distributed to all towns with cranberry farms within their borders. Included in the guide should be relevant decisions from state agencies, including Attorney General by-law decisions. MDAR and other state agencies should assist in the completion of this guide.

## VIII. Implementation Timeline

<i>Recommendation</i>	<i>Responsibility</i>	<i>Type</i>	<i>Financial</i>	<i>Cost</i>	<i>Time Frame</i>
Pilot Cranberry Wetland Banking Program	Legislative	New	Non-Revenue		Immediate
Cranberry Water Use Transfer Program	Legislative/Executive	New	Non-Revenue		Immediate
Environmental Bond Bill Cranberry Bog Restoration Program	Executive	Existing	Revenue - Bond	\$30M (full line item)	Immediate
Cranberry Land Assessment (Ch 61A) for conversion to permanent protection	Legislative	Existing	Non-Revenue		Immediate
MassDevelopment Renovation Loan Guarantee	Executive	Existing	Non-Revenue	\$2.5M	Immediate
Renovation Tax Credit	Legislative	New	Revenue, non-cash	\$2.0M	Immediate
Grant Program through Ag Innovation Center	Legislative	Existing	Revenue	\$1.5M	Immediate
UMass-Dartmouth Cranberry Health Research Center	Executive	New	Revenue - Bond	\$500K	Immediate
UMass Cranberry Station Facilities Upgrade	Executive	New	Revenue - Bond	\$5.0M	Immediate
Farm Viability Enhancement Program (FVEP) changes for cranberry production	Executive	Existing	Non-Revenue		On-Going
Farm Technology Review Commission	Legislative/Executive	Existing	Non-Revenue		Immediate
Alternative Energy Development: Explore barriers to alternative energy development at the regulatory and municipal level	Executive	New	Non-Revenue		On-Going
Creation of new position: Economic Development Coordinator	Legislative/ Executive/Industry	New	Revenue	\$50K	Immediate
Career Technical Cranberry Education Program	Executive/Industry	New	Revenue	TBD	Long-Term
Check-off for Research and Promotion	Industry	New	Non-Revenue		Long-Term
Work with USDA to enhance access to Ag Conservation Easement Program for cranberry growers	Industry	Existing	Non-Revenue		On-Going

## VIII. Conclusion

The Cranberry Industry Revitalization Task Force convened during a critical period in the cranberry industry. Due to unprecedented influences in the marketplace, including a surfeit of cranberries from Wisconsin and Quebec, the Massachusetts cranberry sector must respond to compete and remain sustainable. There isn't one program or plan that will enable growers to immediately improve their economic situation. Instead, a series of initiatives that growers can select from will enable them to improve their production while simultaneously creating an improved environmental footprint. These improvements will position Massachusetts growers to be more strategically competitive, while being able to produce the quality and type of fruit demanded by a changing global marketplace.

Part of the revitalization effort focuses on utilizing or modifying existing state programs, the latter to better reflect the needs of today's farmer. Other programs will need to be created, through legislative, executive or industry led efforts. Many of these will involve the renovation of cranberry bogs and financial assistance to support these costly options.

Sadly, even with sound programs and policy, some Massachusetts growers simply will not be able to sustain their farms. Others may opt to "retire" some of their acreage and focus on their other bog properties. For these growers, exit strategies for taking bogs out of production will be required. The task force identified innovative programs to be established to create opportunities, such as a wetland banking program. Through forward-thinking ideas, the Commonwealth is poised to enhance environmental wetland benefits while bogs are going out of production.

Though the work of the Cranberry Task Force is completed, there remains much to be done. The recommendations presented in this report require a collaborative effort to accomplish, both in short and long-term timelines. The importance of the Massachusetts cranberry industry, from both economic and environmental perspectives has been well documented. The potential positive impact from the Task Force initiatives will be felt for years to come. The energy, ideas and commitment that resulted should provide a spring-board for further innovation and progress in the future. The commercial cranberry industry started in Massachusetts 200 years ago this year. It is only fitting that the Task Force complete its work in the bicentennial of cranberry production. The recommendations made today will help lay the framework for the next 200 years of Massachusetts cranberry production.

# X. Appendices

## 1. Enabling Legislation

**Chapter 46 S.162 of the Acts of 2015:** *Notwithstanding any general or special law to the contrary, there shall be a cranberry industry revitalization task force which shall consist of the following members: the secretary of energy and environmental affairs or a designee, who shall serve as co-chair; the commissioner of agricultural resources or a designee, who shall serve as co-chair; the commissioner of energy resources or a designee; the commissioner of environmental protection or a designee; the commissioner of fish and game or a designee; 3 members of the house of representatives, 1 of whom shall be appointed by the minority leader; 3 members of the senate, 1 of whom shall be appointed by the minority leader; 3 representatives from the Cape Cod Cranberry Growers Association to be appointed by the governor from a list of 6 names submitted by the association; 1 representative of Ocean Spray Cranberries, Inc. to be appointed by the governor; 1 representative of an independent cranberry handler company to be appointed by the governor; 1 researcher from the University of Massachusetts at Amherst Cranberry Station to be appointed by the governor; and 1 agricultural economist to be appointed by the commissioner of agricultural resources.*

*The task force shall investigate short-term and long-term solutions to preserving and strengthening the commonwealth's cranberry industry. The task force shall examine methods to promote innovation in and the revitalization of the cranberry farming community including, without limitation, the impact of increased fixed costs borne by the cranberry growing community, alternative and renewable energy uses for growers and an investigation of the unique geography, culture and needs of the cranberry industry.*

*The task force shall submit its findings, together with drafts of recommended legislation, if any, to the clerks of the Senate and House of Representatives, the chairs of the joint committee on environment, natural resources and agriculture and the house and senate committees on ways and means not later than February 1, 2016.*

## 2. Presentations from Task Force Meeting #1

### CCCGA Cranberry Task Force Briefing

<http://www.mass.gov/eea/docs/agr/boards-commissions/cccga-cranberry-task-force-briefing.pdf>

### CCCGA Bog Renovation Innovation Program Report

<http://www.mass.gov/eea/docs/agr/boards-commissions/cccga-bog-renovation-innovation-program-report.pdf>

### Cranberry Bog Options

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-cranberry-bog-options.pdf>

### Cranberry Marketing Committee

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-cranberry-marketing-committee.pdf>

### Farm Credit East and the Cranberry Industry

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-farm-credit-east-task-force.pdf>

**Renovation Mann Farms**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-mann-farms-renovation.pdf>

**Renovation Sure Cran**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-c-renovation-sure-cran.pdf>

**Renewable Energy on Cranberry Farms**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-renewable-energy-on-cranberry-farms.pdf>

**Task Force Handler**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-task-force-handler-presentation.pdf>

**Technology and Innovation – MDAR**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-technology-innovation.pdf>

**UMASS Cranberry Station Industry Viability**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-umass-cranberry-station-industry-viability.pdf>

**Wetlands Reserves Easement**

<http://www.mass.gov/eea/docs/agr/boards-commissions/c-wetland-reserve-easement.pdf>

**3. MINUTES: Meeting Minutes #1**

**MASSACHUSETTS CRANBERRY TASK FORCE**

**Minutes: MEETING #1**

**Friday, 2.26.16 10 AM – 3 PM**

**UMass Cranberry Experiment Station**

**UMass Cranberry Experiment Station, Wareham**

**Committee members in attendance:**

Dawn Gates-Allen, Freetown Farm  
Matthew Beaton, Beaton’s Inc. & Sure-Cran Services  
Jack Buckley, Director, Division of Fisheries and Wildlife, DFG  
Dan Burgess, Deputy Commissioner & Chief of Staff, DOER  
Daniel Crocker, Ocean Spray Cranberries, Inc  
Catherine de Ronde, Agricultural Economist, MDAR  
Carolyn DeMoranville, Director, UMass Cranberry Station  
Viriato (Vinny) deMacedo, Senator  
Susan Williams Gifford, House of Representatives  
David Johnston, Deputy Director, DEP  
John Lebeaux, Commissioner, MDAR  
Parker Mauck, Decas Cranberry Products, Inc  
Susan Meharg, Cedar Meadow Cranberry  
Michael Rodrigues, Senator  
Paul Schmid, House of Representatives  
Dan Sieger, Assistant Secretary, EEA

William Straus, House of Representatives

**Guest:** Brian Concannon, Senator Pacheco's office

**Call to order and introductions:** The meeting was called to order at 10:02 AM by Commissioner John Lebeaux, Chairman. Task Force member introduced themselves and a quorum was confirmed.

**Business items** were discussed including a 1) **Review of Task Force Snow Policy** and 2) **Review and adoption of Remote Participation Policy**. A motion to accept the Policy was made by Representative Paul Schmid and seconded by Senator Michael Rodrigues, and passed unanimously. 3) OML **"Certificates of Receipt" were collected** from Task Force Members. 4) The **Designation of subcommittee chairs and members** was discussed. It was determined that there would be subcommittees to address three major topics: Renovations; Exit Strategies and Technology; and Innovation options. Subcommittees will meet between Task Force meetings. A **motion to accept the three subcommittees** was made by Jason Wentworth, seconded by Paul Schmid and passed unanimously. Matt Beaton was appointed as chair of the Renovations subcommittee. Jack Buckley was appointed chair of the Exit Strategies subcommittee and Dan Burgess was appointed chair of the Technology and Innovation subcommittee. 5) **Schedule and operation of meetings**. Subcommittees were asked to arrange meetings and bring reports of findings to the Task Force meeting on 3.11.16.

**Morning Program:** Overview of Massachusetts cranberry industry: Brian Wick, CCCGA. An industry overview was provided. See presentation notes.

**Discussion:** The crisis is impacted by a lack of investment in technology, low interest from the next generation, high costs and lower production compared to other regions, less efficient bogs compared to Wisconsin and Quebec with large symmetrical acreage while some MA bogs are irregular in shape scattered over many areas. Quebec has very high production and government support to build the industry. MA growers are strongly impacted by the importance of wetland areas. These factors make the sector unsustainable for many farm families. MA growers need to invest in on-farm technology reduce environmental impacts and increase efficiencies.

**Marketplace situation:** Michelle Hogan, Cranberry Marketing Committee. See presentation notes.

**Discussion:** There is a large inventory on hand and low utilization. The sweetened dried cranberry byproduct is concentrate, which is in oversupply. Consumers are drinking less cranberry based juice beverages because of the war on sugar and new USDA Guidelines that focus on reducing sweetener consumption. The Cranberry Institute started research projects in 1990 to identify health attributes of the cranberry. The board includes US and Canadian members. A USDA Marketing Order was implemented in 2014 to address the oversupply, but it did not pass. Volume regulation is not considered a long term option, but rather marketing more product including international markets. There will need to be a focus on efficiency for decades to come, for a long term stable environment.

**The role of handlers in the marketplace:** Parker Mauck, Decas Cranberries & Dan Crocker, Ocean Spray Cranberries. See presentation notes.

**Discussion:** The industry is working to find solutions during this period of inventory oversupply. Ocean Spray is a cooperative and Decas is an independent handler. Massachusetts growers have older varieties and fewer high yielding and hybrid varieties compared to other cranberry producing areas in N. America.

**Evaluation of Cost of Production:** Cynthia Stiglitz & Patrick Kirby, Farm Credit East. See presentation notes.

**Discussion:** A grower with 100 acres shared that his earnings are less than \$2K per acre. Growers selling to Ocean Spray are slightly above the average and those selling to others are below. Another grower has renovated 30% of their acreage and focused on innovation which helps to use less fuel and labor but isn't a good business to pass onto the next generation.

**Break for Lunch:** A motion was made by Representative Susan Gifford, seconded by Parker Mauck and passed unanimously at 12:03 PM. The **meeting was reopened** by Commissioner and Chair John Lebeaux 12:36 PM.

**Afternoon Session: High Level Identification of Options for Short and Long Term Viability including subcommittee presentations and testimony from growers.**

**Renovation Initiatives subcommittee,** Introduction: Matt Beaton, Sure-Cran Services.

The importance of staying competitive was emphasized through renovation, modernization, retooling, and rehabilitation, though it is expensive. Removing old vines, squaring off bogs, and leveling the base can cost upwards of \$10K/acre. Renovating older bogs that are not level may require a 4"-10" layer of coarse sand. 1,100 yards/acre sand can cost from \$5/yard.

Drainage improvements include subsurface tile for drainage & irrigation. A big part of renovation is to save and conserve water. A laser leveling surface and installing new irrigation system can cost \$2K-\$3K /acre. Low emission diesel engines can cost \$25-30,000 or more. Improved frost protection w/ computer automation is important. Flooding utilizes the majority of water resources. Proper renovation can result in a 40-50% reduction in water use.

Planting & plugs are important. Rutgers University has genetically pure, patented hybrids that yield 350-450 per barrel /acre. Vine costs vary. A traditional planting of non-Rutgers varieties such as Stevens, Gryleski, and Hy-Red varieties cost \$2-8K per acre. Large fruit varieties represent 50% of Massachusetts acreage. Renovation costs are increasing. For example, a 2014 renovation cost \$26,483/acre compared to 2015 renovated costs at \$27,178/acre. It's important to renovate as efficiently as possible since production is lost for 2 - 4 years during renovation.

The average age of growers in Massachusetts is 60. The industry needs younger growers and depending on the size of their bogs, may have different needs. Access to credit, renovation incentives, grant programs, tax credit option and other incentives are important.

**Discussion:** A huge barrier to renovation is that growers don't know if it's worth the investment. Even with a five year plan, growers have to constantly re-adjust and re-invest. The two biggest variables are price of the fruit and interest rates. Farm Credit East has been helpful. Some growers are breaking even at about 6 years. The capital appreciation of the bog value is important for loans.

**Grant opportunities:** Keith Mann, Mann Farms. The future for MA growers is bright if there are renovations and investments for efficiencies. Grant funds were important for the farm to create an infrastructure for the most cost effective renovation in subsequent years. Renovation is very challenging economically - 30 - 50K per acre with break even in 5 - 6 years. There is a loss of production typically over 2-3yrs.

**Testimony: How renovation has helped his business:** Jeff Kapell, Kapell Cranberries. A grower since 1979, Jeff discussed costs of renovations. What's most important is the difference between the current yields compared to the higher yield after bog renovations. Efficiency is key. Renovation looks at cost of per acre basis while revenue is based on cost per barrel. NRCS and Farm Credit East were important partners.

**Discussion:** There are issues of efficiency relating to the cost of labor and fuel when bogs are located in many sites. If the yield were higher, this would be less of an issue and growers could compete well with Wisconsin and Quebec.

**Exit Strategies subcommittee:** Dawn Allen, Freetown Farm LLC & Jack Buckley, Director, Division of Fisheries & Wildlife. A Wetlands Bank could be reestablished for bog restoration into wetlands. Local municipalities may be reluctant regarding wetlands. The banker assumes the liability of the mitigation. The grower may have an expectation of value much higher than how to translate to value in wetlands.

**Discussion:** If bogs are converted to wetlands, it's very difficult for a new grower or the next generation to put that acreage back into a bog. According to USDA, 52% of farms don't have a 2<sup>nd</sup> generation. A program to connect with exiting farmers should be considered.

**Ag Conservation Easement Program, Wetland Reserve Easement:** Mia Halter, District Conservationist, NRCS. See presentation notes. A review of programs available was discussed including the Wetland Reserve Easement (WRE) program from the previous farm Bill.

**Discussion:** Not every bog qualifies for the program. Consultant Iain Ward, New England Consulting Services, described how a NRCS Wetlands Reserve program helped a grower he worked with.

### **Technology & Innovation subcommittee**

Introduction: Catherine deRonde, Agricultural Economist reviewed MDAR programs including promotional opportunities to stimulate demand. See presentation notes.

**Testimony: UMass Cranberry Station:** Hilary Sandler, Extension Assistant Professor.

The Station conducts critical research and provides practical applications for growers. The Station has two working bogs on 18 acres. An important focus is pest management issues, diseases including fungal fruit rot which is the biggest impediment to growing cranberries, weed management, and water quality and quantity issues which are paramount. The perfect cranberry is resilient in the face of climate change and is a sustainable business. New cultivar research is ongoing. Pollinator health is critical as well and reducing phosphorus use as part of nutrient management practices. MA growers are behind because there is a need to modernize with larger berries versus native berries since growers get paid by

the pound. New technologies focus on more efficient, improved production; more efficient, delivery and diagnostic systems such as a boom applicator for fertilizer, uses for drones, and weed mapping.

**Discussion:** The proposed \$2M item in the Environmental Bond Bill to renovate the UMASS Cranberry Experiment Station facility was not included in the Supplemental budget.

**Testimony: How innovation and technology has helped her farm:** Dawn Allen, Freetown Farm. A new harvesting machine can reduce the timeline 30 - 40%. What used to take an hour can be accomplished in 15 - 20 minutes leading to a 30% reduction in fuel.

**Testimony: Solar opportunities and Renewable Energy on Cranberry Farms:** Keith Mann, Mann Farms Inc. Renewable energy can provide additional revenue. Solar installations have little impact on the function of wetlands yet provide great environmental benefits.

**Discussion:** Growers may not be aware of options relating to solar.

**Business items:** The section of the FY16 Budget that established the Cranberry Task Force was reviewed. Commissioner and Chair John Lebeaux thanked UMASS, CCCGA, Ocean Spray, Decas Cranberries, sister EEA agencies, the general court, aids, growers, industry, the general public and MDAR staff. **Action:** Subcommittee expectations were reviewed, as well as the details for the next meeting of the Task Force.

A **motion to adjourn** was made by Representative Gifford, seconded by Representative Schmid and passed unanimously at 2:42 PM.

## Meeting Minutes #2

### **MASSACHUSETTS CRANBERRY TASK FORCE** **Minutes: MEETING #2** **Friday 3.11.16 10 AM - 3 PM** **UMass Cranberry Experiment Station, East Wareham**

#### **Committee members in attendance:**

Dawn Gates-Allen, Freetown Farm  
Matthew Beaton, Beaton's Inc.  
Jack Buckley, Director, Division of Fisheries and Wildlife, DFG  
Dan Burgess, Deputy Commissioner & Chief of Staff, DOER  
Daniel Crocker, Ocean Spray Cranberries, Inc  
Catherine de Ronde, Agricultural Economist, MDAR  
Carolyn DeMoranville, Director, UMass Cranberry Station  
Viriato deMacedo, Senator  
David Johnston, Deputy Director, DEP  
John Lebeaux, Commissioner, MDAR  
Parker Mauck, Decas Cranberry Products, Inc  
Susan Meharge, Cedar Meadow Cranberry  
Michael Rodrigues, Senator  
Paul Schmid, Representative, House of Representatives

Dan Sieger, Assistant Secretary, EEA  
William Straus, Representative, House of Representatives  
Susan Williams Gifford, Representative, House of Representatives  
**Guest:** Brian Concannon, Senator Pacheco's office

**Call to order and introduction:** The meeting was called to order at 10 AM by Task Force Chairman Commissioner John Lebeaux.

**Task Force Subcommittees convened** in separate locations from 10 AM - 12. At 12:48 PM after lunch, **the full committee reconvened.** A **motion was made to appoint** Susan Meharge to the Renovation Initiatives subcommittee by Representative Paul Schmid and seconded by Parker Mauck. Subcommittees reported out on options for short and long term viability including A) Technology and Innovation Initiatives B) Technology and Innovation and C) Exit Strategies.

### **A. Technology and Innovation**

#### **Sub-Committee Report by Catherine DeRonde**

1. Provide tech resources including federal, state and private partners. A system could be developed to assist growers to navigate this system.
2. Develop energy best management practices. The MA Farm Energy Program could develop resources.
3. Explore specific alternative energy issues, for example related to Wetlands Protection, 61A and local zoning issues.
4. Engage the Farm Technology Review Commission, to identify regulatory obstacles. The Commission should remain active. Seats should be expanded with legislative changes to include a cranberry grower.
5. Support funding for the Cranberry Research Station including alternative funding options such as USDA Rural Development funding II.
6. Review MDAR's Ag Environmental Enhancement Program to explore new funding. Program interest typically exceeds available funding. Develop cranberry specific Ag Business Training. Address eligibility requirements to increase program accessible for cranberry growers.

#### **Explore promotional programs.**

1. Focus on the culture and heritage of MA growers. The benefits may be less tangible however the impact may be important.
2. Target industry grant programs such as the USDA Multistate Specialty Crop Grant.
3. Promote options and provide support for individual growers including agritourism, MDAR's Farm Viability Program, Commonwealth Quality and other relevant programs.
4. Support all possibilities to fund the Cranberry Research. Health information drives sales.

**Discussion:** It's critical for growers to know about these programs. Changes to 61A should be considered. Normal agricultural practices are frequently interpreted differently across different municipalities, in some cases disqualifying growers from 61A. If a farm invests in alternative energy it can be complex. A policy document with guidance for assessors would be helpful, especially relating to energy. In some cases developers will pay roll-back taxes for but typically not for small farms. AEP helps with mitigation of impact on local resources. Using water more efficiently would be under AEP.

## **B. Renovation Initiatives Sub-Committee Report by Matt Beaton**

**1. Cranberry Renovation Loan Program:** Low interest loan program specifically designed for the unique requirements of cranberry renovations. Repayment would be interest only for first 3 years until bog started producing again. Total 10 year loan, with an annual cap of \$100,000 per grower. The risk can be either held entirely by state or divided between state, private lending institution and grower. There is a need to create a program that would provide commodity producers access to credit to conduct renovations that they would not have normally had from a commercial lender.

Consider a revolving loan base with 1/3 available each year for first 3 years. The loan can be utilized in combination with other programs like FVEP or AIC.

**2. Grant Program through Ag Innovation Center:** Provide grant program to support renovation. Direct payments based on previous programs: 2007 program capped at \$10,000/acre. This program exists, but is not funded. Program was used in 2007 for the CCCGA administered bog renovation initiative resulting in 160.5 acres renovated. \$1.5 million made available in 2007 and was matched with \$3.5 million cash and an additional \$2.4 million in-kind. Support a budget line item in MDAR FY17 Budget to fund this.

**3. Renovation Tax Credit:** Provide a tax credit to producers who conduct renovation. Develop a program similar to the dairy margin protection, but specifically to encourage renovation. The credit may be claimed against the taxes due pursuant MGL Chapter 62. Growers would receive the credit when they file their tax returns. Another option is program similar to Conservation Tax Credit

**4. Farm Viability Enhancement Program (FVEP):** Provide business planning and capital to implement plan in exchange for temporary non-development covenant. Up to \$25,000 is available for farmers willing to agree to a covenant for a period of five years. Up to \$50,000 is available to farmers willing to agree to a ten year covenant. Awards of up to \$75,000 may go to farmers with at least 135 acres, agreeing to a ten year covenant.

**Discussion:** This program exists. There was at one time a specific cranberry program, but it was merged with the regular FVEP when participation dropped off. There are some eligibility issues for cranberry producers relating to upland ratios. Consider changing t so that it is specifically for renovation. Program rules specifically say "we do not wish to fund normal on-going operational improvements, upgrades or maintenance". Renovation projects are at a competitive disadvantage.

**5. Linked Loan Program:** Created under the Dairy Farm Preservation Act, the program administered by MDAR created a \$25 million loan pool for low interest four-year loans specifically for agriculture not to exceed \$500,000. The funds were to be "linked investments" with Farm Credit or linked deposits with

other commercial lenders who serve agriculture. Eligible projects included “a project on a farm that will improve the economic viability of the farm, expand farm facilities... support environmental projects...expand and support markets and infrastructure to strengthen the farming industry.” The program was never funded or implemented. Current interest rates may not make this a viable option.

**Discussion:** MDAR's Farm Viability Program could review eligibility requirements to include bog renovations. How can the obvious benefits of renovation be attractive to growers with a negative cash flow? If the programs are complementary, a grower might be in a position for zero cash requirements up front. It makes sense to choose one program to be more viable politically and economically, and other program support. Compare a state revolving approach versus a loan guarantee program. Does the program allow for a staged commitment over time? The loan revolving request would be a first ask in a short time. The other program is a lower ask, unless a grower fails. It could be administered and serviced by commercial lenders. Mass Development can be asked for advice. There isn't time to wait for a loan guarantee. Explore both MDAR and MA Development for advice. Revolving loan programs can be reviewed but none currently exist in the ag industry. Public bond funds can't be used for private property. These program ideas should be fleshed out by those that do this on a regular basis. It would be helpful to double the size of the previous program, without the caps, making the programs accessible to more growers. Timing is critical. Growers need to know by this fall to plan bog renovations.

Example of Dirt Capitol organization: Investors buy a farmland and lease it back to growers for 5 - 7 years with an option for purchase. New growers have more flexible financing. The demographics in the cranberry sector are older. Younger farmers need options to be credit worthy. Many cranberry growers at this time are not in positive cash flow.

### **C. Exit Strategies Sub-Committee Report by Jack Buckley**

This committee focuses on options if other strategies don't work. It would be helpful to understand magnitude of the problem - how many bogs does this effect? There are two types of exit strategies: 1) if a grower is consolidation and abandoning some bogs and 2) if a grower is going out of business and abandoning the bogs. Strategies that were discussed included:

#### **1. Banking - limited in scope and applied to cranberry bogs**

Conservation banking can be considered, as a way of creating banking. DEP would be a partner.

Water banking or monetizing the water rights that are held in the industry can create value.

Bog banks would take existing bogs that might be abandoned for lease or sale to other growers or new farmers. Pollinator habitat could be considered to add value to abandoned bogs.

Abandoned bogs going into commercial solar production need further discussion.

**2. Chapter 61A with a focus on taxes.** If the bog goes into conservation uses, it would be exempt from taxes. This would be concentrated on the cranberry industry only. This could be addressed legislatively. Currently, it's up to the assessors of each town.

**3. Lands for Good.** Acquire the land but back to growers - to keep farmland as farmland.

**Discussion:** Consider a focus on "Buy Local" and switching to other crops. Local food is a \$7 billion industry. Southeastern MA and the Northeast is a water rich area. Think about keeping the land in agriculture to help feed people in the future. There are many options for crops with similar pH requirements. With the last industry downturn, alternative complementary crops were identified, though only a small niche group took advantage of that information. It's a big change to go from wholesale growing to direct marketing although people want to buy local and they want to know their farmer. Local is good but it's a niche market if you are growing thousands of pounds of cranberries. Cranberries are perennial crop. This is one of the few areas in the world cranberries can be grown. Once production goes out, it often doesn't come back. It's critical to maintain an agricultural blueprint.

Consider a pilot program for banking water rights from a property rights standpoint. Bog owners have water rights which should be considered a financial asset with monetary value. After 5 years of being unattended, a bog is considered abandoned by the state. That time period should be longer since there may be a turnaround nationwide or globally, and growers should be able to return. For example EPA and Army Core don't have a defined timeline. There isn't time to change regulations but they should be identified. The real environmental pressure comes from the industry going out of business. If the industry stays viable, development stays out. There should be an option restore wetlands back to bogs. Can 40A be amended for more predictability to avoid conflicts with local municipalities?

**Next steps for the Task Force:** Between now and the next meeting, MDAR staff, industry, CCCGA and members of the subcommittee can organize the three draft reports with a menu of specific options, according to a template. These can be prioritized/ranked at the next meeting. Options should include what avenues need to be taken, for example from who and as much detail as possible regarding statutory, regulatory, policy or funding requirements. Including numbers, dollars, caps, acres and any relevant details will be helpful. Checking in with Mass Development as needed is important. Some of the issues require additional information. Water rights and monetizing are important but require a significant legal and regulatory analysis. The bigger ticket items are more important otherwise there will be no need to worry about 61A. The biggest items need to help the highest number of growers.

Each subcommittee can review their reports and then report out for potentially the framework of a final report and vote. Some things need to be implemented at the end of the harvest season - or there will be a 12 month delay. Some programs such as the loan guarantee may just need fine tuning.

MDAR will provide a report to both houses upon completion of the work of the Task Force. It's important to keep the attention of legislators. Legislators at this meeting would like to go to colleagues with a list of findings and for information to develop language for legislation. The secretariat will also review the report.

A **Motion to adjourn** was made at 2:35 by Jack Buckley and seconded by Dan Crocker.

## Meeting Minutes #3

### MASSACHUSETTS CRANBERRY TASK FORCE

Minutes: MEETING #3

Monday, 3.28.16 10 AM - 3 PM

UMass Cranberry Experiment Station, East Wareham

#### Committee members in attendance:

Dawn Gates-Allen, Freetown Farm  
Matthew Beaton, Secretary, EEA  
Jack Buckley, Director, Division of Fisheries and Wildlife, DFG  
Dan Burgess, Deputy Commissioner & Chief of Staff, DOER  
Daniel Crocker, Ocean Spray Cranberries, Inc  
Carolyn DeMoranville, Director, UMass Cranberry Station  
Catherine de Ronde, Agricultural Economist, MDAR  
Viriato deMacedo, Senator  
Susan Williams Gifford, House of Representatives  
David Johnston, Deputy Director, DEP  
John Lebeaux, Commissioner, MDAR  
Parker Mauck, Decas Cranberry Products, Inc  
Susan Meharg, Cedar Meadow Cranberry  
Michael Rodrigues, Senator  
Paul Schmid, House of Representatives  
Dan Sieger, Assistant Secretary, EEA  
William Straus, House of Representatives

**Call to order and vote to approve minutes:** The meeting was **called to order** at 10:12AM by Commissioner John Lebeaux, Chairman. **Secretary Beaton shared his greetings** and complemented the legislative delegation and the Task Force members for their commitment to the process. He is enthusiastic to hear the findings of the Task Force considering the importance of the cranberry sector, a vital industry in the Commonwealth. Commissioner Lebeaux asked for the subcommittees to review their recommendations and then reconvene. A fourth meeting will be needed to endorse and adopt the recommendations. Between this and a fourth meeting, MDAR staff would develop a draft of a final report, which will include the subcommittee recommendations to submit to the general court. It was noted that Ian Trombly from Congressman Keating's office was in attendance. The minutes were reviewed and recommended edits. A **vote to make the edits was** made by Representative William Strauss and seconded by Representative Paul Schmid. A **motion to adopt the minutes** was made by Dawn Allen, seconded by Parker Mauck and passed unanimously.

**New Business:** Subcommittee Reviews of Draft Reports. At 10:27 Commissioner Lebeaux asked the three Task Force Subcommittees to withdraw to their respective rooms and discuss their draft reports.

The entire **Task Force reconvened** at 11:50. Exit Strategies: Jack Buckley reported out recommendations from the **Exit Strategies Subcommittee**. All recommendations were unanimously approved by the subcommittee. See separate notes.

Brian Wick reported out on findings from the **Renovation Subcommittee**. See separate notes.

Between the Renovation Loan Guarantee and the State Revolving Loan fund, there was a recommendation to focus on the Renovation Loan Guarantee which gets more growers into the program faster. The Revolving Loan Fund would take many years to get to a size that growers could take advantage of.

A **motion to accept the recommendations** was made by Parker Mauck and, seconded by Senator deMacedo passed unanimously.

Catherine deRonde reported on the **Innovation and Technology** subcommittee recommendations, all ranked as high, medium and low. See separate notes. Two additions were made:

- 1) The creation of an Economic Development Coordinator to assist growers to discuss and sort the available options. Action required: A contribution agreement between MDAR and CCCGA to fund this position. This is ranked as high and immediate.
- 2) A focus on preparation for young farmers with an educational program at vocational school level that includes internships mentoring. Bristol Aggie would be a good candidate since it is located in southeastern MA where there is concentrated cranberry production. This is ranked as medium and long term.

**Discussion:** One of the recommendations is for a grower research check off program, which is ranked medium and long term and could be modeled after a program in Wisconsin. It would show that the industry is vested. In addition, the value of what CCCGA and the industry do in terms of marketing support should be quantified, including support through CMC. The major consensus was that there must be strong industry support prior to moving ahead with this type of government mandate. Buy in needs to be established, starting with education prior to a referendum.

A **motion to accept the recommendations** was made by Motion made by Dan Sieger, seconded by Dawn Gates-Allen and passed unanimously.

**Discussion:** Representative Strauss made a **motion to adopt in principle** the subcommittee reports, subject to a final report. It was seconded by Jack Buckley and passed unanimously. There was a recommendation to list 61A issues out specifically. Several formats for the final report were considered including a list of recommendations that require executive, regulatory or legislative action, and an implementation strategy. It would be helpful to identify costs. For example, the recommendations include \$2.5M for loans, \$1.5 M for GIC, \$2M in tax credits and resources for a new position. Funds needed to keep MDAR's Farm Viability program robust should also be included and if it should be through direct appropriation or bond money. A grid could include funding sources and the amounts needed and a second grid with actions needed and ranking of each of the projects on both of those grids.

**Public access:** None

Commissioner Lebeaux asked for a motion to **recess for lunch** which was made by Dawn Gates-Allen and seconded by Representative Susan Williams -Gifford. It passed unanimously at 12:32 PM.

The **meeting was reconvened** at 1:03 PM by Commissioner Lebeaux.

**Discussion** continued about the report format. The industry would like action as soon as possible. Breaking the report out according to action rather than subcommittee was suggested. Ranking could be done in terms of time sensitivity for the industry and the legislative calendar. Draft legislative language would be very helpful. This year's supplemental budget is most likely the only option this year. Once the report is approved, MDAR's legislative contact can meet with EEA to discuss appropriate legislation that would be filed by the Governor. The importance of noting options for both cranberry growers looking to be efficient in production AND those looking to exit must be addressed equally.

**Action:** MDAR will draft a report for discussion at the next meeting, including appendices. Jeff LaFleur will look into legislative language on banking issues. Jack Buckley will look into previous legislative language.

**Other Business:**

The next Cranberry Task Force meeting will be May 2nd at the Cranberry Experiment Station in East Wareham, 11 AM - 3 PM. Commissioner Lebeaux thanked task force members especially legislative members, CCCGA, UMASS, Handlers, and MDAR staff. Catherine deRonde was recognized for her work as the Task Force point of contact and coordinator. A **motion to adjourn** the Task Force was made by Paul Schmid, seconded by Dawn Gates-Allen and unanimously passed.

**Cranberry Task Force** *Viability Options for Discussion Purposes*

March 28, 2016 Meeting

**Exit Strategies for Growers Leaving Industry**

<b>Program</b>	<b>Cranberry Wetland Banking Program</b>
<b>Purpose</b>	Payment by public and private sector for bog restoration as a wetland mitigation option.
<b>Government Branch</b>	Legislative, Executive; EOEEA, MADEP, F&G
<b>Comments</b>	Program does not exist in MA. Would be ground breaking. DEP could have authority to develop on own, however legislative authority may be needed. Environmental community looking for alternative options to mitigation. F&W has similar program for natural heritage program. A centralized bank needs to be created to list available cranberry restoration opportunities and handle transactions.
<b>Action Needed</b>	Legislative approval for DEP to authorize a pilot project.
<b>Type of Action</b>	Legislative Authority, Regulatory

<b>Program</b>	<b>Cranberry Water Mitigation Banking Program</b>
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<b>Purpose</b>	Mitigate municipal and golf courses water withdrawals with cranberry registrations/permits.
<b>Government Branch</b>	Legislative, Executive; EOEEA, MADEP, F&G
<b>Comments</b>	Water Management Act Regulations changed in Nov. 2014 that requires public water suppliers and golf courses looking to increase their water withdrawal permit to implement mitigation plan. All Tier 2 and 3 permittees must mitigate any increases in withdrawals above baseline, commensurate with impact. A cranberry bog ceasing production thus not utilizing its water management registration/permit in a tier 2 or 3 watershed can be a mitigation option for municipalities. This mitigation has a monetary value. A centralized bank needs to be created to list available cranberry water rights and handle transactions.
<b>Action Needed</b>	DEP authorization that cranberry water registrations and permits can be used for mitigation.
<b>Type of Action</b>	Legislative Authority, Regulatory, Policy Change

<b>Program</b>	<b>Environmental Bond Bill Cranberry Bog Restoration Program</b>
<b>Purpose</b>	Department of Fish and Game shall establish a program for the restoration and habitat protection of cranberry bogs and associated wetland systems and for the acquisition of land or interests in land by the department of fish and game of environmentally-significant wetland habitats to preserve open space and to improve and protect natural water resources and quality that is essential to cranberry agriculture and plant habitat;
<b>Government Branch</b>	Executive; EOEEA, F&G
<b>Comments</b>	\$30 million authorized for larger wetland restoration program within Fish and Game.
<b>Action Needed</b>	Release of bond bill funding and RFR accepting projects into program.
<b>Type of Action</b>	Legislative; Executive

<b>Program</b>	<b>Agricultural Land Assessment for conversion to permanent protection</b>
<b>Purpose</b>	Eliminate roll back tax on agricultural lands that are being permanently protected for conservation/wetland purposes and not developed.
<b>Government</b>	Legislative, DOR FVAC

<b>Branch</b>	
<b>Comments</b>	
<b>Action Needed</b>	Legislative
<b>Type of Action</b>	Amend MGL 61A, section 13 regarding roll back change of use trigger.

### **Cranberry Bog Renovation Initiative**

<b>Program</b>	<b>Renovation Loan Guarantee Program</b>
<b>Purpose</b>	Provide a guaranteed, low-interest loan for growers renovating their bogs.
<b>Government Branch</b>	Legislative; Executive; DOR; Economic Resources; MDAR
<b>Comments</b>	Develop a program to encourage renovation. There would be a pool of monies available for growers to renovate bogs. Competitive ranking criteria with minimum environmental standards required. MassDevelopment would run the loan program. Possible loan program could have 10% grower (borrower) funds, 40% private bank investment and 50% state loan-loss guarantee. State would guarantee up to 50% of total loan capped at \$150,000, should grower default. This would need to be a "Post Liquidation Guarantee". Private banks would be responsible for underwriting and could relax underwriting standards with state guarantee for previously at risk borrowers.
<b>Action Needed</b>	Operating budget appropriation of \$2.5M into an "allowance fund" to be used to offset potential losses.
<b>Type of Action</b>	Legislative, budgetary

<b>Program</b>	<b>State Revolving Fund Program</b>
<b>Purpose</b>	Provide low-interest loan from funds generated from a SRF
<b>Government Branch</b>	Legislative; Executive; DOR; Economic Resources; MDAR
<b>Comments</b>	Develop a program to encourage renovation. SRF would be created with seed money and from proceeds of fund interests, there would be a pool of monies available for growers to renovate bogs. Competitive ranking criteria with minimum environmental standards required; review board required.
<b>Action Needed</b>	

<b>Type of Action</b>	Legislative, budgetary
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<b>Program</b>	<b>Renovation Tax Credit</b>
<b>Purpose</b>	Provide a tax credit to producers who conduct renovation.
<b>Government Branch</b>	Legislative; Executive; DOR; MDAR
<b>Comments</b>	Develop a program to encourage renovation. Two possible paths to be explored. One is a Transferable/Saleable Tax Credit similar to the Brownfield Tax Credit Program (monies used to clean up contaminated sites in MA). There could be a \$100,000 cap, with a cap per grower. The credits can be sold before completion of the renovation project to insurance companies, bond funds, etc. to generate immediate cash flow. That would allow the grower to access funds before filing a tax return (generating \$0.85-0.90 on the dollar).
<b>Program</b>	<p><b>Grant Program through Ag Innovation Center</b>  The other option could be modeled similar to the Conservation Tax Credit. The credit may be claimed against taxes due pursuant to MGL Chapter 62. Grower would receive the credit when they file their tax returns. Need a cap per grower and total pool allocation in order to make program fiscally viable/garner legislative support. For example: Conservation Tax Credit offers a tax credit of up to \$75,000 for a total program funding of up to \$2 million per year. The credit is a refundable income tax credit. Requires an application and approval process prior to receipt.</p> <p>In either program, there would need to be detailed information on economic and environmental benefits and resultant criteria to claim the credit.</p>
<b>Action Needed</b>	Annual Budget Authorization
<b>Type of Action</b>	Legislative, Regulatory
<b>Purpose</b>	Provide grant program to support renovation with “small” growers. Direct payments of \$5,000/acre capped at \$50,000/producer. (2007 program capped at \$10,000/acre and \$100,000/producer)
<b>Government Branch</b>	Legislative and Executive; MDAR
<b>Comments</b>	Program exists, not funded. Program was used in 2007 for the CCCGA administered bog renovation initiative resulting in 160.5 acres renovated. \$1.5 million made available in 2007 was matched with \$3.5 million cash and additional \$2.4 million in-kind. Requires environmental standards, competitive ranking process.

<b>Action Needed</b>	Budget line item in MDAR FY17 Budget to fund
<b>Type of Action</b>	Budgetary

### Technology and Innovation

<b>Program</b>	<b>Alternative Energy Development</b>
<b>Purpose</b>	Develop solar on adjacent support lands. Provides alternative revenue source
<b>Government Branch</b>	MDAR; EOEEA
<b>Comments</b>	Regulatory issues with developing solar on existing cranberry bogs and adjacent support lands. Wetlands Protection authority required. Change of use can be triggered if property is enrolled in Chapter 61A and alternative energy is installed.
<b>Action Needed</b>	Legislation to amend WPA to allow for construction of solar on land in agricultural use. Legislation to amend Chapter 61A to establish a threshold (more than half of the annual renewable energy system generation must be used on-farm) that would not result in change of use.
<b>Type of Action</b>	Legislative/Regulatory

<b>Program</b>	<b>Farm Viability Enhancement Program (FVEP)</b>
<b>Purpose</b>	Provide business planning and capital to implement plan in exchange for temporary non-development covenant. Up to \$25,000 is available for farmers willing to agree to a covenant for a period of five years. Up to \$50,000 is available to farmers willing to agree to a ten year covenant. Awards of up to \$75,000 may go to farmers with at least 135 acres, agreeing to a ten year covenant.
<b>Government Branch</b>	Executive: MDAR
<b>Comments</b>	Program exists. Once had own cranberry program, but merged with regular FVEP when participation dropped off. <u>Eligibility issues for cranberry producers (upland ratios)</u> . Program is available for growers seeking planning and financial resources to implement value added production, ag-tourism, crop diversification. Program rules specifically say “we do not wish to fund normal on-going operational improvements, upgrades, or maintenance”. Renovation projects are at a competitive disadvantage.

<b>Action Needed</b>	Change eligibility to allow for renovation. Evaluate program ratios of upland and wetland. Evaluate possibility of recreating Cranberry Viability Program.
<b>Type of Action</b>	Policy at MDAR

<b>Program</b>	<b>UMass-Dartmouth Cranberry Health Research Center</b>
<b>Purpose</b>	The UMass Cranberry Health Research Center is a collaborative established through a 2011 Science and Technology Initiative grant from the UMass President's Office. The Center encompasses researchers from all five UMass campuses, other academic institutions, hospitals and private laboratories throughout the U.S. and Canada to provide solid scientific evidence for cranberry's role in health and nutrition.
<b>Government Branch</b>	Executive; Higher Education
<b>Comments</b>	Attempts to fund in budget not successful. \$500,000 authorized in Environmental Bond Bill, funding not released.
<b>Action Needed</b>	Administration release of the authorized funding.
<b>Type of Action</b>	Legislative; Executive

<b>Program</b>	<b>UMass Cranberry Station Facilities Upgrade</b>
<b>Purpose</b>	Funding for the design, construction, retrofitting and outfitting of enhanced laboratory space, including associated equipment and support to improve research performed by the station
<b>Government Branch</b>	Executive: Higher Education
<b>Comments</b>	\$5,000,000 authorized in Environmental Bond Bill. \$100,000 in FY16 supplemental budget to initiate design work.
<b>Action Needed</b>	Administration release of the authorized funding.
<b>Type of Action</b>	Legislative; Executive

<b>Action</b>	
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<b>Program</b>	<b>Farm Technology Review Commission</b>
<b>Purpose</b>	Commission studied and recommended options for updating farming technology and analyzed current regulations and statutes to ensure such regulations and statutes are not impediments to the adoption of farming technology. The 8 member Commission has representation from MDAR, DEP, DPH, DOR, Mass Technology Collaborative and 3 dairy farmers.
<b>Government Branch</b>	Legislative & Executive
<b>Comments</b>	Governor Baker issued Executive Order 562 on March 31, 2015 on regulatory review fits role of Farm Technology Commission. Issues dealt by this commission also encompasses all of agriculture and could dovetail into the Food System Plan released by the administration in October 2015.  In the long term, follow up as issues arise. Help support issues addressed by the task force.
<b>Action Needed</b>	Reconvene Commission.  Legislative change to broaden representation of agricultural industry in the Commonwealth.
<b>Type of Action</b>	Legislative; Executive

<b>Program</b>	<b>Agricultural Environmental Enhancement Program (AEEP)</b>
<b>Purpose</b>	AEEP supports agricultural operations that are looking to install conservation practices that prevent direct impacts on water quality, ensure efficient use of water, as well as address impacts on air quality. Farmers selected to participate in the program are reimbursed up to \$25,000 for the cost of materials and labor necessary for the installation of the approved practice.
<b>Government Branch</b>	Executive; MDAR
<b>Comments</b>	Existing program. Grower typically have high rate of participation (auto starts). Dropped off significantly in 2014, increased back to historical levels in 2015. Are program rules

	impeding cranberry grower participation? i.e. eligible projects, reimbursement.
<b>Action Needed</b>	Seek expanding available funds through next environmental bond bill.
<b>Type of Action</b>	Legislative.

<b>Program</b>	<b>Creation of new position: Economic Development Coordinator</b>																			
<b>Purpose</b>	To provide direct technical assistance to cranberry growers on the array of state and federal programs for long term viability and exit strategies.																			
<b>Government Branch</b>	Executive; MDAR																			
<b>Comments</b>	<p>Position would connect growers with the full array of state and federal programs such as:</p> <table border="1"> <thead> <tr> <th>State Programs</th> <th>Federal Programs</th> </tr> </thead> <tbody> <tr> <td>Agricultural Business Training</td> <td>USDA Value Added Producer Grant Program</td> </tr> <tr> <td>Farm Viability Enhancement Program</td> <td>Agricultural Conservation Easement Program (formerly Wetland Reserve Program)</td> </tr> <tr> <td>Agricultural Environmental Enhancement Program</td> <td>USDA FSA programs</td> </tr> <tr> <td>Ag-Energy Grant Program</td> <td>USDA Rural Energy Assistance Program</td> </tr> <tr> <td>Mass Farm Energy Discount Program</td> <td>USDA Rural Development Grants</td> </tr> <tr> <td>Mass Save</td> <td></td> </tr> <tr> <td>Mass Clean Energy Center</td> <td></td> </tr> <tr> <td>Mass Energy</td> <td></td> </tr> </tbody> </table> <p>Position would connect young farmers with retiring producers.</p>		State Programs	Federal Programs	Agricultural Business Training	USDA Value Added Producer Grant Program	Farm Viability Enhancement Program	Agricultural Conservation Easement Program (formerly Wetland Reserve Program)	Agricultural Environmental Enhancement Program	USDA FSA programs	Ag-Energy Grant Program	USDA Rural Energy Assistance Program	Mass Farm Energy Discount Program	USDA Rural Development Grants	Mass Save		Mass Clean Energy Center		Mass Energy	
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<b>Action Needed</b>	Contribution agreement between MDAR and CCCGA to help fund position.																			
<b>Type of Action</b>	Budgetary																			

<b>Program</b>	<b>Career Technical Cranberry Education Program</b>
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<b>Purpose</b>	To prepare future workforce development in cranberry agriculture.
<b>Government Branch</b>	Department of Education
<b>Comments</b>	Currently none of the vocational educational programs in the state provide for career and technical training in the cranberry industry. The program could be used for creation of internship opportunities.
<b>Action Needed</b>	Creation of curriculum.
<b>Type of Action</b>	Legislative; Executive

### General Report Language/Non Action items

- Promotions Program Development
- Young Farmer Program
  - a. Preference given to young farmers on access to state programs.
- Zoning concerns
- Agricultural Conservation Easement Program (ACEP)
- Chapter 61A rollback taxes

### Final Report: Table of Contents

- Executive Summary/Introduction
- Background
- Findings
- Recommendations
- Report
- Appendices
  - Presentations from Meeting #1
  - Meeting Minutes
  - Draft Legislation

### Meeting Minutes #4

**MASSACHUSETTS CRANBERRY TASK FORCE**  
**Minutes: MEETING #4**  
**Friday 5.20.16 1- 3:00 PM**  
**UMass Cranberry Experiment Station, East Wareham**

**Committee members in attendance:**

Dawn Gates-Allen, Freetown Farm  
Matthew Beaton, Beaton's Inc.  
Jack Buckley, Director, Division of Fisheries and Wildlife, DFG  
Dan Burgess, Deputy Commissioner & Chief of Staff, DOER  
Daniel Crocker, Ocean Spray Cranberries, Inc  
Carolyn DeMoranville, Director, UMass Cranberry Station  
Viriato deMacedo, Senator  
  
Susan Williams Gifford, House of Representatives  
David Johnston, Deputy Director, DEP  
John Lebeaux, Commissioner, MDAR  
Parker Mauck, Decas Cranberry Products, Inc  
Susan Meharg, Cedar Meadow Cranberry  
Marc Pacheco, Senator  
Michael Rodrigues, Senator  
Paul Schmid, House of Representatives  
Dan Sieger, Assistant Secretary, EEA  
William Straus, House of Representatives  
Jason Wentworth, Assistant Commissioner, MDAR

**Call to order and vote to approve minutes:** The meeting was **called to order** at 1:08 by Commissioner John Lebeaux, Chairman. An announcement was made about the recent birth of Emma Rose, daughter of MDAR Task Force member Catherine DeRonde, which was met with wide applause. A motion to approve the minutes from 3/11/16 was made by Jack Buckley, seconded by Dan Burgess and passed unanimously.

**Program:** Paul Moran, VP Commercial Lending, Mass Development Fall River shared an overview of their programs and services that might be relevant for the cranberry industry.

**Presentation of the draft Final Massachusetts Cranberry Revitalization Task Force Report and discussion:** The Task Force offered edits to the draft Final Report. Discussion highlights included pilot projects relating to watersheds, monetizing water rights, strengthening recommendation language and expanding the introduction. In addition, a recommendation was made to be clear that the draft legislation section is a framework for draft legislation language.

Representative Strauss shared appreciation for the team effort that went into the Task Force and the preparation of the draft Report. There was a suggestion to add an acknowledgement section.

A **motion for conditional adoption of the Cranberry Task Force Final Report**, based on incorporation of the edits discussed, was made by Daniel Crocker, seconded by Jack Buckley and passed unanimously. A motion to include these minutes (from meeting #4) in the report appendix was made by Parker Mauck, seconded by Representative Gifford and passed unanimously.

Commissioner Lebeaux thanked staff at the UMASS Cranberry Station for their hospitality and technical expertise for the Task Force, along with the CCCGA, Ocean Spray and Decas. He specifically thanked Brian Wick from the CCCGA and Jeff LaFleur for their industry expertise and generosity with their time spent on the Report. Catherine deRonde was in the spotlight for the tremendous amount of time she worked on this project. Other MDAR staff support was provided by Tara Zadeh, Alisha Bouchard and Bonita Oehlke. All Task Force members were commented for their commitment to the process including industry representatives and growers.

Brian Wick, on behalf of the CCCGA, shared thanks to everyone involved. Though there are challenges ahead, he expects the industry to be strong for the next 200 years for this iconic industry, with help from the framework developed from this Task Force.

**Announcement:** Jack Buckley invited everyone to attend Mass Wildlife's 150<sup>th</sup> Anniversary Celebration on June 4 at the new Field Headquarters in Westborough to celebrate this important milestone.

**A motion to adjourn the Task Force** was made by Dan Burgess, seconded by Representative Gifford and unanimously passed. The meeting ended at 3 PM.

### **Subcommittee: Exit Strategies Meeting #1**

## **MASSACHUSETTS CRANBERRY TASK FORCE**

### **Exit Strategies Sub-Committee**

**Friday 3.11.16**

### **UMass Cranberry Experiment Station, Wareham**

**Subcommittee members in attendance:** Jack Buckley- Subcommittee Chair, Susan Gifford, Cass Gilmore, Jeff LaFleur, Brett Meredith, William Strauss, Dan Steger, Ian Ward, Brian Wick

**The meeting began at 10:20 AM.** The focus was on options for growers if other strategies don't work. According to Brian Wick, the magnitude of this problem is significant and many bogs could be affected. Though many growers haven't decided, of the 14,000 acres of bogs in Massachusetts, about 1,000 acres are now out of cranberry production. And perhaps an additional 6,000 acres could be affected.

The real environmental pressure comes from growers in the cranberry industry going out of business. If the industry stays viable, development stays out and the resource is protected. From a policy point - knowing the scale is important. There is a small group looking to completely get out - and a larger group that are wondering if it makes business sense.

**Two types of exit strategies were discussed:** Because of consolidation and modernization some bogs are no longer of value to the grower. And in some cases, the grower is going out of business and completely exiting the industry. If growers are exiting, what are their assets and how are they valued?

1. Consolidation of bogs by existing ownership
2. Abandonment of bog and exit from industry as grower goes out of cranberry business

## **Recommendations are for a suite of programs for future uses of cranberry bogs:**

1. A Wetlands Conservation Bank could be established as a pilot project, limited in scope and applying only to cranberry bogs. It would be a type of conservation banking and would add value for bogs being consolidated or abandoned. DEP would be a partner.
2. Establish a bog bank for lease or sale to other grower. Bog banks would take existing bogs that might be abandoned for lease or sale to other growers or new farmers. Cranberries are perennial crop. This is one of the few areas in the world cranberries can be grown. Once production goes out, it often doesn't come back. Its critical to maintain an agricultural blueprint. After 5 years of being unattended, a bog is considered abandoned by the state. That time period should be longer since there may be a turnaround nationwide or globally, and growers should be able to return. There should be an option restore wetlands back to bogs. Federal definitions are vague. They should all be identified.
3. Research pilot programs in several defined watershed locations for banking water rights. The cranberry industry holds half of the water permits in the state. Bog owners have water withdrawal permits which should be considered a financial asset with monetary value. Legislation is needed to establish pilot programs. There are some concerns that mitigation on site and construction development is not providing the functions and values. Consider transferring the mitigations to a central location for a greater benefit. Individual owner or developer could transfer the mitigation offsite. If the state had to mitigate - it could go to the watershed or sub-watershed where it occurred. What is required for town buy in? DEP and MACC could be partners.
4. Explore 61A tax forgiveness for bog change of use to conservation purposes through a cranberry recovery and assistance act. If the bog goes into wetland reserve easements, it would be exempt from taxes since both farmland and wetlands serve a public purpose. Currently, it's up to the assessors of each town. 61A, administered by the Department of Revenue, would contain a provision for a tax break for cranberry growers. MMA could be a partner. Lost tax dollars to towns could be calculated to understand the impact and value to assessors versus conservationists. In addition, can 40A be amended for more predictability to work local municipalities?
5. Development of an inventory and sorting process to assess abandoned bogs for other uses, including sales to new owners. Info now travels in a very private way and after the fact. If public funds are used, there must be general criteria of bogs that make the cut - program needs to be run fairly to evaluate public land for purchase and priorities as restoration targets. NRCS and other agencies have parameters
6. Land for Good program for beginning and young farmers. Acquire the land but provide it back to growers - to keep farmland as farmland. Include a comprehensive approach for success including training for business plan development and financing. NYC based Dirt Capital is an example of investors interested in maintaining farmland preservation and open space. These large investors buy land which beginning farmers can lease and then eventually purchase. A conservation tax credit could be explored.
7. Pollinator habit could be considered to add value to abandoned bogs and along the banks of the bog providing a source of food for bees from April - October. There are funds available for pollinator habitat and it could be a part of bog restoration.

8. Consider a focus on "Buy Local," and switching to other crops. With the last industry downturn, alternative complementary crops were identified, though only a small niche group took advantage of that information. It's a big change to go from wholesale growing to direct marketing although people want to buy local and they want to know their farmer. This topic is being addressed by the Innovation subcommittee.

9. Conversion of abandoned bogs to solar energy for power. Solar regulatory changes may be required regarding land adjacent to wetlands including upland dikes around the bogs. Local solar bylaws require 100 feet of setback. BMPs/ uniform definitions of these activities could be developed with DEP as a partner. Should limited energy utilized for powering pumps and cranberry equipment be exempt under the wetlands protection act? This could be an element of an exit strategy OR a maintenance/diversification strategy for growers that are consolidating bogs. Abandoned bogs going into commercial solar production needs further discussion. This topic is also being addressed by the Innovation subcommittee. DOER would be a partner.

The final report should charge EEA to develop a committee for further work. Depending on the nature of the implementation recommendations, there should be a list of who is responsible at each level, potential partners and the suggested approach including statutory, regulatory, and/or policy.

The subcommittee meeting ended at 11:50 AM.

### **Subcommittee: Exit Strategies Meeting #2**

**MASSACHUSETTS CRANBERRY TASK FORCE**  
**Exit Strategies Sub-Committee**  
**Monday, 3.28.16**  
**UMass Cranberry Experiment Station, Wareham**

**Subcommittee members in attendance:** Jack Buckley - Subcommittee Chair, Susan Gifford, Jeff LaFleur, John Lebeaux – Commissioner, William Strauss, Dan Steger, Ian Ward, Brian Wick

The meeting was **called to order at 10:25 AM** by Jack Buckley. The exit strategy recommendations were generally reviewed and discussed and will be discussed during the full meeting. The subcommittee **meeting ended at 11:45 AM.**

### **Subcommittee: Renovation Meeting #1**

**MASSACHUSETTS CRANBERRY TASK FORCE**  
**Renovation Subcommittee**  
**3.8.16 10 AM**  
**Cape Cod Cranberry Growers' Association,**  
**One Carver Square Boulevard, Carver**

**Subcommittee Members In Attendance:** Subcommittee Chair Matthew Beaton (Beaton's Inc. & Sure-Cran Services), Member David Johnston (DEP), Member Parker Mauck (Decas Cranberry Products)

**Guests:** Jason Wentworth, MDAR Assistant Commissioner, Jeff LaFleur, Brian Wick, Jeff Kapell, Sue Meharg, Dawn Allen

**Call to Order & Introductions:** Chairman Matthew Beaton called the meeting to order at 10:07am.

**Renovation Overview:** Chairman Beaton stated his opinion that the goals of the subcommittee should be to look to implement programs to support as many growers as possible. Chairman Beaton also mentioned the different challenges faced by A and B pool growers. David Johnston asked about the difference between A and B pool. Parker Mauck mentioned that A pool growers produce for branded products whereas B pool produce for Industrial and Commodity Products. Chairman Beaton presented a list of funding options for discussion for the purpose of the Subcommittee eventually prioritizing options to present to the larger Task Force.

**Funding Options:** Option 1 presented was a Renovation Tax Credit, structured similarly to the Dairy Margin Protection Program. Growers would receive credit when filing tax returns. Chairman Beaton identified a potential downside being a lack of cash flow up front to commence projects. Caps per acre and per project were discussed. The possibility of wrapping environmental efficiency into the application process was also discussed.

Chairman Beaton introduced option 2, the AG Innovation Grant Program, a program similar to the one used in 2007. 160 acres were renovated in 2007 to 2008. Chairman Beaton pointed out that budgetary action would be required, and that the program has been proven successful. He also added that it is an outright grant, in kind cost contributions are available and that growers have to be able to put up cash, as it is a reimbursement grant. Caps per acre, per producer and for the program would have to be determined. Option 3 presented was a linked loan program, utilizing Farm Credit East or other commercial lenders. Chairman Beaton mentioned that it is a great program when the interest rate is high, but would not necessarily be a “game changer” with the current interest rate climate.

Skipping ahead, Chairman Beaton introduced option 5, structuring a “cranberry industry revitalization” similar to the New York Farm Worker Housing Loan Program. It would be a revolving fund, allowing interest free loans for 10 years, funded by the State and administered by a financial institution. Interest and principal paid back would return to the revolving fund. David Johnston pointed to the State Revolving Fund (SRF) that has been used for DEP projects and, over several decades, has provided close to \$4 billion in loans. David Johnston asked about the benefits to greater efficiency in these times of fruit surplus. Parker Mauck stated that improvements to structure maximize efficiency that will result in cost savings and not necessarily production yield. He added that the focus should be on the cost per barrel.

Chairman Beaton introduced option 4, the Farm Viability Enhancement Program, which would provide capital in exchange for temporary non-development. Concerns were raised about eligibility issues, collateral issues with lenders and caps and covenants. Members agreed that option 5 seemed to be the most viable, with access to cashflow being a key component. Programs like the Ag Innovation Grant and Renovation Tax Credit could have a more significant impact when coupled with other support, such as the Revolving Fund.

All members of the subcommittee agreed to meet in the morning on March 11<sup>th</sup> during the Task Force meeting to drill down further on issues like caps, eligibility, program duration, etc, with particular emphasis on option 5’s revolving fund and work toward final recommendations after receiving feedback from other Task Force members, particularly with the legislator members.

**Adjournment: Action Taken:** Parker Mauck made a motion to adjourn the meeting. The motion was seconded by David Johnston and the subcommittee voted unanimously to adjourn the meeting at 12:04pm.

## **Subcommittee: Renovation Meeting #2**

### **Renovation Subcommittee 3.11.16 10 AM Cape Cod Cranberry Growers' Association One Carver Square Boulevard, Carver**

**Subcommittee Members in Attendance:** Subcommittee Chair Matthew Beaton (Sure-Cran Services), Member David Johnston (DEP), Member Parker Mauck (Decas Cranberry Products)

**Guests in Attendance:** Tara Zadeh, Brian Wick, Jeff Kapell, Sue Meharg

**Call to Order & Introductions:** Chairman Matthew Beaton called the meeting to order at 10:10.

**Motion to approve minutes:** Made by Dave Johnston and second Parker Mauck with typo corrections and unanimously approved.

The Committee reviewed the options presented at the last meeting and set priorities for presentation and benefits of each program for presentation of the options to the Task Force.

Chair: There is an economic development fund that may be available. A loan guarantee of possibly five million dollars in year one and two might be appropriated. Also discussed loan guarantees. If growers put up ten percent of the loan, Farm Credit would put up 40 percent of loan and state would put up 50 percent of loan. Comments: Fund would need 50 percent of loan amount. Initial seed money is needed and it would take many years to be self sustaining. Land would be collateral – risk is if money is not used for that. Perhaps a young farmer could also use the funds to enter the market which is needed. The objectives are the same – to create growers at all levels that can create viable bogs. Ag renovation grants and the tax credit would be lower ranked.

Comments: All the programs need to work together. Independent growers will not have the cash for the revolving loan fund.

Chair: We need to seek revolving loan fund with low interest or loan guarantee – specifically for cranberry or tax credit and with the tax credits as another option. Ag renovation grant would be open to all. For the revolving loan fund, the state would have to administer and require overhead of some 15 points.

Discussion: Loan Guarantee program: The bank makes decision on economic drivers. What would the cap be: if it is 50K an acre – 4-5 acres would be 150 dollar cap. Could use AG innovation grant for 10 percent which is reimbursement. Bank will be responsible for due diligence.

Environmental stability: Economic multiplier – the state would get four times the impact from its investment. The selection would be up to the bank as the bank would be the one providing the loan. These programs would help the grower considering exiting as well as ones already doing well.

Should we determine criteria to target those who might best survive and include some of the environmental details? Every cranberry grower will not be eligible for a loan. Ranking protocol will determine this.

Ag Innovation Grants: A lower priority, requiring an appropriation from the economic bond bill. Linked loan and farm viability programs should continue but are not long term solutions for the industry.

Loan Revolver: Would need to establish a cap per loan in order for the full amount available to more farmers. Benefits:

1. Can layer in loan criteria that are environmentally based
2. Can layer in economic success criteria
3. In time it could be self funded 10-15 years later
4. Makes more growers credit worthy, economics could be weighted less than other benefits
5. Can be low interest loans, delaying principle payments

Cons:

1. Longer to set up
2. Administration component
3. Bigger financial commitment
4. If no interest then there is no build up

Loan Guarantee: Would need to establish a cap per loan in order for the full amount available to more farmers. Benefits:

1. Bank undertakes administration, minimal state administration
2. Can layer in loan criteria that are environmentally based
3. Faster to set up
4. Smaller initial investment for the state
5. Makes more growers credit worthy
6. Partnership building with grower, state and banks
7. Lender can determine loan percentage or interest only for x number of years or payback time
8. May stimulate more growers to partake

**Adjournment:** Dave Johnston made a motion to adjourn, which was seconded by Parker Mauck and unanimously passed at 11:50.

## **Subcommittee: Innovation and Technology Meeting**

### **Innovation & Technology Subcommittee**

**3.11.16 10 AM**

**Cape Cod Cranberry Growers' Association,  
One Carver Square Boulevard, Carver**

**Subcommittee Members in Attendance:** Subcommittee Chair Catherine DeRonde (MDAR) , Carolyn DeMoranville, Paul Schmid, Dawn Allen, Alex Pollard (DOER) via conference call.

**Guests in Attendance:** Brian Wick, Jeff LaFleur, Ian Ward, Laura Maul (MDAR), Gerry Palano (MDAR)

**Call to Order & Introductions:** Chairman Catherine DeRonde (MDAR) called the meeting to order at 10:10.

**Discussion took place on the following:** Alternative Energy Development, Farm Viability Enhancement Program, USDA Value Added Producer Grant Program, Development of Promotions Program, UMass Dartmouth Cranberry Health Research Center, UMass Cranberry Station Facility Upgrade, Farm Technology Commission, and Agricultural Environmental Enhancement Program.

Challenges include that the permitting & application process needs to be streamlined for ease of permitting, as well as buffering wetlands, a cumbersome solar feasibility study process, 61A change of issues, 61a language changes, interpretations that vary town by town, UMass Dartmouth Cranberry Health Research Center not being fully funded and the need for UMass Cranberry Station for continued support for upgrades in building and equipment.

**Recommendations:** Create a check off list or flow chart with steps for permitting to assist both the growers and those in permitting authority. In addition, 61A alternative energy on farm use should be taxes at the 61A rate, options with Mass Save should be evaluated, grower technical services should be provided, increasing program funding based on current caps should be evaluated, funding for Cranberry Station should be maintained, and funds are needed for UMass Dartmouth. Some initiatives need language changes while others need legislative fixes.

**Outcome:** The sustainability of farms will enhance long term profitability. Growers will be able to reduce the carbon footprint, utilize less water and energy demands, improve conservation practices, and work with a person dedicated to provide technical support to the industry. Grower will be able to lower farm expenses and property tax will not create burdens. Growers will be able to convert diesel to electric resulting in a smaller carbon footprint. Growers will be able to utilize current programs more effectively and innovate and implement new and improved farm technologies. Efficiencies in current programs and regulations will enhance and strengthen the growers' business sustainability.

**Adjournment:** Paul Schmid made a motion to adjourn, which was seconded by Dawn Gates-Allen and unanimously passed at 12:15 PM

## 4. Framework for Draft Legislation

**SECTION \_\_.** Chapter 61A of the general laws, as so appearing, is hereby amended by inserting, after section 2, the following section:

Section 2A. Land, or a portion thereof, which is no longer actively devoted to agricultural, horticultural or agricultural and horticultural use, shall be considered to be for a renewable energy use only when the land is converted or separated to allow or permit the development of such land to be primarily used to generate or produce electricity from any renewable energy generating source capable of producing not more than 125 per cent of the annual energy needs of the land upon which it is located, and which shall include contiguous or non-contiguous land owned or leased by the owner, or in which the owner otherwise holds an interest.

For the purposes of this chapter, the term “renewable energy use” shall mean any renewable energy use on land converted or developed to produce, manufacture or otherwise generate electricity powered in whole or in part by the sun, wind, biomass, or otherwise any other renewable fuel.

**SECTION \_\_.** Section 13 of said chapter 61A of the general laws, as so appearing, is hereby amended by striking out the third sentence and inserting in place thereof the following sentence:

Notwithstanding this paragraph, no roll-back taxes shall be assessed if the land involved, or a lesser interest in the land, is (i) acquired for a natural resource purpose by the city or town in which it is situated, by the commonwealth, or by a nonprofit conservation organization; (ii) acquired for, or sold or converted to, a renewable energy use as defined under section 2A; (iii) subject to a permanent wetland reserve easement through the agricultural conservation easement program established under the Food Security Act of 1985, 16 U.S.C. 3865c, as recently amended by Public Law 113-79; or (iv) otherwise subject to any other federal conservation programs; provided, however, that if any portion of the land is sold or converted to commercial, residential or industrial use within 5 years after acquisition by a nonprofit conservation organization, roll-back taxes shall be assessed against the nonprofit conservation organization in the amount that would have been assessed at the time of acquisition of the subject parcel by the nonprofit conservation organization had the transaction been subject to a roll-back tax.

**SECTION \_\_.** Said section 13 of said chapter 61A of the general laws, as so appearing, is hereby amended, in line 59, by inserting after the word “61B”, the following: or meets the definition of a renewable energy use under section 2A.

**SECTION \_\_.** Section 17 of said chapter 61A of the general laws, as so appearing, is hereby amended by inserting at the end thereof the following:

provided, land which is valued, assessed and taxed under this chapter is separated for a renewable energy use rather than an agricultural and horticultural use shall not be subject to liability for conveyance or roll-back taxes under this section.

**SECTION \_\_.** Section 6 of Chapter 62 of the general laws, as so appearing, is hereby amended by inserting, after subsection (s), the following section:

(t) (1) For purposes of this section, the following terms shall have the following meanings unless the context clearly requires otherwise:

“Commissioner”, the commissioner of revenue

“Cranberry bog” or “bog”, an area actively cultivated for the harvesting or production of any variety of cranberry.

**Framework for Draft Legislation continued:** "Qualified renovation expenditure", any expenditure or cost directly incurred in connection with the qualified renovation of a cranberry bog. The term shall not include costs incurred in acquiring or purchasing, or the cost of acquiring property, in relation to the construction of structures for the purpose of cultivating, harvesting or producing cranberries.

"Qualified renovation", any renovation, repair, replacement, re-grading or restoration of a cranberry bog for the purpose of cultivating, harvesting or producing any variety of cranberry, or otherwise any other activity or action associated with the renovation of an abandoned cranberry bog. The term "qualified renovation" shall not include the construction of facilities or structures for the purpose of processing cranberries.

"Secretary", the secretary of energy and environmental affairs

"Taxpayer", a taxpayer subject to the taxation under this chapter.

(2)(i) A taxpayer primarily engaged in cranberry production shall be allowed a credit against the taxes imposed by this chapter equal to 25 per cent of the total qualified renovation expenditures incurred in connection with the qualified renovation or restoration of a cranberry bog; provided, however, the amount of the credit that may be claimed by a taxpayer under this section shall not exceed \$100,000.

(ii) The credit under this subsection shall be taken against the taxes imposed under this chapter and shall be refundable. The commissioner shall apply the credit against the liability of the taxpayer as determined on its return, as first reduced by any other available credits, and shall then refund to the taxpayer the balance of the credits. If the amount of the credit allowed under this subsection exceeds the taxpayer's tax liability, the commissioner shall treat the excess as an overpayment and shall pay the taxpayer the entire amount of the excess. Any amount of the tax credit that exceeds the tax due for a taxable year may be carried forward by the taxpayer to any of the 5 subsequent taxable years.

(iii) The secretary, in consultation with the commissioner of agricultural resources, shall authorize annually, for the period beginning January 1, 2017 and ending December 31, 2021, tax credits under this subsection together with section 38GG of chapter 63, an amount not to exceed \$2,000,000 per year. No credits shall be allowed under this subsection except to the extent authorized in this paragraph.

(3) For a taxpayer to qualify for the credit provided for under this subsection, the taxpayer shall file with the secretary a summary of qualified renovation expenditures in connection with the qualified renovation. The secretary shall approve the summary of qualified renovation expenditures and provide notice to the commissioner. Any qualified renovation expenditures applicable to this credit shall be treated for purposes of this subsection as made on the date that the secretary provides notice of the certification to the commissioner.

(4) Any portion of tax credits not awarded by the secretary in a calendar year shall not be applied to awards in a subsequent year. The secretary shall provide any documentation that the commissioner may deem necessary to confirm compliance with subparagraph (iii) of paragraph

(2) and the commissioner shall provide a report confirming compliance to the secretary of administration and finance.

(5) The secretary shall annually, not later than September 1, file a report with the house and senate committees on ways and means, the joint committee on agriculture, environment and natural resources and the joint committee on revenue identifying the total amount of tax credits claimed and the total amount of tax credits refunded pursuant to this subsection in the preceding fiscal year.

(6) The secretary, in consultation with the commissioners of agricultural resources and revenue, shall promulgate regulations or other guidelines necessary for the administration and implementation of this subsection.

**SECTION\_\_.** Chapter 63 of the general laws, as so appearing, is hereby amended by inserting, after Section 38FF, the following section:

**Framework for Draft Legislation continued: SECTION 38GG.** (a) For purposes of this section, the following terms shall have the following meanings unless the context clearly requires otherwise:

"Commissioner", the commissioner of revenue

"Cranberry bog" or "bog", an area actively cultivated for the harvesting or production of any variety of cranberry.

"Qualified renovation expenditure", any expenditure or cost directly incurred in connection with the qualified renovation of a cranberry bog. The term shall not include costs incurred in acquiring or purchasing, or the cost of acquiring property, in relation to the construction of structures for the purpose of cultivating, harvesting or producing cranberries.

"Qualified renovation", any renovation, repair, replacement, re-grading or restoration of a cranberry bog for the purpose of cultivating, harvesting or producing any variety of cranberry, or otherwise any other activity or action associated with the renovation of an abandoned cranberry bog. The term "qualified renovation" shall not include the construction of facilities or structures for the purpose of processing cranberries.

"Secretary", the secretary of energy and environmental affairs

"Taxpayer", a taxpayer subject to the taxation under this chapter.

(b)(1) A taxpayer primarily engaged in cranberry production shall be allowed a credit against the taxes imposed by this chapter equal to 25 per cent of the total qualified renovation expenditures incurred in connection with the qualified renovation or restoration of a cranberry bog; provided, however, the amount of the credit that may be claimed by a taxpayer under this section shall not exceed \$100,000.

(2) The credit under this section shall be taken against the taxes imposed under this chapter and shall be refundable. The commissioner shall apply the credit against the liability of the taxpayer as determined on its return, as first reduced by any other available credits, and shall then refund to the taxpayer the balance of the credits. If the amount of the credit allowed under this section exceeds the taxpayer's tax liability, the commissioner shall treat the excess as an overpayment and shall pay the taxpayer the entire amount of the excess. Any amount of the tax credit that exceeds the tax due for a taxable year may be carried forward by the taxpayer to any of the 5 subsequent taxable years.

(3) The secretary, in consultation with the commissioner of agricultural resources, shall authorize annually, for the period beginning January 1, 2017 and ending December 31, 2021, tax credits under this subsection together with section 38GG of chapter 63, an amount not to exceed \$2,000,000 per year. No credits shall be allowed under this subsection except to the extent authorized in this subsection.

(c) For a taxpayer to qualify for the credit provided for under this section, the taxpayer shall file with the secretary a summary of qualified renovation expenditures in connection with the qualified renovation. The secretary shall approve the summary of qualified renovation expenditures and provide notice to the commissioner. Any qualified renovation expenditures applicable to this credit shall be treated for purposes of this subsection as made on the date that the secretary provides notice of the certification to the commissioner.

(d) Any portion of tax credits not awarded by the secretary in a calendar year shall not be applied to awards in a subsequent year. The secretary shall provide any documentation that the commissioner may deem necessary to confirm compliance with paragraph (3) of subsection (b) and the commissioner shall provide a report confirming compliance to the secretary of administration and finance.

(e) The secretary shall annually, not later than September 1, file a report with the house and senate committees on ways and means, the joint committee on agriculture, environment and natural resources and the joint committee on revenue identifying the total amount of tax credits claimed and the total amount of tax credits refunded pursuant to this section in the preceding fiscal year.

(f) The secretary, in consultation with the commissioners of agricultural resources and revenue, shall promulgate regulations or other guidelines necessary for the administration and implementation of this section.

**Framework for Draft Legislation continued: SECTION\_\_.** Section 276 of Chapter 165 of the Acts of 2015 is hereby amended by striking out the words “and 2017” and inserting in place thereof the following: 2017, 2018, 2019, and 2020.

**SECTION\_\_.** Chapter 310, Section 11, as appearing in the Acts of 2008, is hereby amended by inserting before the first paragraph the following:-, “SECTION xx. Chapter 128 of the General Laws, as appearing in the 2014 Official Edition, is hereby amended by inserting the following section:-“SECTION XXX. Said section 11 of said chapter 310, as so appearing, is hereby further amended by inserting after the word “federation”, in line \_\_, the following words:-, 1 of whom shall be a representative of the Massachusetts Farm Bureau Federation, 1 of whom shall be a representative of the Cape Cod Cranberry Growers’ Association, 1 of whom shall be a cranberry grower, 4 of whom shall be a farmer appointed by the Governor.

**SECTION\_\_.** Notwithstanding any general or special law to the contrary, the executive office of energy and environmental affairs shall establish a cranberry wetland mitigation banking program for the purposes of off-site mitigation of public or private projects subject to the wetlands protection act, General Laws chapter 131 Section 40, requiring variances or orders of conditions.

For the purposes of this section, the following words shall have the following meanings unless the context clearly requires otherwise:“Credit”, a unit of trade representing the increase in the ecological value of the site, as measured by acreage, functions or some other assessment method.  
“Pilot Cranberry Wetlands Bank” or “bank”, the development of a single wetlands bank through a public/private partnership in two or more watersheds for the assessing the effectiveness of wetlands banking as a regulatory tool to mitigate environmental impacts associated with construction activities.

Credits from the pilot cranberry wetland mitigation bank for off-site mitigation shall only be available for project mitigation after all regulatory requirements for avoiding, minimizing and mitigating impacts on site to the greatest extent practicable have been met. Off-site mitigation sites shall be located on cranberry bogs in active production in the two chosen watersheds. These sites are from previously filled or drained shall be the priority for off-site mitigation. Local Conservation Commissions located in the chosen watersheds under authority of General Law chapter 131 Section 40 and in agreement with project proponents may send projects requiring mitigation to the receiving bank.

Within 30 days after the effective date of this act, the executive office of energy and environmental affairs shall issue a request for proposals for the selection of a contractor with experience in cranberry agriculture, knowledge of grower base and potential cranberry acreage available for mitigation and knowledge of the wetlands protection act to assist in the design, approval, creation, ownership and management and long term ecological monitoring of a cranberry wetlands restoration bank in the two chosen watersheds.

Within 90 days of issuing the request for proposals, the executive office of energy and environmental affairs shall select a banking contractor. This request for proposals and selection of a contractor shall not be subject to chapter 30B of the General Laws.

Bank financing and sale of bank credits shall be subject to an agreement developed between the executive office of energy and environmental affairs and the selected contractor, subject to the review and approval of the inspector general.

**Framework of Draft Legislation continued:** The executive office of energy and environmental affairs shall file a joint report assessing the process of establishing the pilot cranberry wetlands mitigation bank, describing the transactions and projects affected by the bank, and the effectiveness of the bank in protecting wetlands while enabling projects requiring mitigation to progress with the joint committee on environment, natural resources and agriculture within 1 year of the creation of the pilot cranberry wetlands bank and for each year thereafter, for 5 years. The report shall include information on the amount, acreage, location and types of wetlands restored and credits issued or traded, and list of all projects utilizing bank credits at the time the report is prepared. This provision shall sunset unless extended by the legislature 5 years from date of passage.

**Section \_\_\_\_.** Notwithstanding any general or special law to the contrary, the executive office of energy and environmental affairs shall provide authorization that cranberry water use registrations and permits issued pursuant M.G.L. Chapter 21G can be used for mitigation by other permitted or registered users within the same watershed.

**Direct Appropriation Language:**

Provided that no less than \$1,500,000 shall be expended for the Cranberry Innovation Center; provided, that the Cranberry Innovation Center shall provide a broad range of technical and business development services to the commonwealth's cranberry producers that may add value to the producers products and services; provided further, that the Cranberry Innovation Center shall develop an outreach program to support and promote existing best practices and identify and foster new, innovative ideas and approaches to add value to the commonwealth's cranberry economy; and provided further, that the Cranberry Innovation Center shall solicit requests from the commonwealth's cranberry industry for funding and technical assistance for initiatives including but not limited to renovation, training, marketing, distribution, applied research, agri-tourism, processing and agricultural resource management.

Provided that no less than \$50,000 shall be expended for the Cape Cod Cranberry Growers' Association to jointly fund a Cranberry Economic Development Coordinator position responsible for the leveraging of private and public resources to build capacity for and development of funding opportunities for growers.

## 5. Acknowledgments

The Cranberry Revitalization Task Force is grateful to the members and designees whose time, effort, and expertise led to the development of this Final Report.

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