
With an Eye Toward the Future: Sustainable Cranberry Growing in Massachusetts

In nearly all areas of business, and especially in agriculture, “sustainability” has become a popular buzzword. Sustainability is being redefined, measured, audited, and marketed. For Massachusetts cranberry growers sustainability is nothing new, as they carry on a tradition that has spanned centuries and continue the good work that has gone on in recent decades.

Sustainability, as it is often understood, sits at the junction between financial well-being, a positive environmental outlook, and strong community relations. Increasingly, entire industries and even individual businesses are being asked to look at how their operation fits those areas and the cranberry industry is no different.

Cranberry growers have made great progress in many of the areas that sustainability strives to measure: economic viability, environmental stewardship, and enhanced production. In December 2009 a survey was conducted of Massachusetts cranberry growers by the Cape Cod Cranberry Growers’ Association to measure typical sustainability parameters. One hundred sixty-seven growers responded, representing 7,484 acres of cranberry bog.



Cranberries in the Economy

With about 400 cranberry growers in the Commonwealth of Massachusetts, growing cranberries on approximately 14,000 acres, the cranberry industry is the largest production food crop in the state. The Massachusetts cranberry industry employs approximately 5,000 people.

In addition to the farms, there are 6 cranberry receiving stations, 2 processing facilities, and many agricultural businesses that sell agricultural products, heavy equipment, and irrigation components. These are all part of the contributions that the industry makes toward shaping the community and the local economy.

At the conclusion of a two-year cost-share program to assist cranberry growers in renovating bogs, it was found that for every dollar spent on a renovation project, \$0.85 was spent in local businesses or in hiring local contractors. And our recent survey on sustainability found that cranberry growers make 94% of their farm purchases within fifty miles of their farms, keeping most of their buying dollars in the local economy. Cranberry growers employ, on average, 1 or 2 full-time employees and hire another 3 workers seasonally.



Cape Cod Cranberry Growers’ Association
Sustainability Report Funded by the Massachusetts
Department of Agricultural Resources

Despite a recent economic downturn, the cranberry industry has continued to grow. With the long history of cranberry production here in Massachusetts, cranberry growers are committing themselves to the future viability of the industry, having renovated over 900 acres of cranberry bog in the past five years and building over 200 acres of new bog.



- Growers use less water than in the past—controlling for frost with an automated irrigation system can save growers, on average, 9,300 gallons per frost event and approximately 280,000 gallons per year per acre
- All growers report using pest thresholds as the primary indicator in deciding to make a pesticide application
- 93% of growers use alternative cultural practices to manage pests, like spring floods to control cranberry fruitworm and to suppress fruit rot and other fungal pathogens

Sustaining a Community and a Way of Life

Cranberry growing has a rich history in Massachusetts and cranberries are surely one of the most easily identified products from our state. From its humble origins in the early 19th century on Cape Cod, the cranberry industry has grown significantly. But many growers have strong ties to the region, with the average cranberry grower being either the second or third generation to be involved. There are many families who can trace their cranberry bogs back four, five, and even six generations!

Around 80% of growers today have a plan to transfer their farm to the next generation, an encouraging sign for the continuation of the Massachusetts cranberry grower. Current growers, on average, have over 31 years of experience in the industry and about 60% farm full-time.

Cranberry growers are powerful advocates for their communities, with many serving on town committees, boards of selectmen, and on county and state organizations.

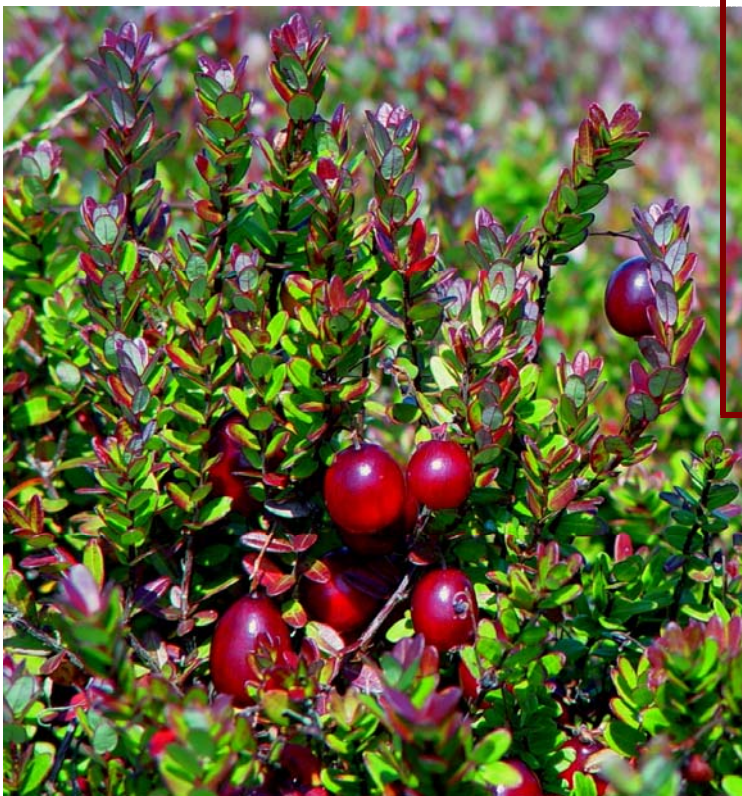
The Cape Cod Cranberry Growers' Association has been in service to the industry since 1888 and has, over the past five years, given over \$125,000 to help fund research at the UMass Cranberry Station in East Wareham. Other industry groups, including the Cranberry Research Foundation, the Cranberry Education Foundation, and the Cranberry Institute have also contributed an additional \$266,000 over the

same period to fund ongoing research, fueling the improvements the Massachusetts cranberry industry has made in production, conservation, and efficiency. Great pride is taken in continuing the legacy of the cranberry industry here in Massachusetts.

A Lasting Environment

Cranberry growers have long recognized and valued the unique landscape in which they farm. The cedar swamps, natural hollows, and sandy expanses of Cape Cod and southeastern Massachusetts are all vital to the production of cranberries and all contribute to the unique character of the area. Because cranberries are grown in association with wetland areas and production requires large volumes of clean water, cranberry growers take extra care to conserve and protect the water on which they must rely.

Integrated Pest Management (IPM), a process that includes scouting the bogs for pests and taking management actions only when pests reach economically damaging levels, is used by nearly 100% of the industry. This is an increase from 80% that as reported in a 1999 survey. IPM is a critical



Renovating cranberry bogs: A Story of Efficiency

Many cranberry bogs in Massachusetts were first planted around 100 years ago. Over time, these hand-built bogs tend to be less productive than more recently constructed ones. By renovating the bogs, growers are able to achieve tremendous savings in the amount of water they use and equally tremendous gains in production and efficiency of managing those bogs.

Renovating a bog at its most basic is a fairly straightforward process: the old layer of plant material should be stripped off or otherwise made inert, a new planting medium is prepared, and new vines are planted. The process is often complicated by having to level the bog, fill in ditches, and reconstruct the irrigation system.

For each acre of bog renovated, approximately \$15,000 is spent in local businesses for supplies and equipment as well as hiring contractors and workers. Over the past decade this has been an important economic driver in the region. This investment signals that Massachusetts cranberry growers are seriously committed to their heritage and industry.

The water savings that come from the bogs being level and having fewer ditches is significant — often over 200,000 gallons per year. Production gains come from new, genetically pure vines that are capable of producing more than double the crop off the same acreage as before. For Massachusetts, renovating cranberry bogs is an investment in the future of the industry.

Preserving Nature

The respondents to our survey control over 27,000 acres of open space—an area roughly the size of Boston—that includes natural wetland habitat and forested lands which support a wide range of plants, wildlife, and ecosystems.

framework that guides pesticide application decisions. In addition, all pesticide applicators are licensed by the state and are required to attend continuing education classes throughout the year in order to maintain their licenses.

Eighty-percent of cranberry bogs in Massachusetts have what is known as a Conservation Farm Plan; a document which is used to schedule improvements, document conservation practices, and provide access to USDA cost-share programs. It can also assist in remaining in compliance with local, state, and federal regulations.



Utilizing new technologies, such as automated irrigation pumps, cranberry growers are able to control pumps via computer as a means of conserving water and fuel. Since growers no longer have to drive to every pump, the savings in fuel are substantial and also give a grower more time for other on-farm activities.

Of growers surveyed, 65% have put in place low-phosphorus fertilizer programs to help preserve water quality in adjacent ponds and wetlands.

The concentration of cranberry growing in southeastern Massachusetts has an added benefit – the harvested crop travels an average of only 15 miles from the farm to the processor, keeping the cranberry production carbon footprint low.

For more on conservation efforts, see back page.



- 26 growers use agritourism. By bringing the public to the farm, they bolster their own economic sustainability and contribute to the tourism economy of their communities.
- 36% of growers host or conduct research projects on their farms. This helps to identify new practices for the industry.
- Cranberry growers serve the industry as volunteers through committee memberships and other positions

Survey Results: Four hundred thirty-five cranberry growers in Massachusetts were mailed surveys in March 2010 asking about a range of sustainability topics. Return rate was 38%, representing 58.7% of cranberry acreage in MA.

Cranberry Production Practices	
Percentage of acreage that was scouted for insects, diseases, and weeds in 2009	97
Average number of times bogs were scouted per season	14
Average number of miles the cranberry crop travels to receiving facility	15
Percentage of growers:	
who use pest thresholds to make management decisions	100%
calibrate pesticide and fertilizer application equipment	95%
that tested uniformity in their irrigation system	95%
who recycle plastics, cardboard, paper, and waste oil	76%
who use electricity to power irrigation pumps	25%
who participate in governmental conservation programs such as EQIP	70%
that kept records for production practices, including pest and nutrient management	99%
who use a low-phosphorus nutrient program	65%
with a conservation farm plan	80%
who use non-chemical cultural practices for pest management	93%
Grower Education and Experience	
Average number of years growers have in the cranberry industry	32
Percentage of growers:	
who consider themselves full-time farmers	59%
that participate in grower education events	86%
that subscribe to trade journals or newsletters	99%
that host or conduct on-farm research	36%
that are certified pesticide applicators	79%
Farm Structure and Bog History	
Percentage of bogs that are family owned	90%
Average number of years that the bogs have been in production	60
Average number of generations involved in growing cranberries	2.6
Total amount of respondents acreage in cranberry production	7,442
Total amount of respondents acreage owned but NOT in cranberry production	27,038
Average number of year-round employees per bog	1.5
Average number of seasonal employees per bog	2.8
Percentage of growers planning to transfer farm to a future generation	80%
Percentage of growers who offer safety training to employees	61%

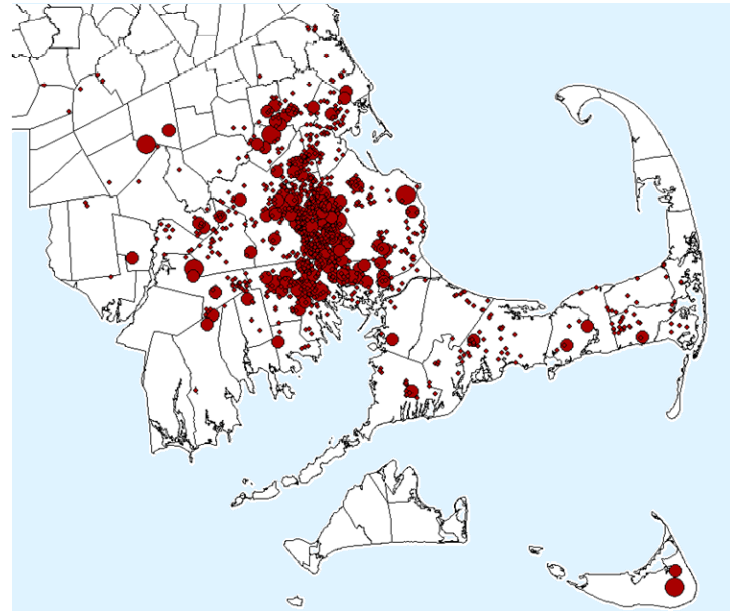
Environmental Enhancement: Improvements on the Farm



Cranberry growers are passionate about conservation, with 70% of growers having participated in conservation programs like the Environmental Quality Incentive Program (EQIP), administered by USDA-Natural Resources Conservation Services (NRCS). In the past five years alone, growers have made conservation improvements valued at \$12,500,000, chiefly in improving how water is used on the farm. This includes the installation of flumes for controlling flow of water, more efficient irrigation components, and building by-pass canals, which allow water to pass around a cranberry bog system, and tail-water recovery ponds which allow for impounding water exiting a bog system, conserving the water to be used for irrigation.

Another program, the Agricultural Environmental Enhancement Program (AEEP), run by the Massachusetts Department of Agricultural Resources, provides those farmers who are selected to participate and who pledge to make matching investments, with a reimbursement for the costs of materials up to \$30,000 to install best management practices that improve water quality or conserve water.

Since 1999, cranberry growers have received over \$1.1 million dollars in AEEP money to match their investments to replace flume structures, install automated irrigation systems, and construct tail-water recovery ponds and by-pass canals. These projects help to conserve water and to maintain the high quality water vital to growing cranberries. These improvements enhance the natural environment in the region and provide a cranberry grower with new tools to manage their farm.



Cranberry Bogs in Massachusetts

- = bogs 0—25 acres
- = bogs 25—100 acres
- = bogs 100—225 acres

This project funded in part by Specialty Crop Block Grant, awarded by the United States Department of Agriculture and administered by the Massachusetts Department of Agricultural Resources.



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