



CONSERVATION SHOWCASE

Redesigning a cranberry bog for the next century

Gary Randall, Cranberry Grower | Carver, Massachusetts

Gary Randall believes that his 13.2 acre cranberry bog in Carver, Massachusetts, is about 100 years old. He also believes that the improvements he's making to his bogs with the help of the USDA Natural Resources Conservation Service (NRCS) and the Plymouth County Conservation District (PCCD) will ensure that it will be in production for another century.

"When I bought my bog in 2003, it needed a lot of work," says Randall. "So I came in and got a farm plan. [PCCD planner] Bill Kane and I came up with the final design, which included the by-pass canal. That was when I got my first NRCS contract for the by-pass canal."

“The more experience I get with the conservation practices that we use in agriculture, the more I understand how much it helps.”

Randall's bog was in tough shape; it needed a complete overhaul. The bog had been out of production for several years because the cranberry market had dropped and the bog wasn't producing enough berries to be profitable.

Randall's background is in construction. He owns heavy equipment and was doing site work and earth removal for the construction of cranberry bogs and realized that he was interested in farming himself.

"I think it's a natural tendency that once you're into the building of bogs, you end up wanting to be a farmer," says Randall. "It's hard work, it's outside and it's good clean work...well maybe good dirty work," he adds with a smile.

"I tried to farm it for four years, and then three years ago I renovated it," says Randall, who transformed his bog from an old flow-through bog to a modern configuration. According to Randall, the old style bogs had ditches running through the center so that farmers could easily flood the bog for frost protection.

"In the past, cranberry growers didn't run pumps for frost protection, they only flooded," explains Randall. According to Randall, that limits berry production because vines growing close to water aren't as productive and it jeopardizes water quality because the water is running through the bogs where pesticides and fertilizer have been applied.

Randall received financial and technical assistance from NRCS to construct a by-pass canal, which sends water around his property rather than through it. The canal preserves water quality because it doesn't go through cranberry bogs that have been treated with fertilizer and pesticides.

Much of Randall's renovation work was done with a grant he received from the state Department of Agricultural Resources under a program administered by the Cape Cod Cranberry Growers Association.

Because of the renovation, Randall will have been out of production for nearly three years.



This by-pass canal sends water around Gary Randall's 13 acre cranberry bog in Carver, Mass. instead of through it, thereby protecting water quality.

"It's a huge consideration and it's one of the biggest drawbacks to why people don't do it," he says, adding, "You have to have a long range plan."

The new bog configuration is two long, narrow runway bogs that have been laser graded. The bogs used to be three feet out of grade; now they are maybe one or two inches out of grade. Acre feet of water are saved every time the bogs are flooded. Due to the construction of the by-pass canal, water can now be held on the bog for the prescribed period of time when applying pesticides, thus protecting water quality.

A new irrigation system has been installed that conserves and protects water because it's more efficient, applying pesticides and water in a uniform manner.

CONTACT US:

451 West Street
Amherst, MA 01002
413-253-4350
www.ma.nrcs.usda.gov

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Randall's new irrigation system conserves and protects water because it applies water efficiently and uniformly.

The irrigation systems are outfitted with pop up heads that conserve water. The lines remain sealed and the heads are not removed in the winter. The old style irrigation heads would leak due to wear from removing and reinstalling them year after year.

"I've put a new pump house in with a fuel efficient pump and automation. That will save a tremendous amount of energy and water," says Randall. "It will also help reduce greenhouse gasses because the sprinkler system's run time during frost season is drastically reduced."

During frost season the grower sets the tolerance temperature so that the system will turn on only when the bog needs frost protection. Formerly, growers would just turn the system on if there was a frost warning and it would run all night. The new automated system might only run two or three hours, or how ever long it's needed.

All the dikes around Randall's bogs were straightened and new dikes were constructed. Straightening the dikes makes picking and management activities more efficient, it also minimizes the need to turn equipment.

Randall grows Stevens variety cranberries on 13.2 acres of bog and has another 17 acres of upland. His berries are destined for juice, sauce and other processed products

as he will only wet harvest his berries.

The cranberry is a Native American wetland fruit that grows on trailing vines like a strawberry. The vines thrive on the special combination of soils and water properties found in wetlands.

Cranberries grow in beds layered with sand, peat and gravel. These beds, commonly known as bogs or marshes, were originally formed as a result of glacial deposits.

Cranberries can be either dry harvested or wet harvested. Dry harvesting uses walk-behind machines to comb the berries off the vines into burlap bags. Berries are then removed from the bogs by either bog vehicles or helicopters. Dry harvested cranberries are used to supply the fresh fruit market. These cranberries are most often used for cooking and baking.

In wet harvesting, the bogs are flooded. Cranberries have pockets of air inside so they float. Water reels are used to stir up the water in the bogs dislodging the fruit from the vine. Wooden or plastic "booms" are used to round up the berries, which are then lifted by conveyor or pumped into a truck to take them to the receiving station for cleaning.

More than 90 percent of the crop is wet harvested. Wet harvested cranberries are used for juices, sauces, sweetened dried cranberries, or as an ingredient in other processed foods.

Randall says that working with NRCS was an enjoyable experience. "Coming into it I was apprehensive as to what to expect. I might have thought it was a regulatory agency rather than an agency that helps," said Randall, who heard about NRCS programs and services from other growers by word of mouth.

"I came in and got my farm plan. We went over the resources and environmental concerns that I have on my property. That lead to my first EQIP contract," explained Randall, referring to the Environmental Quality Incentives Program or EQIP, a voluntary program that provides technical and financial assistance to agricultural producers and forest land owners who want to improve and protect soil, water, air, plants and animals.

"My long term plan is to finish the renovation, then continue operating the farm into the future. I don't plan on any more expansion."

Randall is now Chair of the Plymouth County Conservation District. "After I did my by-pass canal in 2006, there was a vacancy on the board of supervisors and I was recruited," said Randall. "It's been educational. I understand now how the relationship between NRCS and the districts works. It's a well thought out partnership that's much needed."

"The more experience I get with the conservation practices that we use in agriculture, the more I understand how much it helps. I just really believe in it and that I'm helping the environment." 💧



The sprinkler system incorporates all main lines with pop up heads that conserve water.



soil



water



animals



plants



air