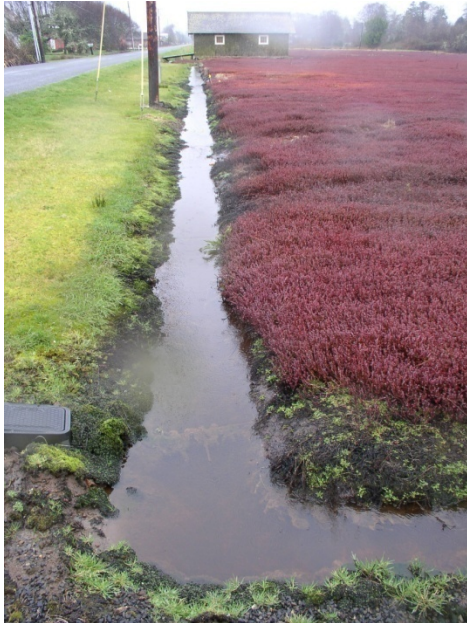


Grayland Cranberry Growers Get Pesticides Out of Water and Reduce Costs



The place

Grayland is an oceanside community in Grays Harbor County where cranberries are grown. Cranberries are an important crop in southwestern Washington. Irrigation water flows from the edges of the cranberry fields into Grayland Ditch. The ditch flows north into Grays Harbor, and south into Willapa Bay near the Shoalwater Bay Indian Tribe reservation.

The concerns

Environmental - In 1996, cranberry growers were in a difficult position when water samples showed high levels of pesticides in the Grayland Ditch. Concentrations of several insecticides were often more than 100 times higher than water quality criteria. Levels in Grayland Ditch were the highest ever found in Washington state waters.

Social - Tribal neighbors downstream were concerned about the cranberry growers' pesticide use. The Shoalwater Bay Indian Tribe long suspected that the pesticide releases might be causing some serious health problems among tribal members, even though they had not found a direct correlation.

In 1996, only about one-half of the growers participated in best management practices (BMPs) to reduce pesticide pollution. Many of those helping out felt that too few growers were paying for the cost of solutions. On the other hand, many other growers didn't think the pollution was even a problem needing to be fixed.

Financial - The local cranberry economy was so fragile that farm bankruptcies happened each year. Most growers couldn't afford to install new BMPs. With financial conditions of the local farms in a slump, the economic vitality of the whole community suffered.

A different, multi-goal approach

In order to address the economic and social concerns, as well as water quality, the project called for a different approach. Rather than responding to the high pesticide levels with a traditional water cleanup project process focused simply on a water quality goal, the Washington Department of Ecology (Ecology) decided to try a non-regulatory, multi-goal approach.



Performance measures were developed with the project partners to help focus strategies that would achieve their desired financial, social, *and* environmental improvements. Partners included the Washington Cranberry Alliance; the U.S.D.A. Natural Resource Conservation Service (NRCS); the Grayland Cranberry Growers Association; Ocean Spray Cooperative; the Grays Harbor and Pacific Conservation Districts (CDs); Washington State University Extension; Washington Conservation Commission; Ecology; and others.

Technical and financial tools

In 1999, Carl Boyd, the local NRCS District Conservationist, received support from many partners to advance the cranberry best management practices (BMP) projects. The partners found financial solutions to improve water quality and aquatic habitat and reduce soil erosion so that Grayland Ditch could meet Washington State Water Quality Standards. In the process, the partners also developed updated technical standards, designs, specifications, permits, cost estimates, and funding requests.

Before the BMPs were implemented, pesticides were carried rapidly through the cranberry bog drainage system via surface water in the perimeter ditches. When pesticides were applied to the cranberries by injecting them through the sprinkler irrigation, air movement could cause the pesticides to drift directly into the ditches.

The most effective BMP for keeping the pesticides on the bogs and out of the ditches is to isolate the perimeter ditches at the bog. This was done by lining and covering the perimeter ditches with exterior treated wood. The covering intercepted any pesticide drift and blocked entry to the water inside the ditch. Results of water samples from covered ditches showed dramatic pesticide decreases.

Some growers were also able to hold irrigation water with the pesticide residues on-site, which allowed the pesticides to naturally degrade before discharging the irrigation water into the drainage ditch. Still other growers installed carbon filters to treat the irrigation water before it is released to the ditch.

Each year the Washington State University Extension Service surveys the cranberry growers to track usage of BMPs. The winter 2005 survey revealed that growers found that their use of BMPs lowered their chemical input costs and improved farm profitability.

Funding for BMPs to crib, cover, and improve irrigation systems began in 1999 through the Grayland Cranberry Area Environmental Quality Incentives Program (EQIP) Program. The Pacific CD and Grays Harbor CD received water quality grants from Ecology and the Washington Conservation Commission, respectively, to help growers implement BMPs. Most of the partners also serve on a local workgroup to advise NRCS on annual priorities for the EQIP implementation. EQIP is the most effective of all funding sources to get BMPs installed on the bogs.



Ecology's Centennial Clean Water Fund supported research to identify alternative BMPs and document their effects with GIS tools.

A one-time award from an EPA Environmental Justice grant helped with the project's social goals by better engaging the Tribal neighbors in project solutions. The Shoalwater Bay Tribe then received more funding to set up a lab and analyze water quality samples for the project.

Between 1999 and 2008, nearly all cranberry growers were awarded financial assistance (about 90 EQIP contracts) to complete the cribbing and covering of their ditches.

Cranberry growers meet goals

The success of the program in the Grayland area can be attributed to the cranberry growers' dedication to conserve and sustain their resources. All Ocean Spray Cooperative growers submitted mitigation plans that identify all BMPs in use, as well as a list of BMPs still needed. All growers recently committed, in writing, to apply for financial assistance to complete the implementation of their mitigation plans. Growers now feel that they're working together on a more level playing field to complete the project goals.

Each of the goals set in 1998 have been achieved or have reached a stable condition.

- **Reduce pesticide concentrations in the ditch by 50 percent within two years:**
Concentrations for the most problematic pesticides (diazinon and chlorpyrifos) were reduced by 96 percent in just two years.
- **Increase the number of participating farmers by 50 percent in two years:**
About 95 percent of the cranberry growers now use at least one BMP for pesticide pollution prevention.
- **Improve economic conditions:**
Economic conditions have stabilized. This was mostly due to a long awaited rebound in cranberry commodity prices, which is *beyond the control of the project partners*.

A survey of growers' beliefs and actions revealed that BMP usage actually saves some of them money in the long run and improves farm profits.

- **Improve social conditions:**
Neighbor relations have also improved immensely. The *downstream neighbors who were once in conflict with the cranberry growers are now project partners*. The Shoalwater Indian Tribe shared in the work of sampling and analysis for two years.

The future

The pollution reductions of 96 percent have been extraordinary, but conditions fluctuate and still exceed water quality criteria for some pesticides.

Local research has shown that even one grower not participating in BMPs can pollute the ditch and undo all the benefits of the neighbors' BMPs. The partners recognize that water quality standards and the other project goals can only be reached when each and every Grayland grower installs BMPs. The partners plan to continue tracking progress on participation levels, and particularly to sample for water quality changes. The emphasis on a non-regulatory, direct-implementation water cleanup process without a TMDL seems likely to continue as long as the partners remain committed to the mitigation plan in place.

The partners

- Ocean Spray Cooperative
- Grayland Cranberry Growers Association
- USDA-Natural Resources Conservation Service
- Pacific Coast Cranberry Research Foundation
- Pacific Conservation District
- Grays Harbor Conservation District
- Wash. State University Extension
- US Environmental Protection Agency
- Washington State Conservation Commission
- Washington State Dept. of Ecology
- Shoalwater Bay Indian Tribe

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