#FridaysOnTheFarm: Restoring Clean Water

Each Friday, visit local farms, ranches, forests, and resource areas through our #FridaysOnTheFarm stories. Meet farmers, producers, and landowners who are working to improve their operations with USDA programs.

This Friday meet Charlie Barlow, a third-generation farmer who started farming near the Nyssa, Oregon, area in 1977. His family grows a variety of crops including wheat, corn, alfalfa, seed crops and sugar beets. His farm is located about 20 miles southwest of Ontario in the Fletcher Gulch Watershed in Malheur County.

Working on Water Quality

The Fletcher Gulch Watershed consists of 6,500 acres. The lower half of the watershed is irrigated cropland, and the upper half is rangeland. The drainage enters the Old Owyhee Ditch, a tributary to the Owyhee and Snake rivers.

"We knew we had a problem with water quality, but there was fear of airing the dirty laundry," Charlie said. "We didn't want to tell people we had a problem."

Water testing showed high concentrations of phosphorus and total suspended solids that exceeded the target concentrations for the Snake River. A major contributor to these problems was soil erosion caused by irrigation, and the resulting runoff from fields into the river.

"Water management was a challenge," Charlie said. "We could see that there was a need to look at ways to be more responsible for our water use and water quality."

The Culprit

Historically, farms in the area relied on traditional flood and furrow irrigation to deliver water to fields. This system relied on concrete, open ditches (laterals) to divert water from the Owyhee Reservoir to a series of earthen canals. The earthen canals were dug on a slope in the fields so that water would naturally flow down the drainage to flood irrigate the crops. Farmers controlled the flow of water by operating flow control valves along the lateral diversion points.

While this method of irrigation was common practice for several generations, over time it created problems for water quality. It eroded the soil, washed excess sediment into the river, and allowed nutrients and pesticides from fields to leach into run-off water.

Charlie's late brother, Mike Barlow, saw the problem and was determined to make a change. Mike knew that if he gathered the right people and resources, they could modernize their irrigation infrastructure and leverage new technologies such as sprinkler systems and pressurized pipe.

"Mike had a vision and he was relentless with it," Charlie said. "He dragged us all along with him."

Mike reached out to his local USDA Natural Resources Conservation Service office, and he brought other partners to the table including the Malheur County SWCD, the Owyhee Watershed Council, and the Owyhee Irrigation District.

With their help, Mike installed his first sprinkler system 17 years ago. Over the years, his neighbors watched and wanted to get involved. The partnership continued to build, and within a few years the Fletcher Gulch Watershed was on a path to transformation.

The Solution

Thanks to grant funding from the Oregon Watershed Enhancement Board and the Bureau of Reclamation, the main lateral was converted to an underground pipeline. The Malheur County SWCD, Owyhee Watershed Council, and Owyhee Irrigation District were pivotal in designing the pipeline and securing federal grant funding for materials and construction.

"These pipelines really flip things upside down," said Jay Chamberlin, Owyhee Irrigation District manager. "We are using water much more efficiently. It used to be that the district controlled more flow. Now the farmers have more control and can make those decisions on the farm."

Among the many benefits of piping, perhaps the most significant benefit for farmers is during times of drought.

"The (water) resource is not a constant here, but what we have noticed with the conversion of these pipelines is that in those dry years we've been able to get a longer growing season and our demands are different," Jay said.

To further capitalize on water savings from the pipeline, NRCS offered financial assistance to farmers to convert from flood irrigation to sprinklers, also called center pivots, through its Environmental Quality Incentives Program.

Center pivots utilize pressurized water to irrigate crops from overhead and are much more efficient than flood irrigation. They practically eliminate the soil erosion and sedimentation issue. They save farmers time and money because they are programmable to provide exactly the right amount of water at the right time.

"NRCS has been a great resource for us throughout the years with different projects, and we've always worked with them," Charlie said. "But the change of the sprinklers was something new for this area."

The Outcome

A total of 17 farm families, including the Barlows, have converted to sprinklers, collectively making a measurable impact on water quality that is supported by sampling data.

According to data from the Oregon Department of Agriculture, collected by the Malheur SWCD, average sediment concentrations in the watershed have been reduced by 97 percent from 2008 to 2018.

The average flow discharge from Fletcher Gulch was also reduced by about 80 percent, which shows more water is being kept on the farm and in the soil instead of being lost to run-off. Annual average total suspended solids concentrations have decreased by more than 90 percent.

"Producers have the opportunity to keep more cover throughout the season, and they can change their tillage operations and their residue management," said Lynn Larsen, NRCS district conservationist. “They also have opportunities to grow more varieties of crops to diversify their operations and reduce risk. It's a huge success for everyone involved."

More Information

USDA offers a variety of risk management, disaster assistance, loan, and conservation programs to help agricultural producers in the United States weather ups and downs in the market and recover from natural disasters as well as invest in improvements to their operations. Learn about additional programs.

For more information about USDA programs and services, contact your local USDA service center.

Story & Photo Credit: Tracy Robillard, NRCS