



*Jefferson District Chairman Pat Hendren explains the value of LESA nozzles in Montevideo during a 2020 field tour.
(Photo courtesy Linda Patterson)*

JEFFERSON SWCD WORKS ON WATER CONSERVATION PROJECTS FROM MUD LAKE TO RIRIE

By Steve Stuebner

The Jefferson Soil and Water Conservation District covers a big swath of farming and cattle country in Eastern Idaho that stretches from farms largely irrigated by pivot sprinklers in the Mud Lake area to flood-irrigated farms near Ririe.

The District is staying busy with a multitude of conservation projects related to irrigation efficiency and water conservation. Many farmers are moving toward pivots retrofitted with Low-Elevation Sprinkler Application (LESA) nozzles in the Mud Lake area. And farmers who draw surface water from the Snake River are installing a

number of new head gates and canal check structures to improve water efficiency.

In the last three years, Jefferson District farmers have installed 18 projects with the Natural Resources Conservation Service (NRCS) under the Environmental Quality Incentives Program (EQIP) to replace 697 aging irrigation head gates and check structures on farms irrigated with surface water, officials said.

"Those new head gate projects are good for our producers," said District Chairman Pat Hendren. "It's making things a lot more efficient and recharging the aquifer."

The head gate projects dovetail with conservation efforts by the Idaho Department of Fish and Game and NRCS to encourage farmers to retain flood irrigation systems to benefit migrating wildlife, aquifer-recharge and crop yields.

The Jefferson District, which combined with the Mud Lake Soil Conservation District in 2010, is working on many other conservation projects including the purchase and rental of a no-till drill, to youth-education programs with "Dolly the Idaho Dairy Cow," a traveling cow-milking, hands-on learning opportunity for kids, spring tree and shrub sales for wind breaks,

21 high-tunnel projects, and more.

And in a brand new development, the Jefferson District applied for and received funding for two Water Quality Projects for Agriculture (WQPA) grants in 2022 from a total of \$5 million available statewide through the Conservation Commission and the Idaho Legislature.

The first project on the Parks-Lewisville Canal, with a total price tag of \$201,281, involves replacing old canal head gates with modern steel electronic gates that can be controlled with a mobile phone. The project also features “overshot” gates at the end of three lateral canals that allow large debris/trash to pass through. The remote-control technology is known as SCADA, or Supervisory Control and Data Acquisition. State WQPA grant funding for that project is \$55,000, and the landowner share is \$46,281. The project will benefit 208 canal shareholders and serve 5,700 acres of farm ground.

The second project will replace an irrigation siphon that currently goes under a county road to an underground pipe, with cooperation from the county road and bridge department, officials said. That

project has a total cost of \$45,045, and the WQPA grant was \$34,571, and landowner share of \$10,476.

“Both projects will save water, create safer use, and ease monitoring by shareholders on the canals,” said Linda Patterson, administrative assistant for the Jefferson District.

In a field tour of the new headgates, Jefferson District farmer Leon Clark showed the issues he has been having with crumbling concrete ditches and old head gates on his farm near Rigby.

“The new system is working well,” Clark says. “Those concrete-lined ditches do OK down in the Boise Valley and Twin Falls, but up here with our heavy frost, the frost heaves break the concrete



Leon Clark installs a new headgate for his flood irrigation system at his farm west of Rigby.

(Photo courtesy Leon Clark)



Leon Clark explains the use of old concrete in a new ditch.
(Photo by Linda Patterson)

into pieces, and I’ve been spending half of my life trying to patch it.”

After replacing an old head gate with a new pre-cast structure, and removing a half-mile of old concrete chunks out of his irrigation ditch, “the system works well now,” he says. “It’s been a

real good improvement. It’s a water-saver, a labor-saver, and I don’t have to deal with that old concrete ditch anymore.”

The cracks in “Leon’s ditches were leading to very severe water losses,” adds Mary Jennings, NRCS soil technician. “With all of these head

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Above, trees and shrubs planted to create wind break in the Jefferson District. Right, a District assistant checks on a tree-planting on the Alan Zohner farm to attract wildlife. (Photo by Mary Jennings, NRCS)

gate projects being installed in our area, the word is getting out, and other farmers are asking about making those improvements, too.”

That said, there is also strong interest in converting to pivot irrigation to reduce water consumption, reduce labor and increase crop yields, she says.

Hendren is one of the producers who has installed LESA pivots on his farm in the Mud Lake area, where he raises alfalfa, grain, barley and corn. So far, he has installed seven LESA pivots, retrofitting existing pivots or purchasing new units. “It’s a matter of getting more water directly to the crop,” Hendren says. “We’re finding that you need to have 36 inches of spacing between each nozzle to water the crops effectively.”

The LESA pivots actually consume more of his time than when he flood-irrigated, he says. “When I was flood-irrigating it took me three days to get everything set up, and then I had 9 days to do other things. With the pivots, I have to watch them all the time.”

NRCS Local Working Group, IDFG encourage flood irrigation

Many Jefferson District farms are located in proximity to the Mud

Lake Wildlife Management Area, the Camas National Wildlife Refuge, Market Lake Wildlife Management Area and Deer Park Wildlife Mitigation Area. Through the decisions of their local work group, NRCS programs promote land-leveling, with new head gates and check structures to benefit farm conservation as well as migrating bird populations, officials said.

The bird refuges support 28 species migrating waterfowl, including white-faced ibis, gulls, and sandhill cranes, and 49 species of water birds.

IDFG’s Habitat Improvement Program (HIP) provides cash incentives on a per-acre basis – up to \$100 per acre – to incentivize farmers to maintain farms with flood irrigation systems to benefit migrating birds, said Joshua Rydalch, IDFG Regional Wildlife Biologist in Idaho Falls.

“We’re working with farmers using flood irrigation to maintain flood irrigation on their farms,” he said.

Flooded farm fields create more insect activity for migrating waterfowl, Rydalch says. “If it’s wet, you get all the insect activity. The birds reach down and eat the bugs in the alfalfa fields. Some farmers worry that the birds are eating their crop, but they’re



not, they’re eating the bugs.”

Farmers can reach out to IDFG to see if they qualify for the HIP program, Rydalch said.

IDFG has created a 12-kilometer buffer zone around Market Lake and Mud Lake WMAs where farmers could receive incentive payments, he said. The agency also has created buffer zones around the Henrys Fork, South Fork Snake and Main Snake River around the confluence of those two rivers to encourage flood irrigation, he said.

The HIP program also benefits upland game birds to encourage the retention of cover and habitat on the edges of fields and around canals.

IDFG is signing up several landowners a year into the HIP program, Rydalch said. “Word is getting out. Neighbors talking to neighbors.” For more information, contact the IDFG Idaho Falls regional office (208-525-7290) and ask to speak to a wildlife biologist.

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*Above, Dan Christman High Tunnel project. (Photo by Linda Patterson)
Christman grows fresh vegetables for the Farmer's Market in Driggs.
Right, FSA, Jefferson District and NRCS employees sample some celery.
(Photo by Jes Yates)*



Background on the Jefferson SWCD

The Jefferson District is a combination of Mud Lake and Jefferson Soil and Water Conservation Districts, merged in 2010. Mud Lake SCD formed in 1946 and Jefferson SWCD in 1952.

The District has a 7-member board of supervisors. "We try to keep supervisors spread across entire district, so new supervisors come from the same community as resigning members," Patterson said. There are board supervisors from Montevieu, Mud Lake, Hamer, Menan/Lewisville, Rigby, LaBelle and Ririe areas.

Patterson works part-time to manage the office and district business. The District also has one part-time seasonal employee who works during the tree sale, and one as-needed contract employee who manages the no-till drill, she said.

The District has two distinct types of farms - on the Mud Lake side, to the west, are large pivot-irrigated fields fed by pumped ground water. These farms are on sandy soil, and wind erosion can be a problem for those producers, Patterson said. On the east side are smaller, flood-irrigated fields

that source surface water from the Snake River.

"The east side of the District faces urban pressure, since it is a "bedroom community" for Rexburg and Idaho Falls," Patterson said. "It is increasingly more crowded as farms are turned into housing developments and commercial, light industrial parks."

With urban agriculture coming to the fore, 14 high tunnel projects have been completed in the District through NRCS cost-share funding, with seven more in progress.

Dan Christman, a landowner and watermaster who lives in the Jefferson District, built a High Tunnel project with a grant from NRCS so he could make extra income by growing vegetables for the Farmer's Market in Driggs. Christman participates in a Community Sustainable Agriculture program, in which people can sign up to receive fresh produce throughout the summer on a weekly basis.

Christman owns 10 acres of land at his home, so he has space for building his High Tunnel project. He purchased a

High Tunnel kit for \$7,500 and the NRCS grant covered \$6,000 of the cost, he said. "I pinched pennies as much as a person could."

Several years ago, Christman signed up for a Master Gardener's class in Bonneville County, learning from the West Side District's High Tunnel project (featured in Conservation the Idaho Way in the January 2022 issue). He's been raising his own vegetables and herbs for several years. This year, he is raising carrots, beets, spinach, red spinach, lettuce, radishes, summer squash, cantaloupe, watermelon, heirloom tomatoes, parsley, basil and more.

"I really like it," he says of his High Tunnel project, which measures 24 feet by 80 feet. He can control the air temperature inside by rolling up the sides of the tunnel during the day or at night. "You have to keep an eye on things all the time to make sure the air temperature is right," he said.

Jefferson District tree sales

In an effort to encourage windbreaks on farms in the greater Mud Lake area, the District holds an annual tree and shrub sale. "Wind breaks are very important, as the sandy soil on potato fields blows from bare fields and shears off new grain growth," Patterson says. "Some farmers resort to stacking straw bales on the edge of their grain fields to stop the drifting sand."

About 300 people purchase trees and shrubs each year. Approximately 300 container trees, 1,700 bare root, and 1,300 seedlings are sold annually, in addition to landscape cloth, she says. The Jefferson County Parks and Recreation Department is a regular recipient of donated trees and shrubs to improve Jefferson Lake, a local recreation area. Windbreak trees and shrubs also have gone to the two fairgrounds in the county, as well as to a school and greenbelt walking path in Menan.

"Although the main thrust of the sale is to install windbreaks, many of the trees and shrubs sold go to landscaping in the increasingly suburban areas of the Upper Snake River Valley," Patterson says. FFA students at the local high school provide labor during the tree sales as a way to raise funds for FFA activities.

During the Covid shutdown in the last two years, Patterson managed to continue the tree and shrub sale by setting up in the parking lot of the USDA Service Center in Rigby. "I needed be on-site for tree and shrub sale customers, while I was not allowed in the actual office during the shutdown."



*Robust cover crop at the Deer Park Wildlife Mitigation Area.
(Photo by Linda Patterson)*

"Everyone appreciates and respects Linda Patterson's dedication and service to our District," Hendren said.

In 2022 Jefferson SWCD supplied trees and shrubs, most of them at cost, for a large windbreak project funded by the Farm Service Agency "Continuous CRP" program in the Osgood area. A number of trees and shrubs have been planted at the Deer Park Wildlife Mitigation Area as well. Deer Park lies adjacent to the Menan Buttes and the Snake River on IDFG land. Agency officials have been encouraging a farmer renting the land to install cover crops, along with native plants purchased from the Jefferson District tree and shrub sale, to prevent wind erosion on the fields.



Rigby High School FFA students teach 3rd graders about ground water flow with the assistance of a Jefferson District water model. (Photo by Linda Patterson)

Education outreach

In 2014, the Jefferson District purchased a fiberglass dairy cow, named "Dolly the Idaho Dairy Cow." She's a big hit. The dairy cow attends two fairs held in Jefferson County, the Stampede Days parade, and she visits

many classrooms, 4th grade history days, other community events and fall festivals, Patterson says.

"The kids love Dolly," she says. "It's a great opportunity for hands-on learning."

Proceeds from the District tree and shrub sale are used for outreach and education. The District awards four to six, \$1,000 scholarships annually to high school seniors who intend to study in the fields of agriculture or biological sciences. It also pays for scholarships for teens to attend Natural Resource Camp.

The District also sponsors a local Envirothon team. The Jefferson team placed first place in 2022 and went to the National Envirothon competition at Miami University in Oxford, Ohio. The District sponsors an NRCS conservation-themed poster contest for 6th graders: 110 kids participated in 2021. The District also owns two water table models, which introduces the water cycle and ground water flow concept to all the 3rd graders in Jefferson County at the FFA Ag Expo each spring.

The District, working together with NRCS, provides food and support for an annual Soil & Land Judging competition for FFA students from Jefferson County's three high schools and surrounding counties. The contest alternates yearly from the Place Farm in the Hamer area to Ririe Idaho Crops Farm, a dry-farm in the Ririe area. Place Farms has been hosting the event for about 30 years.

All in all, the Jefferson District is very active, accomplishing an amazing



*Kids enjoy milking Dolly the Dairy Cow at the Mud Lake Fair.
(Photo by Linda Patterson)*

amount of conservation work, officials said.

"This job is the most enjoyable work I have done," Patterson says. "Soil and Water Conservation districts are a great way for producers to influence policies on the local level, advocate for agriculture, improve the environment and add lasting value to our farms."

For more information about the Jefferson District, go to <https://jeffersonswcd.org.weebly.com> or contact District Administrator Linda Patterson, linda.patterson@id.nacdnet.net, 208-745-6664 x4.

Steve Stuebner writes for Conservation the Idaho Way on a regular basis.

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