

LESA

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“Our farm is required to reduce by 7 percent, and we feel like we can easily save 25 percent,” Shively said. “We are not worried about making our water savings on this settlement, while at the same time, we’re seeing as good or better yields than we were previously.”

How it works

The heart of the system are low-pressure nozzles that dangle from long hoses attached to the pivot. The hoses are 54 inches apart instead of the standard 108 inches.

Spraying just 12 to 18 inches from the ground provides ample water coverage while reducing drift and evaporation, especially once the crop canopy grows enough to contain the spray.

Shively first tested LESA on a single pivot span over alfalfa last season.

During Shively’s trial year, second-cutting alfalfa under the LESA span yielded three-quarters of a ton per acre more than the conventional pivot setup.

Furthermore, soil remained moist more than 5 feet deep under the LESA span, compared with just 18 inches for the conventional irrigation setup.

Shively also believes LESA, which doesn’t moisten the crowns of grain, has kept stripe rust in check and prevented water weight from tipping stalks.

LESA spreads

This season, Shively converted four full pivots to LESA. The results have far exceeded his expectations.

He planted two pivots — one conventional and one using LESA — a day apart and

under identical conditions, using the soft white spring wheat variety WB 6430.

The LESA pivot used about 4 inches less water but yielded about 115 bushels per acre, compared with 75 bushels per acre under the conventional pivot.

“The pivot without LESA, we struggled to keep it wet,” Shively said. “We couldn’t turn the pivot off.”

In another field, Shively planted hard red winter wheat and used a LESA setup. It yielded 125 bushels per acre and used 10.5 inches of water.

In 2014 using a conventional pivot, the same field yielded 10 fewer bushels per acre but needed 8 more inches of water per acre.

Getting help

Growers throughout the region are starting to follow Shively’s lead.

The Idaho Falls office of the USDA Natural Resources Conservation Service has awarded \$300,000 through its Environmental Quality Incentives Program to help area growers install 32 new LESA systems for use next season, many near Mud Lake.

NRCS District Conservationist Josh Miller said the agency received applications to convert 60 pivots and hopes to obtain funding for an additional sign-up in November.

Miller said the grant, conducted in partnership with Rocky Mountain Power, pays up to \$7,000 to convert a single pivot and is capped at \$12,000 per applicant.

The sales staff at Golden West Irrigation in Rexburg, which has seen strong LESA sales this fall, estimates the cost of outfitting a pivot with LESA at \$10,000 counting labor.

However, most growers, including Shively, opt to install



John O’Connell/Capital Press

Steve Shively, a Mud Lake, Idaho, farmer, replaces a clamp on a nozzle on the low elevation sprinkler application system on his pivot. Shively said LESA has enabled him to more than meet the requirements for groundwater users to reduce water consumption under the terms of a water call settlement.

LESA when their conventional pivot nozzles and fittings are worn, and updating a pivot with conventional equipment still costs up to \$3,500, counting labor.

Grant recipients are required to use soil-moisture sensors in conjunction with LESA to avoid over-watering crops.

“With the groundwater issue, I think there are a lot of people interested in using these systems to meet those cutbacks,” Miller said.

To meet his reduction, one of the grant recipients, Lane Hutchings of Montevideo, Idaho, has already dried 50 acres he’d been irrigating with labor-intensive handlines and a portable mainline.

While meeting with an irrigation equipment salesman about purchasing his first LESA package, the malt barley and alfalfa grower said he’s optimistic LESA will provide a painless way for him to further reduce his well water consumption.

“I think (LESA) will be on everybody’s pivots here before long,” Hutchings said.

Bonneville Power Admin-

istration also offers a grant to help growers convert to LESA, based on the potential power savings.

LESA’s evolution

UI Extension irrigation specialist Howard Neibling and Troy Peters, his WSU counterpart, tested the first LESA pivot spans in Wells, Nev., in 2013, with funding from the BPA.

They sought to tweak a common Texas irrigation method for more arid conditions. Texas-style low elevation precision application uses long hoses to position low-emitting drip nozzles beneath crop canopies. Neibling and Peters chose adjustable nozzles, as they planned to use a spray setting to get crops germinated, before switching to a drip setting.

However, they forgot to tell the grower to adjust the nozzles. Serendipitously, the spray setting provided ideal coverage and moisture penetration, while reducing water use by 15 percent, and modern LESA was born.

The following year, they expanded the LESA trials to a few sites in Idaho and Washington.

“We got a good data set in Arco, Idaho, showing over 20 percent water savings,” Neibling said. “We were saving a remarkable amount of water on hot, windy days — like close to half.”

Anheuser-Busch funded LESA trials on three pivots in Idaho this season to test the technology on malting barley. Growers reported barley plants were less prone to tipping, but the thick barley stands blocked spray. The problem was remedied by reducing the distance between the pivot drops.

Neibling said some potato growers worried LESA nozzles could damage vines or spread diseases, but Arco seed potato farmer Mike Telford reported no problems with LESA.

Joe Jepsen, a Rexburg, Idaho, potato farmer, also experienced no problems in spuds with a LESA trial this season. While some spud growers with lighter soils have complained LESA washes away dirt and exposes tubers to light, Jepsen said his soil was heavy enough to avoid trouble.

“We had a lot of wind this year, and we could definitely see the evaporation loss, and with the LESA system there was not that loss,” Jepsen said, adding that he’ll study LESA for three years before expanding its use on his farm. “I think we can make our (settlement) cutbacks with LESA and still grow a good crop.”

He’s still compiling data on LESA use in spuds and wheat, but he said there was a water savings and spud quality was much improved under LESA.

Neibling believes LESA still needs more testing on hilly terrain and clay soils, and he acknowledges it may be a poor fit for fields that have runoff issues, but he estimates it could be effectively used on about half of Idaho fields.

LESA in California

Last season, University of California crop advisor Steve Orloff tested LESA on spans of three pivots irrigating alfalfa in Northern California’s Siskiyou County. In parts of the region, including the Scott Valley, agricultural water use is under scrutiny due to mounting interest in the interconnection between groundwater and surface water.

Based on the results of his 2015 trials, Orloff said eight commercial alfalfa growers in the region had full pivots of LESA to start this season. He suspects more pivots were converted during the season, and he envisions more LESA systems will be installed as growers replace worn pivot equipment.

He estimates LESA reduced water waste by 15 percent in the California trials, even working well on a sloping field with heavy soil.

“I don’t know of anyone who has been dissatisfied with it,” Orloff said.

Peters, the WSU irrigation researcher, believes LESA has been quickest to catch on in Eastern Idaho due to the settlement, but he said several growers in Eastern Washington and Oregon have experimented with a single span on their pivots.

He said growers have had luck with LESA in mint, corn, potatoes, wheat, barley and alfalfa. Peters explained LESA yield boosts should be expected only in crops that were water stressed under conventional pivots, but he noted the approach can always help growers save on input costs.

“I think it’s a winner technology,” Peters said. “It saves water, it saves energy, it makes it so the grower can be more profitable, and it’s good for the environment.”

“I hope more people will take a serious look at it.”

EPA

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The director of Save Family Farming, Gerald Baron, said that his group was not aware of the letter when it

complained last month to the Public Disclosure Commission that What’s Upstream should have registered as a grass-roots lobbying organization.

“This basically confirms the intent of the campaign

wasn’t public outreach, but was related to lobbying legislators,” he said.

The Public Disclosure Commission has agreed to investigate and has asked the Swinomish tribe’s environmental policy director Lar-

ry Wasserman to respond. Efforts to reach Wasserman were unsuccessful.

In an email Oct. 3, an EPA spokesman restated the agency’s position that it was concerned about the What’s Upstream campaign — “within the limits of our legal authorities as we understood them.”

The EPA’s inspector general is auditing how the fisheries commission and tribe spent federal funds. Some federal lawmakers have charged the EPA with allowing an illegally funded lobbying campaign and are asking EPA Administrator Gina McCarthy for an explanation.

The EPA posted the newly available records online after releasing them to the Capital Press.

Baron said his group will broaden its complaint to the PDC, alleging that What’s Upstream also should have registered as a political-action committee as early as 2013.

Late that year, Wasserman proposed using EPA funds to promote a ballot initiative, noting that the EPA already had funded polling by Seattle lobbying firm Strategies 360 that tested which arguments might sway voters to approve mandatory buffers.

“We had believed a citizens initiative was the intent, but the documents we had before this release wasn’t clear

enough to make that complaint,” Baron said.

Wasserman’s proposal apparently focused more EPA attention on the emerging What’s Upstream campaign.

“We need to huddle internally if at all possible to discuss Swinomish’s proposal to use EPA funds to pursue a 2014 ballot initiative,” Puget Sound intergovernmental coordinator Lisa Chang wrote in a Dec. 19, 2013, email to colleagues. She also pointed them to the campaign’s current website. “I was not aware of (the) potentially inflammatory nature of their objectives under this subaward,” she wrote.

Wasserman also proposed an advertising budget of \$100,000 for 2014. “A mix of public radio sponsorships and commercial radio advertising will run for 12 weeks coinciding with the 2014 legislative session,” Wasserman proposed in a workplan he presented to the EPA.

Two months later, and the day after meeting with concerned EPA staff members, Wasserman called Chang and withdrew the proposal to run a ballot initiative, according to a Jan. 15 email from Chang to several EPA officials.

Wasserman submitted a revised workplan, which deleted references to an initiative and the 2014 Legislature. Nevertheless, the workplan

retained the \$100,000 for advertising, including 12 weeks of radio ads, mostly on Seattle stations that could reach Olympia and Bellingham.

The revised website, launched in December 2015, prominently featured video clips that inexplicably linked a farmer spraying pesticides with water turning brown and then salmon dying after spawning.

EPA staff members began hearing complaints about the website, including from Skagit County Public Works Director Dan Berentson, who has been involved in an ongoing effort to identify and reduce sources of water pollution in north Puget Sound. Other tribes, farm groups and government agencies are partners in the effort.

“I was concerned about the tenor of the website, actually encouraging people to write their elected officials to put in additional regulations and implying that voluntary efforts were ineffective,” Berentson said in an interview Oct. 4 with the Capital Press.


Berentson said EPA officials listened to his concerns, but he said he didn’t recall any particular reaction.

The EPA eventually distanced itself from What’s Upstream when federal lawmakers learned in late March about the campaign.

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