

# Researcher seeks to solve phosphorus mystery

By JOHN O'CONNELL  
Capital Press

KIMBERLY, Idaho — Soil scientist David Tarkalson believes a startling discovery he made while conducting an irrigation study may have implications for farmers who raise corn following sugarbeets.

Tarkalson, with the USDA Agricultural Research Service's Northwest Irrigation and Soils Laboratory, planted sugarbeets in 2011 while researching the effects of different irrigation rates. Beans were planted in the ground surrounding the plot in the same field.

The following year, he planted the whole field to corn. The corn emerged healthy and green where the beans had been but was stunted and purple where the sugarbeets had grown — clear signs of phosphorus deficiency. As the season progressed, the purple corn seemed to recover.

Also in 2012, David Bjornberg, research leader at the ARS facility, noticed purple, stunted corn following sugarbeets in a

field involved in a long-term rotation study.

Tarkalson said local field agronomists have noticed the phosphorus deficiency but attributed it to cool spring conditions impeding phosphorus metabolism by young plants.

However, Tarkalson said cool weather can't explain why only the corn on the former beet plot was stunted.

He intends to research the issue in more depth, first determining if the apparent phosphorus deficiency is adversely impacting corn yields. He also finds it curious that the phosphorus levels were adequate in both of the fields where stunted corn was found.

He hypothesizes the deficiency resulted from a condition referred to in the Midwest as fallow syndrome, caused by a lack of beneficial mycorrhizae fungi in the soil. The fungi develop a symbiotic relationship with the roots of plants such as corn, effectively extending the roots' reach by 100 times. But some plants such as sugarbeets and canola don't support



John O'Connell/Capital Press

David Tarkalson, a soil scientist with the USDA Agricultural Research Service's Northwest Irrigation and Soils Laboratory in Kimberly, Idaho, stands where research corn and sugar beet plots meet. He's interested in studying why corn seems to be deficient of phosphorus following beets in his facility's research projects.

mycorrhizae, which also can be impaired by fallow years and flooding.

A fallow syndrome pamphlet published by Channel Seed warns the deficiency can reduce yields and recommends applying phosphorus in bands near seed rows or planting cover crops, such as oats, to supply mycorrhizae.

"(Mycorrhizae) really is something we're not focusing on. We just noticed it," Tarkalson said. "We're trying to play around with it."

Next season, he intends to plant corn in a field currently in sugarbeets that were treated at a variety of commercial fertilizer rates, and with varying histories

## Western Innovator

David Tarkalson

Family: Wife, Marilyn, and sons, Brady, 11, James, 9, Bryan, 7, and Jackson, 4.



Education: Associate's degree from Rick's College, bachelor's and master's degrees from Brigham Young University in agronomy, Ph.D. in soil science from North Carolina State University.

Age: 43

Occupation: Soil scientist with USDA Agricultural Research Service's Northwest Irrigation and Soils Laboratory in Kimberly, Idaho.

Hometown: Twin Falls

of manure application, to see if the deficiency surfaces.

American Falls, Idaho, grower Jim Tiede suspects his use of dairy compost, which is high in phosphorus, may explain why he's never experienced any problems in corn following sugarbeets, which is a rotational order he likes to avoid planting potatoes in corn cobs and crown roots.

Mike Sato, account manager with Pioneer Seed in Twin Falls, has seen the deficiency often. He suspects manure may help but said banding fertilizer wasn't ef-

fective in University of Idaho research conducted about a decade ago. He said some hybrid corn varieties may also better withstand the deficiency.

"If you're patient, often corn does just fine after beets," Sato said. "Would it have done better if it hadn't followed beets? Probably, but a lot of times the rotation doesn't work that way."

USDA estimates Idaho farmers planted 171,000 acres of sugarbeets and 340,000 acres of corn in 2014.

**ROCKY MOUNTAIN STEEL**

New Steel • Fasteners • Stainless Steel  
• New & Used Pipe • Beams • Springs  
• Turnbuckles Used Cable  
• Fence Clips • Cable Clamps  
• Oil Field Sucker Rod in all sizes

Direct ship & cutting available

400 3rd Ave. North • Nampa, ID 83687  
208-466-8913 (FAX)  
800-851-8612 / 208-466-0036

INID-5/17

## Fish farm's production increases with new system

John Lambregts sees 10-fold jump with new technology, raceway design

By JOHN O'CONNELL  
Capital Press

POCATELLO, Idaho — Like most Idaho fish farmers, John Lambregts can tell when the irrigation season starts by the sharp drop in his spring flows.

"We don't have near as much water as we used to," Lambregts said.

Diminishing spring volumes and stricter clean-water standards have limited fish output throughout the state. Regardless, Lambregts believes he's found the right combination of technology to achieve a 10-fold production increase at his Grace fish farm. There, he raises warm-water tilapia in an outdoor environment thanks to geothermal springs that stay 83 degrees year-round.

Lambregts is preparing to market his first tilapia crop raised using a system with circular raceways designed for enhanced waste removal and an innovative oxygenation system.

He first built the thermal tilapia farm in 2000, expanding it in 2008. Last fall, Lambregts installed the first three of 10 planned circular raceways, which allow waste to fall into a conical basin to be piped to another settling area. His Grace site manager uses the phosphate-rich nutrients in the waste to fertilize alfalfa fields.



John O'Connell/Capital Press

Southeast Idaho fish farmer John Lambregts grades rainbow trout at his Pocatello fish farm, using a frame of metal bars allowing only fish below a certain size to pass through.

Lambregts is also one of five fish farmers in the world using a new oxygen-injection system, which injects 60 times as much oxygen into water compared with old-fashioned raceways.

When complete, he expects his \$1 million upgrade to increase his production capacity from 50,000 pounds of tilapia for each cubic foot per second of water to 500,000 pounds.

"I'm producing as much fish in those circular raceways at 30 gallons per minute as I do in the old raceways at 1,000 gallons per minute," Lambregts said.

Lambregts sells his tilapia live to the ethnic Chinese and Hispanic markets, shipping a truckload of the fish to larger population centers such as Portland, Ore., and Vancouver,

British Columbia, each week. He's one of five Idaho fish farmers raising tilapia with geothermal water.

"We're the only state with an abundance of hot water at the right temperature," said Challis, Idaho, tilapia farmer Mark Lupher, who manages a geothermal farm poised to increase annual production to 1 million pounds per year. "The resource of the hot water around here is just unparalleled."

Lambregts also leases a rainbow trout farm, developed in 1967 with cold spring water from near the Portneuf River in Pocatello. In that facility, he raises 150,000 rainbows per season, each weighing 1-3 pounds. About three-quarters of his trout business is devoted to stocking private ponds. He has about 180 ponds he routinely stocks in Southern and Eastern Idaho.

Lambregts noted that in 2012 the world's fish farmers surpassed beef for total annual pounds of production. Regardless, he said he's turned



## Western

Innovator

John Lambregts

Occupation: Operates trout farms in Pocatello and Grace, Idaho

Education: Master's degree in agricultural economics, Texas A&M; bachelor's degree in marketing management and finance, University of Oregon

Hometown: Originally from The Netherlands, he now resides in Pocatello

Family: Daughter, Irene; son, Anthony

to the niche live-fish market to stay in business as the consolidation of commercial fish processors has squeezed small fish farms.

### I NEED FARM LISTINGS - I HAVE BUYERS



**GREAT HORSE OR CATTLE PROPERTY**  
Parma, Idaho  
Total 42.1 acres.  
3190 Sq. ft. home

on 29.3 acre parcel; includes adjacent 12.8 acre parcel with additional building permit. Quality construction, very nice home with master on the main level. Vaulted ceilings. Master WIC, walk-in 2-head shower. 2 ponds, new gazebo. Great pasture for horses or cattle, 48x13 barn w/3 horse stalls and feed/hay room, 72x45 shop, 12x8 greenhouse, 58x14 redwood deck w/hot tub, steel reinforced 8x10 concrete-block built-in vault/safe adjacent to 8x10 reloading/craft room in 44x26 3 car garage. **\$650,000**

**DLG**  
Dickerson Land Group  
REAL ESTATE SERVICES, LLC

**Stacey Budell**  
(208) 880-4244  
homeav8r@prodigy.net  
www.idaho4homes.com

**SOLD**

INID15-2/17

## IDAHO

**14,000 ACRES** - 10,500 deeded acres + BLM & State. 500 cow/calf plus 1,000 head summer yearling operation. Quality home and improvements, equestrian facilities, feedlot, trout ponds, 7 miles of live stream, resident elk herd. **Organic Ranch Potential, Cash Flow!**

**1,400 ACRES** - Private ranch in unique location with nice home and improvements. Some irrigated pasture from creek flowing through the ranch, with grazing permits to run about 150 cow-calf pairs for the summer.

**652 ACRES** - Good hay, grain farm and recreational property irrigated with pivots and wheel lines. Spacious home, plus second ranch home, and large shop/garage. Scenic valley location!

**530 ACRES** - Productive hay farm, pivot irrigated, plus grazing for 100 head. Beautiful 2500 sq. ft. home, tranquil setting with river and mountain views. **A Pride of Ownership Property!**

**471 ACRES** - Canal water, 3 pivots, spacious home, garage, heated shop, corrals.

**495 ACRES** - Ranch for cattle and the production of top-quality hay. Cattle and equipment available. Very nice home and improvements show pride of ownership. Must See To Appreciate!

**281 ACRES** - Hay, pasture, pivots, good water rights. Will run approximately 200 head, nice improvements.

**DAIRY FARM** - 5600 animal units, milking 4000 head, open corrals with shades. Very good neighboring area for feed supply and waste removal. On 500 acres, good water rights, good location.

**DAIRY FARM** - One of South Idaho's top dairy locations. Double 24' x 40' pits, 2910 CAFO, canal water, 3 pivots, many improvements.

**www.rjrealty.com**  
1766 Addison Ave. E  
Twin Falls, Idaho  
**208-733-0404**  
www.Farmseller.com

**Robert Jones Realty**

**Bob Jones, Broker, 208-308-6060**  
**Mark Jones, Associate Broker, 208-308-3030**

INID15-5/16

**D&S TIRES INC.**  
26884 Pearl Rd • Parma, Idaho 83660  
New Track Shop that brings BIG Savings to the Western U.S!  
**(208) 635-0700**

**We are your #1 Source for retreading & repairing rubber tracks for your ag tractor.**

**LET US REBAR YOUR RADIAL TRACTOR TIRES.**  
SAVE 50% OVER NEW!

**FEBRUARY IRRIGATION SPECIAL**  
BUY 14 PIVOT TIRES - GET 1 FREE!

**LET US REBAR YOUR JD OR CAT TRACKS & WHEELS**

**PAYLOADER TIRES**  
SAVE \$\$\$ NOW!!!

**NOW IN STOCK 20.8R38 TRACTOR TIRES \$1,375**

**D&S TIRES INC.**  
Celebrating Our 40th Year In The Tire Business-1974-2014

601N Grant St. Lincolnton, Mo. Or. Website: [www.dstiresales.com](http://www.dstiresales.com)

26884 Pearl Road Parma, ID (208) 635-0700 (24 hr. online order)

661 South Lincoln St. West Point, NE (402) 372-8572

620 North 33rd Street Richmond, IN (765) 965-5251

For More Information Ask For Marrian

For More Information Ask For Jimmy

INID15-5/17

**Total Scale Service, Inc.**  
Serving Idaho, Washington, Oregon, Utah, Nevada, Montana, & Wyoming

**The BEST scale is your insurance policy against commodity losses!**

**WOLFE PAC PELLET IN MOUNTAIN HOME, IDAHO**

**Legendary reliability and precision with the exclusive Weigh Bar™ and rugged Weighbridge design backed by an industry-leading warranty.**

**Exclusive design features are what make Avery Weigh-Tronix truck scales #1 in the industry. These features add up to a truck scale of remarkable quality and value.**

**Avery Weigh-Tronix**  
Weighing Products & Systems  
Design your own Customer Data Program

**800-423-4456** [www.totalscale.com](http://www.totalscale.com)

INID15-7/17