

IDAHO INNOVATORS

Idaho farmer trades clean fields for healthier soil

By CAROL RYAN DUMAS
Capital Press

KIMBERLY, Idaho — Todd Ballard's family has been farming just east of Twin Falls for more than 100 years, and each generation has taken pride in clean fields, nicely tilled and weed-free.

But Ballard is slowly changing things up, leaving stubble in the field, planting cover crops and direct seeding — all to build soil health and keep more money in his pocket.

"The old way wasn't really penciling out," he said.

The farm used to be gravity irrigated, which requires corrugates that have to be maintained. But he and his father, Ron, phased in sprinklers over the last 20 years and have taken a vastly different approach to farming — using no-till and minimum-till practices.

"We used to work the ground to death, we almost had to for gravity irrigation," he said.

The father and son started



Carol Ryan Dumas/Capital Press

Todd Ballard on the family farm in Kimberly, Idaho. He is converting some of his fields to no-till and minimum-till to boost soil health and save money.

experimenting with cover crops about eight years ago and direct seeding three years ago, increasing the no-till ground yearly.

A lot has changed, and it's taken some adjustment.

"The main thing is the look of the field," Ballard said.

The heavy tilling of days past produced nice, pretty, consistent fields, he said.

"Now there are all these dead gray plants, stubble,

TODD BALLARD

Occupation: Farmer

Age: 58

Location: Kimberly, Idaho

Acres: About 300

Crops: Beans, alfalfa, malt barley and wheat

Management: Cover crops, no-till and low-till

Family: Wife, Teresa; son, Riley

clumps of straw. It looks trashy," he said.

That was the hardest thing to get used to, and it's taken him a while to accept unmanicured fields.

But armoring the soil with what conventional farmers would view as unsightly growth has resulted in no blowing soil and no water runoff.

"We try to keep the fields covered, with living roots (below)," he said.

Although he's a soil health enthusiast now, he was a reluctant convert to no-till.

"I was trying to lower my fertilizer usage, going for more soil health," he said.

This story was first published June 19, 2020.

Leading battle against potato pest

By BRAD CARLSON
Capital Press

New weapons in the battle against the pale cyst nematode — a major potato pest that has cost farmers millions of dollars since it was found in southeast Idaho in 2006 — include a bio-fumigant and a surprisingly efficient "trap crop."

Researchers are also making progress in developing PCN-resistant potato varieties.

"Understanding the biology allows us to target the weak point in the life cycle," said University of Idaho Associate Professor Louise-Marie Dandurand, project director of the Globodera Alliance.

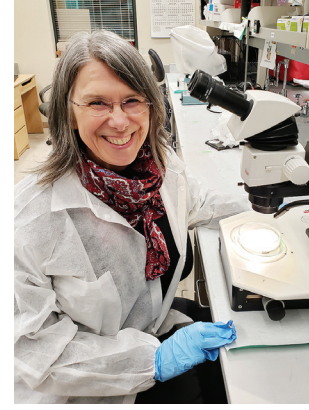
Globodera is the genus of the potato cyst nematode.

The alliance is a five-year, \$3.2 million project funded by USDA to assess the risk of and work to eradicate potato cyst nematodes.

The 16 alliance members include researchers and educators from the Northwest, New York, Canada, Scotland and France. An advisory board includes industry representatives and federal and state regulators. The project, in its final year, is seeking funding to continue its work.

Cysts with viable eggs, which can number in the hundreds, can persist in the soil for decades. There they remain relatively resistant to chemical and biological stresses, an alliance newsletter said.

The group also studies the golden nematode — found in New York, where resistant potato varieties are available — and the related *Globodera ellingtonae*,



University of Idaho

Louise-Marie Dandurand in the University of Idaho pale cyst nematode Laboratory.

which as yet lacks a common name.

Dandurand said *G. ellingtonae* has been found in Oregon and a couple of Idaho locations, but does not appear to reduce potato yields. Alliance members are studying it because it behaves like the golden nematode.

"When we see invasives, the whole industry becomes at-risk," she said.

Pale cyst nematode is of particular concern because it can reduce yields substantially, and resistant potato varieties are not yet available for Idaho, where PCN for years has been the target of government-ordered eradication.

"These encysted eggs can survive in soil anywhere from 20 to 30 years," Dandurand said. If they have a host plant, the nematodes will hatch, swim to the potato plant's root, invade it, "and reproduce to form more cysts that contain anywhere from 300 to 500 eggs."

A 2016 study by UI Agri-

LOUISE-MARIE DANDURAND

Occupation: Research associate professor, Department of Entomology, Plant Pathology and Nematology, University of Idaho. Project director, Globodera Alliance.

Age: 61

Hometown: Lives on a small farm near Moscow, Idaho. Grew up on dairy farm near Franklin, Vt.

Education: B.A., botany, University of Vermont, 1981; M.S., plant science, University of Connecticut, 1985; Ph.D., plant pathology, University of California-Riverside.

Family: Widowed (husband Guy Knudsen, a UI soil microbiology professor and fellow Globodera Alliance member, died in 2016), two grown children.

cultural Economics and Rural Sociology Professor Chris McIntosh found PCN cost Idaho \$25 million that year in potato farm-gate revenue, lost jobs and other impacts. The loss would have been about \$30 million if not for replacement crops like barley and wheat. Non-host crops like grains can be planted in fields where PCN is present if equipment is sanitized per federal standards.

USDA on Jan. 10 announced deregulation of five Idaho fields, a total of 404 acres, after surveys showed no PCN. That brought the total regulated area to 7,150 acres, 3,446 of which were infested.

This story was first published May 22, 2020.

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