

Researcher identifies new weapons against slugs

Essential oils, nematodes prove effective against common pest

By **MATEUSZ PERKOWSKI**
Capital Press

Essential oils from thyme and spearmint are proving lethal to crop-damaging slugs without the toxicity to humans, animals or the environment that chemical solutions can present.

An added advantage of these oils is the rapid mortality they cause in slugs, whereas one of the most common chemical molluscicides used by Oregon farmers, iron phosphate, simply causes them to stop feeding, said Rory McDonnell, Oregon State University's slug specialist.

"The oils were essentially just as effective as metaldehyde," another com-



Courtesy of Robin Rosetta/OSU

New weapons are being discovered in the battle against slugs.

mon molluscicide, McDonnell said during the Oregon Seed League's annual meeting, held in Salem, Ore., on Dec. 10-11.

Thyme and spearmint oils achieved 100 percent mortality at a concentration of just 0.25 percent, most likely through direct contact with slugs — though it's possible their volatile

emissions could also serve as repellents for the pest, McDonnell said.

Because they're natural compounds, these oils would be exempt from the U.S. Environmental Protection Agency's registration and residue tolerance regulations for conventional pesticides, he said.

Before they could be

commercialized as biological pesticides, data would need to be submitted to the Oregon Department of Agriculture proving they're not toxic to humans or non-target organisms, though this should not be a big obstacle, McDonnell said.

"I'll eat my hat if it's toxic," he said.

McDonnell was hired by OSU in 2016 after Oregon farmers told the university's leaders that more research was needed to fight slugs, which have become increasingly destructive in recent years.

Another positive development from McDonnell's research is the discovery of a nematode that's naturally parasitic to grey field slugs — phasmarhabditis hermaphrodita — on OSU's campus in Corvallis, Ore.

The location of the discovery was ironic given that McDonnell had traveled thousands of miles around the state searching for the species, which is native to Europe and used in slug control there.

"The darn thing was a stone's throw from my office," he said.

Since then, McDonnell has discovered two other nematode species in Oregon that show promise as biological control agents.

In the United Kingdom, the phasmarhabditis hermaphrodita nematode is sold as a commercial biopesticide that's been shown to reduce slug damage in winter wheat by 85 percent, he said.

The nematode finds a hole in the back of a slug's head, then vomits up a bacterial soup that's toxic to the gastropod. As the slug's body decomposes, the nematode's offspring feed on its corpse.

The BASF chemical company also markets the nematode in Europe, producing it in enormous vats through a secret process, McDonnell said.

Before the nematode can be commercialized in the U.S., BASF or another pesticide manufacturer would need to demonstrate to USDA that it's not harmful to other species, such as the native banana slug.

"I think that would be a major stumbling block," he said.

Trade worries loom over pulse acreage

Uncertainty over foreign trade leaves growers up in the air

By **MATTHEW WEAVER**
Capital Press

Pulse growers will have to consider low prices and trade barriers as they decide how many acres to plant this spring, the leader of the USA Dry Pea and Lentil Council says.

"It would be wonderful to be optimistic and think all the trade disputes are going to be resolved by the time spring planting comes, but that may be a little too optimistic," said Tim McGreevy, council CEO.

McGreevy said he expects pulse acres to



Capital Press File

Dry beans are sorted at the Treasure Valley Seed Co. production facility in Homedale, Idaho. Growers are worried about continuing trade concerns as they make plans for next year.

decline unless trade disputes change.

The U.S. has about 2.2 million acres devoted to pulse crops, with roughly

800,000 acres of peas; 800,000 acres of lentils and 600,000 to 700,000 acres of chickpeas, McGreevy said.

If growers keep a pulse in their crop rotation, they'll decide which pulse crop to raise, McGreevy said.

Trade tariffs in China and India remain in place, even though there's been movement with the North American Free Trade Agreement and a recent meeting between President Donald Trump and China President Xi Jinping, McGreevy said.

In spite of the positive discussions, the industry hasn't seen any sales or

inquiries, McGreevy said.

"Maybe we're in early days, but any discussion towards trying to resolve these trade disputes and tariffs are positive," he said. "These tariffs are certainly having an impact, but we do not expect them to last forever."

Domestic sales continue to grow, McGreevy said.

"So it's not all darkness," he said. "We believe very strongly that long-term these crops are going to have increased consumption here in the U.S. market

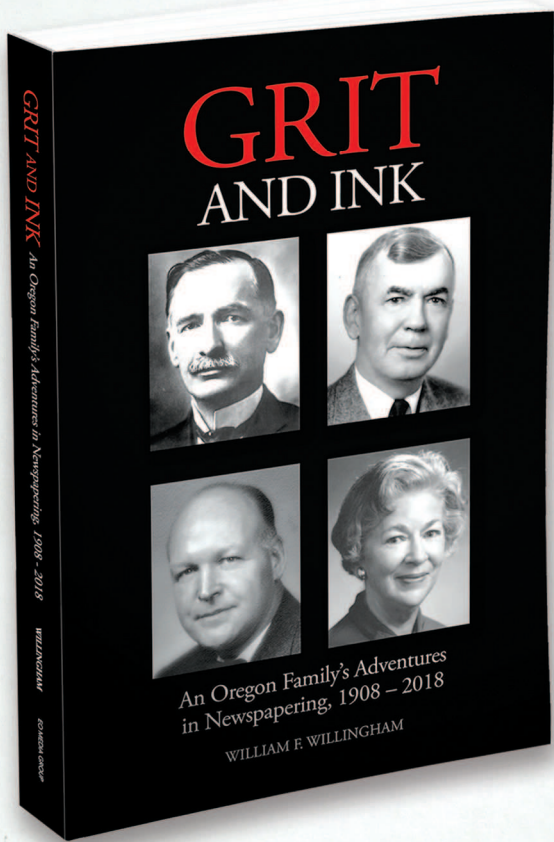
as well as overseas."

Populations continue to grow and pulses are the least expensive proteins available for purchase, McGreevy said. He also pointed to new products and the movement towards more plant-based foods.

"In periods of uncertainty, which we are in, I think it's best to stay the course and make sure the cropping systems you have in place — which include pulses in the rotation — are part of your bread basket," he said.

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