

COVER CROPS TAKING ROOT IN CHRISTMAS TREES

In the mid-1990s, while serving as a director of his local soil and water conservation district and chair of the local agricultural water quality advisory committee, Dan Logan decided it was only fitting to do what he could to protect water quality. So Logan introduced cover crops into his Christmas tree rotations.

He introduced the new cropping regime on some ground that had never been in Christmas trees and on some ground that had been in continuous Christmas trees since the 1970s.

"I will tell you that ground is really depleted," he said. "I'm having troubles growing weeds now on some of it."

What Logan subsequently discovered has changed the way he approaches farming. Leaving soil bare, once commonplace on his family farm, now is a thing of the past. And the cover crops, which he's had in place since 1998, today are doing far more than protect water quality.

"I think the soil is better and I think I'm getting a better tree," Logan said. "It's been a very positive experience. Even from the perspective of a minor thing like when you're harvesting, your trees stay clean because you have a lawn to walk on."

Logan is among a growing number of farmers nationwide, including several involved in the Pacific Northwest Christmas tree industry, that have

discovered the benefits of cover crops.

Terry Muilenburg of Green Valley Farm in Molalla is among them. "I don't like to leave any soil bare," Muilenburg said.

Like Logan, Muilenburg originally looked at cover crops as a means to prevent soil erosion. He, like Logan, also discovered multiple benefits.

"It sequesters nutrients – particularly nitrogen – in the fall and early winter when things are still growing," he said. "Secondly, the cover crop provides the opportunity to not use herbicides in that area, which

allows for soil micro-bacteria to grow and flourish. And it provides cover for beneficial insects."

Jeremy Baker, a conservation specialist at Clackamas Soil and Water Conservation District, said the key to the benefits of a cover crop lie in its roots.

"What we are finding is if you can get that root in the ground, you get several benefits," Baker said.

"You can use it to fix nitrogen," he said. "You can use it as a way to get natural nutrients in the ground. You can use it for erosion control and to suppress weeds. Water infiltration is enhanced



Photo: Tualatin Soil and Water Conservation District

Oregon Christmas tree grower Dan Logan, whose farm is pictured here, is among a growing number of farmers nationwide that have discovered the benefits of cover crops. "I think the soil is better and I think I'm getting a better tree," Logan said. "It's been a very positive experience."

(continued on page 14)

Soil Health Topic of Short Course

James Cassidy, an instructor of soil science and sustainable agriculture at Oregon State University, will be providing a crash course on soil at the 2016 Pacific Northwest Christmas Tree Association Short Course, March 5 at the Holiday Inn in Wilsonville.

Cassidy described the presentation as "a crash course on What is Soil and How Does it Work?"

"I'll be talking about how soil forms from parent materials; what are the functions of soil; how does it store nutrients; why some soils are more suited to growing some things than others; and other topics," he said.

Asked to elaborate, he said, "Soil forms from rocks that dissolve in water. That is where all the nutrients come from; all the nutrients that are in our bodies, that are in trees, that are everywhere. Originally they were in rocks and had to be released. And, of course, they were recycled a billion times over through organic matter decomposition and uptake, but originally it all came from rocks."

Cassidy said that understanding the basics of soil can be invaluable in helping growers improve production practices.

"Knowing how the system works in a fundamental way allows you to derive solutions to problems in a practical way," he said. "I believe it is extremely valuable to know that the soil is not just a sponge for putting chemicals on, that it actually is a living thing.

"Knowing that system allows you to ask the right questions when you have management issues," he said.

Mark Arkills of Holiday Tree Farms, who is a member of the Short Course committee, described Cassidy as an entertaining speaker who has the ability to hold an audience's attention and articulate his subject matter in a way people understand.

"After all the hours and hours of different seminars we've attended on soil science, when James finished talking, I finally really understood the terms and the science behind soil," Arkills said.

Cassidy will speak from 2 to 4 p.m. on Friday, March 5.

(continued from page 13)

because you have little roots sticking holes in the ground, so that helps keep water in the ground longer. It also provides shade for the soil, which helps it hold moisture. It provides traction for vehicles to operate during harvest," Baker said.

And, he said, certain blends of cover crops can help attract beneficial bugs.

Moisture Competition Minimal

Perceptions that cover crops compete with Christmas trees for moisture, meanwhile, are largely false, according to Muilenburg.

He explains, "When there is plenty of water for everything is when your cover crop is growing." Conversely, he said, when moisture is at a premium, the cover crop is dormant, having already gone to seed, and is no longer in competition for nutrients and moisture.

"When moisture becomes a critical part of the equation, (the cover crop's) demand for moisture has passed," he said. "And it actually provides shade for the soil that helps hold in moisture."

Muilenburg, who has grown cover crops between his tree rows for as long as he has farmed, said he would do so even without tangible agronomic benefits.

"I do it totally regardless of whether I get better trees," he said.

That said, Muilenburg believes cover crops do provide tangible benefits for most farming operations. For one, his herbicide costs are lower because of the practice. And cover crops may enable more consecutive rotations of Christmas trees.

He explains, "I remember several years ago visiting with some guys at a Christmas tree meeting and they said, 'Isn't it interesting that when you get to that third rotation, the trees just don't look as good?' Well, the soil has been depleted, the harmful insects, like root weevil, have had an opportunity to grow and develop on this homogenous crop

that you've been keeping out there for twenty years.

"In the long term, by sustaining the soil, it will result in better trees," he said. "I know that if I feed and take care of the soil, it will take care of me."

Muilenburg typically starts a rotation by planting an annual cover crop between rows of newly planted seedlings in the early spring. He starts with a crop that gets up quickly, such as cereal rye or oats, which he discs in as green manure in early summer. The following fall, he'll plant a permanent cover crop of a hard fescue, such as Pure Seed's Soil Guard. In addition, he will plant a few rows of a flowering cover, such as Dutch or New Zealand White Clover, which will attract beneficial insects to the field.

Logan said he typically plants a mixture of annual ryegrass and creeping red fescue in the fall. He uses annual ryegrass because it comes up quickly, gets established and holds soil in place over that first winter. The red fescue, which he describes as a "pretty tough plant," provides long-term benefits over the life of the stand.

Logan prefers to plant a cover crop ahead of seedlings, then spray out rows for Christmas trees.

Jennifer Nelson of the Tualatin Soil and Water Conservation District, said growers interested in utilizing cover crops in their Christmas tree operations should consider starting small. "We find that people who take a little bit on at a time and build from there tend to see a much greater level of success," she said. "You might think about trying it out on one acre instead of putting it on one-hundred acres to start out."

She said growers can purchase a commercial cover crop pre-blend or select their own cover-crop mixes.

In her experience, fine-leaf fescues perform exceptionally well as cover crops. "They didn't get too tall," she

said. "They didn't get out of control, didn't grow outside the aisles. They weren't crawling up trees." And they thrived for the full duration of a stand.

Conversely, she found that bentgrass, clover, perennial ryegrass and annual bluegrass "were all gone after five years."

"A good approach seems to be to put something in that is going to grow fast and die back after the first year and blend it with something that is going to be there for the long haul," she said.

Defraying Establishment Costs

Nelson encouraged growers to contact their local SWCD if thinking of incorporating cover crops into their production regimes. In addition to advice, SWCD's may have information on conservation grants available to help defray the cost of getting a cover crop established.

"We will come take an hour or two, walk your property, talk to you about how this stuff could work for you in your system," she said. "We also can help you get connected with the Natural Resources Conservation Service office in your county and we strongly recommend that you check out their resources."

Cover crop usage can fall under several NRCS cost-share programs, she said, including programs designed to help growers reduce use of agricultural chemicals, pesticide drift and soil erosion.

Muilenburg said much of what he learned about cover crops came from his father, who was using cover crops well before they became a popular method of reducing soil erosion. Muilenburg noted, in fact, that when he first approached his local SWCD about incorporating cover crops into his Christmas tree operation, he drew odd looks.

"I said I wanted to plant a cover crop between the Christmas trees and they looked at me like that was odd," he said.

"They said we prescribe planting trees as a cover crop. I thought, well, you've just barely scratched the surface."

Muilenburg described his experience with cover crops as a "very positive experience. If it wasn't a positive experience, I wouldn't keep doing it," he said.

Logan had a similar response when

asked to describe his experience with cover crops. "The bottom line is I'm hanging in there," he said. "I'm still growing trees."

"Without the cover crops, I think it would be really hard to be doing this without a lot of soil amendments," he said. "I think it would take a lot more inputs." ▲



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