



Harvesting on turf

When Raymond Durivage drives his Lexion 585R combine into a cornfield, he knows he's in for a smooth, worry-free ride. The two front tracks ensure excellent flotation. But that's not all. The combine is also rolling on turf, with a thick green mattress of ryegrass between each corn row that provides for less compaction and better traction.

That great feeling of harvesting on turf is shared by a growing number of elite cash crop farmers across Quebec. The trick is simple. You broadcast annual ryegrass when your corn is at five or six leaves, it germinates, goes dormant for most of the summer and explodes in the fall when the corn leaves die and the sunrays reach in.

"As farmers, we are not used to letting other plants grow through our main crop," says Durivage, who farms less than an hour southwest of Montreal. "We have to learn to see things differently. Some plants grow well together and there can be a synergy."

Durivage has been experimenting with early-seeded annual ryegrass since 2009. Field-size trials on his farm have demonstrated that seeding at the four-leaf stage works best. Agronomists involved in cover crop research in Quebec recommend seeding between the five- and six-leaf stage, in order to prevent overgrowth and competition for water and nutrients.

Early seeding of ryegrass in corn is a great idea, says Ontario Ministry of Agriculture and Food soil management specialist Anne Verhallen. "It's about the only way of getting a cover crop into corn. With combines working well into November, the season is not long enough to seed after harvest."

Verhallen met Durivage along with Plant Products agronomist Daniel Brière at a cover crop conference in Des Moines two years ago. She convinced them to give the same talk at the Midwest Cover Crop Council meeting last February in London, Ont.

In the United States and on scattered farms in Ontario, establishing cover crops in corn usually involves using a helicopter or a plane, or driving in the field with a highboy seeder at tassel. What the guys from Quebec were suggesting was mind boggling. To those who like a clean, weed-free field, it's pretty hard to imagine seeding it with a "good weed" four to six weeks after planting corn. In the U.S., this could void a farmer's crop insurance.

Durivage and Brière were used to travelling to the U.S. and to Ontario to learn about the newest trends in corn and soybean farming. Now, they were the ones teaching the cash crop giants how they could improve their soils.

Quebec farmers have solved the corn cover crop puzzle. They grow grass under the canopy

By **André Dumont**,
CG Contributor



Grower Dominique Gauthier and his farm-made cover crop seeder.

PHOTOS: ANDRÉ DUMONT



Ryegrass after a corn silage harvest on erosion-sensitive farmland in Quebec's Eastern Townships.

Raymond Durivage's disc seeder can broadcast ryegrass on 150 acres in a day.

"The reason I invited Raymond to speak is because our growers are frustrated at always having American speakers whose techniques don't transpose well in our climate and our soils," Verhallen says. "If what the guys just south of Montreal are doing works, it could work here, where we have similar heat units."

According to Verhallen, Durivage's presentation in London got a lot of people excited. A handful of growers in southwestern Ontario gave a shot to ryegrass early seeding last spring. Verhallen set up strip trials just outside the Canada Farm Show site in Woodstock. The wet weather around the six-leaf stage made seeding a little complicated, Verhallen says, but most growers were successful.

There are a number of benefits to an early-seeded cover crop like ryegrass. On erosion-sensitive hilly terrain, it provides excellent soil protection after a corn silage harvest. Ryegrass also helps build and maintain soil structure, while providing safe storage for unused nutrients.

Brière has been promoting ryegrass for almost five years. He says those who try it are always very impressed. "In the fall, their harvesting equipment no longer leaves tracks in the field. Those who do fall or spring tillage are telling me the ground is so soft they can drive their tractor in a higher gear."

HIGHER YIELDS

When ryegrass survives the winter, surface tillage or a pass of glyphosate will eliminate it. By then, its biomass has stored unused N, P and K from the previous season and absorbed a significant part of nutrients from fall manure applications. According to literature, ryegrass biomass can store 15 to 60 nitrogen units. Test results in Quebec were more in the range of 15 to 20 units of nitrogen.

Durivage has calculated that the season following ryegrass in corn, his soybean yields were about six bushels per acre higher, probably because of nutrient recycling and better soil structure.

In Saint-Théodore d'Acton, near Saint-Hyacinthe, cash crop and egg farmer Dominique Gauthier seeded ryegrass in 430 acres of grain corn last year. "We adopted no till 20 years ago and we are now mastering that technique," Gauthier says. "We needed a new challenge and with ryegrass, I think we can still improve our soil structure."

Gauthier is looking at ryegrass like an addition to his corn and soybean rotation. "Dairy farmers have (three or four years of) alfalfa in their crop rotation. If we want to have corn yields that compare to theirs, we need to use cover crops like ryegrass between our corn rows."

There are a number of ways to seed

ryegrass in early-stage corn, from the farm-made cover crop tool bar to Durivage's Kverneland Exacta TL precision disc spreader. According to Brière, ideal seeding rate is 20 to 25 pounds per acre. Lower rates can also give good results, but because the seed remains on the soil surface, germination rate is usually around 50 per cent.

Weed control is the tricky part. Glyphosate can be used to start the season with a clean field, but a residual herbicide must also be used around corn-planting time. It turns out that on Durivage's and other growers' fields, BASF's Integrity does a fine job, with no negative effect on ryegrass germination four to six weeks after being applied.

A BASF representative stressed that this application is off label and therefore isn't something the company can currently recommend. However, preliminary trial results are showing that Integrity does not affect ryegrass growing between corn rows.

A few weeks after germinating, the ryegrass goes dormant when the corn canopy closes in. Water and nutrient uptake remain minimal. When sunlight penetrates the canopy again in the fall, ryegrass grows extremely fast, scavenging leftover nutrients and soaking up rainwater. Some growers believe ryegrass helps to cope with wet fall weather, providing for dryer ground and a lot less mud on combine tires. **CG**

