# ONFARM CASE STUDY

## OVERVIEW

The dedication of Larry Dyck, a cash crop farmer in Campden, Ont., to cover cropping and planting green shines through in his on-farm research efforts.

Together with his son Ben, Larry operates Campden Grain. Larry's wife Marg and daughter-in-law Kait are also active in the logistics of the operation. The family seek to "produce good crops by using cover crops and planting green instead of using tillage," Larry says.

The family began experimenting with these management practices in 2015 when they planted four different cover crop mixes in their fields. The original plan was that three of the mixes would winterkill, meaning the family could experiment with planting green on about one quarter of their corn acres. Planting green is the process of no-till planting primary crops into actively growing cover crops.

However, all the cover crop mixes overwintered. The Dycks had two options – significantly increase tillage or recognize "this train was out of the station" and commit to planting their corn acres green, Larry says. The family chose the latter option.

"Since 2016, the whole farm has been an ongoing experiment with cover cropping – figuring out seeding rates and seeding depths, getting the cover crops to survive, and figuring out the finer points of how to plant into them," Larry says.

While the family are making cover cropping and planting green work for their operation, they continue to seek opportunities to fine-tune their management strategies. This search for knowledge contributed to Larry's decision to participate in the On-Farm Applied Research and Monitoring (ONFARM) program.

## Campden Grain

### AT A GLANCE

**Farmer name:** Larry Dyck

**Location:** Campden, Niagara Region

**BMP:** Comparison of three cover crop mixes including a bio-strip treatment

**Soil health goals:** Use cover crops to increase organic matter and soil structure

## WHAT IS ONFARM?

The On-Farm Applied Research and Monitoring (ONFARM) program is completing extensive soil health and water quality analysis on 32 farm sites across southern Ontario. This network of sites and newly established partnerships will help to build a stronger understanding of best management practices (BMPs) and their effect on soil health and water quality on Ontario farmland.

## ONFARM DATA COLLECTION

- Investigators led by Don King, Principal and Research Agronomist at the Soil Resource Group (SRG)
- Soil health indicator tests: physical, chemical and biological measurements
- Other baseline soil data: horizons, texture, drainage class, structure characterization, and soil type
- Field landscape and soil degradation assessments, agronomic monitoring, and BMP costing

## THE TRIALS

Through his ONFARM trial, Larry wants to compare bio-strip versus plant-green farming methods. Bio-strip tillage involves planting different cover crop species in alternating rows. Some rows of cover crops die out over the winter, while the alternate rows overwinter. Then, the farmer can plant their primary crop in the “dead” cover crop rows in the spring.

While the family have planted green for many years, bio-strips are a new venture for the farm operation.

In 2020, Larry grew buckwheat under no-till management in his ONFARM trial, followed by three cover crop mixes in the fall in side-by-side field strips and a check strip.

In 2021, Larry grew corn under no-till management. He interseeded three cover crop mixes in the same side-by-side field strips to compare with the check – two when the corn was small and another after the field was harvested. In 2022, Larry grew non-GMO soybeans under no-till management, and he hopes to plant winter wheat after he harvests the beans.

## THE SUCCESSES AND CHALLENGES OF THE TRIALS

Although things are not where Larry wants them to be yet, he sees a lot of positives and progress through his cover cropping effort to date.

The cover crops bring tangible benefits to the Dycks' heavy-textured clay soil, which has poor drainage. "When I stick a shovel into a robust cover crop, I see root mass, earthworms, and other evidence of soil life," says Larry.

Don King and his team also see improvements in the soil.

"We have observed improved soil quality near the surface in Larry's field," King says. "The cover crop roots increase the aeration and drainage potential of the soil. Aggregates that are being formed help improve that initial drainage after a rainfall event. This improved drainage is critical to be able to better manage these heavier soils and get onto the field in a reasonable amount of time later in the season without causing a lot of compaction."

Improving soil health is a "long-term commitment," King adds. It "isn't something that happens in a year."

It is also important to recognize when challenges result from factors beyond your control and consider how you can pivot to address these hurdles.

For example, for the first time in his decades of farming, Larry was unable to plant any winter wheat in the fall of 2021 due to challenging wet weather conditions. As a result, the family's typical corn-soybean-winter wheat rotation was disrupted. However, the Dycks remain committed to the use of cover crops. So, in 2022, the family grew sunflowers, an oat-pea intercrop, and cereal rye as a "replacement" in their rotation for the wheat they were unable to plant in the fall of 2021. Although this was the first time he has grown each of these crops, Larry decided to experiment with them so he can still establish cover crops before planting his 2023 corn crop.

In terms of the key resources in his on-farm research, Larry highlights the importance of informal conversations.

"Sometimes I'd listen to a presentation by somebody, and they'd mention another name, which would lead me to make some phone calls," says Larry. He is always eager to find opportunities to "pick people's brains," he adds. In these conversations, Larry can gather more in-depth agronomic information, such as seeding depths and optimal fertilizer placement.

Larry has welcomed the opportunity to learn from others through the ONFARM program, too.

Larry looks forward to continuing his on-farm research journey. "We have seen some neat things along the way to suggest we are on a track we can work with," he says.

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