Production roundup

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Paul Raymer: Producers paying upwards of $26,000 an acre for farmland need to maximize every square meter of that property.

So much land falls between the dots

Paul Raymer is at it again. The man who introduced Ontario producers to the Greenseeker and Y-Drops is now trying to change the way they do soil testing.

Raymer, co-owner of Practical Precision near Tavistock, spoke at the recent Farms.com-sponsored Precision Agriculture Conference in London. His key message was that producers paying upwards of $26,000 an acre for farmland need to maximize every square meter of that property. And that means knowing the variability across that acreage.

Traditional soil testing has tried to capture that information but, whether you're just taking random samples or following a 2.5-acre grid, Raymer believes you're coming up short.

That's because there is so much land that falls between the dots. In a 2.5-acre grid you can have two football fields worth of land in between that aren't accounted for. Whether you're looking at pH, CEC or individual nutrients, "the more numbers, the better idea we will have of the variability," Raymer told the farmers, agronomists and industry reps in the crowd.

Of course you can add more sampling points. You could go to a half-acre grid. But the cost becomes prohibitive and "there is still the risk of human error," he says.

Raymer's alternative approach is called SoilOptix. Mounted on an RTK-guided data collection vehicle is a high-resolution topsoil sensor that measures the soil's gamma radiation or, as Raymer explains it, "the natural geological energy coming off the soil." It's essentially measuring the slow, natural decay of the soil.

Traveling along at about 12 mph, you're now capturing 335 data points per acre. It measures nutrient levels, soil texture, plant-available water, bulk density, infiltration rates and compaction risk. In terms of soil texture, Raymer says relying on CEC "would give you a skewed indication" while this approach does a much better job of "identifying the textural properties of the soil."

Why go to such length to tease out areas of variability? Raymer showed one example of a low pH zone tucked in between the grid points of a standard 2.5 acre grid. The farmer never knew it was there and made no effort to correct it because, on the larger sampling scale, it didn't show up. "By applying a flat rate he ended up with not enough (lime) in some areas and too much in others."

Raymer got a bit of an endorsement from Exeter-area producer Mike Strang, who still farms the clay loam fields bought generations ago by his great grandfather. Strang says he began grid sampling in a 2.5-acre grid in the early 2000s. "But we weren't really seeing the value of it. It was sowing some variability but

Trivapro receives registration

The fungicide arsenal continues to grow for Ontario crop producers. One of the latest new products to hit the market is Trivapro, a multi-active ingredient fungicide from Syngenta.

Trivapro contains three active ingredients – azoxystrobin, propiconazole and Solatenol fungicide – that combine to provide both preventive and curative disease control, the company says. Solatenol binds tightly to the waxy layer of the leaf, which increases the length of control through the season.

It is registered for corn, soybeans and wheat targeting diseases like rust, gray leaf spot, and northern corn leaf blight.

Seeing more of these combination products hit the market is good news for growers because they offer improved efficacy as well as helping to offset resistance build-up concerns, says OMAFRA field crops pathologist Albert Tenuta. "We continue to get more tools to help us control disease and that's good news."

Growers can target a product like Trivapro as a preventative for high-risk situations where disease history, rotation or residue levels suggest an increased chance of disease development, he says. It can also be used as a curative once disease symptoms are seen.

In the end, no matter which product growers choose, it still comes down to using them in the right situations and at the right stage, Tenuta adds.

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not really telling the whole story."

He agreed a half-acre grid would have revealed more but "it's way too expensive."

On the other hand, Strang said SoilOptix "showed us more of the variability that I thought should be there. It doesn't care about topography, soil type or yield." In fact, Raymer added, you can take readings unencumbered by residue, crop, or even snow.

For a nutrient like P, Strang said the readings revealed areas ranging from just 9 ppm to 29. For K, there were very few areas that came in under 100.

Those readings allowed him to fine-tune his variable rate application. "All I did was hit all these high need areas," he said. "We got 61 bushels soys and I spent no more than maybe $300 for K."

You can get more information about the system at: www.practicalprecision.ca/solutions/soiloptix/

Parasitic help for swede midge

Ontario canola growers are getting a helping hand from an unlikely source in their efforts to control swede midge. It's a tiny European parasitic wasp that lays its eggs in midge larvae and it appears to be gaining a foothold in some Ontario fields, says University of Guelph environmental biologist Dr. Rebecca Hallett.

It's been identified as Synopeas myles, a small black wasp that's known to be the number one swede midge parasitoid in Europe, Hallett says. Somehow it made its way to Ontario along with its introduced host pest. The wasp reproduces by laying its eggs in the midge larvae. The young wasps feed on the inside of the larva and eventually emerge from their dead host.

Once researchers started looking for it in Ontario fields, it didn't take long to find it. "We had heard that one was found in Quebec in 2015," Hallett says. Last year's initial Ontario survey focused on fields in the Shelburne and Orangeville area, where swede midge has the longest history and where infestations tend to happen every year. "We figured that would be the most likely area to find it."

Farm visits were made on a weekly basis for about eight weeks in June and July. Researchers collected material from infested plants, brought them back to the lab, and allowed the midge larvae to mature and pupate, waiting for either an adult midge or a parasitoid to emerge, Hallett explains. Any of the latter were sent to an expert in Denmark for identification.

Levels of parasitism were surprisingly high. Parasites were found during six of the eight weeks and weekly levels ranged from four per cent of larvae parasitized to almost 28 per cent. In one particular field, the number of midge larvae parasitized hovered around 40 per cent for a three-week period.

These levels are higher than what is generally being reported in Europe, Hallett says.

While the discovery is great news for Ontario growers, it will add a new level of complexity to devising a swede midge control strategy. Natural control approaching 40 per cent will be "quite significant" in helping to keep midge increases down, Hallett says. But she cautions it won't be enough on its own. "We're never going to be able to use just one method to control it. It will require a multi-pronged approach."

Growers will still have to rely on pesticides but must be aware that anything used to control midge outbreaks is likely to be toxic to the wasps as well.

It will require a lot more research into such things as thresholds, Hallett says. She's also applied for funding to determine why some fields seem to have higher parasite rates than others.

Registered pesticides need to be analyzed for their toxicity to wasps so that growers trying to combine chemical and natural controls can choose the least disruptive method.

Growers will also need help in determining when the parasites are present. You can't tell just by looking at a midge larva whether or not it's been parasitized, Hallett says. So she envisions a quick lab test where growers can collect larvae in their field and get a report back regarding infection levels.