« WHEN I SAW MY SOIL CHANGE, **I MADE CHANGES TOO** »

Tom Tierney is an Irish conservation agriculture farmer and brand ambassador of Duncan no-till drills in Ireland and the UK.

I CULTIVATE 170 HECTARS in the Kildare County, growing mostly wheat, barley, oats, beans and oilseed rape. When I started, I was full synthetic: synthetic pesticides and synthetic fertilisers. The change came with an accidental opportunity. In 2015, while I was on a once-in-a lifetime trip in New Zealand, my rented car broke down. While I was waiting for it to be fixed, I came across a factory that makes no-till drills. These machines can drill into grass, into residues, without the need to plough the field. The point is to preserve soil, reduce labour and reduce fuel. Upon hearing that I was an Irish farmer, the director of the factory offered me a coffee and made me an offer that would change my vision of agriculture. He said: "I want to sell my drills in the Northern hemisphere. If you are interested, I will ship one for you to try on your farm." I thought about it, I said okay, he sent the drill… and I ended up buying it a year later. I switched from plough= based to no-till in 2016 and it changed everything, including my use of synthetic pesticides.

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First, I needed to improve the soil structure to make direct drilling work better, so I started cover-cropping and applying organic manures. That made the soil much healthier. When I saw my soil change, I made changes too. The first thing to go was insecticides, because I believed I needed the beneficial predators like spiders, ladybugs, beetles, etc. In the plough system, you just bury them down. But when you're no-till, you suddenly see all these living creatures and you wonder: why am I putting an insecticide on this ground?

An example would be aphid, a green fly that is a pest for cereals. If I had used insecticides, aphid would go but so would its predators, and you could get another flight of aphid the week after. It didn't make sense. This is how I went from one or two sprayings per year to zero.

I also started using organic fertiliser like mushroom compost, chicken litter and wood chip-based horse litter, to improve soil biology. After these initial changes, I observed that the yields stayed stable, so I knew I was doing something right. Then, around 2020, I started looking at synthetic fungicides, thinking I could use less if I kept the plants healthy. I embarked on a trial test, together with an Irish agronomist. We would provide the plants with silica as well as calcium, magnesium, zinc, copper, etc. These elements would reinforce the plants and make them more resistant to diseases, thus requiring less fungicides. After trying it on spring wheat for two years, we observed that there was some disease on the lower leaves, but nothing too dangerous. So, for the last five years, the whole farm has been on reduced fungicides. I use them only as a last resort, if I see that a disease is getting out of control, like Septoria in wheat. Last year I sprayed once, whereas in typical Irish conditions we would have a four-spray programme.

Regarding herbicides, I didn't reduce that, I possibly even use slightly more. Basically, my process is as follows: I grow cover crop, I drill into this cover crop and then I use Roundup to destroy it and let the crop grow without competition. I've tried to crimp the cover crop and let it die off in the sun but with our Irish conditions it gets enough energy and moisture to re-grow and stand back up.

Overall, according to Teagasc, I've reduced my pesticide usage by one third. They also calculated that my profit margin is higher than conventional growers because my costs are lower. I save on insecticides, on fungicides, on synthetic fertilisers, but also on labour and diesel because I don't plough.

Since 2018, I have been an ambassador of this New Zealand no-till drill in Ireland and in the UK. I've sold 35 to 40 machines and set up a WhatsApp group where we can exchange ideas not just about the drill, but also about reduced fungicides, reduced insecticides... It does help when guys can have that confidence. What is holding farmers back is that, once they have a system that works, they're reluctant to change: if ploughing works, why would I stop? And I suppose the other thing is that when you change your system you do have to re-learn and re-skill, and you do have to make good decisions too, so there's a risk to that. It isn't an easy transition to start with. If it wasn't for my trip to New Zealand, I suppose I would still be in a ploughing and full-synthetic system.

Conversation with HÉLÈNE SEINGIER

Illustration Stéphane Trapier