



WITH MARTIN LINES

# Nature NATTERS

## To plough or not to plough?

“As harvests have progressed and fields have cleared,

we begin to refocus on what to do with our soil to prepare for the next crop. Post-harvest soil condition varies tremendously each year depending on what the previous months' weather has given us, and what nutrients the harvested crop has taken from the soil.

For the majority of this harvest, our soil was very dry and little compaction had occurred, so I didn't have to worry about loosening it up this year. We always used to remove tramlines post-harvest, especially before GPS was regularly used, but now tramlines stay in the same place every year, we no longer subsoil them.

We used to find that when we came back the following year, the softer ground created from subsoiling would actually create deeper wheelings than before! These then had to be removed for the following year, and so it became a vicious cycle.

Now tramlines are permanent, the soil remains firm, which is much better for travelling with the sprayer later in the season in terms of the amount of disturbance it causes the ground. In wet years it does mean we might have to run a light cultivator over the top of the tramline to level things up a bit, but that's all.

Taking care of our soil has to be our number

one priority. I see soil as the bank account for our business: invest into it and it will provide positive returns. For me, I remember a particular moment in which the importance of soil became very clear.

In the past, we used to aim to use the plough for most of our heavy cultivation. One day I was out in the field with a student driving the tractor, and I was walking alongside the plough. One of the tractor wheels was running in the plough furrow. Every so often in the open furrow, I noticed some markings, but wasn't sure what they were.

I soon realised that what I was looking at was a tractor tyre print, from when I ploughed the field two years before. Suddenly it all clicked into place: the repeated use of heavy machinery was causing deep soil compaction, preventing water, oxygen and root penetration. This compaction meant we required additional horsepower to move the soil at greater depths to remove the compaction I'd caused. And so the impossible cycle had been perpetuating.

During the following years, we moved away from ploughing in the furrow to on land, and then altered again from ploughing to using a disc tine cultivator. Now, if there are no signs of compaction, we avoid moving the soil whenever possible. Moving soil isn't just shifting particles of dirt, it's ripping apart underground ecosystems of bacteria, protozoa and fungi that take time to rebuild once disturbed.

These networks of life are what provide our crops



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with nourishment and the right environment to thrive, rather than just survive. Regular use of a plough or any other heavy cultivator isn't wrong, but it's important to understand the impact it has on soil life and structure, and therefore on the quality of your crops.

For me, the first piece of metal that should enter the soil after harvest should be a spade or fork. How else will you know exactly what your soil requires? Dig a hole and take out the earth; smell it, look at it, rub it between your fingers. What do you notice?

An interesting reference for the effect of farming on soil is to do a comparison spade test in an un-farmed area, such as under a hedgerow or in the bank of a ditch in the same field as your farmed-soil sample. Is the colour the same? Does it have the same level of moisture in it as your in-field sample? What life can you see within it? Is it the same texture, or more friable? Which soil would be better to grow your crops in?

Talking to different farmers around the country, I find it interesting how

few have dug a hole, got down on their knees and reconnected to their soil and its wants and needs. Perhaps this is because we have traditionally thought of soil as an unchanging, inanimate substance that will always be there, and will always do its job? Perhaps people don't see the link between healthy soils and a healthy bank balance?

Either way, the sooner we start looking after our soils as the foundation of everything we do, the sooner we will realise that nature means business. ●

### YOUR CORRESPONDENT

Martin Lines is an arable farmer and contractor in South Cambridgeshire with more than 500ha of arable land in his care. His special interest is in farm conservation management and demonstrating that farmers can profitably produce food in harmony with nature and the environment. He's also chair of the Nature Friendly Farming Network UK. @LinesMartin martin.lines@nffn.org.uk.