A warm welcome to the spring 2018 edition of Reaping Rewards. AHDB Monitor Farms bring together groups of like-minded farmers who wish to improve their businesses by sharing performance information and best practice, and this edition of Reaping Rewards includes the latest updates from the farms in your region.

The winter meetings saw discussions on the importance of soil structure and how to assess it visually, as well as how precision farming can improve on-farm efficiency. Other meeting topics included grain marketing, controlling fixed costs and how to get the most out of your sprays and sprayer. All meeting topics are tailored to your region, covering matters important to farming near you.

Why not come along and get involved with the Monitor Farms?

The dates for the summer meetings are:
- Saltburn: 24 May 2018
- Northern Ireland launch: 20 June 2018
- Warrington: 26 June 2018

To find out what’s happening in your region, contact me on
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Or visit cereals-blog.ahdb.org.uk or cereals.ahdb.org.uk/monitorfarms
Most farmers in the UK aim to reduce the cost of production and improve productivity on farm. By changing his approach to soil management, Driffield ex-Monitor Farm host Phil Meadley has seen big changes in his farm efficiency in the last three years.

Phil has doubled his work rate and halved fuel use on his 250ha farm by reducing the amount of soil disturbance and swapping his power harrow for a press roller.

This is part of a wider move from conventional farming to minimum tillage, adding straw back into the soil and reducing compaction, wherever possible. He is slowly seeing the benefits from using bigger tyres and working the field in the right conditions at the right time of year.

**Seeing the difference**

Soon after the change, he noticed small differences in the soil.

“Straightaway, I saw a little improvement but it was very slow. I noticed that it travelled better and I could get out a few days earlier than the neighbours.”

Phil saw more seagulls when he was working the soil, indicating the presence of earthworms and improved soil biology.

However, it’s taken a long time for Phil to see a substantial difference.

He said: “You see little bits slowly improve and that gives you heart to go further and get bigger improvements. As the soil improves, it starts to improve at a faster rate as you treat it more kindly.”

At first, Phil found that incorporating a lot of straw locked nitrogen in the soil, instead of making it available for the growing crop. This is because soil microbes take available nitratre from the soil as they decompose the carbon-rich cereal straw. However, over time as the soil biology improves, incorporating straw can result in an increase of total nitrogen in the soil.

Phil is relieved as, this year, the second wheat crop is looking better than previous crops.

He said: “With the soil improving, I think we have more bacteria, which breaks down the straw quicker.”

AHDB research has shown that it can take 8–10 years before improvements to soil biology can be seen.

“Now I understand we’d been damaging the fungi and bacteria in the soil as well but we didn’t know that at the time.”

**Listening to the soil**

As he’s worked hard to improve his soil, Phil is eager to keep it in good condition.

“We realised, even if you can go in and remove compaction, it’s only worth doing it if the soil underneath is dry enough to make a decent job.

“Last year, we had a field that we walked and dug holes with a spade. It never got to the state where it was dry enough, so we left it.”

Rather than putting unnecessary strain on the soil in unsuitable conditions, he lightly cultivated the surface and drilled. It was the first time the field hadn’t been deeply cultivated and Phil was pleasantly surprised at the outcome.

He said: “The worms did the work and there was no standing water, no issue with it at all.”

**What’s next?**

Phil is continually striving to improve his soil. Once he has seen more improvements, he plans on reducing cultivations even more and eventually direct drilling. He is dipping his toe in the water by using contractors to direct drill those fields where the conditions are right.

He said: “Less is more – do as little cultivation as you can get away with, to establish a decent crop.”

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**AHDB Research Links:**

Platforms to test and demonstrate sustainable soil management integration of major UK field experiments (Project report 574)

Straw incorporation review (Research Review 81)

Download reports and information sheets at cereals.ahdb.org.uk
Is precision technology too complicated to be used on farm? Can it reduce inputs or maximise yield? Ex-monitor farmer, David Blacker has been finding out.

David farms a little north of York and has just finished three years as a monitor farmer. He uses precision technology across his whole business to reduce inputs, increase outputs and improve efficiency.

**Applying the right amount of nitrogen**

To make his nitrogen inputs cost-effective, David uses a handheld N sensor to get an indication of how much nitrogen is in the crop canopy. The sensor analyses the greenness of the canopy and how dense the crop is.

“I tell it how much nitrogen I want the field to have and the sensor makes the decision of where is the best place to put it,” David explained. “It stops me ‘flat rating’ it and wasting it, or putting N where the crop doesn’t really need it.”

In trials, he found that using the handheld sensor to match the nitrogen requirement to a crop resulted in a yield increase of 7 per cent, while using 24 per cent less nitrogen. Having seen this result numerous times, he felt confident to roll it out on his whole farm.

David takes 40 samples from each field every 10–14 days to get an accurate idea of how much more nitrogen the crop requires. He now makes five or six smaller N application passes, rather than the two that he used to do.

Although this does mean more field passes, with smaller loads there aren’t huge fuel cost implications. David also minimises compaction by using RTK auto-steer to keep to the same tramlines.

To check whether the tailored nitrogen applications are working, David installed a protein sensor to the combine. Last year, he added the sensor to check whether lowering the rate of nitrogen was being seen in the marketable grain. If the grain protein levels are consistently high, he will be able to reduce the amount of nitrogen used in the next crop, saving more money.

**Assessing the yield**

Using five-year averages from his combine yield maps, David looks for areas of the field which consistently perform better or worse than the rest. He then focuses his attention on the areas that underperform, looking for the cause and ways to improve.

For some areas, the cause of the issue is evident – compacted headlands or waterlogging – but for areas where similar soil types are behaving differently, investigations begin.

David uses soil sampling on a GPS grid system and also digs holes to look for compaction layers and understand the soil structure. Where soils look healthy, he would like to try variable rate fungicides and growth regulators to see if he can bring the worst performing areas up to the standard of the highest-yielding areas.

**Precision on farm**

Installing a base station on farm, rather than relying on satellite signals, has eliminated a lot of the technical glitches David once experienced.

Precision technology is rapidly advancing and he is keen to use as much information as possible to create a detailed picture of his farm, all the time keeping in mind his long-term goals.

AHDB research links:
- Spectral reflectance as a basis for in-field sensing of crop canopies for precision farming techniques to guide growers of cereals and oilseeds (Research Review 71)
- A review of the past, present and future of precision agriculture in the UK (Research Review 87)
- Exploiting yield maps and soils management zones (Project Report 565)

Download reports at cereals.ahdb.org.uk
What do you think of Reaping Rewards?

Tell us what you think of Reaping Rewards, by emailing eleanor.holdsworth@ahdb.org.uk with your answers to the questions below or by completing the online survey bit.ly/2kTFbXq

1) Do you want information on AHDB activity in your area? Yes ☐ No ☐

2) Do you want information about AHDB activity in other areas but with similar farming conditions to yours? Yes ☐ No ☐

3) How would you prefer to receive that information? (List all that apply)
   • Printed newsletter
   • Email
   • AHDB website
   • Twitter/facebook
   • Meeting/event
   • Podcast
   • Youtube video
   • Blog
   • Podcast
   • Youtube video

AHDB’s Horizon reports contain in-depth analysis to help make your business fit for the future. Find out more at ahdb.org.uk/brexit

Get in touch

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