

# Brigg Monitor Farm

Meeting title: Soils, compaction and headland management

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Speakers: Philip Wright (Wright Solutions Ltd.)



## Compaction

- Loss of yield in wheelings can be up to 70% compare with untrafficked ground
- Tyre pressures should be no more than 0.7 bars
- Keep machinery as light as possible
- The more weight on the ground the deeper the compaction will be
- Pressure on the ground and weight are both important but pressure more so
- For seed drilling consider half-filling the hopper
- VF (very flexible) tyres give a 40% improvement for the same load
- HP (hyperflex) tyres give a bigger contact patch and therefore a lower pressure
- CTIS (central tyre inflation systems) allow you quickly to drop the pressure between road and field
- Use ballasting to achieve controlled pressure and axle load
- It is important to engage the tyre manufacturer – if you get the pressure as low as possible and it goes wrong it is their responsibility
- Roots can grow through and water can infiltrate at tyre pressures below 0.7 bar
- For tracks add ballast at the front to take weight off the back – this might seem a bit odd but it actually improves things because the track is then more flat on the ground

## Take-home messages

- Avoid working soil when it is too wet
- Maintenance of working parts on machinery is important
- Use a combination of cover crops and medium depth loosening to restore damaged soils

## Further information

- [Impact of cultivations on crop rooting at Strategic Cereal Farm – West](#)
- [Signs of compaction and judging when to cultivate video](#)

## Soil remediation

- If you have a soil problem you need to stretch it
- Use a spade to find out where the problem is (at what depth)
- Avoid working when soil is plastic (i.e. when you can roll it into a sausage)
- If you work plastic soil it will fail in compression, becoming tighter and losing its porosity
- Maintenance of working parts is important – wear on parts affects how much the soil is lifted (critical depth)
- Avoid worn parts as these can produce slots which hold water and will get far worse

- Stretching the soil is the means for nature to open things up
- Cover crops can be used to improve tight soils
- In trials where different depths of loosening (shallow vs. half-depth vs. full depth) were compared in cover crops, the half depth loosening produced the best following crop
- Are roots alone enough? Depends on soil type and the severity of the operation
- In trials where spring barley followed a cover crop, effective loosening resulted in 1 t/ha more barley, at current prices worth £130/ha. With costs factored in this is still worth £40/ha so would be worth doing
- The soil loosening resulted in more barley roots through the profile (they followed the cover crop roots)
- This approach wouldn't work if the soil was plastic at depth

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### Further information

- [Testing soil health](#)
- [Soil assessment methods](#)
- [Soil health and biology partnership \(91140002\)](#)
- [Using the soil health scorecard case studies](#)
- More information from the GREATsoils programme can be found at [ahdb.org.uk/greatsoils](http://ahdb.org.uk/greatsoils)

## Soil health at Brigg Monitor Farm

- Cover crop (Phacelia, oil radish, oats) drilled on 14 September following spring wheat
- Water is clearly getting down and despite all the rainfall the soil is not totally plastic at depth;
- Soil is semi-friable near the top although some slight restriction of roots, possibly caused by the drill
- In combine tyre wheelings water can't get through and soil is very wet at the top.
  - Advice (from Philip Wright and group): put a tine through but only if you can travel. You need to draw the moisture out.
- Same cover crop mix following two spring wheat crops – soil is open, water and roots are getting down; plenty of roots at depth. The field has worked well, and cover crops are pumping water out well. A third spring wheat crop will be drilled in March.
  - Advice: spray off the cover crop in January; drill later because of black-grass
- Catch crop (Phacelia, buckwheat), sown early July – soil has natural vertical cracks which are probably the result of the dry summer in 2018. Soil is in good condition despite a high silt content. Will be followed in spring by a pulse.
  - Advice: frost will kill the phacelia and buckwheat

### Take-home messages

- Get stuff growing (such as cover crops) to pump water out
- Attention to detail on basics pays off, e.g. drainage – all of this will make your soils more resilient
- Don't go in plastic soil

## AHDB resources

- Understand your business costs with AHDB's benchmarking tool Farmbench at [ahdb.org.uk/farmbench](https://ahdb.org.uk/farmbench)
- Monitoring tools are available at [ahdb.org.uk/tools](https://ahdb.org.uk/tools)
- Sign up to market information and research newsletters at [ahdb.org.uk/keeping-in-touch](https://ahdb.org.uk/keeping-in-touch)
- Find out what's going on at other Monitor Farms and Strategic Farms at [ahdb.org.uk/farm-excellence](https://ahdb.org.uk/farm-excellence)
- All AHDB events can be found at [ahdb.org.uk/events](https://ahdb.org.uk/events)
- For guidance on how Brexit will impact your business, see [ahdb.org.uk/brexit](https://ahdb.org.uk/brexit)

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