

Taunton Monitor Farm

Meeting title: Soil, root and metal management

Date: 12 March 2020

Speakers: Philip Wright (Wright Resolutions)



Integrated management - soils, tyres and cultivations

Soil principles. Soil structure key; Compaction reduces yield, poor drainage impacts on yield and weed burden; and poor aggregation reduces air content, impedes water flow/capacity and impedes root development

Air:water balance is key for soil and root biology. 1"rain requires 4"soil to hold it with 25% air, but 10" soil if only 10% air.

Organic matter in a soil is worth all the hassle! Higher OM% soils are more friable and workable at field capacity.

Tyre principles. 70% of damage to a soil is done in the first pass. Remember, yield maps do not pick up wheeling problems. Yield loss can be 15% up to 40% in the extreme.

Tyre pressure and axle weight are key. If there's a decision, sort axle weight first, even if the footprint increases. Get your tyre manufacturer out with weigh cells and measure!

Cultivation principles. The combine is the first 'cultivator' - compaction and straw spreading efficiency issues key. Minimise soil movement. First tool spade. Use crop to identify problem areas – part treatments are cheaper! Let roots reduce the amount of correction required by metal. Identify the depth zones for correction. 5cm extra cultivation depth can increase fuel consumption 50%. Vary cultivation depths to prevent panning.

Tine condition, angle and depth are critical. Don't 'boil' soils. Just part lift and restructure.

Critical cultivation depth occurs at 6x the width of tine. Above this lift and fractures, below it compacts. For winged tines, guide now is 2 to 2 ½ x Critical Depth to centres to move all the soil.

Take-home messages

- **Tyre pressures** – how low can you go? Get the right tyres (when you buy the tractor – select as part of purchase. Measure to manage.
- **Cultivations.** Spade first. More shallow cultivations. As move to direct drilling, need to get the soil 'ready' first.

Further information

- [Machinery cost calculator](#)
- [Labour and machinery webinar](#)
- [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

AHDB resources

- Understand your business costs with AHDB's benchmarking tool Farmbench at ahdb.org.uk/farmbench
- Monitoring tools are available at ahdb.org.uk/tools
- Sign up to market information and research newsletters at 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
- All AHDB events can be found at ahdb.org.uk/events
- For guidance on how Brexit will impact your business, see ahdb.org.uk/brexit

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