

Basingstoke Monitor Farm meeting report

Meeting 4: Soil and machinery investment

Date: 6 February 2018

Speaker: Philip Wright (Wright Resolutions)

Location: Whitchurch Longmeadow Sports Club, Whitchurch,
RG28 7RB



For more information, visit: cereals.ahdb.org.uk/basingstoke

Meeting summary – key messages

- Prevention better than cure when looking at compaction damage – the key is pressure
- Axle load (weight) is also important, but pressure determines the extent and severity of the problem. Axle load determines how deep this is then pushed through the soil to depth
- Critical to manage pressures when soils are vulnerable – when loose, or damp/wet – hence when drilling, rolling, etc.
- Controlled Traffic – maintaining tramline positions and as a result, keep operational passes in the same place as this helps to minimise the extent of such damage over time
- Organic matter, residues and above all, roots are important to maintain and stabilise soil structure especially on “slumping” prone soils. Cover crop roots assist here where soils are left for delayed, or spring drilling. Grazing is a good way of managing these surface residues and canopies to avoid holding in moisture
- Tines and soil interaction – be aware of critical depth, and ensure tine width, for example, is adequate for the depth to be operated at, and conditions are suitable. This also applies to deeper working tines with or without wings. In all cases, dig behind the machine to check the results are as required. If not, adjust to less than full depth. Effective, is better than full depth but ineffective
- Roots and metal: consider what the most cost-effective combination is when looking to structure a compacted soil
- Direct drilling, remember that some soil types are not well suited, especially in the short and medium term
- ‘Read your soils’ by digging soil pits at key operational times of the year

Machinery at Basingstoke Monitor Farm

Tillage approach and experience of compaction

- Min-till wherever possible
- Carrier and rollers used in harvest 2016 to stimulate black-grass chit which gave good results for black-grass control, however leaving it in this state over winter is not good for soil structure
- Best strategy would be to deep cultivate first, then use a carrier to get additional chits
- Drill and cultivator tractor are finding the ground harder to work
- Ploughing to control for black-grass also removes compaction but its use is limited to every six years for black-grass control
- Wet harvests have not helped the soil structure
- Balling straw causes problems, especially in a wet harvest
- Sheep and shepherd vehicles/livestock trailers are used on farm
- Problems vary with soil type and problems are worse on heavier ground

Soil

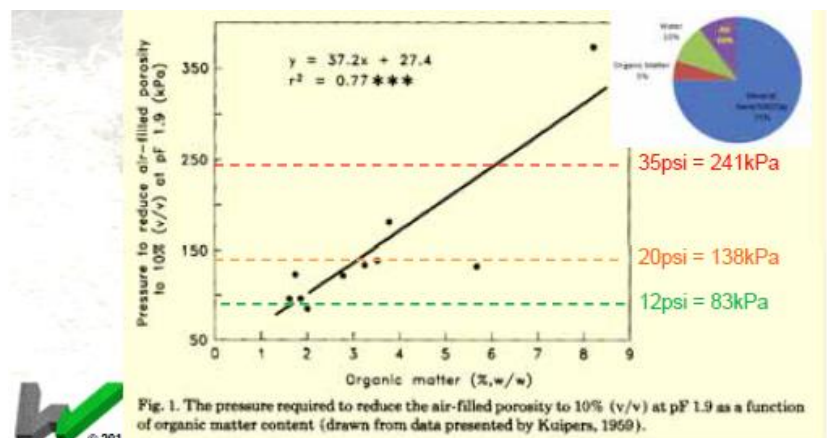
Soil compaction costs us yield in all our crops as does water logging and poor drainage which can then encourage weeds.

In order for soils to function properly they need to have a good aggregation and water infiltration. This also prevents water/soil erosion which is a pollutant and damaging to the environment. Remember, earthworms are a good indicator of soil health as they aid porosity, stability and fertility.

Poor aeration of soils will stifle plant root development and harm soil biology. To help remedy this, try to restrict random trafficking, lower ground pressure (reducing tyre pressures and any unnecessary tractor ballast), incorporate organic matter, utilise cover crops, utilise only necessary tillage operation in line with objectives and soil type.

Organic matter and soil biology

- Soil resistance to compaction is improved by OM%
- 10% air filled porosity is considered the minimum criterion for an aerated soil



Find out more – Links to AHDB information sheets or research

[Getting the most from your machinery](#)
[Machinery cost calculator](#)
[Machinery for farming or farming for machinery? Webinar](#)

[An introduction to soil biology](#)
[Understanding soil biology video](#)
[GREAT Soils](#)
[PR576: Improvement of soil structure and crop yield by adding organic matter to soil](#)
For more information on soil, visit cereals.ahdb.org.uk/soilresearch



Next meeting

Date: 6 March 2018
Topic: Grain marketing strategies ([register to attend](#))
Time: 10.00–13.30
Location: Whitchurch Longmeadow Sports Club, Whitchurch,
RG28 7RB

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