

Crediton Monitor Farm

Meeting 7: Soils and compaction

15 December 2015

Huxham Farm, Stoke Canon, Crediton

Philip Wright (Wright Resolutions Ltd)

James Lee (Monitor Farmer) & Philip Dolbear
(AHDB)

For more information, visit
cereals.ahdb.org.uk/crediton



James Lee

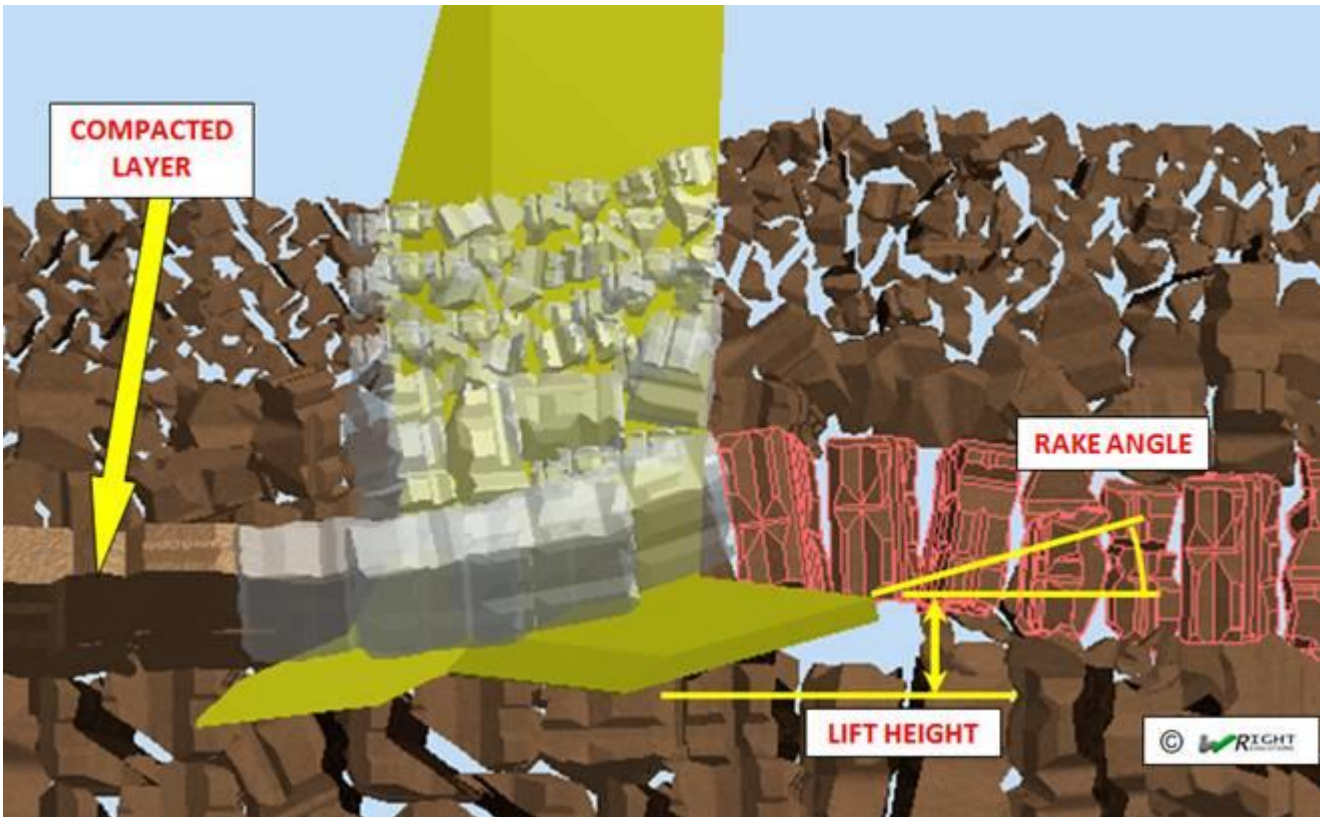
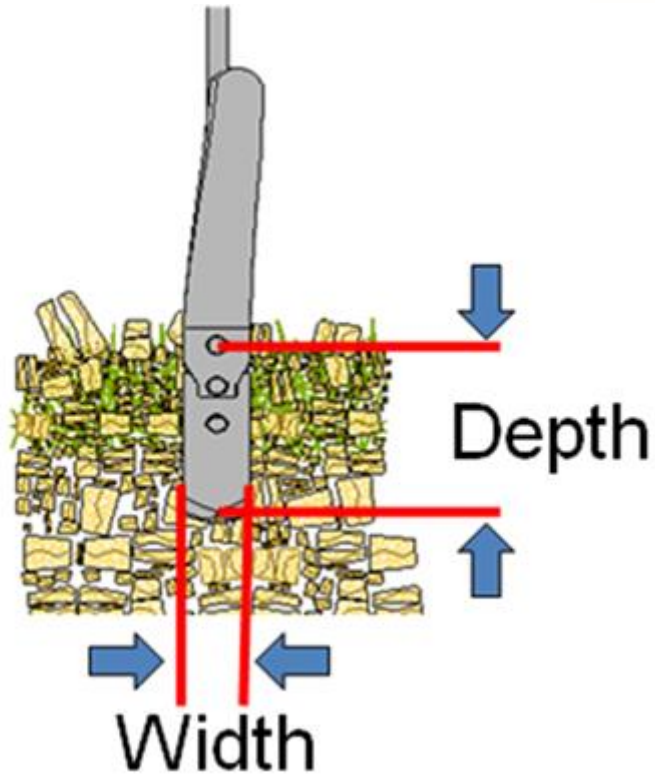
Meeting summary and learning points

- Building soil organic matter levels with sludge and manure is paying off
- Better soils may not mean more yield, but may mean lower costs of production and hence more margin from lower cultivation costs
- Get the spade out and dig holes to understand your soil and see whether there are problems under your feet.
- Target 50% porosity for maximum soil resilience
- Once lost, recovery takes years. Prevention is better than cure.
- Correct soil structure in stages - plough , strip till , min till , no till
- Any trafficking reduces pores, ability of soil to hold/drain water and reduces ease of crop rooting.
- When soils are weak , they cannot support heavy loads
- If soils get too wet, let roots, not machinery, structure the soil
- The number one issue is drainage. If restricted, it is very difficult to farm economically.

- The tipping point between firming a seedbed and compacting it depends on how strong the soil is, how well structured it is and the moisture levels.
- Tyre volume is the key consideration – whether wider or taller. The more volume a tyre holds, the lower the pressure needed to carry load. Consult the tyre book!
- Reducing tyre pressures and axle weights help alleviate problems in vulnerable soils. If pressures are too high in a soft soil after ploughing or cultivation, the tyres rut deeper and are effectively driving continuously uphill. In field trials, £4/ha fuel savings have been achieved by making small changes to tyre pressures when trafficking soft soils
- Less pressure = less pore squeezing = more soil resilience
- When combining, it is the rear tyre pressures that need as much attention as the fronts to alleviate compaction problems
- Furrow press ploughs create more structure and soils can take more pressure later
- Secondary cultivations and the drilling tractor are potentially more dangerous to soil structure than the primary cultivation.
- A temporary grass ley structures the soil – don't disturb it when reverting back to arable crops, direct drill into it if possible with minimum soil disturbance

Cultivation Basics

- Important to set bent leg loosener to work in fracture zone, lifting at 45 degree angle but not creating 'boiling' action. Angle reduces nearer to vertical as sand content of soil increases.
- Tine settings. Every tine has a 'critical depth' for effective working. If tine goes below critical depth, soil movement action goes sideways rather than lifting.
- Rule of thumb, chisel tine tip width x 6 or 8 = critical depth. Eg 2" tip gives 12 to 16" critical depth. Need to ensure lifting to achieve pan fracturing but not to extent soil clods are pulled up.
- If tip winged, need to consider rake angle (between wing surface and horizontal):
 - Too shallow – no pan fracturing action.
 - Too steep – creates compression, clod lifting, increased diesel usage.



CropBench+ benchmarking

- To find out more about AHDB's CropBench + benchmarking tool, please contact:

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Next meetings

- Thursday 11 February 2016 - Crop nutrition
- Thursday 28 April 2016 - Soils and cover crops – one year on
- Thursday 7 July 2016 - Summer meeting

All meeting times start at 11am but locations will vary so please ensure you have registered your contact details to receive notification of details throughout the year

To attend the meetings, please email Philip.dolbear@ahdb.org.uk or call 07964 255614

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