

## News from the Regions

### East Anglia Branch visit to Tony Reynolds at Thurlby Grange Farm: No-till farming in the Lincolnshire fens

Visits to see progress of no-till Conservation Agriculture at Thurlby Grange Home Farm have become regular, and keenly anticipated, events for TAA members and others, organised by the TAA's Land Husbandry Group in collaboration with the East Anglia Branch. They are always successful, principally as a result of the meticulous preparation and generous execution of the programme by Tony and his wife, Ruth, with help from their children and grandchildren. This visit was no exception.

What made this 6 June 2015 visit even more absorbing than usual was the predominance, amongst the 40 or so attendees, of farmers, farmers' sons and grandsons with practical knowledge of, or a keen desire to learn about, no-till Conservation Agriculture. It was an additional pleasure to have with us farmer/equipment designer Tony Gent and Simon Weaving of Weaving Machinery ([www.weavingmachinery.net](http://www.weavingmachinery.net)) to explain the genesis and unique advantages of the new Weaving GD inclined disc no-till drills to be officially launched at Lincolnshire's Cereals Exhibition on 10-11 June 2015.

Tony abandoned his ploughs and harrows in 2006, to transform his farm from high energy- and capital-demanding plough-based agriculture to 100 percent low-energy no-till farming system<sup>1</sup>. After an initial dip in fields with higher clay content, his yields of cereals and oilseed rape (OSR) have regained and surpassed pre-switch levels, as the soil regained its health and vigour. OSR yields are now 5 ton/ha and the combine has recorded wheat yields hovering around the 13 ton/ha mark. The rotation applied at the moment is as follows:

- 40 percent first (*ie* autumn-sown) wheat
- 20 percent second, *ie* autumn-sown wheat after wheat
- 20 percent oil-seed rape

- 20 percent spring-sown beans, oats or lupins (Figure 1)



Figure 1. No-till lupins in wheat residue

As witnessed during the VI World Congress on Conservation Agriculture (see *Ag4Dev23* p28), there is now a strong recognition of the value of cover crops - a crucial component of Conservation Agriculture - to improve both the soil quality and crop yields. Oats, direct drilled after harvest, is gaining popularity as a cover crop in the UK (and is practised by Tony Gent).

Tony takes pride in divulging the detail of the benefits of no-till agriculture. For example, the 2013 level of soil organic matter at Home Farm reached 6.26 percent which is way above the average figure for the type of soil as recommended by DEFRA. The requirements for added P, K and lime are now practically zero, and the aim is to halve N applications (although that target is still being pursued). Earthworm counts are currently at 153/m<sup>2</sup> compared with 25/m<sup>2</sup> under conventional tillage (Figure 2). Water infiltration has improved exponentially and, of course, wild life numbers (of, for example, hares, lapwings and skylarks) are soaring. Crop production costs have plummeted (from £266 to £30/ha for wheat): an important component is overall fuel use, which has dropped from 96 to 41 litres/ha over ten years.

Blackgrass (*Alopecurus myosuroides*), which has become a barely-controllable menace in the UK's cereal growing regions, has been practically eliminated on the farm. As Tony explains, 80 percent of blackgrass seeds perish each year in undisturbed soil, so only 20 percent of the previous year's seed bank will germinate. After 10 years of no-till, the remainder can be hand-rogued as required. This is just as well

given the only herbicide controlling the weed is Bayer's Atlantis which is fast losing its efficacy. And, of course, crop rotations are fundamental to the eradication process.



Figure 2. Tony takes care to make sure that the benefits of no-till are well understood. Here he demonstrates the high earthworm population in undisturbed soils

In the Weaving GD6000T (Figure 3) no-till drill, seed (and fertiliser if required) is delivered (via the pneumatic metering system) to the double offset disc soil openers. The novel aspect of this machine is that the discs are inclined at 25° to the vertical and trail the machine through being mounted on a king-pin system (Figure 4). The discs slice the soil and lift the top slice, allowing the seeds to be spread over a >50 mm band before the soil slice falls back in place (Figure 5). A rear compacting wheel leaves the soil looking practically undisturbed with minimal straw hair-pinning. Tony believes that the machine represents a quantum leap forward in no-till drill technology; and with a price tag of £60,000 (other sizes are available at a price of around £10,000/m), adopters will hope that it lives up to its promise.



Figure 3. Weaving GD6000T no-till pneumatic seed drill



Figure 4. Inclined double offset disc openers on the Weaving drill



Figure 5. The inclined discs facilitate a wide planting band for the seeds

Although no-till has demonstrably and dramatically reduced N, P and K requirements, these can largely be met by the laying hen enterprise. There are 16,000 free-range Lohmann brown hens which are brought in at 16 weeks old and sold off at 72 weeks. The poultry house is automatically cleaned twice a week and produces 6-7 tonnes of manure/week. The birds consume 3,000 litres of water and 2 tonnes of food a day whilst producing their eggs destined for the supermarkets of the UK. The manure, on the other hand, is destined to raise the fertility of the farm's soils in a neat integration of enterprises.

### Acknowledgement

Very many thanks, as always, to Tony, Ruth and their family for their very special and generous hospitality.

### Brian Sims and Amir Kassam

Reports of previous visits (in June 2011 and March 2014) with more detail on the farming operation can be found on the TAA website under Reports of specialist Groups: Land Husbandry: <http://www.taa.org.uk/specialist-group-news-reports.asp?subId=79&sub=yes>