



“ I’m looking for a flag leaf that’s set at a 45° angle and isn’t too big. ”

# Leave no stone unturned

**Technical  
Breaking records**

That’s the philosophy behind Tim Lamyman’s approach to pushing varieties towards their genetic potential. *CPM* visits Worlabby Farm as the combine moves into wheat to discover more about how crops are grown there.

*By Lucy de la Pasture*

Olympians are driven by being the best they can be, they pay attention to the tiniest of details to eke out every ounce of performance in pursuit of their ultimate goal. Their focus is laser-like as they pull out all the stops to attain gold. Tim Lamyman could be said to have an Olympian’s attitude to arable farming, with a burning desire to squeeze every kilo of performance out of the crops he grows.

Even so, Tim’s quick to point out it’s not a no-holds-barred approach across the farm. He only pushes crops where he knows the land is capable of supporting them and while he admits to being yield-driven, it’s not at any cost.

“There are only about six fields on the farm where we’d attempt to grow a world record beating crop and the process

begins before a seed goes in the ground.”

Earlier this harvest Tim succeeded in his 10-year quest to grow a world record-beating crop of winter barley, achieving 14.2t/ha (at 14.97% moisture content) with KWS Tardis. The success was particularly sweet as Tardis is a two-row barley where previous record-beating crops have been six-rows.

### October drilled

Perhaps it’s all the more inspiring because Tim’s barley crops go into the ground much later than the conventional September drilling spot. Because he grows seed crops and has to prevent volunteers, it’s not possible to get in any earlier than 10-28 October. The Tardis was drilled on 17 October and produced a whopping 880-1150 ears/m<sup>2</sup>.

Oilseed rape also didn’t disappoint. LG Antigua, drilled 26 September in mix with a slaughter crop of Acacia, produced 6.5t/ha. With the conventional variety bearing the brunt of flea beetle damage, the Antigua was left relatively untouched. It’s a tactic Tim has found to be very successful.

Genetic potential provides Tim with the tools to grow high yielding crops and there’s nothing left to chance about the varieties that end up in the 560ha of arable fields at Worlabby Farm, nestled in the Lincolnshire Wolds. Tim absorbs variety information like a sponge, largely from visiting trials which he uses to assess their potential. “It was something I really missed last year when COVID got in the way,” he adds.

Tim reckons he considers characteristics of wheat varieties in a different way to most people. “I’m looking at the potential of the ears and flag leaves to support yield. That means I look at the number of grain sites that set in the ear and, ideally, I’m looking for a flag leaf that’s set at a 45° angle and isn’t too big so that light can still penetrate to the lower leaves in the canopy.

“This year we have a bit of variation, with four different varieties of winter wheat. Of these, Garibaldi and Champion have bigger flag leaves than Theodore and KWS Colosseum.”

Light penetration is an important factor to Tim because of the number of heads he’s aiming for per m<sup>2</sup>. “We need less head numbers for the Champion, which has very ▶



*OSR also fared well at Worlabby Farms, with hybrid variety LG Antigua recording 6.5t/ha, according to Tim Lamyman.*





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Although still awaiting official confirmation, Tim Lamyman appears to have recorded a new world record for winter barley with his KWS Tardis, which yielded 14.2t/ha.

► bold grain, so the aim is 600-650 heads/m<sup>2</sup>. In the Theodore and Colosseum we're pushing to about 750 heads/m<sup>2</sup> where we're aiming for these high yields.

## Winter barley and OSR at Worlaby

### Winter barley:

- Variety - KWS Tardis
- Drilling date - 17 October 2020
- Seed rate – 200kg/ha of a 55 TGW sample
- Nutrition – 250kgN/ha plus 60kg/ha SO<sub>3</sub>
- Fungicides - Decoy (prothioconazole) at T0; Serpent (pyraclostrobin+ fluxapyroxad) plus Decoy at T1; Revystar at T2 and Decoy plus azoxystrobin at T3

### OSR:

- Variety - LG Antigua
- Drilling date - 16 August 2020
- Seed rate - 2.5kg/ha
- Nutrition – 250kgN/ha plus 120kg/ha SO<sub>3</sub>
- Fungicides - Two applications of tebuconazole and two applications of Pictor (dimoxystrobin+ boscalid)

### Winter wheat:

- Variety - Theodore (DSV)
- Drilling date – 30 September 2020
- Seed rate – 450 seeds/m<sup>2</sup>
- Target population – 750 heads/m<sup>2</sup>
- Nutrition – 350kgN/ha total plus 85-90kg SO<sub>3</sub>
- Fungicides - Orius P + additional prochloraz at T0, Revystar plus cyflamid at T1; Myresa plus Syrex at T2; prothioconazole plus azoxystrobin at T3; and tebuconazole at T4

"If the flag leaf angle is 45° then you can put a lot more heads in a m<sup>2</sup> than when it's at 90°," he adds.

On the day CPM visited Worlaby Farms (18 August), the combine was set to bite off the first field of wheat to be harvested. The earliest to mature was Theodore, which to most people is an attractive variety because of its high rating for septoria resistance and the opportunity that gives to grow on a lower fungicide input system.

### Yield potential

When Tim set eyes on Theodore, it was something entirely different that caught his eye. "As well as an ideal flag leaf angle, I noticed the number of grain sites set in each spikelet of the ear — usually a variety has 3-4 grains per floret but in Theodore it was six, so this gives me more yield potential, with up to 100 grain sites per ear. The published specific weight isn't great for Theodore but under our system, I know we can look after this," he explains.

Before any variety or input is adopted as part of a record-breaking attempt at Worlaby, it's put through its paces the season before. Last year Theodore produced from 9.7-14t/ha under Tim's regular agronomy programme, grown to the RB209 recommended rate of 220kgN/ha under the crop. That showed it had potential, he says.

Tim is blessed with some enviable soil overlying chalk but it's not the Grade 1 land that many people presume it is, it's Grade 2. Looking after the soil is high on his list of priorities and chicken muck is returned in a five-year cycle, he says.

To support big yields Tim says his soil has to be aerated but use of the plough



It was the morphology of its ear and flag leaf that attracted Tim to variety Theodore rather than its superior septoria resistance.



There was obviously something special about the crops at Worlaby from the start, says Andrew Smooker, who saw tremendous rooting over the winter.

has become confined to times when he has to get rid of volunteers — an important consideration when growing seed crops," he says.

"The soil type and depth of soil varies across fields, with 35-50cm of topsoil overlying pure chalk. So it's hard work for crops when their roots get to 50cm. And this land goes tight," he says.

"On the back of the 2019/2020 season things were really compacted — we worked out that the compaction from the amount of rainfall we'd had was the same as if 20 road rollers had driven over every square inch of the field."

Tim says that the soil had to be worked to 20cm to take out the compaction, otherwise it would have been like drilling into a tarmac road. The implement used was something he'd designed 20 years ago, dubbed the Worlaby flat-lift. "Basically it's Spaldings tines and discs with an Andrew Guest roller. We followed that with a Väderstad Carrier and finished with our Väderstad Rapid drill."

The Theodore was drilled at 450 seeds/m<sup>2</sup>, and Tim says that, as a clean variety, it's not a problem to up the seed rate. After establishment, attention is turned to encouraging rooting — Tim wants a good root system to scavenge nutrients and water as well as support the canopy above ground. To this end he's partnered with local firm Bionature, which has trialled its range of micronutrient products at Worlaby for the past decade. He sees strategic use of its products as an integral part of his approach to growing high-yielding crops.

In the spring, Tim tissue tests extensively in the knowledge that magnesium

lock-up is an issue on his soils and boron can also be a limiting factor to growth. This season he applied foliar magnesium with fungicides from the T1 to the T3 timing and boron slightly less than normal, with foliar applications limited to early spring.

Nitrogen is fed to the wheat in multiple splits, with a total of 350kgN/ha applied over the spring, spread over five applications, and 85-90kg SO<sub>3</sub>/ha. He takes a similar, little and often approach to PGR application.

Agronomy decisions are made in collaboration with Frontier agronomists, Ben Mead and Jeremy Nicholson, and BASF's Andrew Smooker. But all three advisors point to Tim as very much being the mastermind behind the crops. They meet with Tim at strategic times in the season in the converted chapel at Worlabby to bounce ideas around and fine-tune strategies that will eke out the best performance from varieties.

"We don't have to tell Tim how to manage his crops," says Ben. "Our role is really to help him tailor the agronomy programme and Tim picks through everything to the nth degree."

"There was obviously something special about the crops at Worlabby from the start, we saw tremendous rooting over the winter," adds Andrew.

Ben highlights that everything centres on obtaining the ideal biomass and then nurturing it with water, light and nutrients. "Satellite NDVI imagery for Tim's record-attempting crops have an unusual evenness to them, with uniform dark green throughout – even on the headlands. The only lighter areas mark the position of the



Satellite NDVI imagery for Tim's record-attempting crops have an unusual evenness to them, with uniform dark green throughout – even on the headlands, says Ben Mead.

electric poles across the field."

"It's easier said than done to achieve this," comments Jeremy. "There's a detailed relationship between nutrition, PGRs and fungicides and we're trying to marry these inputs. It's been a journey to learn about managing tillers using PGRs in a little and often approach but we've learnt that crop momentum is important.

"PGRs can cause a stop/start to growth because they can stress the crop, so we've found that drip feeding them is the answer," he says.

## Keeping green

Fungicides are used to build canopy and maximise the healthy area duration and keep the green area working for as long as possible to maximise yield. Tim has chosen to base his key fungicide timings around Revysol (mefentrifluconazole) having already tested it on his farm the previous season, spread over five applications.

The decision to major on Revysol-based products was based on its efficacy and performance after testing it out last year, says Tim.

Harvest 2021 hasn't necessarily been one associated with good yields, the high potential of many crops earlier this spring falling short due to the lower-than-normal levels of solar energy available in a cloud-covered June, which has been estimated to be 15% below average levels, says Jeremy.

All the strategic advisors agree that keeping the green area going for longer is what has made the difference to the crops at Worlabby this harvest, enabling them to make better use of solar energy available.

Tim explains that his fungicide strategy is basically not to allow any disease to get hold in the first place. "All the wheat varieties have good ratings for yellow rust resistance. We went for a cheap T0 of Orius P (tebuconazole+ prochloraz) plus additional prochloraz to target eyespot and then we were proactive thereafter," he says.

Tim began to deviate from common practice this season at the T1 timing, when crops looked clean. "I thought that if I didn't use a high rate of Revysol early season then we could have issues, so we applied Revystar (mefentrifluconazole+ fluxapyroxad) at 1.2 l/ha plus cyflamid for mildew to set the crops up well."

At T2 the twin-pack Myresa (mefentrifluconazole) at 1.2 l/ha plus Syrex (fluxapyroxad+ pyraclostrobin) was the fungicide of choice, with azoxystrobin plus prothioconazole at T3 followed by a further application of tebuconazole at T4,



Tim Lamyman explains his philosophy behind successfully pushing the yield boundaries of crops, which is to leave no stone unturned.

about seven days after the T3.

The programme is designed to combat late season fusarium and brown rust, both of which can be issues on the farm, says Tim.

With cloudy skies overhead, it was mid-afternoon before the moisture content dropped low enough for the Lexion to fire up. It was time to see whether or not the Theodore would live up to expectations and beat the current world record for wheat which stands at 17.398t/ha, set last year by New Zealand grower Eric Watson.

Standing in the field, it was the bright yellow colour of the straw that was striking — more akin in richness to a good barley straw than the more muted tones of yellow usual seen in wheat straw. After opening up the field, hopes for a new record were dashed but at the end of a day's combining, a very respectable 15t/ha at 17% moisture was safely in store. Tim remains hopeful that one of his other contenders may still cross the line and if that happens to be Champion, picked by his son Robert, then the next generation of world record-beaters will be vying for the helm. ■



The Theodore didn't break any records on 18 August, averaging 15t/ha, but there's optimism about the other wheat varieties.