

OSR BENCHMARKING HELPS SCOTTISH BORDER GROWERS

Benchmarking their production systems against one another and other OSR growers across the country through the ADAS Oilseeds YEN competition is helping two forward-looking producers in the Scottish Borders fine-tune their improvement efforts.

David Fuller-Shapcott of Sweethope Farm just outside Kelso and McGregor Farms' arable manager, David Fuller at nearby Coldstream Mains grow very different amounts of OSR in very different regimes under surprisingly different conditions. But both have brought in farm averages of 5.5 t/ha in the past and had 2018 YEN crops well within the top third of the 60 field entries for percentage of estimated yield potential.

Discussing this performance and their systems at a special Dekalb round table this spring, the growers agreed they have room for improvement within their regimes but stress that this doesn't come easy with OSR. This makes the better understanding of the key factors affecting crop performance that is the aim of the YEN so valuable to them.

"Achieving the highest possible percentage of each crop's potential yield is what really matters," stressed round table co-ordinator, Will Vaughan-France. "Over the two years the ADAS competition has been running, success here has been associated with a number of factors. Foremost among these are healthy soils; high seed numbers and weights; high levels of soil and seed magnesium; and longer periods between flowering and desiccation.

The Davids' 2018 YEN results with our robust hybrids, DK Exalte and DK Exclaim clearly underline these key elements. Soil testing suggests the biological activity of their crops' ground and its magnesium levels were higher than most entrants. Their crops also had noticeably higher seed magnesium contents than most. And both were considerably later desiccating than most.

Alongside the most vigorous and robust varieties, both growers see attention to detail in establishment and nutrition as the most crucial ingredients for OSR success.

“The crop needs to be set up correctly from Day One,” stressed David Fuller. “We have to get around 650 ha in the ground in the second half of August. So single pass establishment is essential for us.

“Most of our rape is drilled into chopped wheat straw as soon after harvest as possible. We sow in 45cm rows behind the legs of a Simba SL, working our silty loam soils to around 8”, putting-in liquid fertiliser ahead of the seed and firming the ground immediately with an Aqueel roller.

“We typically sow 40 seeds/m² and would cut this back still further if we could find a way of overcoming seed bunching at lower rates. OSR can waste a lot of energy fighting its neighbours. So we put as much precision as we can into our seed placement, deflecting the air from the pneumatic unit so the seed drops into the ground by gravity.

“Ideally, we’d like to get one plant every 6” in the row. That way we avoid unnecessary competition and weedy plants that never seem to deliver. We can’t be this precise with the kit we have, but it has been working well for us for 10 years now, allowing us to establish nice even populations of 25-30 plants/m².

“For the last four years we’ve upped the rate of phosphate in our starter fertiliser,” David pointed out. “Applying 27kg/ha of P alongside 19kg/ha of N with added boron has definitely improved our establishment.”

Rapid, single-pass establishment is also vital with the 55ha of OSR David Fuller-Shapcott typically grows annually at Sweethope Farm. His heavy clay loam land recognised for its impeded natural drainage is at a much higher altitude as well as considerably wetter than most of the McGregor Farms ground, cooling down very quickly in the autumn. Added to this, he does almost all the fieldwork himself.

Having removed the preceding barley straw – as much to minimise slug cover as anything else – David also cultivates to around 8”, sows in similar width rows behind legs and applies fertiliser with the seed.

To do this he employs his own blend of sub-casting and drilling using a heavily-adapted Weaving Subdisc with a home-built tool bar carrying heavy duty double disc coulters and a press wheel. Clever engineering automatically links the soil fertiliser and seeding systems while allowing the depth of sowing to be adjusted independently of cultivation depth.

“This gives us soil disturbance at depth, reasonable seedbed quality and good control over sowing depth,” said David. “We drill at 30° to the tramlines and double roll in parallel to them with a heavy set of Opico rolls, often right behind the seeder to get the billiard flat surface we want for the best seed-to-soil contact and the least slug friendly environment.

“Although we might be able to improve things with liquid fertilisation, for the easiest storage and purchasing, we apply our standard 10:15:21:20 winter cereal fertiliser at 20kg/ha.”

A sowing rate of 12-15 seeds/linear metre (equivalent to 24-30 seeds/m²) is certainly on the low side – not least given the level of slug threat at Sweethope Farm. But post-harvest stem counts show the system results in spring populations of the 15-20 plants/m² targeted.

“Hybrid rape always does best at low seed rates,” he observed. “The last thing we want is mustard and cress. We’re after plants that get big and bushy rather than tall and tree-like. That way we get good light-intercepting canopies that don’t need much growth regulation.

“Hybrids like DK Expansion and DK Exclaim which are very vigorous but don’t take off too early in the spring before our ground warms-up enough to provide the nutrition they need do us well. Especially when treated with a phosphite-based dressing and sown with well-placed fertiliser.”

David Fuller insists on similarly vigorous varieties, also growing hybrids alone – mainly DK Expansion, DK Exclaim and DK Exalte this season – matching their autumn development characteristics to drilling date and conditions; the faster developers being put into the later and more challenging slots.

Both growers also prioritise high oil content, strong phoma and light leaf spot resistance, stem strength and pod shatter resistance in their varieties. Interestingly, neither take much notice of published yield ratings, knowing that the most reliable performance invariably comes from getting these genetic essentials right.

“As well as ticking all our essential boxes, DK Expansion topped our own strip trials last season, so it’s 50% of our crop this time around,” noted David Fuller. “We need varieties we know suit our particular conditions and regime. Then we can really manage them for the performance we want.”

In doing so, the best balance and timing of nutrition throughout the production cycle is another area of particular focus at both Coldstream Mains and Sweethope Farm and one which the Davids feel offer perhaps the greatest opportunity for performance improvement.

At no more than 200kg/ha, their total N applications are lower than most Oilseeds YEN entrants. However, they both match these applications carefully to crop requirements and balance them with potash, phosphorus, sulphur, magnesium and a range of micro-nutrients.

“Inhibited urea works nicely for us,” reported David Fuller-Shapcott. “Its slow release value means we can apply it in only two splits, along with poly-sulphate to give a good balance of available sulphur and potash on our magnesium-rich clays which lock-up nutrients all too easily. So the crops get the little and often supply of the nutrients they need to avoid any unnecessary stress without straining our already-stretched spring workloads.

“Foliar nutrition based on broad-spectrum soil analysis and tissue testing is as important in our agronomy as well-targeted fungicides. Wherever necessary we use foliar phosphate in the spring. We invariably find our crops need extra boron and molybdenum. Despite high magnesium soils, we still need to apply Mg to ensure sufficient plant availability. And we’ve seen big responses to foliar K and S with our mid-flowering spray.

David Fuller also includes micronutrients with most of his OSR sprays, though more on the basis of historical information and experience than what he regards as the decidedly inaccurate science of tissue testing.

“We top-up with variable rate phosphate in the spring to make sure our crops have sufficient fresh available P,” he explained. “We also apply plenty of boron, as well as magnesium for its crucial role in photosynthesis.

“Although we’re using 60-100kg SO₃/ha in total, our YEN results suggest we might profit from using even more, so poly-sulphate in the spring could be useful for us. We apply a liquid N:S mix using an N-Sensor. This is very targeted but it does mean that where less nitrogen is needed for the canopy the crop automatically receives less sulphur.

“It’s areas like this where our YEN reports are gold dust,” David Fuller said. “They give us a massive amount of information on our crops and help steer our thinking on where best to focus our improvement efforts.”

“Keeping our crops green for as long as possible is something we’ve always felt to be important,” added David Fuller Shapcott. “So it’s really valuable to see the YEN results so clearly underlining the positive association between this and yield.

“Over the years, we’ve got our production system to the stage where progress will come from a whole series of slight improvements added together rather than any big change. So it’s the little tweaks we’re really looking to the YEN to point us towards.”