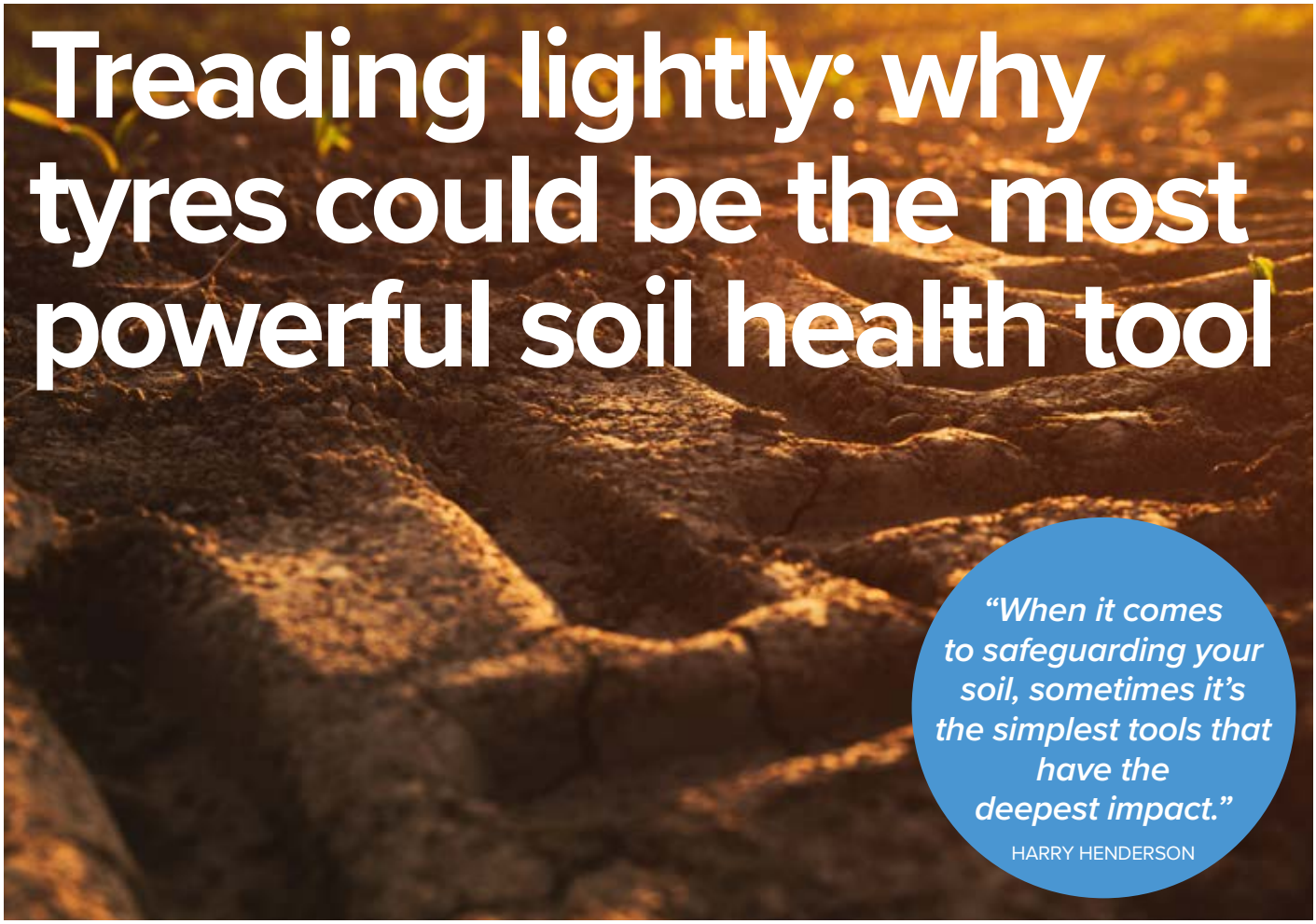
Treading lightly: why tyres could be the most powerful soil health tool



While soil health has earned its rightful place at the top of the agronomic agenda, it's easy to overlook one of the simplest, yet most influential pieces of equipment in the fight against compaction – tyres. *CPM* explores.

By Charlotte Cunningham

When it comes to managing soil health on arable farms, the conversation often turns to cover crops, cultivation methods and organic matter – but one of the most powerful tools in the shed may be quite literally beneath us...

Tyres – although not the most glamorous piece of kit – have a huge role to play in both preserving and optimising soil structure. And with more farms drilling later into autumn and pushing to start earlier in spring, the importance of making the right choices around tyre selection and setup has never been greater.

This is according to Harry Henderson of BASIS, who says tyres are far more than just round rubber rings – they're a fundamental part of soil management. "In arable systems, we're constantly walking a fine line," he believes. "Farmers aiming to manage blackgrass and other problem weeds are often opting to drill later in the autumn to allow for stale seedbeds. However, that means pushing operations into late October or even November, when soils are wetter, heavier, and far more vulnerable to compaction."

The same dilemma plays out in the spring, he adds. "There's a real urgency to get on with drilling spring crops early to capture maximum sunlight and moisture. But if soils haven't had time to properly dry or structurally recover from winter, rushing in can cause more harm than good, especially if machine setup isn't right."

This is where tyres come into their own. "The right tyre choice, correctly set up, can literally extend your working window by several days – sometimes even weeks – at both ends of the season without compromising soil health and structure," says Harry. "That's a powerful tool when conditions are marginal."

The key innovation driving this capability? Very High Flexion (VF) tyres. "VF tyres are engineered to flex more in the sidewall which allows a larger footprint at lower inflation pressures," he

Tyre choices

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explains. “That reduces contact pressure on the soil, minimising structural damage and helping maintain porosity, drainage and root access to air and nutrients.”

But the benefits can quickly unravel if they’re misused, warns Harry. “Some manufacturers market VF tyres based on their ability to carry more weight at standard pressures, which they can, but that’s not the best way to use them in arable systems. The priority should be about reducing pressure per square inch on the soil, not just increasing payload.”

One of the biggest players in the VF tyre market in the UK is BKT, which has recently added to its offerings with the launch of a new combine-specific VF tyre designed to handle harvest loads while protecting long-term soil health.

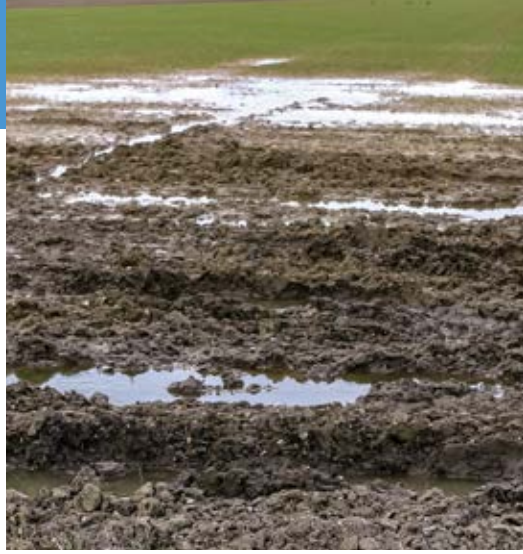
With combines facing heavy and often unpredictable loads in the field, tyre performance becomes a critical factor – both for operational efficiency and for minimising soil damage. Recognising the increasing focus on soil health and yield sustainability, BKT says it’s developed the Agrimax Proharvest specifically to support the high demands of modern combines while addressing concerns around compaction and long-term soil structure.

The Agrimax Proharvest features VF technology, allowing it to carry up to 40% more load than a standard radial tyre at the same pressure. The benefit for growers is a wider contact patch that spreads weight more evenly across the soil surface – a key consideration when it comes to limiting compaction in high-traffic zones.

The tyre is also built with a reinforced polyester casing and three layers of steel belts, designed to improve resistance to deformation and provide added protection from mechanical stresses. BKT says this construction extends the tyre’s working life, even under the cyclic loading common during harvesting.

Stubble damage and chipping are common causes of early tyre failure in harvesting kit, particularly in dry seasons such as the one just experienced. To address this, BKT has developed a compound that offers higher resistance to cuts and abrasions. This, combined with an open-shoulder tread pattern for improved grip and self-cleaning, means the tyre is intended to perform consistently across both rough and wet terrain.

The tread is designed to shed mud and debris quickly during field-to-road transfers, which BKT says helps maintain traction and operator safety throughout the working day.



Doing more damage than good

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The tyre also incorporates Cyclic Field Operation technology, which allows it to temporarily tolerate higher loads – such as when a tank reaches full capacity – without suffering structural damage. This flexibility is particularly important for combines operating across large areas and varying topographies, says the firm.

But even with the best tyres on the market, incorrect pressures will compromise performance, continues Harry. "It's easy to forget to adjust tyre pressures when switching from road to field work. You might increase pressures to handle long-distance grain carting, but if you don't let them down again before going back into the field, you're essentially defeating the purpose of VF technology."

That's where a Central Tyre Inflation System (CTIS) can transform operations. "With CTIS, you can set ideal road pressures for safety and efficiency, then automatically reduce them for field work at the push of a button. It removes the friction from doing the right thing and can help to prolong the lifespan of your tyres too."

While the cost of CTIS can be off-putting, Harry sees it as an investment in long-term resilience. "It's about more than tyre preservation – it's about protecting your soil capital. That pays back through better establishment, improved water infiltration, and stronger yields."

Although soil compaction is often discussed in theoretical terms, its impact is tangible – and costly. "Farmers who are using yield mapping software alongside gross margin mapping are starting to see it clearly," says Harry. "Headlands in particular, consistently show poorer returns. Once you overlay data on input spend, crop performance and machinery activity, the financial drag becomes hard to ignore."

New offerings from BKT

BKT has recently added to its offerings with the launch of a new combine-specific VF tyre – the Agrimax Proharvest – designed to handle harvest loads while protecting long-term soil health.

And it's not just yield loss. Compacted soils often require more passes to put right – be that through additional cultivations, subsoiling, or remedial drainage. "So you're not just losing output, you're actually increasing your costs too," he adds.

Ultimately, Harry stresses that tyre management must sit within a broader soil strategy. "Tyres aren't a silver bullet, but they are a critical component in a systems approach to minimising soil damage.

"If farmers are going to invest in technologies like VF tyres or CTIS, it makes sense to re-evaluate the wider cultivation strategy to ensure everything works together. There's no point fitting state-of-the-art tyres if you're following them with practices that undo their benefits. Everything has to be joined up."

Harry concludes that while growers often ask what's the best way to reduce compaction, it often comes down to the overlooked factors. "They expect a big answer – subsoilers, cover crops, GPS-controlled traffic systems. But often, the most effective and cost-efficient place to start is with the tyres. They're the first and last thing to touch your field.

"As the industry continues to shift towards regenerative practices, lower inputs and more sustainable output, it's important to give these unassuming components the credit they deserve. Because when it comes to safeguarding your soil, sometimes it's the simplest tools that have the deepest impact."

Preparing for autumn: soil-smart tyre checklist

With the 2025 drilling season on the horizon, here's Harry's checklist to get tyre-ready for fieldwork:

● Audit axle weights

Have your machine weighed – front and rear – under working conditions, with the implement attached. Many tyre manufacturers offer this as a free or added-value service when new tyres are purchased.

● Set pressures correctly

Use manufacturer pressure charts tailored to the task (e.g. drilling vs carting). Don't rely on 'ballpark' figures.

● Inspect tyre condition

Look for uneven wear, low tread, or sidewall damage, all of which can reduce traction and increase slip and soil disturbance.

● Consider Central Tyre Inflation

If using VF tyres regularly, CTIS can help you maintain optimum performance without the inconvenience of manual pressure changes.

● Review cultivation strategy

Are your tools leaving the soil too open or vulnerable? Could a shallower or lighter approach achieve the same result with less risk?

● Think trailed over mounted

Heavy mounted drills and cultivators place stress on rear axles and the headlands they traverse. Could trailed versions offer a better weight balance?

Built to breathe: upping the grain storage game with smart ventilation

As growers navigate the increasing challenges of quality assurance, on-farm efficiency, and long-term storage logistics, it's becoming clear that drying and storing grain isn't just a seasonal task – it's a vital part of the value chain

For Melrose Farms, located in the barley heartlands of northeast Scotland, a recent investment in a purpose-built 7000t grain store has transformed how they handle and preserve their spring malting barley.

Built with the specific demands of the malting sector in mind, and developed in partnership with Evans & Pearce, the installation provides more than additional capacity. It represents a shift toward controlled, streamlined, and technically informed grain management – a necessary move for a farm that dries and stores 100% of its own grain on-site until it's required by the maltsters, explains third generation farmer, David Allan.

"We'd simply outgrown the old setup," he says. "We bought more land and with that came the demand for extra storage. Before, we were using two or three sheds scattered across the farm. Now everything's consolidated in one place, right next to the dryer, and that's made a huge difference."

The new store – which measures 24m wide by 72m long with 5m-high walls – was completed in June 2024 and is filled via an overhead conveyor that feeds directly from the dryer. "This means no double handling," says David. "It comes off the dryer, into the elevator, and straight into the shed. Simple, efficient and far less labour-intensive."

At the heart of the store is a well-thought-out ventilation system designed by Evans & Pearce, which has been working with the farm since 2017. The design includes three rows of Polycool lateral ducting, spaced 8m apart and running the full 72m length of the store. Each duct includes a 6m unperforated lead section to build air pressure before switching to a perforated section for uniform air distribution.

"We use LV2600 fans – 18.5kW units – which gives us an airflow of 6 cubic feet per minute, per tonne of barley, which is bang on AHDB's recommendations for malting barley."

The system isn't just powerful – it's durable and easy to handle, he adds. "They're strong enough to take a hit from a bucket when you're emptying the store. But they're also light enough to move around when required. We're really pleased with how it's worked out, and we've even recommended the setup to some of our neighbours."

The economics of the new store are equally appealing. Installation of the ventilation hardware came in at around £4.90 per stored tonne – a competitive price point considering the scale and quality of the system, suggests David. Meanwhile, estimated running costs for a full storage season are approximately £1-1.50/t.

"It's not just about capacity – it's about control," he says. "We aim to cool the grain to between 12-15°C. When the weather's right, we switch on the fans to start dropping the temperature. The pipes and fans are simple to work with. You just lay the pipes as you fill the shed and run the fans when required."

Also included in the installation were two Hydor HV1250 extraction fans fitted with external wall cowls, designed to remove warm, moist air and maintain ambient conditions inside the store – especially important in long-term storage situations like theirs, notes David.

As for this season, the Melrose team is just days away from bringing in the 2025 spring barley crop. "We had a dry spring up here, so things are a little earlier than usual," he says. "Crops didn't look great early on, but they've improved a lot. We'll know more once the combine rolls through."

For now, the focus remains on quality. With maltsters demanding ever-tighter specs and weather patterns becoming less predictable, the farm's latest infrastructure investment looks set to pay dividends – not just in tonnes handled, but in peace of mind. "It's about working smarter," concludes David. "And this store has helped us do exactly that."