

Protecting more than yield



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PHILIP WRIGHT

With machinery getting heavier and harvest windows shorter, tyres are being pushed harder than ever. *CPM* investigates the launch of BKT's new Agrimax Proharvest, designed to meet the challenges of modern harvesting, while still protecting soils.

By Charlotte Cunningham

Harvest has always been one of the most demanding times of year, but in recent seasons the pressures on operators have grown considerably. Combines are bigger, with headers that can stretch further than ever before, and grain tanks that swallow vast capacities before unloading.

While this improves efficiency in the field, it brings new challenges for tyres, which are required to carry unprecedented loads, adapt quickly to changing pressures, and endure the constant transition between field and road.

For soil and cultivation expert Philip Wright, the focus must start beneath the surface. “Soil preservation is everything,”

he stresses. “This season has been unusual because the dry conditions have created almost a plate across the surface.

“Many farmers may put a spade in, hit that tough layer and give up. But if you persist and punch through those 60-100mm, you often find the soil underneath is actually in very good order.”

Philip explains that this apparent paradox is down to the season's extremes. With evaporation constantly drawing soil moisture to the surface, minerals like calcium and magnesium have been left behind. “In dry soils those bonds are incredibly strong, which is why it feels like concrete. But as soon as moisture returns, that surface can soften – almost visibly. I often explain



Damage done – even when it's dry

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Long-lasting impact

Heavy equipment, particularly when conditions are less than ideal, can create long-lasting damage to soil structure, reducing yields and impacting crop performance long after the combine has left the field, says BKT's Piero Torassa.

this as being able to see the soil physically melt, which is a reasonable way to describe what is happening.

"I sometimes show farmers this effect with a watering can. Half an inch of gentle 'rain' on a patch, come back a few hours later, and the spade will go in far more easily – the lump will start to crumble instead of shattering like brick. That shows how quickly soil can change and how important patience and timing are."

That doesn't mean traffic is irrelevant, he notes. "Even in a year like this, when it feels like you're driving on tarmac, it's still possible to do damage, particularly on headlands or when turning with a nearly full grain tank. And as soon as we get a wetter season – which could be next year – the importance of minimising pressures becomes absolutely critical. Ultimately, it is the pressure within a tyre which determines the severity of soil squeezing beneath, which leads to a reduction in porosity.

"Investing in the right tyre technology is as much about insurance for the unpredictable future as it is about performance today."

Philip has long worked with growers to help them understand these trade-offs. He often points to trials on trailers and spreaders, where central tyre inflation has allowed operators to drop from around 58psi on the road to nearer 26psi



A tyre for intense conditions

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in the field. "The effects are remarkable," he says. "Fuel use fell from 18 litres/hour to 14, infiltration rates more than doubled, and visibly you could see the difference: trafficked lines that used to sit full of water suddenly started soaking it in. Those numbers tell you how much difference pressure alone can make."

LOAD BEARING

The risks also vary across the machine. "Rear combine tyres are probably the killers when it comes to pressure," he explains. "With the header off, they take a disproportionate amount of load, yet because of clearance issues, they're relatively small and low capacity. They're often ignored, but they're the ones where replacing or upgrading can give you the best value for money. They may not cost as much as the front tyres, but they can save a lot of soil damage."

He believes the lessons from one

operation extend into others. "On a drill tractor, we've measured yield penalties of up to 40% when running at one bar compared with less than 10% at 0.5-0.6 bar."

While combines and trailers are different animals, Philip says the principle holds true: the lower the pressure you can safely run, the better your infiltration rates, fuel efficiency and soil structure. "If you don't get that right, you carry the problem all season.

"I've seen more blackgrass establish in compacted strips left by a drill tractor – and once those seeds are lifted by the combine header, they're spread right across the field. That's how a small

oversight on tyre choice or pressure can become a whole-farm weed issue."

Attention to detail is the common thread, he believes. "Every piece of machinery plays its part in the bigger picture of soil health, and tyres are one of the simplest but most powerful tools in that fight."

Picking up the conversation, Piero Torassa, field engineering director at BKT Europe agrees that soil compaction is becoming an increasing concern, especially when it comes to harvest. Heavy equipment, particularly when conditions are less than ideal, can create long-lasting damage to soil structure, reducing yields and impacting crop performance long after the combine has left the field, he points out.

At the same time, operators are being asked to work more sustainably, with a focus on reducing inputs and waste.

"Tyres sit right at the centre of this web of challenges," says Piero.

"The Agrimax Proharvest has been designed with today's realities firmly in mind."

Equally, being a tyre specialist, he notes that a single tyre failure in the middle of harvest can have knock-

on effects that cost growers dearly – from lost time and compromised soil conditions to delays in getting the crop in while the weather allows.

It's against this backdrop that BKT has developed the Agrimax Proharvest – a new tyre designed specifically for modern combine harvesters and the intense conditions they face. Piero explains that the brief was to bring together soil protection, resilience and operator comfort into one package.

At the heart of the Agrimax Proharvest ►

► is VF, or Very High Flexion, technology. “VF tyres can carry up to 40% more load than a standard tyre at the same inflation pressure,” he says. “By spreading this load across a larger footprint, we’re able to reduce ground pressure and mitigate compaction – something that helps growers to protect their soil for long-term productivity.”

The Agrimax Proharvest also incorporates CFO, or Cyclic Field Operation, capability, which is designed to cope with one of harvest’s realities: temporary overloads. “When a combine is unloading on the move, the weight distribution and stress on tyres can fluctuate rapidly,” comments Piero. “While standard tyres may struggle under these cyclic loads, CFO technology allows the tyres to absorb them without compromising performance, keeping the machine rolling at the most demanding moments.”

Durability has been another major focus. Harvest conditions can be harsh, with tyres exposed to stubble, stones and uneven ground, but the tyre has been engineered with a reinforced polyester casing and three layers of steel belts to provide mechanical strength and stability. “That’s what prevents deformation under heavy loads so the tyre maintains its shape and integrity even after long hours,” he explains. “And we’ve developed a new compound to resist cuts and chips, reducing the risk of punctures from stubble or debris. The practical result is fewer interruptions, longer tyre life and lower maintenance costs.”

Harvesting, of course, rarely stops in the field. Increasingly, combines and their support vehicles travel significant distances on the road, sometimes at higher speeds than in the past. The tread pattern of the Agrimax Proharvest has been designed with this dual role in mind.

“The open-shoulder design improves traction and self-cleaning in wet or sticky soils, while on the road it promotes even tread wear and better handling,” says Piero. “We’ve also considered operator comfort. A smoother ride reduces vibration and fatigue – and after 12-14 hours in the cab, that can make the difference between staying sharp and making mistakes.”

Piero continues that the Agrimax Proharvest represents a step forward from BKT’s earlier Agrimax Teris, building on its predecessors’ strengths while adding new capabilities. The combination



Spreading the load

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of VF and CFO technologies, together with the reinforced casing and cut-resistant compound, positions the tyre to compete in what Piero acknowledges is a crowded market.

But he believes there are other dimensions to consider, too. “Every time we can extend a tyre’s life, reduce breakdowns or minimise waste, we’re reducing agriculture’s footprint.

“A tyre that lasts longer requires fewer replacements, which lowers the carbon impact of production and logistics. And in the middle of harvest, every breakdown avoided saves not just money, but also fuel, time and stress.”

GOING FOR IT

Of course, growers will no doubt want to see real-world proof before committing.

“The true test will be performance in wet harvests, resistance to stubble damage and longevity over multiple seasons,” accepts Piero. “But what we can say is that the Agrimax Proharvest has been designed with today’s realities firmly in mind. It’s built around the concerns growers raise most often: soil compaction, downtime, and how a tyre performs both in-field and on the road.”

The launch also reflects a broader change in how tyres are perceived. Once treated as an afterthought, they’re now being recognised as an integral part of the machinery system, he suggests. “As combines increase in size and output, tyres have to work harder than ever to support both machine and soil,” says Piero.

“If we don’t innovate here, we risk undermining the efficiency gains that modern machinery is meant to deliver. Tyres are not just round black things – they’re central to productivity.”

Harvest will always be an unforgiving test. The weather waits for no one, machines run at capacity, and operators are stretched to the limit. In that context, tyres carry more responsibility than might be obvious at first glance.

“By protecting soil, supporting heavy loads, resisting damage and easing the journey from field to road, they can make the difference between a smooth season and one plagued by setbacks,” concludes Piero. “With the Agrimax Proharvest, growers will have that assurance and confidence that the tyre won’t let them – or their soils – down when the pressure is at its highest.” ●

Innovation Insight

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