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Krone BiG M 500
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Driving impression: Krone BiG M 500 self-propelled mower

She's one BiG Mamma of a mower

With a 500hp motor under the hood and a working width of 13.20m, the Krone BiG M 500 self-propelled mower was unquestionably one of the star attractions at Agritechnica 2007. We were fortunate enough to get a drive on this grass-gobbling monster at the tail end of last season

Take a long, hard look at the Krone BiG M 500, here and on the profi website at www.profi.com. Why? Because you probably won't see this grass-cutting colossus anywhere else. Production versions are unlikely to make it across to the UK for at least another couple of seasons and, two years on from its public preview at Agritechnica 2007, the machine is still some way off going on full sale.

Not that the BiG M is ever likely to feature in the UK in massive numbers anyway – or not, at least, to the same extent that it does in the Republic of Ireland, where distributor Farmhand regularly supplies around ten of the smaller BiG Ms in a season. On this side of the Irish Sea, there currently seems to be more large-farm/contractor interest in the tractor-mounted triple, although this recent trend may obviously change. Hence our 'drive' here on the BiG M 500. This is the technology that could be around the corner.

Krone's 500hp BiG M 500 takes a 13.20m bite. The cut crop is either spread to full width or dropped in a single swath.
Photos: ST

Of course, it's not all new, with many of the 500's core design cues drawn from smaller and proven sub-10m BiG M IIs. That said, there are fundamental differences, which are inevitable bearing in mind the big jump up in cutting width – from 9.7m to 13.2m. So, let's have a look at those changes.

For starters, the BiG M 500 is based on a new chassis concept from which hang the wider mowing units. Basic build ingredients are four-wheel-steer running gear, four equal-sized tyres (800/65 R32 std, 900/60 R32 optional), a 5.3m wide front mower and a pair of 4.4m rear-mounted mowers. Totting up these various bed dimensions, and taking into account the 45cm overlap for each unit – the overlap ensures no unsightly crop strips remain uncut when travelling around headland corners – brings us to the total mowing width of 13.20m.

The individual mowers hail from Krone's EasyCut range, the front-mounted unit sporting 12 discs and each of the rear beds making do with ten. For overload protection, these discs utilise the firm's SafeCut system. How

does this work? In simple terms, when a disc hits an obstacle, a roll pin shears off and allows the affected disc to 'screw' itself up the drive shaft and clear of the neighbouring discs.

Similarly cunning is how Krone has effectively managed to turn two mowers into one at the front end of the 500. The outer blades of the two units overlap to form 'one mower' in terms of its cutting action. Any risk of load imbalance between the two? Not according to Krone, which says that it has maintained this balance by designing the driveline as short as possible: Power passes from engine into flange-mounted gearbox, down a driveshaft to a transfer box, and from here to the front mower where it splits to power the two beds. The two rear mowers are also powered mechanically via Walterscheid drive shafts.



Also worth noting on the front mower is that its two cutting beds come with a pair of outer and inner drums – or ‘top hats’ – to keep mown material out of the wheelings. When on ‘wide spreading’, the two inner drums can be replaced by discs, and there is also the option to change the direction of spin by swapping the bearing housings.

On BiG M control, the operator can work all three mowers simultaneously or separately from joystick buttons that, in turn, engage/disengage the appropriate multi-plate clutches. Overload protection for each mower is via a slip clutch. Cutting height adjustment, again, presents the operator with all the options. He can store two heights in the cabin’s display terminal – for example, one setting for

standing crop in the field, one for areas where the crop is laid – both of which can be accessed via the joystick buttons. The Krone system can also memorise individual heights for each mower, which may come in useful when opening up a field. Ground pressure/suspension of the rear mowers is adjusted hydraulically from the cab, whereas the front unit requires more fiddly suspension setting on four springs.

When deciding on BiG M 500 production spec, one of the initial requirements was that the machine should be capable of bringing together crop from the entire working width into the one swath. After all, 95% of all smaller BiG M II machines are ordered with this capability. Our 500 prototype was equipped with

DATA SHEET

Krone BiG M 500

Work width:	Total width 13.20m Front 5.30m Rear 2 x 4.40m
Overlap:	2 x 0.45m
No. of discs:	12 on front units 2 x 10 on rear units
Conditioner rotor speed:	700/1,000rpm
Engine:	Mercedes Benz OM 460 LA 12.8 litres cubic capacity
Max engine power:	357kW/486hp (ECE R24) 375kW/510hp (ECE R120) at 1,800rpm
Tyres:	800/65 R32 (standard) 900/60 R32 (option)
Turning circle ¹⁾ :	12.00m
Maximum speed:	22km/hr (field) 40km/hr (road)
Weight:	About 20,000kg
Transport width (800 tyres):	3.00m
Price:	N/A

Manufacturer details. ¹⁾ Turning circle measured to outside of 800 tyres

crop merging kit which, in essence, enables the operator to convert the machine hydraulically, at the touch of a button, from spreading to swathing mode (opening the auger hoods) or from swathing to spreading (closing the auger hoods). The result is the 500 is capable of spreading its 13.20m of grass across the full width, delivering one thick swath or tailoring the swaths to suit different rake sizes. We should point out that our test field’s grass crop was so light that we weren’t able to draw any meaningful conclusions on the machine’s uniformity of spread. The augers themselves are belt-driven, with power taken off the conditioner. They are shearbolt-protected, and both the augers and their hoods have replaceable wearing bits so life expectancy shouldn’t be an issue.



The 5.3m wide front mower unit comprises two individual cutterbars that work alongside each other.



Conditioner intensity is set via a mechanical gearbox and on a crank lever that adjusts the baffle plate (left). Cutting height is altered hydraulically (below).





Cab hails from Krone's BiG X forage harvester. The Fendt-sourced joystick (top) continues to irk, although this unit is countered by the informative monitor (middle). The pedals (bottom) control the X's rear wheel position.

As for other 500 components, much is shared with the BiG X 500 forager. These common bits include the six-cyl 12.8-litre Mercedes OM 460 LH motor, which delivers a max output of 357kW/486hp (ECE R24) at 1,800rpm – an engine speed that conveniently matches the optimum speed for the mowers. A reversing fan is included in the standard spec, while fuel tank capacity measures 900 litres.

The hydrostatic transmission uses four wheel motors and offers two modes of operation: 'Work' mode for speeds up to 22km/hr; and 'Road' mode for speeds from 0-40km/hr and at reduced engine rpm. Machine transport width extends to 3m on standard 800/65 R32 tyres, 3.2m when on 900/60 R32s. And courtesy of the previously mentioned four-wheel-steer system, a 'relatively' tight 12m turning circle (800 wheels) means that negotiating headland ends is not a problem. Still on headland steering, sensors monitor the turn and adjust the rear wheels via valves on the 4WS system to keep all wheels pointing in the 'right' direction. When in conventional work, the machine



Booted up with 800 rubber, the BiG M 500 measures 3m wide when in transport mode, this stat stretching to 3.2m if the buyer chooses to go with the optional 900 tyres. Forward visibility through and over the front mower in transport position is not an issue.

runs in front-wheel-steer mode so there is no excessive twitching, though this can be switched to all-wheel steer if cutting around a bend. Our only comment here is that it might be more convenient to make this an automatic change relative to steering angle.

Overall, the 500 handles well in manual steering mode and isn't too tricky to hold on a straight line. Nonetheless we reckon the extra investment in a GPS steering system would be money sensibly spent, as it's clearly important to make maxi-

mum use of that 13.2m cutting width for as many hours as possible – to justify the investment and reduce operator fatigue. Not that the operator has too much to complain about. The comfy BiG M 500 cab shares its standard air seat and three-position steering column with that of the BiG X 500 forager, and the visibility down on to all three mower units is better than we expected.

Any cab downers? Not many. Only tester niggles are with the lack of interior stowage space as well as the usability of the Fendt joystick that continues to decorate

the cab of both the smaller BiG Ms and all BiG Xs. This stick would undoubtedly benefit from a thorough rethink of its button arrangement and backlighting.

Both front axle and cab are hydropneumatically suspended. The system adjusts automatically between two different levels for field and road operation, and is a spec that's not offered on the BiG X.

Weighing in at about 20t, the BiG M 500 is as heavy as a forager, but the mower still treads relatively lightly, in the main because of its four flotation tyres.

Summary: When it eventually goes on sale, the BiG M 500 will give Krone access to the largest silage contractors. For those existing users of a Krone BiG M II, the 500 offers 35% more working width and 45% more engine muscle. Which should translate into at least 30% additional capacity. If that's the kind of work rate they need, all we cannot divulge is how much all of this extra mowing performance will cost them, because BiG M 500 pricing is still, as yet, not listed. More information should be available after the upcoming '09 grass season. GE