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THE PROFESSIONAL FARM MACHINERY MAGAZINE

PRACTICAL TEST

Kverneland 3300S

Can it carry the ploughing crown?

Straw bedder round-up

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It has style, has it performance?

REPORT: Receiver security

How to better protect your dome

USED: McHale C series guide

Time to get bedder ready

The quality of work produced by the five-furrow 3300S Variomat, with integrated Packomat packer, was impressive.

Kverneland 3300S Variomat with Packomat:

Good genetics

Kverneland has carried over a number of design elements first seen on its ISObus 2500 I-Plough to its latest four- to six-furrow mounted model, the 3300S Variomat. We put a five-furrow model, with a Packomat packer, to the test last autumn.

Kverneland started production of its 3300S Variomat plough in readiness for autumn 2021. Design of the new plough, in part, followed the firm's established EG series, with the front furrow width set independently of the headstock. Additional elements are borrowed from the 2500 I-Plough.

The 3300S Variomat has a combination of traditional manual and hydraulic set-up and shares features with the I-Plough to include:

- leaf-sprung overload protection system and hollow body legs
- in transport mode the top link is detached, a pivot point in the cross shaft permitting the plough to turn 45° right and left and track like a trailer.
- swivel-style hydraulic depth wheel, which locks for transport
- central depth control of skimmers.

Sturdy turnover mechanism

Suitable for tractors of up to 330hp, the 3300S Variomat is fitted with a heavy-duty 150mm hollow shaft headstock. The plough attaches to the headstock then turns around the shaft. Kverneland puts minimum power rating for these ploughs at 185hp, although in practice those farming level land may find 170hp will be sufficient. How do we know?

KEEPING IT BRIEF

The 3300S Variomat shares a number of components with the 2500 I-Plough

As tested with No. 38 bodies, it produced a quality finish

Plough alignment could be easier to adjust

Packomat levels and consolidates effectively

Hydraulic front furrow adjustment is standard in the UK.

By trying it. But we do think this will be the absolute minimum. Kverneland says that a five-furrow 3300S is suitable for tractors of up to 275hp, suggesting it will be well suited to all tractors in the nominal 180 to 250hp power bracket.

Turnover is very smooth. We timed it to be between 8 and 19 seconds, the longer time reflecting the need for the furrows to be narrowed when set to maximum width to deliver the necessary ground clearance for the rear furrow. Turnover is limited by stops that are adjusted with a turnbuckle to set the plough vertical.

No. 38 bodies work deeper

Expecting to find the plough kitted out with familiar No.28 bodies, the test plough turned up with new No.38 items. Sharing the same profile as a No.28, the 38s cost around £65 more per body but are 60mm taller. We have had good experience using a plough with No.28 bodies in the past, but one constraint in our soils was that the plough would be 'full' when working the max furrow width of 450mm when working down to 250mm. By adding 60mm to what is essentially an

Turnbuckle to one side sets plough alignment.

enlarged No.28 body, Kverneland has sorted the depth at maximum furrow width issue. We found the No.38 bodies worked down to 300mm at 450mm furrow widths, with full clearance of the furrow bottom, and there was no significant increase in draft.

Variomat in the plough's name relates to it having adjustable furrow width, so the body's capability to deliver a full working depth at full width is important; the test plough has furrow width settings from 350mm out to 550mm. As tested, the five-furrow 3300S Variomat model had a maximum working width of 2.75m, this measurement matching

TEST ASSESSMENT

KVERNELAND 3300S VARIOMAT WITH PACKOMAT

TECHNICAL	
Coupling to the tractor	⊕
Turnover mechanism	⊕⊕
Inter-point clearance	⊕⊕
Variation of plough width	⊕
Overload protection	⊕
Manure skimmers/disc coulter	⊕
Transport/rear wheel	⊕⊕
Road transport	⊕⊕
Packomat	⊕⊕
Weight	◍

FIELD USE	
Work pattern	⊕⊕
Cleaning out furrows	⊕⊕
Penetration	⊕⊕
Incorporation of crop residues	⊕⊕
Power requirement	⊕
Preliminary set-up[1]	⊕⊕/◍

HANDLING	
Coupling hoses	⊕
Setting up the rear wheel	⊕⊕
Setting up the plough tilt	◍
Front furrow width setting	⊕⊕
Setting the furrow width[2]	⊕⊕/⊖
Plough alignment	⊖
Adjusting the skimmers	⊕⊕
Setting up the Packomat	⊕
Transport changeover	◍
Service/maintenance	◍
Wearing metal change	⊕

GENERAL	
Build quality	◍
Hose routing	⊕
Tools	⊕⊕
Lights	◍
Operator's manual	◍

Grading: ⊕⊕ = very good; ⊕ = good; ◍ = average; ⊖ = below average; ⊖⊖ = poor

[1] on medium/very heavy soil

[2] ⊖ for furrow width indicator

The No. 38 bodies cleared the furrow bottom cleanly and delivered a good quality of work. When set to a maximum furrow width of 455mm, the bodies could work to a depth of 300mm.

In transport, the rear depth wheel is fixed with the plough pivoting at the headstock. The combination handled like a single-wheeled trailer and 'rode' well.

the working width of the integrated packer. The furrow width indicator on our particular test plough was a simple steel bar fixed to the beam with a single screw. We often had to realign this indicator, falling clods knocking it out of adjustment despite tightening up the set screw securely.

On a rather more positive note, Kverneland has revised the body-to-beam pivot bearings. On existing auto-reset bodies, pockets on the body legs make contact with the beam when tripped, scratching the paintwork. The new design has a bead or shim added around the bearings that has eliminated the issue.

Difficult to set alignment

Kverneland's philosophy is that the plough's alignment should be set up once the base plough settings are made in the factory. On our test plough, the factory setting was not quite right, with too much lateral pressure on the landsides leading to wear. This, plus us swapping between different host tractors, saw us repeatedly adjusting the alignment. This basic setting should not be a problem on a plough that has been correctly installed.

MEASUREMENTS

KVERNELAND 3300S VARIOMAT WITH PACKOMAT

PLOUGH

Number of furrows	Five
Body[1]	No. 38
Work width per body	35-55cm
Total working width	1.75m-2.75m
Frame beam	120 x 200mm
...material thickness	6.4mm
Underbeam clear.	800mm
Interbody clear.	1.0m
Tripping force	980daN
Linkage category	III
Turnover time[2]	8.3-18.7sec
Disc coulter diameter	510mm
Tyre size	420/55-17
Weight	2,880kg
No. of grease nipples	19 (10hr lube interval)
List price excl. VAT for base specification[1]	€41,294/ £52,215

INTEGRATED PACKER

Packer rings	14
Ring spacing/ diameter	200mm/610mm
Working width	2.80m
Weight with harrow	300kg
No. of grease nipples	17 (10hr lube interval)
List price excl. VAT for base specification[1]	€14,526/£10,814

PLOUGH WITH PACKER IN TEST SPECIFICATION

Weight	3,180kg
Max tractor power[2]	202kW/275hp
List price excl. VAT[1]	€72,366/ £63,029

[1]Manufacturer supplied
[2]Dependent upon furrow width

In the UK, hydraulic front furrow adjustment is standard. Fitted to the on-test Variomat plough, it proved useful when adjusting the small setting deviations that arise when the furrow widths are changed. It also allowed us to fiddle with the plough on sidling land,

In work, the depth wheel delivered good depth control and can be adjusted to reduce the working depth of the last furrow, as pictured.

ensuring that the plough followed behind the tractor with no crabbing.

The single setting cylinder was not overly powerful, however, so we needed to work with the plough to ensure the lateral loads were not excessive when setting the width. A second cylinder is available, which could make a difference and is a point to note for those working undulating fields. A simple scale on the plough would be very helpful as a guide, too.

Big wheel at the back

The 3300S on test was fitted with a 420/55-17 tyre, this being the largest rear wheel option coming as standard in the UK. We found this large wheel combination gave excellent depth control in varying soils with a good ride in transport.

The downside was that the tyre encroached some 600mm to the side, so impacted on the last furrow. A frame-mounted depth wheel, available as an option on ploughs not used with a Packomat, will get around this where applicable. Note that the large rear wheel is fixed and does not swivel when the plough is locked in its butterfly position for transport.

The working depth is adjusted hydraulically, with a guidance sticker at the rear of the plough. We found this led to our test team initially setting the rear furrow too shallow, but it is not a big problem. As to lowering the plough into work, this can be adjusted

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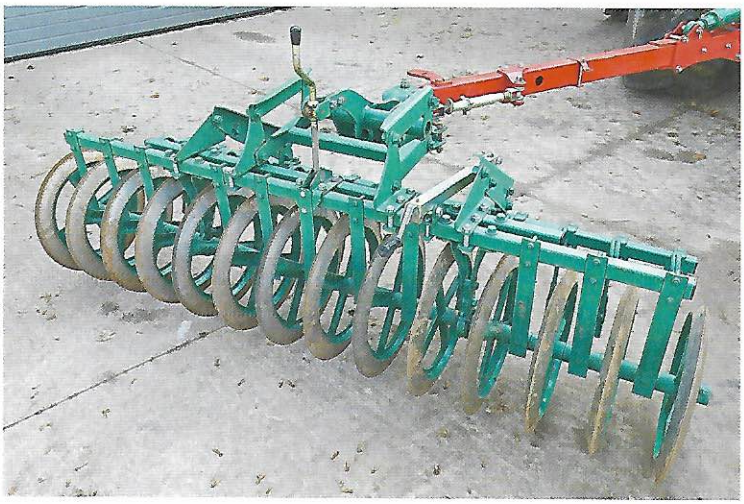
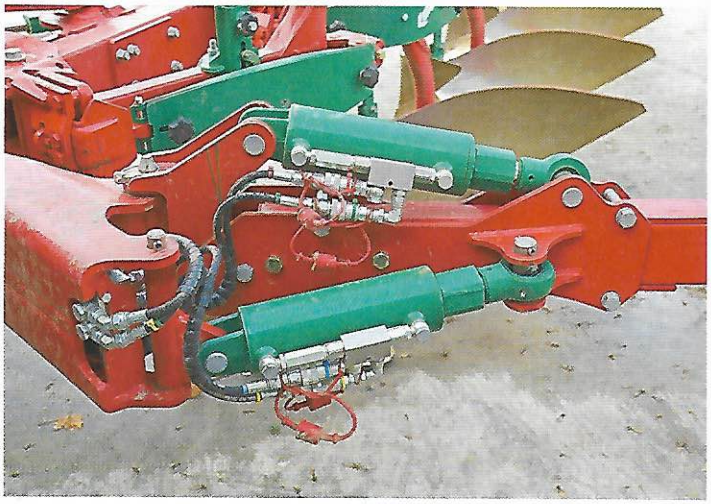




The load on the Packomat and its accompanying harrow is adjusted via a mechanical screw handle (above, left). The packer is raised and swivelled by two cylinders (above, right). The turnbuckle in the right photo is used to align the packer rings and indirectly to influence the line of draft.

to help reduce untidy furrow stagger at the headland, with a memory function activated by flipping two cross valves to integrate the action into the headland turn sequence on a suitably equipped tractor. Once set up, this controlled plough lowering worked well.
There is some discussion as to whether it's best to position the top link in the slotted or fixed headstock holes. With the wheel at the rear on the 3300S, we chose to go with the fixed central position because this delivered a consistent depth control with the plough operating like a semi-mounted unit.

Consolidation made easier

Plough packers that need to be dropped off as the plough is raised and then reattached on the following pass have long had their downsides. When Kverneland came up with its clever Packomat system back in 1992, this integrated plough press system was well received. The 14-ring Packomat on the test five-furrow plough was fitted with a leading spring tine harrow. Each ring was 610mm in diameter, and the overall working width was 2.80m. As an option, the combination retails for a not inconsiderable £10,800, and it's also noting that the actual unit was lighter than we expected at 300kg to include the packer roller, harrow and arm.
In work some of the plough's weight, which is adjustable via a turnbuckle, is transferred to the packer to increase the ground bearing pressure to around a tonne. Under almost all conditions, consolidation was good, the Packomat leaving a well-presented finish in the mostly medium-heavy soils that we worked. In heavy clay, consolidation was less pronounced, as you would expect, but still decent enough.

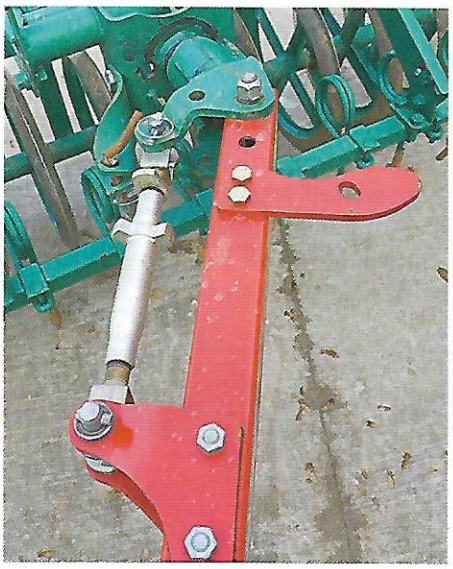
In the subsequent drilling pass, we noted the tractor sank into the consolidated soil less than in land that had not been pressed, and we noted the consolidated land delivered a reduction in the tractor's fuel consumption of around 2.0l/ha. This was about the same as the additional fuel used when operating the Packomat with the plough.

First furrow to the right

In transport, the Packomat is raised into the butterfly position by two chunky hydraulic cylinders, with more load transferring back to the rear depth wheel.
When ploughing the first furrow, only the right-hand body can be used due to needing to clear the raised packer. In stone-strewn soils, more care is needed, as a tripping body can cause the upper unit to foul the bottom of the packer.
The two cylinders do have separate control, however, so the packer can be raised and swivelled. If the land is to be over-wintered, the Packomat can, of course, be removed, this proving relatively straightforward with two people but more of a struggle if on your own. Colour-coded, quick-release couplers ease decoupling and hooking up the related hoses, with a single central pin attaching the packer arm.

Other details

- Cat III attachment is straightforward.
- Spring-loaded parking stand folds in one direction and is difficult to reach from the right-hand side.
- There is no hose rack, with the coupling sticker on the back rear, as opposed to left side, of the headstock.
- The test plough with Packomat needed a total of four double-acting spool valves for turnover, furrow width adjustment and the depth wheel and, selected via a dial, for the front furrow width and the two Packomat cylinders. If a hydraulic top link is fitted, a fifth spool will be needed.
- Serrated 510mm diameter discs did a good job, but needed to be removed in mulched grain maize.
- The test plough was fitted with 'Quickfit' point tips. These tips can be swapped when worn between right and left sides. 'Quick-change' simplified the swapping job, which was necessary after 100ha.
- Test plough had a transport lighting kit and warning panels as £950 extras, with cabling run from the detachable units to the tractor.
- There are 19 grease nipples on the plough, 17 on the packer ... and each needs a shot of lube at 10-hour intervals.
- Key hydraulic valve blocks and hoses are suitably protected, to include hose routing through the hollow turnover shaft.
- Paint finish of test plough was poor.



- Supplied on-board spanner fits all bolts.
- In its entry-level specification, without the Packomat, a five-furrow 3300S Variomat retails for £52,000. As tested, to include Packomat, this rises to £62,800 excl. VAT.

Summary

The Kverneland 3300S Variomat is a great plough, producing fine results in the good test conditions that prevailed during our time with it in autumn 2021. We really liked the Packomat packer, too, not expecting it to offer the firm consolidation it delivered in medium-heavy soils. Plough downsides were poor paintwork on our test plough; Kverneland suggests that the latter has been sorted on production machines.

What's harder to swallow are current prices, although we accept this is an industry-wide problem at the moment. With a list price of £62,800, we expect customers will want to hold onto a plough like this for a long time to cover their initial capital outlay.

Gottfried Eikel

The packer can be raised up out of work when turning the furrows to the right. This allows easy and convenient working up to a headland or obstacles ... to minimise the unploughed area.