

A SINGLE-PASS MAIZE COMBO



With compliments from



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A SINGLE-PASS MAIZE COMBO

Precea is the new precision drill from Amazone which can also be mounted on the company's new **KE 3002 power harrow**. A new addition to the combination is the new **Nautilus 930 front press which allows growers to plant maize into ploughed soil in one operation.**



Combining a front press, a power harrow and a precision drill, Precea drills maize seeds into ploughed soil in one operation.

This test puts three new products through their paces – the Precea precision drill, the front-mounted and steered Nautilus 930 press with 900mm diameter cast-steel rings and 3m work width, and the KE 3002-240 Rotamix power harrow as our tool of choice for seedbed preparation.

The novelty about this power harrow is that it has twelve instead of ten rotors – a design change that not only reduces the length and weight of the machine but also produces a better tilth. As for the Precea

IN A NUTSHELL

- The name of the new steered front press is Nautilus.
- At the heart of the new Precea maize drill is the pneumatic singling unit.
- The Amazone KE 3002-240 power harrow has more but smaller rotors.

3000 ACC Super, we find a new seed singling unit which uses overpressure to shoot the seeds into the furrow. Amazone says the seeds are planted with precision even at forward speeds of up to 15km/h.

Combining the power harrow pass with the planting pass is not a new idea yet more common in cereal production than in maize where solo drills continue to be the norm.

DRILLING MAIZE WITH A COMBO

The reasons for this could be the limited workrates or the fact that maize drills

are often owned by machine pools or contractors. Anyway, precision drills that mount on a power harrow are a rather rare sight. With the advent of the KE 3002-240 Rotamix and Precea 3000 ACC Super precision drill this may change rapidly.

Let's look at the facts. The coupling points on Amazone power harrows and precision drills are standardised. This means that an Amazone power harrow will also accommodate the mechanical Cataya 3000 and the pneumatic Centaya 3000 – courtesy of the QuickLink system which eliminates the use of tools.

MORE ROTORS, LESS WEIGHT

Our specific power harrow's standout feature over its predecessor 01 series is the number of tine holders which increased from ten to twelve; the drive is no longer a planetary gear but a gearwheel directly on the tine holder. The system is called Direct-Drive – a rather bland name that doesn't really suggest the major improvements that come with it, because a smaller tine holder requires smaller gearwheels. Consequently, the transmission bed becomes shorter and lighter and the drill mounts closer to the tractor so the tractor requires less lifting power.

The tines are installed at an angle and replacement is fast and without tools. They are also overload protected, which in turn protects the power harrow. The levelling board on the roller is adjusted from a central control.

This means it doesn't need adjusting when the depth of the power harrow is changed, because a top link keeps the roller in parallel with the harrow. The roller on our tested power harrow was a 600mm toothed packer roller, the depth of which is adjusted either hydraulically (option) or mechanically by refitting a pin as standard. The bout markers – if needed – are attached to the power harrow itself. So, swapping drills is no issue in this respect.

We appreciated the side plates on the harrow which bring the machine width to 3.05m when in working position. Although this means the operator must get off the tractor after arriving in the field these plates are indeed worth the trouble, because they effectively prevent ridging and ensure tidy match-ups.



950-LITRE FERTILISER TANK

Our Precea 3000 ACC had four seeder units arranged to give 75cm row spacings. You can also have five or six seeders and row spacings of 50cm, 60cm and 70cm, yet no 45cm spacing for oilseed rape.

Incidentally, the CC in the badge name refers to the Double Shoot system. Our fertiliser hopper was the 950-litre version which mounted piggy-back on the press. The seeds are delivered pneumatically to the coulters; the blower is driven hydraulically, which takes only a 25l/min oil flow, says Amazone. All four disc coulters were supplied with the same rate of granules, because all meter-

- 1** The 950-litre fertiliser tank sits on the packer roller and in close vicinity to the tractor for reduced lift requirements.
- 2** The seeder mounts in a parallelogram frame for good ground hugging. The fertiliser coulter is mounted directly on the frame.
- 3** The seeds are singled with overpressure. Three electric singling rolls prevent doubles. When the seed arrives at the delivery tube it is stripped off the disc.
- 4** There are various interchangeable discs for singling seeds of various crops.
- 5** The tablet serves as a screen for the ISOBUS terminal so operators view machine data and Section Control simultaneously.
- 6** The Amatron-4 computer features Smart Control for automatic adjustment of the strip-pers and minimises the number of gaps and doubles.



KE 3002 standout features are small rotor heads and inclined tines. The machine handles more tractor power although it's lighter in weight.



Nautilus is a steered front packer with 900mm cast rings which gives excellent consolidation.

ing units are mounted on one electric drive shaft.

The disc coulters measure 38cm in diameter and place the granules next to the seeds at a 5cm distance. These double discs are coined FerTeC Twin. Adjusting the placement depth from 1cm to 15cm takes a tool. The maximum fertiliser placement rate is 250kg/ha at 15km/h which should be fine.



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DRILLING MAIZE WITH OVERPRESSURE

Maize seeders that plant at high forward speeds have one thing in common - they all use overpressure to press the seeds against the metering disc. The disc has singling strippers that ensure there is only one seed on each hole. These strippers are set electrically from the cab. Every single seed is detected by a sensor and visualised on the terminal screen.

Once there is one seed on a hole, the hole is covered by a small wheel on the back, which cuts off the pressure and the seed drops into the delivery tube and shoots into the groove that is formed by the PreTec min-till coulters. These 120kg coulters have springs that can apply another 100kg to ensure effective penetration. The coulters are followed by a catch wheel that presses the seed into the soil. Making up the rear, the firming V-rollers close the furrow.

The depth of the fertiliser coulters is adjusted with a tool, whereas the seed coulters depth is adjusted without a tool. The nominal depth is 1cm to 10cm. The press wheels are arranged in a V, with angle and pressure being adjustable for good firming action.

Precea is operated from an ISOBUS terminal which in our case was the Amatron 4 from Amazone. This is compatible with a tablet that gives you a second screen for more convenient use.

AUTO SYSTEM

Each seeder unit has a sensor that reports any gaps or doubles to the terminal which visualises these on the screen and makes corrections by adjusting the strippers electrically. This can also be done automatically with the help of the automatic Smart Control system. The seed rate can be entered to the terminal but you can also use application maps for both seeds and fertilisers.

Also, the system generates a virtual headland line and switches off the seeders automatically when this line is crossed. This way, you can drill the headland at the very end of the job and avoid the machine is rolling on planted land.

Amazone now offers also a steered front press which allows machine owners to drill maize into ploughed soil and in a single-pass operation. The Nautilus 930 had an extra levelling board that cut through the clods and levelled the surface. Thanks to its excellent steering, the unit had only little impact on the autoguidance system. ●

AMAZONE PRECISION DRILL WITH POWER HARROW AND FRONT PRESS



PLUS & MINUS

- ⊕ The combination drill plants maize directly into ploughed soil.
- ⊕ The seed singling system ensures uniform seed spacings.
- ⊕ Seed singling can be done automatically.
- ⊕ The power harrow prepares a nice seedbed without ridging.
- ⊖ Fertiliser cannot be applied at various rates per row.

Minimum use 285ha/year

$$MU = \frac{Fc}{rc - vc} = \frac{€9,706/\text{year}}{€48/\text{ha} - €14/\text{ha}} = 285 \text{ ha/year}$$

Explanations

MU	Minimum use
Fc	fixed costs: €9,706/year (= 10% of the purchase price)
Vc	variable costs/ha: €14/ha (wear, service and maintenance)
RC	Rental costs: €48/ha

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Technical data

Precision drill

Model	3000-A Super
Frame type	Power harrow mounted
Working width	3.0 m
No. of rows	4
Row spacings	75 cm
Work rates	3 - 15km/h
Seed hopper volume	55 l
Fertiliser tank volume	950 l

Power harrow

Model	KE 3002-240 Rotamix
Working width	2.99 m - 3.05 m
Number of rotors	12
Max. input power	240 hp

Front packer

Model	Nautilus 930
Working width	3.00 m
Press ring diameter	900 mm
No. of rings	15
Weight without extra tools	1,400 kg

Prices

Precea 3000-ACC Super precision drill	€60,839
KE 3002-240 Rotamix power harrow	€26,478
Nautilus 930 front press with levelling board	€9,739

Fully specified test machine **€97,056**

Source: Manufacturer information, list prices excl. VAT