

Amazone Precea 6000-2CC maize drill:

On course for more width

In preparation of phasing out its existing precision drills in the short and long term, Amazone is adding new models to its Precea family.

Here is the low down on the latest 6m model and how it performed in the DLG tests.



We put a 6m Precea prototype through its paces planting eight rows of maize spaced 75cm in one pass. Photos: Schulz, manufacturer (2)

After the last year saw the introduction of Precea models with rigid and telescoping frames, this year sees the launch of new 6m models, both with rigid and folding frames. Whilst retaining the familiar main features such as pneumatic singling unit, double disc coulters (400mm) and the electric seeder drive (profi 10/2019), the new models offer a number of updates.

For example, from spring 2021 buyers of the prototype Precea 6000 units can choose between a front- and rear-mounted fertiliser tank. Either version uses the same type of frame albeit with a small difference:

a Precea with rear-mounted fertiliser tank is 48cm longer at the rear, because the 950-litre or 1,250-litre tank sits on an extra frame that is flanged between the tractor and the seeders.

The fertiliser granules are metered by the Precis system which provides one separate cell wheel for each row. Currently all metering units share one motor, but from summer 2021 they'll have their own individual motors that also implement section or half-width shut-off control. As the granules leave the metering unit, they enter the stream of compressed air that is generated by the hydraulic overpressure fan.

GOOD TO KNOW

- ▶ Next year, the Precea range will see the addition of 6m mounted models.
- ▶ The new models boast new options such as a front-mounted tank and hydraulic coulters pressure control.
- ▶ The DLG measurements on seed sensing and singling are very promising.

DATA SHEET

Amazone Precea 6000-2CC

No. of rows	8
Row spacings	45-80cm
Work width	6m
Transport dimensions (H/W/L ¹⁾)	<4.00/3.00/2.50m
Coulter discs	Maize, rape, beet, soya, sunflowers, sorghum and beans
Coulter pressure per spring	130-220kg
Linkage category	Cat. IIIN/III
Forward speed	12-18km/h
Seeder tank capacity	70 litres
Fertiliser hopper capacity	1,250 litres
Weight in fertiliser specification	2,800kg
Minimum tractor requirement	132kW/180hp
List price (excl. VAT)	€67,400

¹⁾Base specification price, manufacturer information

The delivery tubes are routed in a straight line to the coulters, which ensures an accurate distribution across rows at rates of up to 250kg/ha and forward speeds of up to 15km/h. This required the developers to insert fittings into the two outboard lines so these can couple and uncouple automatically when the frame is folded vertically. When the frame is lowered into work, the male couplers couple automatically into the funnel shaped female ends and are secured with a spring mechanism.

Accuracy of fertiliser placement at the lab

The DLG tested the PreciS metering system on a 4.50m Precea model which didn't have those outboard delivery tubes with couplers. The fertiliser used in the test was diammon phosphate. The test aimed at determining the accuracy of distribution across rows and how the system maintained the calibrated rate. The results show that all five 60kg/ha-300kg/ha rates calibrated were maintained accurately and that any variations were minimal, with the average variation amounting to only 0.2%, which is excellent.

Even at a high speed of 15km/h, the average variation was as small as 1.1%, which is exemplary. This is said in view of variation rates increasing slightly as forward speeds increased. The distribution across rows in all test versions was awarded a double plus by DLG. This assessment reflects the great

advantage of row-based metering systems. Moving on to the coulters, we find the familiar 380mm double discs with leaf spring protection and manual depth control. But buyers can also opt for 400mm coulters which automatically maintain their depth relative to the set seed depth.

Coupling options

Like the smaller models, the 6m Precea hitches to cat IIIN and III couplers. The headstock allows the jockey wheels to be mounted in any position on the main frame. The wheels come in two sizes, depending on the intended application and row width, running either ahead of the frame or behind it, i.e. between two seed rows.

As for the oil flow, we recommend the optional comfort hydraulic system where one da spool that can switch to supply the markers, the folding mechanism and the pressure on the frame.



Note that the frame sections on either side of the filling auger have different lengths.



This fertiliser hopper has a capacity of 1,250 litres. Access to all calibration points is good.



The outer fertiliser delivery tubes couple/uncouple automatically during folding.

In addition to the da spool, it takes a single-acting spool with return to supply the blower and, depending on the level of specification, another double-acting spool for the auger. The metering systems are powered through the Isobus; a separate alternator is not necessary.

Row options and frames

The 6m frame accommodates up to twelve seeders – provided the fertiliser tank mounts up front. If it doesn't, the number of seeders is limited to nine. As for spacings, these span from 45cm to 50, 60, 65, 70cm

as well as 75cm and 80cm. The speciality here is the asymmetrical design of the frame which makes it possible to implement an odd number of rows. This in turn explains the off-centre arrangement of the stop of the two wings.

With regard to folding, it needs to be said that vertical folding is not a particular low-wear solution. Amazone says, the 70-litre seed tanks shouldn't become an issue in road travel, because these pressurised tanks have tightly secured lids. The wings are secured in their transport position by a hydraulic mechanism which is standard specification.



The seed tanks hold 70 litres now. The photo shows the unit with fixed and adjustable fertiliser couler.



A fertiliser couler is available as an option. This maintains its placement depth relative to the seed depth.

Seed metering

The quality of seed singling and placement was tested by DLG both at the lab and in the field. As shown in the "Accuracy of seed placement and crop spacing" table, metering was accurate in all three maize varieties

that were drilled at four different forward speeds. The system shined in the lab test on the percentage of gaps and doubles, achieving very low results here, with even the highest reading of 0.9% being very low.

Standard deviation under lab conditions, i.e. the figure that marks the scatter around the measured placement, was a slightly higher value: At 6km/h, the results were good in all types of seeds and hovered between "good" and "satisfactory" at speeds between 9km/h and 12km/h. At 15km/h, the Precea received a "less satisfactory" for seeds scattered around the average value. Let's put these figures into perspective: Deviations of about 10-15mm are rated as "good"; deviations in the 15-20mm range are rated as "satisfactory".

Yet the DLG test frame tolerates somewhat larger variations in field tests (25-30mm score "good", 30-35mm score satisfactory). Against this backdrop, the results are surprising because they are even better here: at speeds between 6km/h and 12km/h, eight out of nine tests were found to produce very good results and all other results were found "good".

Yet, looking at the results in greater detail, we can't help asking two questions: Are the DLG criteria still up to date for assessing a high-speed drill? And are the lab tests in which the catcher roller is disabled actually fair at all? After all, when the catcher roller is not in place, we think it is not really possible to reproduce the point at which the grain is placed into the soil, which however is the critical parameter for the optical sen-



The Isobus-compatible machine "listens" to many different terminals.

sor. This said, Precea produced mostly good and very good results, which means that even to the current measuring standards it emerges as a powerful machine - great!

Additional specifications

Brand new options are the hydraulic row shift feature for creating tramlines and the hydraulic couler pressure control system. The application system for the micro granules was also optimised. The appropriate 17-litre tank mounts behind the seed hopper from where the granules are metered by a cell wheel.

The metering system is the same Preci system that also meters the fertiliser granules except that it uses different cell wheels and seals. The micro granules are placed either into the seed slot or behind the firming rollers and the maximum application

ACCURACY OF SEED PLACEMENT AND CROP SPACING

Seeds	Ground speed	Grain spacings at the lab					Eventual crop spacing in the field				
		Actual spacing	Doubles	Targets	Gaps	Standard deviations	Actual spacing	Doubles	Targets	Gaps	Standard deviations
Maize variety: Chiller KWS (TKM: 255 g; round and small; undressed, holed disc: 42/5.0)	6 km/h	14,0 cm	0,0 %	99,9 %	0,1 %	14,29 mm	14,0 cm	0,7 %	94,6 %	4,7 %	20,20 mm
	9 km/h	14,0 cm	0,0 %	100 %	0,0 %	18,23 mm	14,0 cm	1,7 %	93,2 %	5,1 %	21,58 mm
	12 km/h	14,1 cm	0,0 %	100 %	0,0 %	12,10 mm	14,0 cm	0,8 %	95,2 %	4,0 %	24,75 mm
	15 km/h	14,0 cm	0,0 %	99,8 %	0,2 %	21,24 mm	13,9 cm	0,7 %	94,5 %	4,8 %	27,26 mm
Maize variety: Bravissimo KWS (TKM: 358 g; round and small; undressed, holed disc: 42/5.5)	6 km/h	14,1 cm	0,0 %	99,7 %	0,3 %	11,21 mm	14,0 cm	0,6 %	97,5 %	1,9 %	19,09 mm
	9 km/h	14,1 cm	0,0 %	99,1 %	0,9 %	13,60 mm	14,0 cm	0,3 %	97,0 %	2,7 %	19,84 mm
	12 km/h	14,0 cm	0,0 %	99,9 %	0,1 %	16,97 mm	14,0 cm	0,5 %	96,4 %	3,1 %	22,14 mm
	15 km/h	14,0 cm	0,0 %	99,8 %	0,2 %	20,83 mm	14,0 cm	1,0 %	95,3 %	3,7 %	25,51 mm
Maize variety: Damarion von KWS (TKM: 351 g; tooth maize; undressed, holed disc: 42/5.5)	6km/h	14.1cm	0.0%	99.9%	0.1%	12.55mm	14.0cm	1.1%	96.7%	2.2%	20.96mm
	9km/h	14.0cm	0.0%	100%	0.0%	15.86mm	14.0cm	2.2%	95.0%	2.8%	24.38mm
	12km/h	14.0cm	0.0%	99.6%	0.4%	18.46mm	14.0cm	1.0%	96.2%	2.8%	25.25mm
	15km/h	14.0cm	0.0%	99.5%	0.5%	22.87mm	13.9cm	2.6%	93.6%	3.8%	28.55mm

Nominal seed/crop spacing: 14cm. Actual spacing = Effectively achieved seed /crop spacing on average. Doubles = Percentage of spacings that are smaller than 0.5 times the actual spacing. Target spacings = Percentage of spacings that are 0.5 to 1.5 times the actual spacing. Gaps = Percentage of spacings bigger than 1.5 times the actual spacing. Standard deviation = The parameter that specifies how far crops are scattered around the average spacing achieved. Source: DLG Test Centre Technology and Farm Inputs



The 6m frame offers owners the flexibility of using the machine without the fertiliser equipment and a front-mounted hopper.

rate is 35kg/ha. Our test machine was the eight-row version which is priced at €67,400 (all pricing excl. VAT). This included the optional track eradicators (€1,500), markers (€2,550) and micro granule units (€3,950) as well as the manually adjustable fertiliser coulters (€2,760) and the large fertiliser tank (€5,690).

Other points worth a mention:

- The nine-row version with 75cm row spacings has no bout markers.
- The first series to be launched are the Super models which will be followed by lower-spec Spezial models with a mechanical seeder drive.

- The external calibration button can be replaced by a TwinTerminal triggered system (option).
- The warning panels must be folded up manually for field work to avoid the risk of damage when reversing.

Summary

The 6m Precea 6000-2CC completes the 3m and 4.50m model line up in Amazone's drill programme. Its frame accommodates up to 12 seeder units. The Highspeed models will replace the ED series in the short term and certainly the EDX series in the long term. The measurements at the DLG reflect an excellent overall performance. The fertiliser metering was also very good. We look forward to our field test in the next spring when we will be testing the new Contractor Precea for operation and handling.

Sönke Schulz. Translated into English by trans-agrar.