SPECIAL REPRINT
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AGCO Ideal 9T combine:

Darth Vader...

When AGCO launched its Ideal combine under green Fendt and red Massey Ferguson brands, the most distinctive exterior features were the sharp styling and, particularly striking, a shared black livery. Yet, underneath, the departure from what the company had done before was equally as radical. Last summer we tried out an Ideal 9T

TEST ASSESSMENT

AGCO Ideal 9T

Header	
Cutter bar	++
Crop feed	++
Reel	+
Attachment/removal	+
Threshing system	
Separation efficiency	++
Accessibility	++
Straw quality	+
Cleaning system	
Setting the sieves	+
Setting the fan	+
Tailings inspection	o
Grain tank	
Capacity	++
Visibility	+
Max load-over height	o
Unloading rates	++
Straw chopper	
Quality of work	+
Ease of engaging	++
Swathing	+
Engine	
Output	+
Accessibility	+
Transmission/running gear	
Drive power field/road	++/−
Modulation	+
Speed ratios	+
Transport width	o
Cab	
Visibility	+
Noise level	+
Controls	+
Space	+

Grading: ++ = very good; + = good; o = average; − = below average; −− = poor

There are both diehard Fendt fans and diehard Massey Ferguson fans. When AGCO developed its all-new flagship clean-sheet combine range back in 2017, one of the biggest talking points was a single black livery for the two brands, with just a set of decal changes depending on a buyer's preference and dealer focus. Taking this into account, here we'll refer to the range simply as the 'AGCO' Ideal.

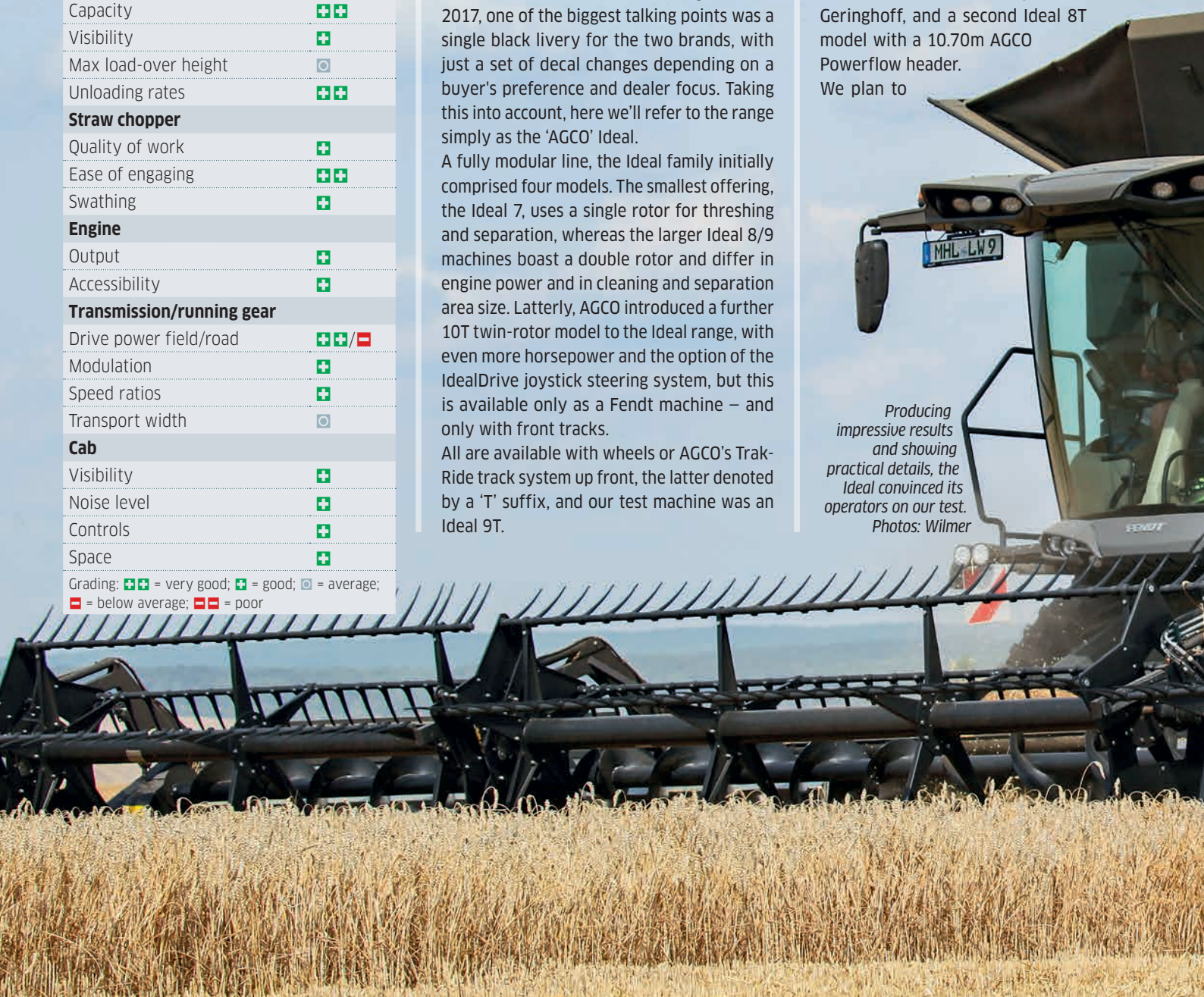
A fully modular line, the Ideal family initially comprised four models. The smallest offering, the Ideal 7, uses a single rotor for threshing and separation, whereas the larger Ideal 8/9 machines boast a double rotor and differ in engine power and in cleaning and separation area size. Latterly, AGCO introduced a further 10T twin-rotor model to the Ideal range, with even more horsepower and the option of the IdealDrive joystick steering system, but this is available only as a Fendt machine – and only with front tracks.

All are available with wheels or AGCO's Trak-Ride track system up front, the latter denoted by a 'T' suffix, and our test machine was an Ideal 9T.

Spoiled for header selection

The farm where we tested our machine runs two Ideal combines – an Ideal 9T with the 10.70m or 35' Truflex draper header from Geringhoff, and a second Ideal 8T model with a 10.70m AGCO Powerflow header.

We plan to



Producing impressive results and showing practical details, the Ideal convinced its operators on our test. Photos: Wilmer

Watch out for the small details. The badge on the left is for MF, the one on the right for Fendt.

discuss the header options in greater detail in a future issue, but worthy of note here is that the header trailer supplied for our test conducted in Germany was a TAM Leguan 35, with four-wheel braking, additional Ackermann steering at the rear and a practical locking system that secures the header on the trailer, all scoring excellent marks. UK/Ireland market machines are typically supplied with a choice of domestically sourced header trailers.

We also awarded good marks for the header attachment/removal procedure. Thanks to V-shaped guides and a handy combination of hydraulic and electric couplers, it's a fast process. Unfortunately, the test 9T machine didn't have AGCO's 'AutoDock' system, which automatically couples the drive shafts and the electric and hydraulic connectors. Cost of this option, at around £10,330, is pretty hefty, so it was a shame we couldn't pass judgement on whether the extra investment is worthwhile.

THE SHORT VERSION

- The Ideal 7, 8 and 9 are marketed by both Fendt and Massey Ferguson either as wheeled machines with self-levelling running gear, or with tracks. There is also a 10 version, but this is only offered by Fendt.
- The 17.1m³ grain tank and 210l/s unloading rate are impressive figures. The low 4.40m unloading height and auger reach require improvement.
- There is little to argue with in terms of throughput and grain quality, whilst various technology features significantly reduce the demands on the operator.

Intake detail

Inside the feeder house the elevator has four chains with a solid roller at the entrance. It's possible to alter the header pitch by +/-6% mechanically or with a hydraulic adjustment option at £1,230. Although we hardly needed to call on it, we also really liked the hydraulic reverser, which not only reverses the header and feeder house, but it also allows crop to be fed into the rotor feeder and at a 'creep'

The 10.70m Geringhoff TruFlex draper header delivered a top job. We'll compare it to the PowerFlow unit in a forthcoming issue.

The feeder house measures a narrow 1.40m, but it has four chains that still pull through a decent volume. Our test machine unfortunately lacked the automatic header attachment system.

At 2.0m high and almost 2.0m long, the 76.5cm wide tracks keep machine dimensions below 3.5m. They are also suitable for 40 km/hr on-tarmac travel, but, surprisingly, drive power is in short supply on steep roads.

speed should a blockage need clearing. This is a transversely mounted 60cm diameter and 1.40m wide drum arranged behind the (easy to empty) stone trap, from where it feeds the material up into the two axial rotors.

Drum drive is protected from blockage load peaks by a shear bolt. During our test period this sheared off once, but replacement was simple, with no need to pull out the material. Incidentally, the rotor feeder is proportional to the rotors' rotation and is set at 70% of the rotor speed.

Rotor reversing mechanism

At 4.84m in length and 60cm in diameter, the rotors boast impressive dimensions. Another standard feature on all of the models is the two-stage drive with manual speed change between 280rpm and 1,160rpm. Here, too, the manufacturer has provided a hydraulic reverser, which we didn't need to use; on the contrary, it's impressive how much material the threshing system of just 1.40m wide can handle. But we'll get to that later...

The rotors are split into four sections: the 53cm long feeding section with four flights, followed by the 120cm long threshing area containing four rasp bars. This is followed by the 2.46m long material separation area and 62cm long ejector chamber where the rotors feature helical profile, 14cm high and backward-inclined fingers.

Concave clearance is controlled hydraulically, with nitrogen dampers compensating for an uneven crop flow by allowing the concaves to open, a system that worked well in our test, with operators noting how quiet the combine was without the disconcerting deep grumble of ingested crop lumps.

Large sieve pans...

AGCO calls its slope compensation system IdealBalance, essentially a return pan with a specific concave shape that guides the grain beneath the threshing rotors to the middle section (two thirds of it) of the grain pan. By comparison, the material coming from the separation area behind this is fed back over a convex-shaped return pan onto the outside of the cleaning shoe from both sides.

If you have to deal with serious slopes, we'd recommend opting for the Para-Level chassis levelling system. A £10,500 option, it levels the combine on slope gradients of up to 14% by raising or lowering the front axles. And thanks to its narrow width, the Ideal 9 can even be fitted with 800/70 R38 wheels and still not exceed 3.50m transport width.

...for high performance

Tailings are directed to a separate re-threshing system from where they flow to the grain pan. Sensors measure the returns volume and the amount of threshed grain in the tailings. Although this is not displayed on the operating terminal screen, it is used internally by the IdealHarvest auto setting system.

Despite its impressively quiet operation, the Ideal 9 wasn't taking it easy. In a heavy wheat crop (grain/straw ratio of 1:1.27) yielding just under 9t/ha, we maintained grain throughputs of up to 60t/hr while losses were less than 1% (grain moisture 16.6%). The straw moisture was 18.5%, but it was being swathed rather than chopped. In view of the grain:straw ratio, this result suggests a total throughput rate of almost 140t/hr!

We were equally impressed with the grain quality: figures of only 0.1% cracked grain and 0.2% chaff/straw speak for themselves. And the Ideal treats the straw just as gently, with material remaining long and unbroken. The threshing performance was backed up by measurements taken by the DLG Test Centre in 2020. Here, the Ideal 9T even scratched the 90t/hr grain throughput mark at a 1% loss rate. However, these measurements were taken in far easier threshing conditions with much less straw that had completely matured.

13t in the tank

High throughput rates call for a large grain tank, and the Ideal 9T's is claimed to be no less than 17.1m³. At a measured hectolitre weight of 76kg/hl, this suggests about 13 tonnes of wheat, which we emptied into the

DATA SHEET

Agco Ideal 9T

Header

Geringhoff TruFlex 35, 10.70m

Threshing system

Two axial rotors (4.84m long; 60cm diameter) with feeder drum (1.40m wide, 60cm diameter), 4.06m² threshing and separation area

Cleaning system

5.4m² sieve area, drum fan

Grain tank

17.1m³ capacity grain tank with top-hinge unloading pipe, 210l/s unloading rates

Chopper

Eight rows of knives with 112 blades, hydraulic chaff spreader and active chaff straw distribution

Engine

R6-MAN D3876 with 15.3l displacement; emission Stage V, 476kW/647hp maximum output (to ECE-R 120), 1,250-litre fuel, 180-litre AdBlue tanks

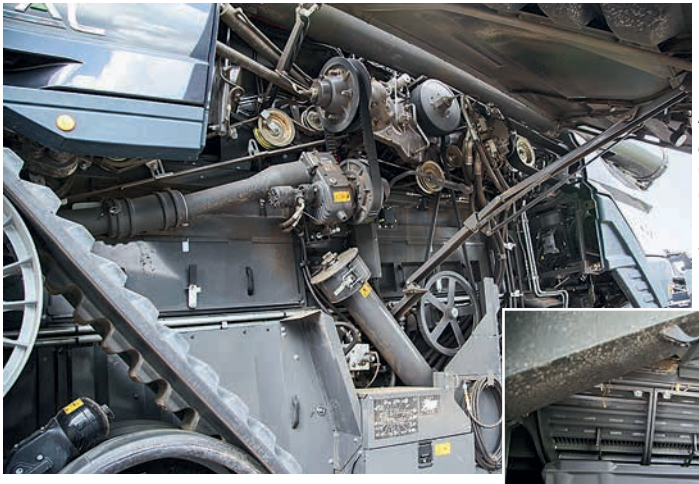
Tyres

76.5cm wide and 194cm long front tracks; 620/70 R26 rear tyres

List price excl. VAT

£662,040 (as tested including cutterbar and transport trolley)

Manufacturer information



Access to all service points is very good, and the drives are arranged tidily. Only one chain and six nipples need lubricating every 50 hours.

accompanying grain trailer within 80 seconds at a very impressive 214l/s.

Another unique feature is that the unloading rate is adjustable. To do this, the covers over the cross augers inside the grain tank can be adjusted in five stages. In addition, they are closed whenever emptying is stopped, which facilitates the restart afterwards.

One missing detail was an adjustable spout. In addition, the overload height could do with being higher than the measured 4.40m, while the 9.20m length of the unloading tube meant one combine wheel was always on the next swath. The 10.60m wide version is no solution either – at least not in such massive crops where it is hardly possible for the machine to straddle the swath without pushing up the straw. AGCO acknowledges all these issues and intends to offer alternative unloader tube lengths, a higher tube unloading height and an adjustable spout.

Fine chopping and spreading

Swathing won't be a problem if the chopper is activated (for an additional £1,710 there is an in-cab engagement option). The standard ShortCut version, which rotates at 3,600rpm, has 112 knives arranged in eight rows, with 55 counter knives. The optional hydraulically driven spreader was fitted to our machine, but we found it didn't spread enough straw in the middle of the machine's path, an issue now resolved by AGCO fitting its ActiveSpread SwingFlow straw distributor. We also liked the option of being able to blow chaff into the swath, to the sides or into the chopper.

647hp MAN power plant

While AGCO claims a relatively modest input power requirement for the straw chopper, the Ideal harvester needs a powerful engine to match the capacity of its other features. This role is taken by a Stage V (via SCR/DOC/DPF/EGR) MAN six-cylinder motor with 15.2 litres of displacement sited behind the grain tank. With a rated output of 564hp and a boosted 624hp during unloading, AGCO says that when the engine's speed drops to 1,750rpm, the crankshaft delivers 647hp, which we found to be adequate.

MEASUREMENTS

AGCO Ideal 9T

Header	**Geringhoff TruFlex 35 10.70m**
L/W/H (transport)	**10.70m/3.49m/3.99m**
Grain tank capacity	**13.0t wheat (76kg/hl)**
Unloading time (rate)	**80s (214l/s)**
Unloading height/length	**4.40m/7.40m**
Noise level under full load	**77.0dB(A)**
Tyres/tracks fitted	**Front: 76.5 x 194cm tracks Rear: 620/70 R26 tyres**
Forward speed	**15.0/40.0km/hr**
Axle loads[1)]	**Without header 10,840/12,500kg**

[1)] front/rear (empty grain tank) with 4.21t header 17,800/9,750kg

The fuel tank holds a respectable 1,250 litres (1,500-litre option), and, working on a rate of only 15-18l/ha as we did, there's enough to harvest up to 100 hectares without refuelling. Daily service jobs? These were no big deal. The radiator has a reversible fan and so needs hardly any cleaning at all. Courtesy of the huge transfer case at the top of the engine, there is a total of only one drive chain, 13 belts and just six nipples to lubricate every 50 hours.

Titanic tracks

At 2.0m high and nearly 2.0m in length, the Ideal's tracks are some serious bits of kit. Combined with 620/70 R26 rear wheels, the 76.5cm tracks bring the footprint to almost 3.0m^2! But with the Ideal 9T model in the test configuration and its header tipping the scales at more than 27.5 tonnes, all that contact area is clearly required. Grain tank filled, it could exceed the 40-tonne mark.

The cab is comfortably furnished, has a large cooling box, and noise levels are OK at 77dB(A). Our only gripe is with the Ideal's hands-free phone system.

All controls are grouped neatly and logically, but a tablet is required to use IdealHarvest auto-adjustment. The Geringhoff header on our test combine was also operated via a separate terminal.

Of course, all this weight requires a powerful hydrostat that's capable of high torque at low speeds up to a maximum 15km/hr, and here the Ideal's transmission works well.

Unfortunately, it's different in road mode: admittedly 40km/hr speeds and automotive speed control are great, yet on really steep uphill travel it proved necessary to downshift. This is something AGCO says it's looking into, with a hillside version in development.

Back to Ideal's plus points, with more of these going to the joystick and its great modulation. Cruise control and attachment mode ensure operators are in full control of the machine in any situation.

Electric steps into the cab

In line with the cab door, the Ideal has a nifty ladder that folds and swings into position electrically. In terms of comfort and space, there is very little for the operator to grumble about, and a maximum 77dB(A) noise level during work is also no great hardship..

Minus points? The hands-free phone system wasn't up to the job, despite the full sound system package being a £660 option, although AGCO again says a change is in the pipeline. And even though only eight of the 20 work lights all round are LEDs, the lighting is OK, while there are also practical service lights under the panels.

As far as the armrest is concerned, there is no denying the kinship to Fendt's familiar Variocenter. Both the 10.4-inch touch screen and the direct access to several settings such as rotor and fan speeds, concave and sieve settings by pressing a button are good stuff. However, since AGCO doesn't have an optical system for detecting the cut crop line, a GPS system is mandatory for auto-steering. The Ideal is equipped with this as standard, and there is the option of setting up and using contour segments and automatic section control.

IdealDrive and IdealHarvest

We measured a turning circle of exactly 20m for the Ideal 9T. That's certainly not a record, but it's fine for a machine with a cutting width of over 10m. All tracked Ideal models can be steered from the IdealDrive joystick as an option. That comes at a considerable price, though, costing around £8,480.

To be fair, there is plenty of other standard kit, among which is HarvestPlus, the first step towards automatic forward speed control, which is adjusted relative to the feeder house load, as well as the losses and tailings.

A 4.4m unloading height is a bit low and the tube length doesn't match the 10.70m cutting width. By comparison, the 17m³ grain tank and emptying rate of 80 seconds are benchmark setters.

After a tweak to the way in which the ActiveSpread SwingFlow was installed, chopped straw was distributed evenly.

IdealHarvest takes the technology one step further: it has sensors that measure moisture levels and yields, a camera that determines grain quality, and acoustic sensors arranged across the entire threshing and separation area. These can visualise both the material flow as a whole and the percentage of grain at great detail on a separate cab-based tablet. This is a £8,390 investment, but currently this money buys you only the automatic fan speed control. For next season, AGCO will at last also offer the fully automatic machine setting system. This takes the form of a triangle in which operators set their priorities intuitively (e.g. minimise broken grains, minimise losses or improve sample cleanliness).

Other details

- If the stone trap is still open when threshing starts, a sensor will sound an alarm – a welcome feature.
- At the beginning of our test, the reverser didn't work properly and a spool chest had to be replaced. In addition, the seals of the cleaning shoe were modified free of charge at the factory.
- Telemetry for wireless data communication is free of charge for the first five years. After that, the annual licence costs £175.

Tested 9T price £662,040

The base specification price for the Ideal 9T is £512,180, not including the header. Key options extend to the 40km/hr hydrostatic transmission (£4,330), all-wheel drive system (£18,620), LED work lights (£3,180) and the comfort seat (£2,230).

There's also the IdealHarvest option (£8,390), ShortCut chopper that's controlled from the cab (£1,710) and the active spreading system (£8,200). Including the 10.70m Geringhoff Truflex 35 draper header (£84,660), the twin-axle, four-wheel-steer trailer and 40km/hr approval (£18,080), the 9T as tested comes in with a tag of £662,040.

Access to the engine and 1,250-litre fuel tank are convenient. There is a 1,500-litre option.

Summary: Developed from scratch, AGCO's Ideal is impressive in appearance, not only because of its technical specification but also because of the threshing output and grain quality delivered by its double-rotor threshing and separation system. The same applies to the grain tank and unloading capacity. Add to this some practical machine details that range from the adjustable grain unloading rate to the neat electrically foldable ladder, and the package is a pretty strong one, especially when you include the levels of comfort and quietness commented on by our test operators.

As with any test machine, there were some areas we would like to see improved: the drive power of the hydrostatic transmission during road travel, the unloading height, the hands-free phone system. Yet all these issues are on AGCO's to-do list and, the firm says, will be addressed by next season. The points of criticism that have been addressed in the meantime are leakages on the cleaning shoe and the uneven distribution of chopped straw. Once the automatic machine setting system is fully functional in future, the Ideal looks set to compete in the premier league of high-capacity combines. At more than £662,000 for our test Ideal 9T model with the Geringhoff draper header, it's certainly already up there with the big players on price. But then you don't get this sort of capability and capacity for nothing….

Hubert Wilmer

The MAN engine delivers up to 647hp; the radiator sucks in air from above, and, thanks to the reversible fan, it rarely needs blowing out. This helps to minimise daily maintenance time.