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Fendt Tigo 90XR forage wagon with TIM:

Put Tim in charge

ISObus has been evolving, allowing the implement to control the tractor's forward speed without any intervention from the operator. We tried out TIM (Tractor Implement Management) on an all-Fendt outfit – a 942 tractor and Tigo XR wagon

The Tigo 90XR was added to Fendt's wagon range in mid-2018, and with a capacity of 50m³ it's the second largest model in the company's self-loading forage wagon line-up. Both the name and design reveal its Lely roots. As you'll recall, AGCO bought the grassland machinery division in 2017 from Lely, so the Dutch firm could focus on milking/dairy equipment.

Unlike the rest of AGCO's grass kit, the forage wagons are only available under the Fendt banner. Bringing us up to date, TIM certification was introduced for last season, along with a number of other spec updates.

Ground contouring for the wagon's 2.20m wide pick-up is taken care of by gauge wheels on the sides and a roller at the rear.

45 knives auto sharpened

Following the crop flow, we start with the pick-up, which is 2.20m wide ... or 2.00m if you prefer to go off the tine-to-tine width. This is now powered hydraulically on the XR models, so pick-up speed can be adjusted in relation to the crop and how fast you're driving. Ideal.

DATA SHEET

Fendt Tigo 90XR

Volume to DIN	**50m³**
Permissible total weight	**31t**
Kerb weight	**12,800kg**
Payload	**18,200kg**
Length	**10.85m**
Width	**2.95m**
Height	**4.00m**
Tractor attachment	**K80 ball hitch**
Number of blades	**45**
Theoretical cutting length	**37mm**
Rotor	**800mm diameter with seven helical rows of tines**
Pick-up width to DIN	**2.20m**
From tine to tine	**2.00m**
Tyres	**800/45 R26.5**
Chassis	**Tridem axle, hydro-pneumatic suspension, level compensation**
List price	**£139,132**

Manufacturer information

Tigo 90XR is the second largest model in Fendt's silage wagon line-up. DIN capacity is 50m³.

The 800mm diameter rotor then takes over, feeding the material through the 45 knives with individual protection. According to Fendt, clearance between the knives and the rotors is a narrow 3.5mm. To keep the crop moving and the clearance small, the tines are 25mm thick. Nominal crop chop length is 37mm with all of the blades engaged, and 74mm when running with a half set.

Individual segments form the helical-shaped rotor, and these can be replaced if damaged. The driveline is protected by a 3,000Nm clutch.

Pressure sensors in the rams for moving the headboard help control the loading process and pre-compression of the material being ingested.

KEY POINTS

- The £2,479 optional TIM system ensures an even crop flow and also assists in avoiding blockages and reducing operator fatigue.
- Providing the tractor has the necessary software, the wagon can control the forward speed relative to the load on the pick-up.
- Even when dealing with lumpy swaths, TIM is able to respond fast enough to be effective.

The blade sharpener is stored on the machine and placed on the knife back to freshen up 10 blades at a time.

One sensor is sufficient

The chopped crop then makes its way up the 250mm sloping floor. As with the original Lely design (and now used by several other makes), the Tigo's bulkhead pivots into the body to compress the load. Slats are bolted to chain links and split left and right. The system is automatically controlled by pressure sensors attached to the rams that move the headboard, which acts as a good way of controlling filling. Up to three metering rollers can be fitted to distribute the material if you unload while driving over the clamp. The rollers can also be removed and replaced with filler plates if you're using the XR as a forage trailer. This will also give you a bigger park of machines to choose from if going second-hand because most other makes (with the exception of Claas) have their rotors integrated. Spring-loaded bearings allow the beaters to yield under high loads and stop the floor via a sensor until the load has decreased.

The Tigo 90XR sits on tridem axles with hydro-pneumatic suspension and has electronically controlled active steering on the front and rear axles. The automatic self-levelling provides extra stability on steep side slopes and better on-road performance.

TIM takes over

The wagon can be operated entirely via ISObus. Our test machine had an additional multi-button control box that allowed quick access to all of the functions by pressing the appropriate button and works in conjunction with the ISObus terminal.

Then, of course, there's the TIM system. This requires a tractor with Class 3 ISObus and a compatible implement, permitting the machine to govern outfit ground speed. Fendt offers ISObus 3 on all models from the 500 series up, while the likes of New Holland's T6 and T7 tractors with the Auto Command 'box, or even Kubota's M7153 featured in this month's tractor test, can also be used with TIM.

On the implement side, from the Fendt stable only the Tigo XR wagons and Rogator 300 trailed sprayers are TIM compatible; other machine makers (such as Lemken, Pöttinger and CNH (on some of its balers)) can also run the system.

As a first step, the wagon operator selects the feature on the Vario terminal and can even enter parameters such as maximum forward speed. After that, TIM takes over as soon as the pick-up is lowered into work and the tractor's cruise control is activated. It's not yet possible for the system to do an automated headland turn. Forward speed on the Tigo is controlled relative to the current load on the pick-up; this is checked by a speed sensor. If the pick-up slows, the wagon signals to the tractor to reduce the ground speed ... and vice versa.

TIM is activated from the Vario-Terminal and kicks in when the cruise control is enabled.

The wagon's functions can be operated via ISObus or in parallel with the pictured control box.

How good is TIM?

Picking up a normal swath in the middle of the field, the forage wagon and TIM performed very well, with the outfit's forward speed controlled between 10 and 18km/hr.

Our key concern was whether these regular speeds would also be fine in tougher situations. So, we tucked into a headland row with lumps of grass and other sections where there was just a light crop. Here TIM was able to quickly slow or speed up the combi – although it was not the smoothest of rides for the user. More importantly, we didn't suffer any blockages, only noticing a brief growl from the engine as the wads of grass placed extra load on the rotor. The immediate reduction in ground speed meant hardly any extra material was shovelled in by the pick-up. Overall, TIM did a pretty good job.

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