

# Intelligent tractor–silage trailer combination



JOHN DEERE



PÖTTINGER



## Current state of technology

- Tractor system with best possible level of internal optimisation (engine controller, gear control, fuel consumption, etc.)
- Optimised silage trailer system (automatic loading/unloading functions, moment loading measurement, etc.)

## However

- There is currently no coordination between the two systems.
- The geometry of the cargo is not taken into consideration.
- There is no optimisation of the overall tractor implement system.

The automation is based on ISOBUS principles but has been developed further in a joint project between John Deere and Pöttinger.

The Pöttinger silage trailer communicates with a John Deere tractor with integrated tractor-implement automation. For the first time, this system comprising tractor (John Deere 6030 Premium and 7030 Premium series) and Pöttinger silage trailer (JUMBO or TORRO), including the swath scanner developed by Pöttinger, enables travelling speed to be regulated.

The automatic regulation of the travelling speed of the tractor-silage trailer combination is a completely new development. In particular, the ISOBUS platform has been consistently used, including ISOBUS ultrasound sensors. The ISOBUS platform was updated to include proprietary communication of safety-relevant tractor parameters and silage trailer commands. The automation also offers two further operating modes:

1. **ECO mode – for economical fuel consumption:** the silage trailer is operated at a capacity that can be set individually by the user between 70% and 90%. The advantage of ECO mode is that it is gentler on the machine and the tractor and also reduces fuel consumption.
2. **MAX mode – for maximum speed and power:** the silage trailer is operated at 95% capacity. The speed is regulated according to the corresponding shaft torque value and thus enables optimum utilisation of the maximum loading speed.



## Intelligent combination: Pöttinger s implement automation

The Pöttinger silage trailer and John Deere tractor implement automation system allows the speed of the combination to be regulated automatically during use, according to the swath volume and optimum operating point. The continuous determination of the current overall state of the loading process takes place by means of the ISOBUS ultrasound sensor bar which has been newly developed by Pöttinger, the torque measurement on the loading rotor and the fill level measurement, amongst other things.

## Outstanding

Automatic regulation of the speed of the intelligent tractor-silage trailer combination guarantees that the optimum operating point is found: simple, safe and more productive.



3 Rotor torque

4 Scraper floor

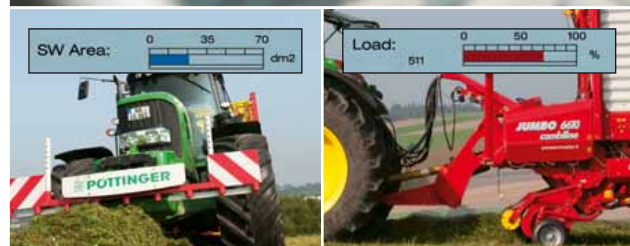


silage trailer and John Deere tractor



## Customer advantages:

- **10% higher productivity** => potential saving of EUR 1000 per year (at 300 operating hours) through improved use of capacity (optimum operating point) and avoidance of system overload and downtime (the speed is adjusted in advance to the swath volume)
- **There is a considerable improvement in driving comfort** and less stress for the driver thanks to automatic adjustment of the travelling speed to the conditions of use. Both experienced and inexperienced drivers will find their work is made easier by the automated handling of the tractor/silage trailer system during work at day and especially night.
- Despite the greater use of capacity, the machines are protected by the avoidance of system overloads (e.g. peak loads caused by blockages) and their service life is therefore increased.
- Improved safety thanks to the avoidance of blockages.



## Automatic speed regulation

When the silage trailer is in automatic mode, the following items of process data are measured:

- Swath scanner: swath geometry
- Tractor: travelling speed of the combination
- Silage trailer: position of the pickup
- Silage trailer: rotor torque
- Silage trailer: scraper floor condition
- Silage trailer: fill level

10% higher productivity  
Longer service life  
Reduced repair costs  
Increased convenience and  
comfort

... are the most important advantages of the intelligent  
tractor-silage trailer combination from John Deere  
and Pöttinger.

The major challenges for the future in agriculture lie in increasing pressure to compete, and climatic and environmental changes resulting in a restricted number of working days per year as well as the limited availability of qualified specialist employees. The overall effect of this is that farmers will have to use their resources more efficiently and effectively. Increasing productivity is a central part of this. The combination of individual machines (tractor and silage trailer) in one system is a step towards achieving this goal.



**JOHN DEERE**

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