

SEEDBED CONTROL

FJ: 2.1.1. and 2.2.1 ISOBUS

Version 1
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1. General Description

An important factor at seeding is soil roughness. A fine seedbed is needed for good plant emergence on the other hand rough soil prevents soil erosion and can be prepared more energy efficiently. The control system based on an ISOBUS Class III application controls the tractor based on the measured soil roughness in real time. The pilot action focuses on testing the system, finding weaknesses and areas for improvement, and defining the integration in the process flow at seeding.

Following main task are part of this pilot action:

- Investigate relationship between the tillage machine, driving speed and seed emergence.
- Operation with ISOBUS Class3 tractors in combination with a seed drill.
- Investigate limitations and possibilities of new ISOBUS Class3 Tractor Implement Management (TIM) applications.

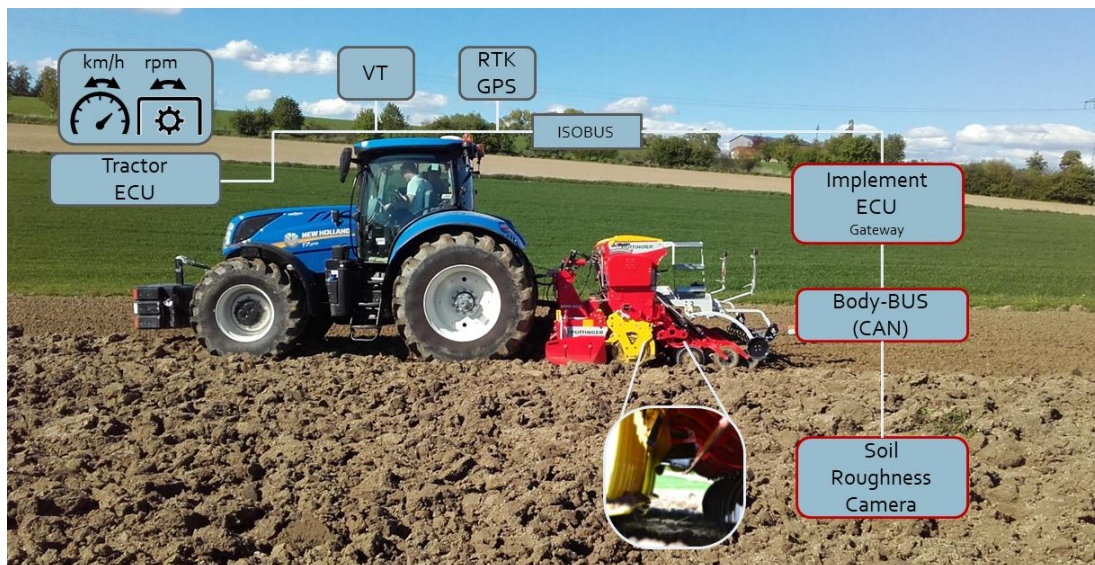


Figure 1: Overview of the System

2. Transnational Approach

Due to the need for expensive new ISOBUS equipment, like tractor and implement, to investigate topics in the field of ISOBUS, this pilot action will be split up. Field trials with the TIM application will be done at HBLFA FJ in Austria and complementary field trials without the need for an ISOBUS tractor-implement-system can be done by project partners.



2.1. Task of HBLFA FJ

HBLFA FJ will do field trials with the tractor and seed drill. The tractor will be controlled via the TIM application.

Field trials will include strip wise alternating seeding with and without the control system, as shown in Figure 2.

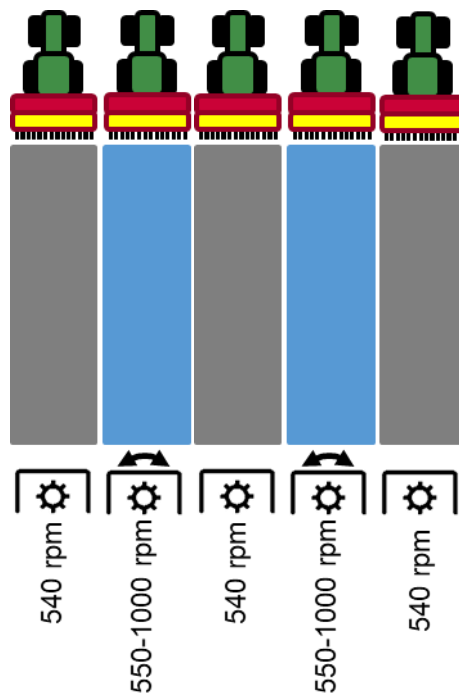


Figure 2: Strip wise field trials with controlled and constant speeds to compare the system to a conventional approach.

The field trials will be accompanied by monitoring agronomic aspects, like plant emergence and clod sizes.

Additionally, limitations and possible improvements of the system are investigated and discussed with the industrial technology provider.

2.2. Task of project partner (to be found)

Option 1: A camera system is provided to the partner by HBLFA FJ:

Use of the roughness measurement camera for mapping of soil roughness after seeding at local fields. The subsequent plant emergence will be monitored by the partner with the [SoilCover](#) tool from HBLFA FJ. This makes it possible to investigate local differences in the roughness - plant



emergence relationship. The generated roughness and plant emergence maps can be also provided to the farmer or integrated in other pilot actions.

Option 2: The project partner has a TIM applicable tractor:

If a Class III tractor is available it would be possible to use the controller via the TIM application and do similar field trials than at HBLFA FJ in Austria, additional to Option 1.

The partner could also investigate limitations and possibilities of new ISOBUS Class3 Tractor Implement Management (TIM) applications.