Test and validation

2025WP3_Agro_004
Status: Completed

Technical functionality

Problem Owner:
Vantage Agrometius

Involved:
Wageningen Research
Vantage Agrometius



Automated Plough Control as a Step Towards Autonomous Ploughing

More consistent and accurate ploughing through automated control.





Broad knowledge question

An autonomous ploughing machine must be able to perform various tasks independently and reliably. Automating individual functions is an important step towards achieving this. This field trial focused on the performance and user experience of automated plough control, and the lessons it offers for further automation.

Approach

The GeoPlough ISO plough control system was tested under real-world conditions during routine ploughing operations. The trial assessed various automated functions and how the system responded to changing conditions during ploughing. Ease of use, reliability and the level of assistance experienced by the operator were also evaluated.

Goal

The aim was to identify which ploughing functions can already be performed reliably through automation and which require further development. The findings provide insight into both the opportunities and the challenges involved in progressing towards fully autonomous ploughing.

Results and reflection

The automatic straight-line guidance function performed consistently and accurately, and operators found it to be a valuable aid. By reducing the need to concentrate on maintaining a straight course, the system also helped lower the mental workload associated with ploughing.Other automated functions, such as adjusting the working width, proved less robust. Abrupt corrections can result in a less uniform ploughing pattern. Further development and testing under different operating conditions are therefore required.

Link to the evaluation report (will become active upon publication):
https://doi.org/10.18174/723252

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