

Test and validation

2025WP3_Munc_002

Status: Completed



Technical functionality

Problem Owner:

Munckhof Fruit Tech Innovators

Involved:

Wageningen Research
Munckhof Fruit Tech Innovators
RIWO Engineering

Open Teelten



Evaluation report on the apple-picking robot

Testing and validation of the business case for the Treescout camera system in fruit production in 2025.



Broad knowledge question

Labour availability in agriculture and horticulture is becoming increasingly scarce and expensive. How can new technologies such as robotics, image analysis, AI and data platforms support labour efficiency, craftsmanship and sustainability in fruit production?

Approach

1. Preliminary research in the orchard to determine whether the developed test procedures are workable or whether further adjustments are needed.
2. Testing and validation during the harvest period: harvesting experiments are carried out on multiple days over several weeks and with different apple varieties.
3. Brief validation of the developed automatic bin-changing system in combination with the developed shuttle vehicle.
4. Data analysis and reporting.

Objective

To evaluate the current status of the apple-picking robot using the Key Performance Indicators (KPIs) defined in the project plan. The objective is to compare the new data with data from previous years in order to monitor the progress of the project.

Results and reflection

The results show that the project is on schedule and that the performance of the robotic system is steadily, although slowly, improving. Picking speed has improved, but major steps still need to be taken to achieve the target level for next year. This requires further development of a robust manipulator (robot arm) suitable for industrial use. Having multiple arms operate in parallel could also help to achieve this. The large number of damaged fruit stems still requires attention.

Link naar het evaluatieverslag wordt geactiveerd na publicatie:

<https://doi.org/10.18174/720179>

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