



# The Next Fruit 4.0

Future-proof fruit cultivation  
using smart technology



**WAGENINGEN**  
UNIVERSITY & RESEARCH

[wur.eu/agrofoodrobotics](http://wur.eu/agrofoodrobotics)



The Next Fruit 4.0 project aims to make fruit cultivation more efficient, intelligent, sustainable, and future-proof. Fruit growers need to be able to monitor, manage, and make decisions at the level of individual trees. Smart Technology enables fruit growers to get the most out of an orchard through the targeted, efficient use of crop protection agents, plant hormones, and fertilizers, while saving on labour and minimising food waste. All this contributes to the creation of a sustainable fruit cultivation system.

## The Next Fruit 4.0: Four cases

### Further development of precision spraying

We take the development of precision spraying to the next level by adding control to individual nozzles and by using sensors to detect pests and diseases and apply sprays in response. Being able to control sprays at the level of individual nozzles optimises the use of regulators for growth and fruit setting, resulting in a more uniform orchard. Hot spots of insect infestation can be controlled without spraying the whole orchard.

**Key objectives**

The objectives in relation to technology development are:

1. improving the sustainability of cultivation and the supply chain,
2. maximising yields by optimising cultivation, and
3. minimising costs.



### Advanced crop management and yield registration

This case study is based on the use of sensors to collect data and translate them into decision support models visualised as clear dashboards. This involves making a sensor platform applicable to apples and pears. The wide range of data and information gathered will also be distilled into clear insights around cultivation management. These decision models can contribute to optimising and improving the sustainability of fruit cultivation.



### Cool data

Storing apples and pears often leads to substantial losses due to a lack of clear, objective information on how long a particular batch can be stored. This case study focuses on maximising the use of data from the cultivation phase (climate, crop, and soil) and the focused application of sensor technology) to develop decision models that deliver better risk assessments and storage strategies.



### Multifunctional robot

The limited availability of seasonal labour in orchards is increasingly becoming a problem for growers. In The Next Fruit 4.0 we work on expanding the functionality of existing robots (e.g. by adding a gripper for picking pears, or for pruning and removing suckers) that could perform more efficiently thanks to technological improvements and better orchard design.

### Join our research

Interested to join our research or work with our technology? Contact our experts for more information.

Jochen Hemming  
T +31-(0)317-486710  
E [jochen.hemming@wur.nl](mailto:jochen.hemming@wur.nl)  
[wur.eu/agrofoodrobotics](http://wur.eu/agrofoodrobotics)

Peter Frans de Jong  
T + 31 (0)488-473744  
E [peterfrans.dejong@wur.nl](mailto:peterfrans.dejong@wur.nl)

