Recent advancements for sensors and technologies in horticultural crops

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Abstract:

Describing the plant status in digital format has been approached in recent decades by means of in-situ data acquisition and development of digital shadows. The new information may provide valuable knowledge for sustainable fruit production. From a farmers' perspective "farming with sensors is so much easier", since knowledge on the crop in real-time assists precise management decisions, avoiding errors and gaining management flexibility. To meet these goals, sensors should collect plant data in-situ and apply the data as input variables in physiological models. On one side, tools of information and communication technology (ICT) - such as satellites, drones, autonomous platforms, wireless networks, data management techniques - exist for all scales to support the data acquisition by means of remote, close-range remote, and proximal sensors directly in the production and postharvest process. On the other hand, the translation of sensor data into information on the crop and knowledge of the process is still challenging. Sensor data frequently provide plant data and artefacts, which is still challenging in the data acquisition under field conditions. Subsequently, the plant information needs to be turned into knowledge for supporting the decision making in the agronomic process. Examples show that this concept may support sustainable fruit production.

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