Novel sensing technologies in food supply chains

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INTRODUCTION:

Typical food supply chains begin at farms, proceeded by logistics, processing and retail, finally reaching the end-user for consumption. These chains are under constant pressure to provide increasingly more food, with better quality and in a sustainable manner (animal welfare, optimal land and water use), while reducing food losses (caused by diseases, pests, spoilage, quality loss, consumer habits etc.) and delivering a safe product, leading to a healthy consumer. Data-driven technological advances, supported by sensing innovations, are playing a key role in addressing these challenges.

Novel sensing technologies can lead to new insights at scale which can help tackle multiple challenges across the food supply chain. In particular, there is a necessity to measure non-destructively, non-invasively and on a smaller scale than is currently common: from batch level to product level; from population segment to an individual. For this, we need to consider a number of technological hurdles and advances in the areas of non-destructive sensing. The goal of the talk is to demonstrate through practical examples how novel sensing methods can be used to measure and (semi)-automatically make better decisions based on the measured product properties.

To demonstrate the possibilities we will look at the developments and investigations over multiple examples across the supply chain, with examples from production to post-harvest processes. In particular we will look at how old and new non-destructive and non-invasive optical sensing approaches are being explored at Wageningen University and Research..