Conference Pears: quality prediction and decision-support

A new way of modelling for quality prediction in fresh chains using Bayesian networks is the outcome of a project by Wageningen Food & Biobased Research, carried out within the the GreenCHAINge program. The approach, which can be tailor-made to specific company needs, will support (quality) managers to make the best possible decisions about markets, storage and transport and of Conference pears, across the supply chain.

The goal of the "smartchain", developed by GreenCHAINge, is to improve the quality of fresh fruits in store. Work Package 5 focussed on the export of pears to (new) distant destinations.

Bayesian-network model

The scientists were the first to develop a Bayesian-network model to predict the quality of a batch of pears, combining various data sources. The model uses data from practice, input from experts and experimental outcomes. It integrates multiple conditions and relations between factors involved in quality. This is significantly more than the human brain, which, cannot effectively handle more than a few related activities at once.

Prediction of firmness

The model currently focusses on predicting the chances of successfully ensuring the desired firmness for a batch of Conference pears at a specific time in its journey through the chain. Model input data are, for example origin, harvest time, storage and transport conditions, and SmartFresh treatment. The model also provides added insight via a sensitivity analysis: which supply-chain factors contribute most to each quality parameter and should, therefore, be prioritised in quality management?

"Adapting the model to company-specific needs and linking it to data-management systems maximizes the advantages of the model in practice"

For detailed information about this project result please visit www.wur.eu/greenchainge.

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