

How can we Maintain a Constant Quality Experience for the Consumer?:

When the product comes from all over the globe!

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What is product quality?

- The consumer determines
- The retail has the power
- The supply chain tries to cope

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Chain integration ⇒ Research strategy

Quality management & Consumer science

- Post-harvest product handling & logistics (ripening)
- Biological variation in physico-chemical product properties
- Sensory perception and evaluation (Liking)

↓ Cost of product Loss & handling ↓ Product liking

Chain science:

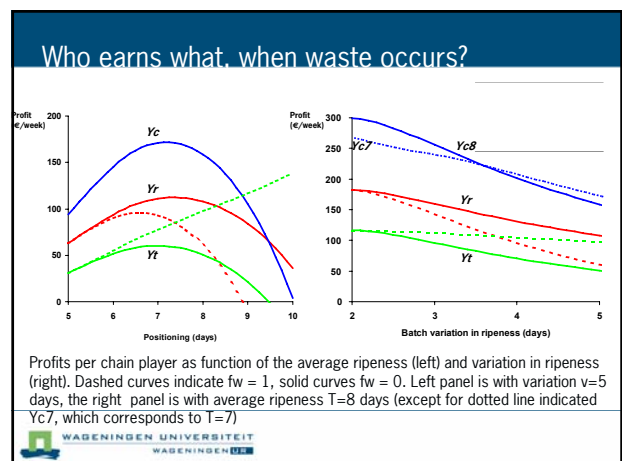
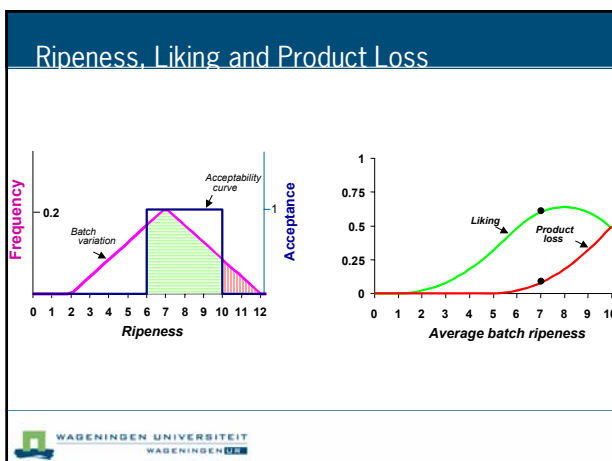
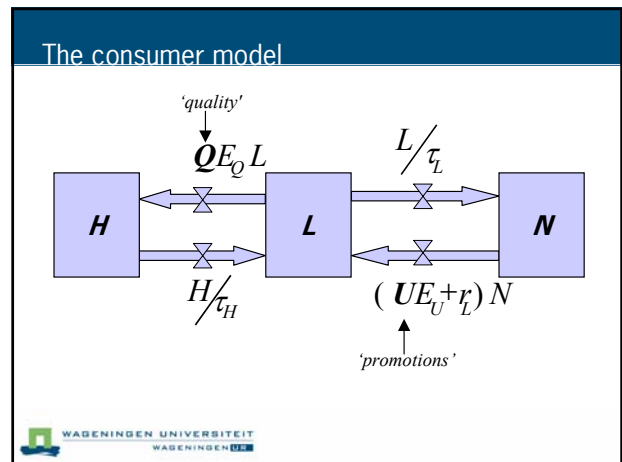
- Collaborative marketing
- Cost sharing
- Pricing
- Profit distribution

← Demand

Consumer science:

- Adoption dynamics
- First and repeat usage
- Loss of interest dynamics

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Conclusion

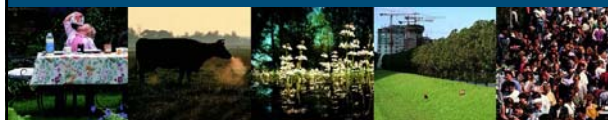
- The more variation in batch quality, the more profit can be reaped from vertical cooperation!
- Dynamic modelling can combine consumer behaviour with production, logistics and marketing strategies
- This research technique must now be validated in real life! But...



Biological variation in ripening of nectarines

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Maturity at harvest

- Commonly estimated on
 - External fruit colour
- Newer cultivars
 - High intense blush
 - External colour not useful any more
 - Internal flesh colour
- New measuring technique
 - Time Resolve Spectroscopy (TRS)
 - Laser at 670 nm
 - Non-destructive



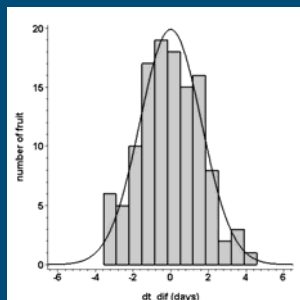
TRS absorption

- TRS at harvest
 - Fruit maturity
 - Ripening potential
- Fruit measured
 - Individually
 - Repeatedly
- Information on
 - Biological variation
 - Within batches

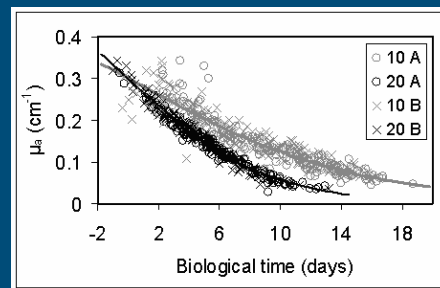


Variation

- Biological Shift factor
 - For each fruit 1 value
 - For each set 60 values
 - All together 240 values
- Normal distributed
- Mean value per condition
- Same standard deviation

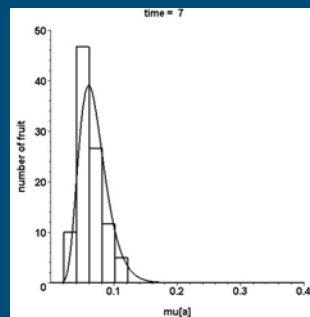


How does it look like?



Variation in absorption

- Normal distribution Δt
- Non-normal distribution μ_a
 - Very skew at limits (unripe or ripe)
 - Shape changes with ripening
 - This is what consumer perceives !!!



Conclusions

- A group of research institutes and universities is preparing an EU FP7 project to integrate:
 - Consumer dynamics
 - Logistics
 - Quality modeling and prediction
- In order to cause a repeatable experience of quality by the consumer from globally sourced products

Thanks for your attention.
Questions?

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