

Predicting Strawberry Flavour

International Strawberry Congress

September 7th 2017, Caroline Labrie, Wouter Verkerke
Wageningen University & Research, Bleiswijk, The Netherlands



Content: Predicting Flavour

- Objective
- What is a flavour model?
- Why?
- How was it build?
- Result: Flavour model 1.0
- How to use?



Objective

To develop a tool to predict the outcome of a consumer flavour test for fresh strawberries:

A flavour model



What is a Flavour Model?

IN: data from instrumental measurements related to flavour



Flavor model:
Algorithm predicting liking



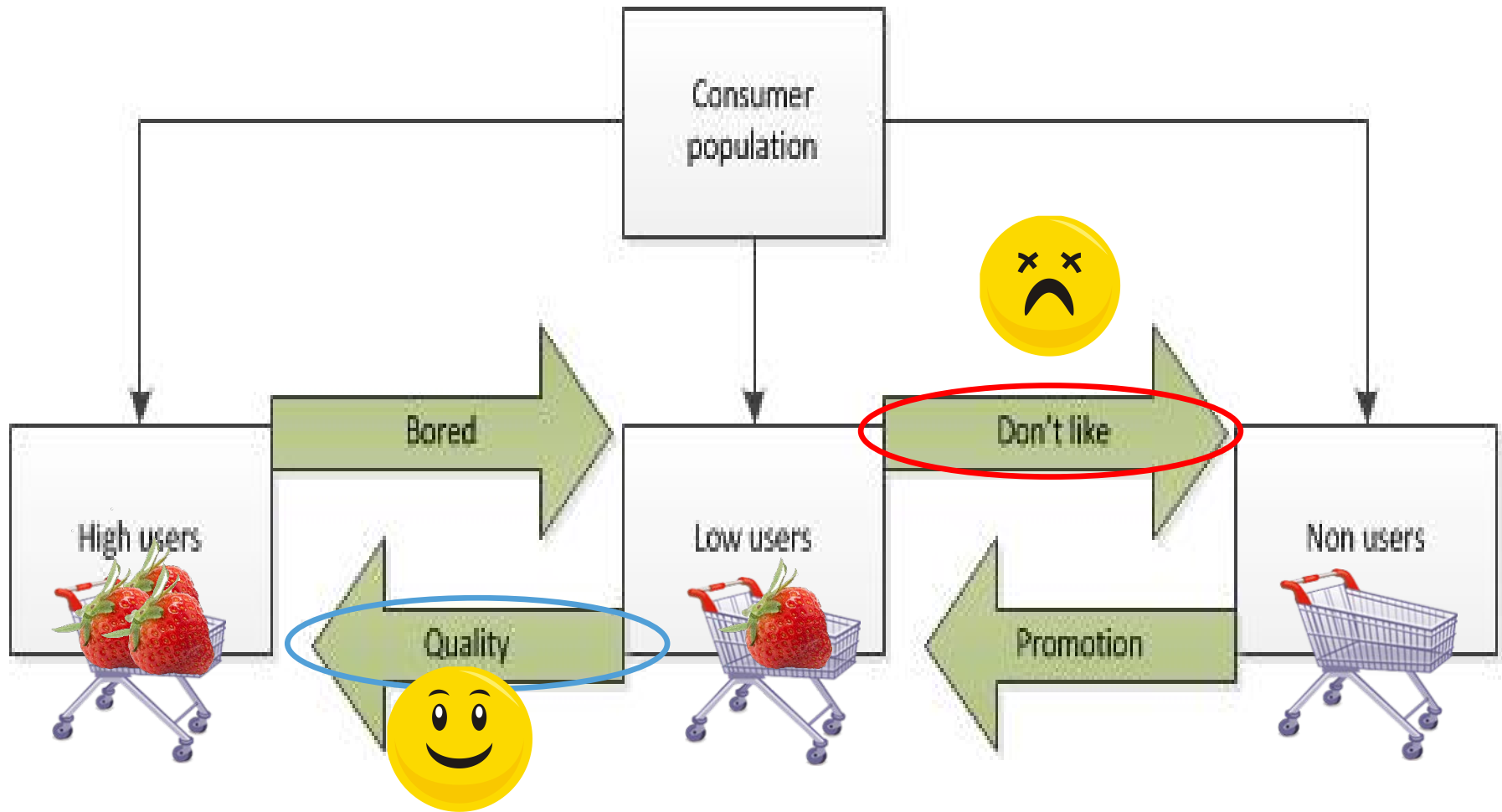
OUT: Flavour score

On a 0-100 scale (dislike- like)

≈ Liking score consumer panel



Why flavour? Value for the customer



Bron: Wageningen UR , Tuinbouw productie ketens (Olaf van Kooten)

Why a flavour model?

Advantages:

- + B2B communication: objective standard
in **all seasons**, over years
- + Quicker and cheaper than panels
- + Less fruits needed than with panels



Disadvantages:

- Approach of reality; uncommon off-flavors not detected

How was it build?

What do consumers **like and dislike**?

- Broad flavour range of 8-21 varieties
- Consumer panel scores on liking (0-100 scale)
- June & July, 3 years



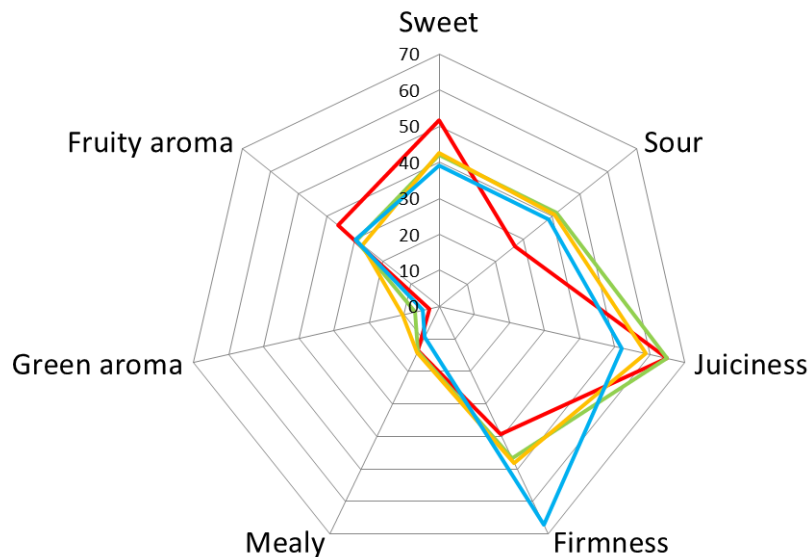
How was it build?

What do consumers **like and dislike**?

- Consumer panel scores on liking

What is the **flavour profile** of the products?

- Trained sensory panel scores on intensity of flavour attributes (0-100 scale).



How was it build?

What do consumers **like and dislike**?

- Consumer panel scores a broad range of varieties on liking

What is the **flavour profile** of the products?

- Trained sensory panel scores on intensity flavour attributes

How to **measure** these attributes?

- Translation flavour attributes to instrumental parameters (TSS (°Brix), acid, texture, volatiles)

How do these correlate?

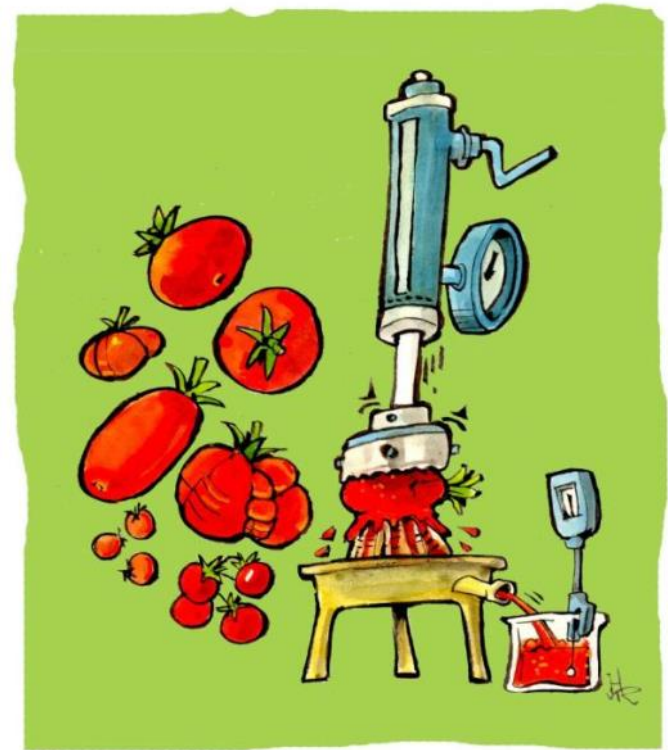
- Sensory & Instrumental flavour models



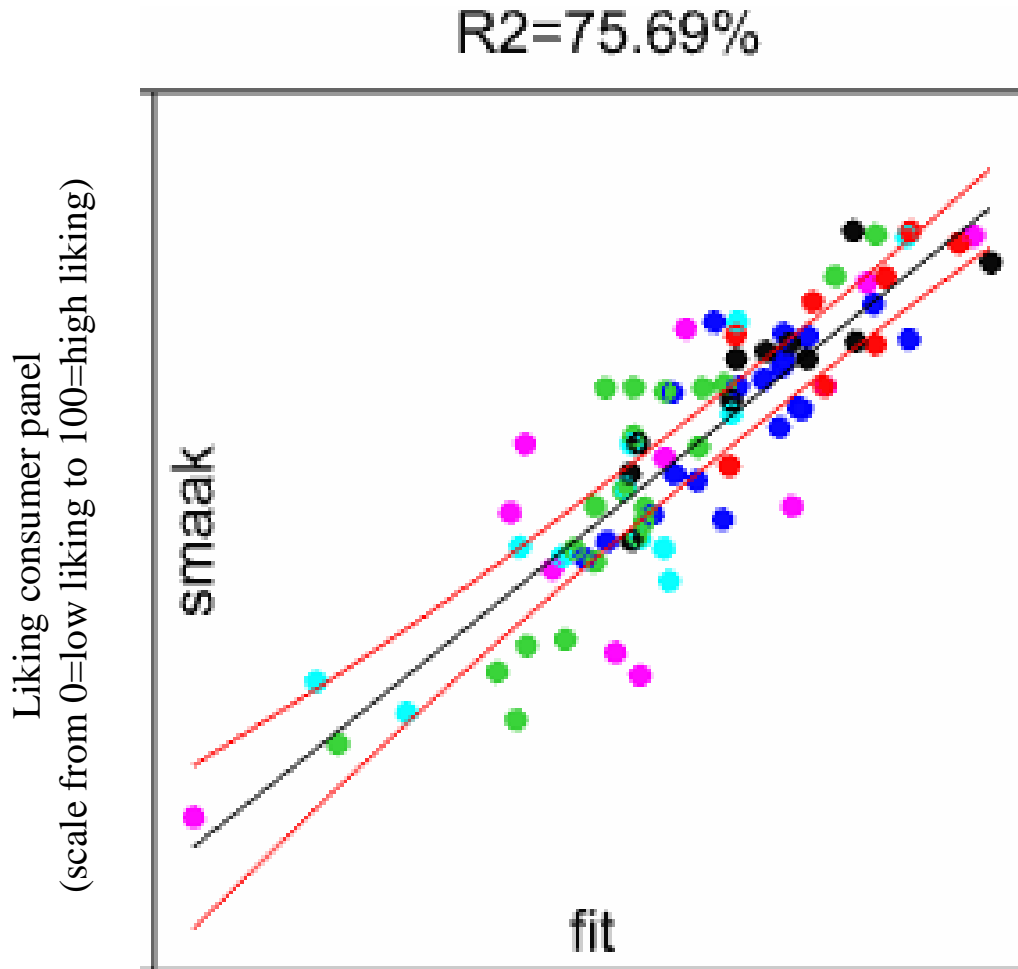
Result: a Flavour Model

Just a simplified example:

- + 1 x Total soluble solids
 - + 1 x Titratable acid
 - + 1 x % Juice
 - 1 x Firmness
 - 1 x Volatile ABC..... +
- = Predicted flavour score (0-100)
- ≈ Flavour score liking consumers



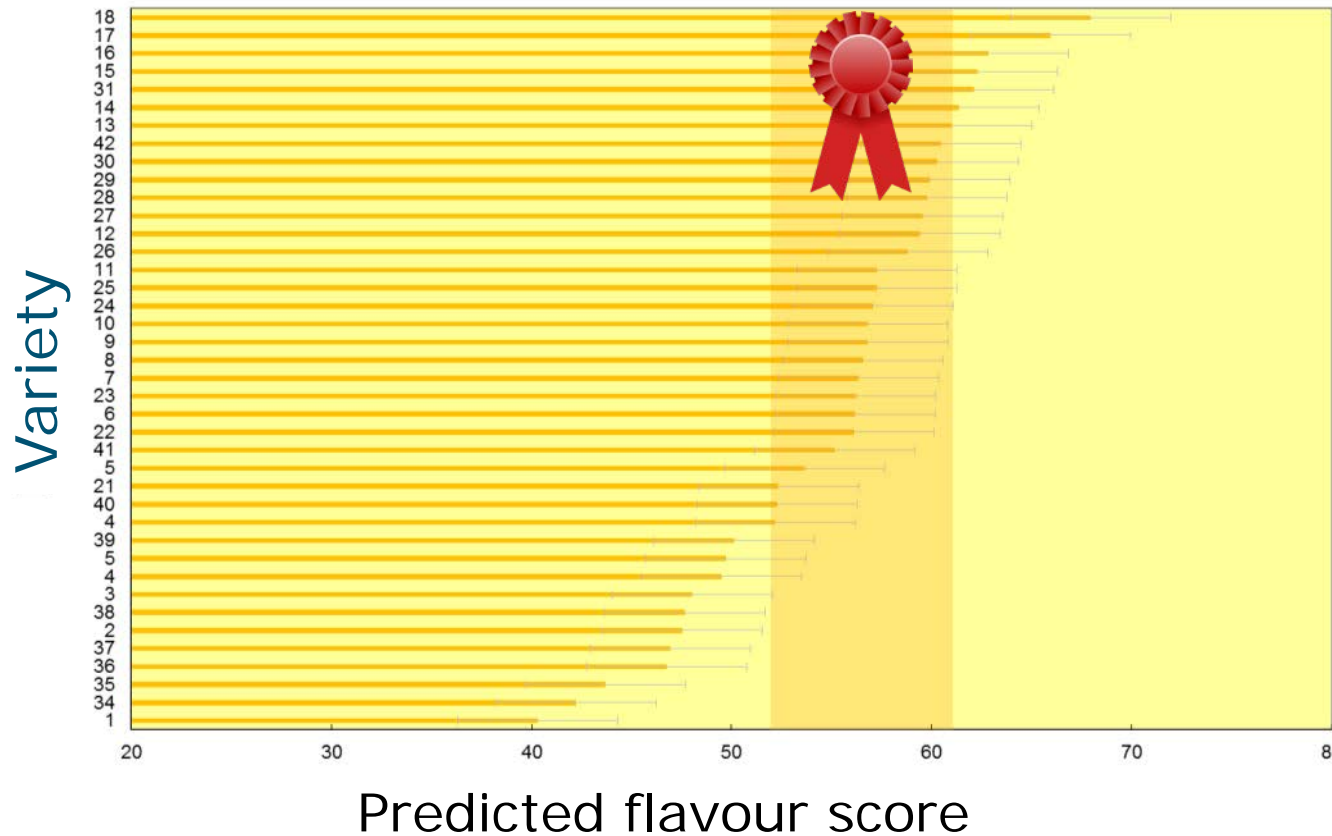
Result: Flavour Model Strawberry 1.0



Confidence index:
+/- 3 points
(0-100 scale)

This is about the same as using a
consumer panel
(n=50).

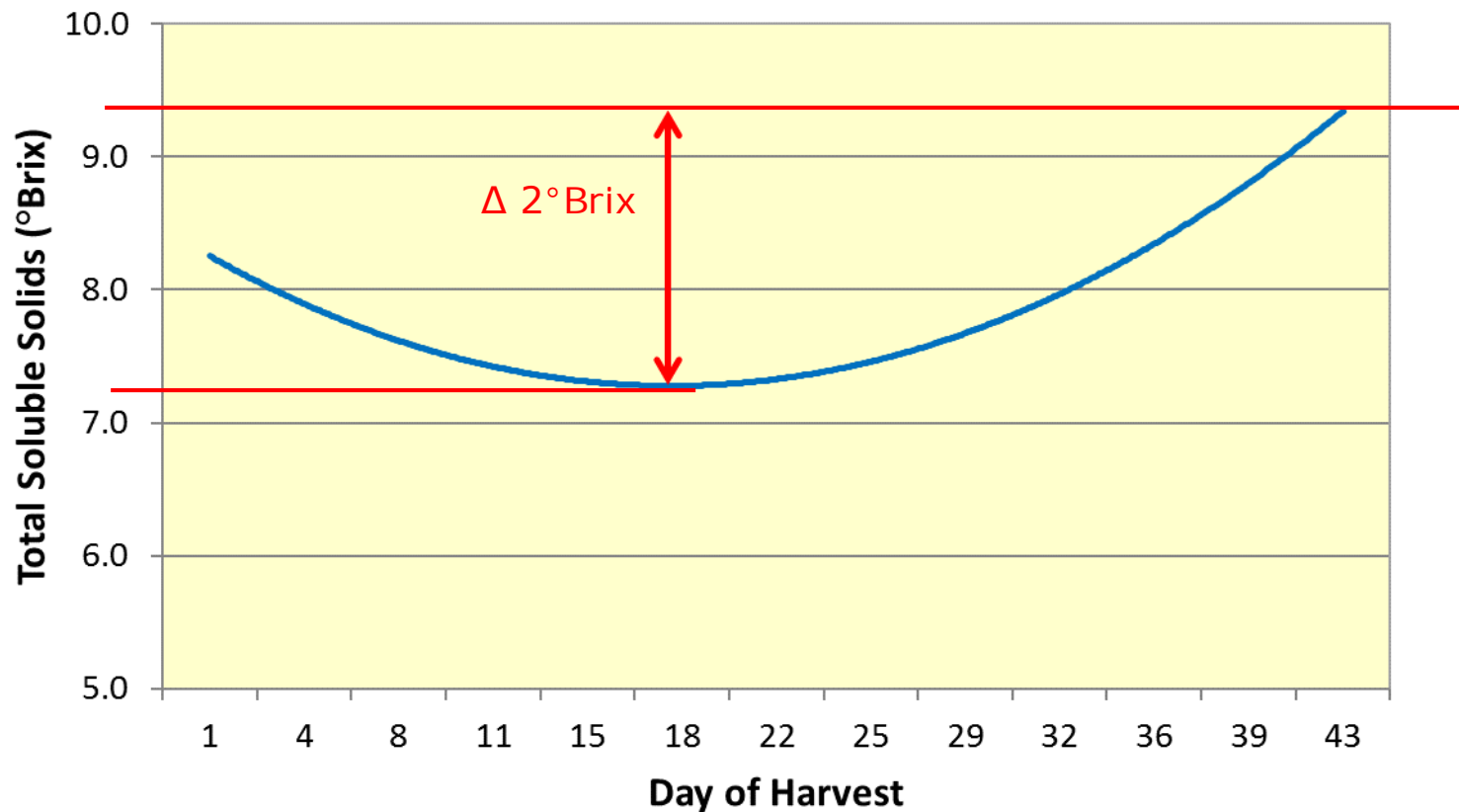
How to use? For breeders: screening new varieties on flavour



How to use? For growers: homogeneity



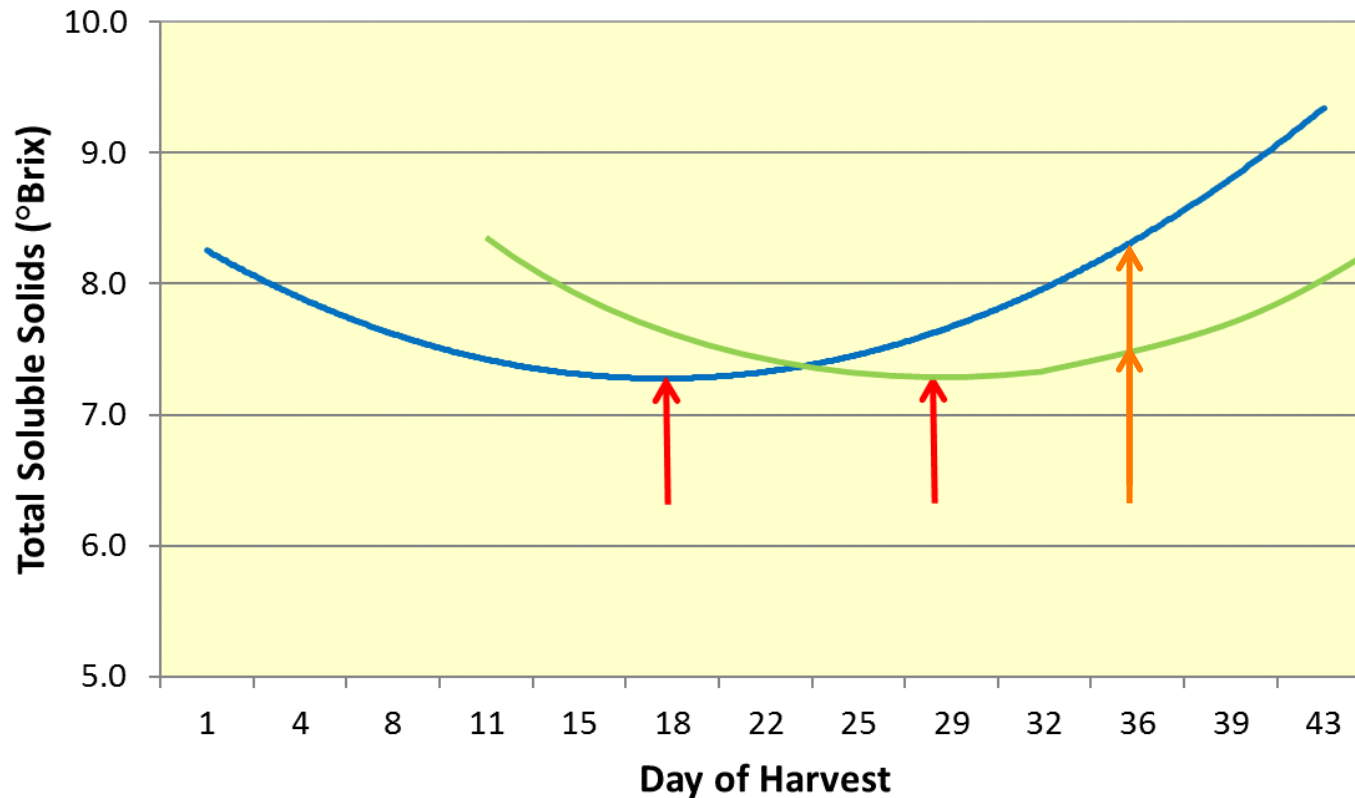
TSS (°Brix) during harvest period strawberry



How to use? Know when you measure



TSS (°Brix) during harvest period strawberry



Conclusions

- Flavour Model Strawberry 1.0 ready for use
- Tool to measure, monitor and compare flavour
- Enables action for flavour as added value



Questions?

Caroline Labrie

caroline.labrie@wur.nl

+31 (0)317- 48 57 47

Thank you!



Flavour Team Bleiswijk