



## Mango quality and colour

In GreenCHAINge an innovative “smart chain” is being developed. Overall goal is to improve the intrinsic quality of the product on the shelf.

### Objective

Obtain uniform and RTE (Ready to Eat) mangos on the shelf.  
Determine the correlation of RTE mangos with “internal colour”.  
Obtain an objective and reliable method to phenotype internal colour.

### Results

Measuring the internal colour of > 3000 mangos transported from Brazil to the Netherlands, in 9 shipments between Nov '16 and Jan '17 shows that increased internal color (from class 1 (light yellow) to class 5 (dark yellow/orange)) correlates with:

- Decreased firmness.
- Higher ripening temperature.
- More internal defects/browning.

“Objective phenotyping” by automatically analyzing color pictures of standardized images, is reproducible and therefore more reliable compared to “subjective” division in five color classes. In addition, measurement of color pixels allows the use of a continuous scale which is more useful for data analysis.

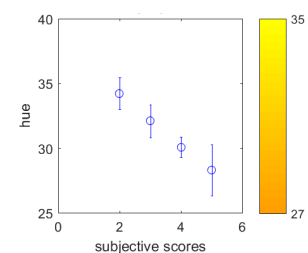
### Conclusion

Internal color correlates with the ripening stage of mangos. This can be measured more precisely with an objective camera system.

### Relevant for industry

Objective phenotyping allows standardisation of internal color assessments throughout the whole supply chain, reducing human bias and error. Data in a continuous scale allow correlations to NIR spectra.

*“Objective colour measurements are more reliable and more useful for data-analysis”*



Objective analysis by measurement of colour pixels (hue values), correlates with subjective observations by division from class 1 (light yellow) to class 5 (dark yellow/orange).

For detailed information about this project result please visit [www.wur.eu/greenchainge](http://www.wur.eu/greenchainge).

**GreenCHAINge**



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