



## Tracking Mango quality pre-harvest until RTE-stage

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.  
Predict mango quality by measuring pre- and post-harvest traits.  
Track 100 Keitt and 100 Kent mangos from 5 weeks pre-harvest till RTE stage, using non-destructive NIR (Near-infrared) measurements to identify key maturity predictors.

### Results

Weekly non-destructive NIR measurements using a FELIX-F750 handheld including a model to predict DM (Dry Matter) and BRUX (sugar content) with an  $R^2$  (predictability) of respectively 68% and 57%, on 200 mangos predict that DM and BRUX increase in time.  
Firmness data are too inaccurate to predict firmness by NIR.  
Pre-harvest NIR spectra from all 100 mangos follow the same change of amplitude in time, indicating we can track maturity.  
Capturing NIR spectra in values indicates significant changes in time (weekly from 5 weeks pre-harvest till RTE stage), enabling us to correlate NIR spectra with maturity!  
Based on NIR spectra we can predict level of maturity, which correlates to BRUX.

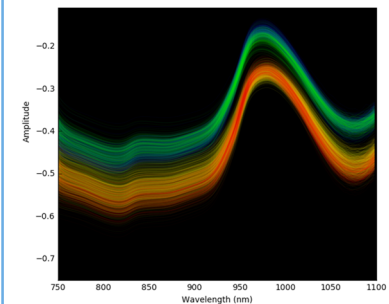
### Conclusion

Instead of indirect tracking maturity (via traits like DM, BRUX or firmness), we can directly track maturity by capturing values of NIR spectra!  
Holds true when weekly measuring at the same mango spot.

### Relevant for industry

Values of non-destructive NIR measurements are a novel marker to directly track maturity. Being able to track maturity while fruit is still on the tree, could help the grower in determining the optimal harvest moment.

*“Capturing NIR spectra in a value allows us to directly track maturity!”*



NIR spectra (“dark blue/green” 5 weeks pre harvest till “red” (RTE)) correlate with maturity.

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

**GreenCHAINge**



**TOPSECTOR**  
TUINBOUW & UITGANGSMATERIALEN

### Information

Eelke Westra  
T +31 (0)317 48 02 08  
E [eelke.westra@wur.nl](mailto:eelke.westra@wur.nl)  
[www.wur.eu/greenchainge](http://www.wur.eu/greenchainge)