

PARTICIPANT INFORMATION BY INSTITUTION

Institution Name (Acronym)	CEOT, UALG
Country	Portugal
Researchers involved (please, indicate university department or research group affiliation where appropriate) (* contact person)	Ana M. Cavaco* Dário Passos*
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Main Research topics	<ul style="list-style-type: none"> -Non-invasive assessment of fruit quality (attributes and internal defects) on in-line sorting systems (Vis-NIRS) ('Rocha' pear, apple) -Non-invasive assessment of fruit ripening on tree (Vis-NIRS) (Citrus, kiwi, and apple) -Non-invasive assessment of fruit quality and ripening through storage (Kiwi and apple) -Early diagnosis of crop plants diseases -PLS, Machine learning and Deep learning-based calibration models for fruit quality and ripening attributes
Main Equipment and Facilities	<p>Spectrometers:</p> <ul style="list-style-type: none"> Avantes AvaSpec HS2048XL-EVO, 600-1100 nm Avantes AvaSpec- NIR256-2.5-HSC-EVO, 1000-2500 nm Avantes AvaSpecNIR256-1.7TEC, 900-1700 nm Nirone NIRONE Device D1.7 (D1.7), 1350-1650 nm Avantes AvaSpec-Mini2048CL-VI25, 360-1100 nm Jaz spectrometer, Ocean Optics, 580-1100 nm Hamamatsu TG-9405CA spectrometer, 500-1100 nm Ocean Optics USB 2000+, 600-1100 nm

FTIR spectrometer: Hamamatsu C12606-02

Detectors:

Photo-multiplier tubes: Hamamatsu H5784-20, H7826-01

Photodiode Amplifier: Thorlabs PDA200C

Avalanche photodiode: Menlo APD-110

Optical chopper: Thorlabs MC 2000

Light sources:

AvaLight-HAL-S-Mini

White light source: Ocean Optics HL-2000-FHSA-LL

Ar-ion laser: Melles Griot 43

Diode laser mounts: Thorlabs TCLD M9

Diode laser current source: Thorlabs LDC 205

Diode laser temperatura controller: Thorlabs TED 200

Electronics:

Philips/Fluke PM6304 LCR meter

Keithley 2614B - sourcemeter - dual channel

BK Precision, capacitance meter 830 C

Oscilloscope Tektronix TDS210

Lock-in amplifier: SRS 830

Digital programmable filter: SRS 650

Digital oscilloscope: Picoscope 3206

Miscellaneous:

Prototype LoRa sensor network (temperature, luminosity, humidity) deployed in a citrus orchard

Drone MK Okto XL 6S12 with thermal camera Flir Vue Pro R 336

Snap Maker 3D printer

Digital pH meter SI Analytics TitroLine® 6000

Plant Growth Chamber, homemade

Deep freezer -80° Panasonic MDF-U500 VX-PE

	<p>Motion control unit: Newport ESP 300</p> <p>Rotation stage: Newport URS100PP</p> <p>Optical Table: Melles-Griot 07 OTM 501</p>
Other relevant information	<p>We have gathered large data bases (multi-orchard; multi-year) that can be used by other researchers that join us in our research topics as collaborators. It is also possible to establish specific experimental designs to test the application of various NDSS in the assessment of quality/ripening of fruit and plants diseases</p>