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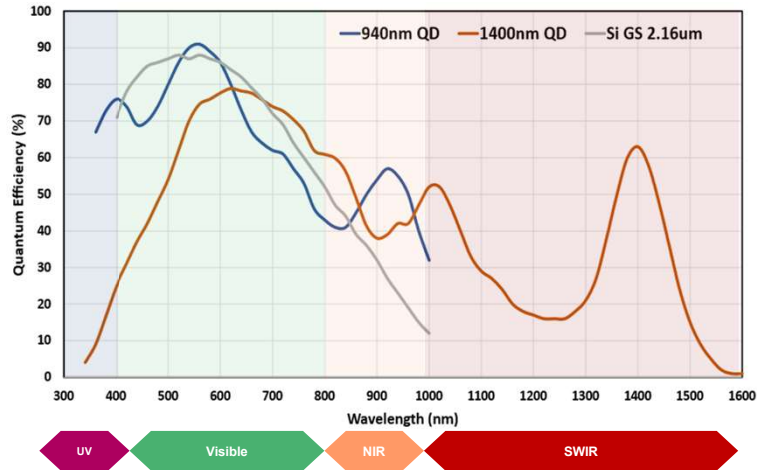
# ST SWIR technology for Agriculture EPIC on line meeting on Agri-Photonics

Eric MAZALEYRAT

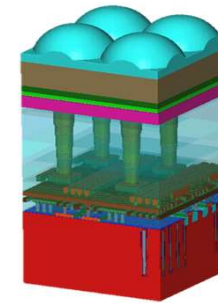
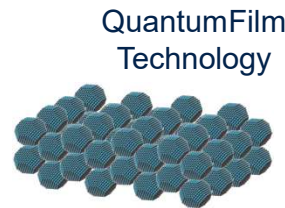
March 14<sup>th</sup> 2022

ST Confidential

# Seeing in SWIR at a fraction of the cost of InGaAs

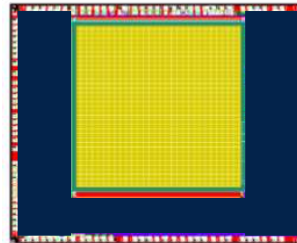


- Silicon has no sensitivity beyond 1000nm
- ST QuantumFilm technology allows access to new types of imaging capabilities and markets



Specialized Quantum dot pixel matrix for sensing

- Quantum Film in-house technology
- **SWIR 1400nm peak QE of 60%**  
=> Up to 1500nm sensing
- **Small pixel of 2.2um**
- **Global Shutter**
- 2.3Mpixels 1660x1380
- 60 frames/sec
- Small die size of 5.6mm x 5.6mm
- Mipi CSI2, defect correction, temperature sensor



Sampling to customers on demand  
Demo kits available in Q3'22 for evaluation



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We are creators and makers of technology

One of the world's largest semiconductor companies

48,000 employees of which 8,400 in R&D

Over 80 sales & marketing offices serving over 200,000 customers across the globe

Signatory of the United Nations Global Compact (UNGC)  
Member of the Responsible Business Alliance (RBA)

\$ 12.8 B revenues in 2021

13 manufacturing sites



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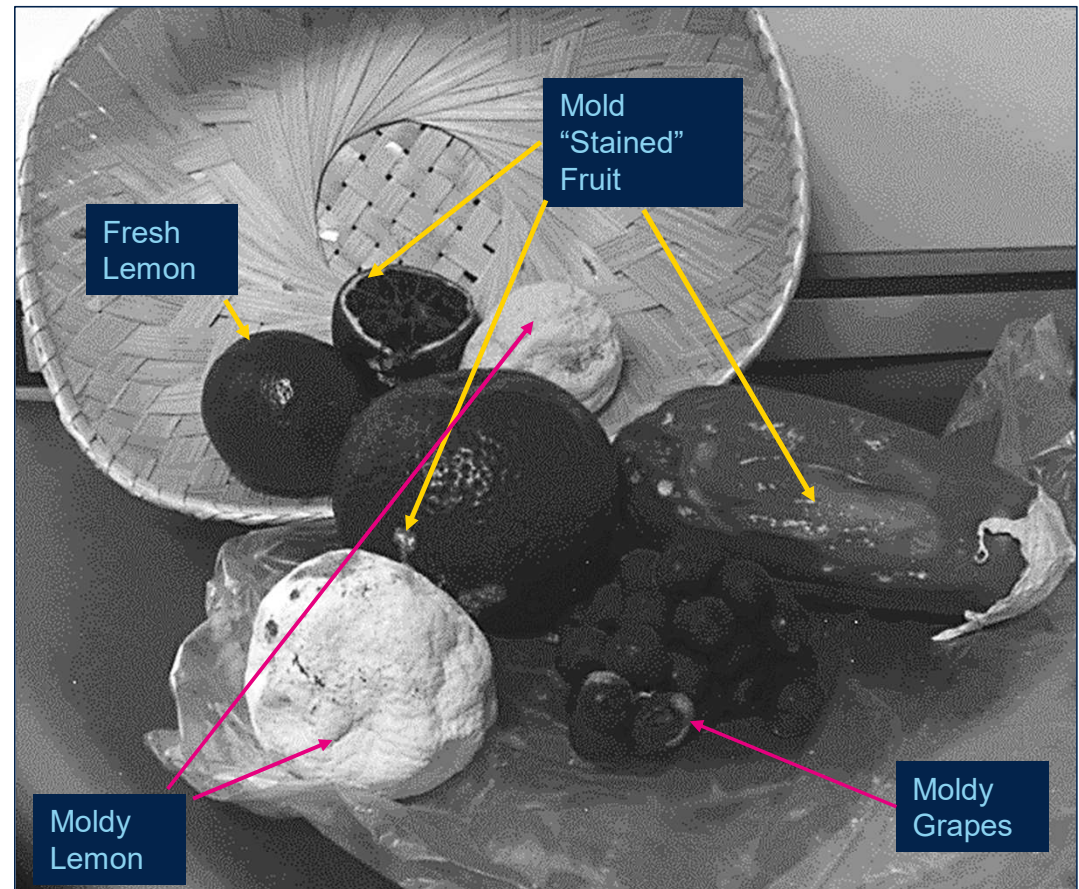
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# SWIR for Moisture detection

Visible



No difference between dust and mold in grapes in visible.

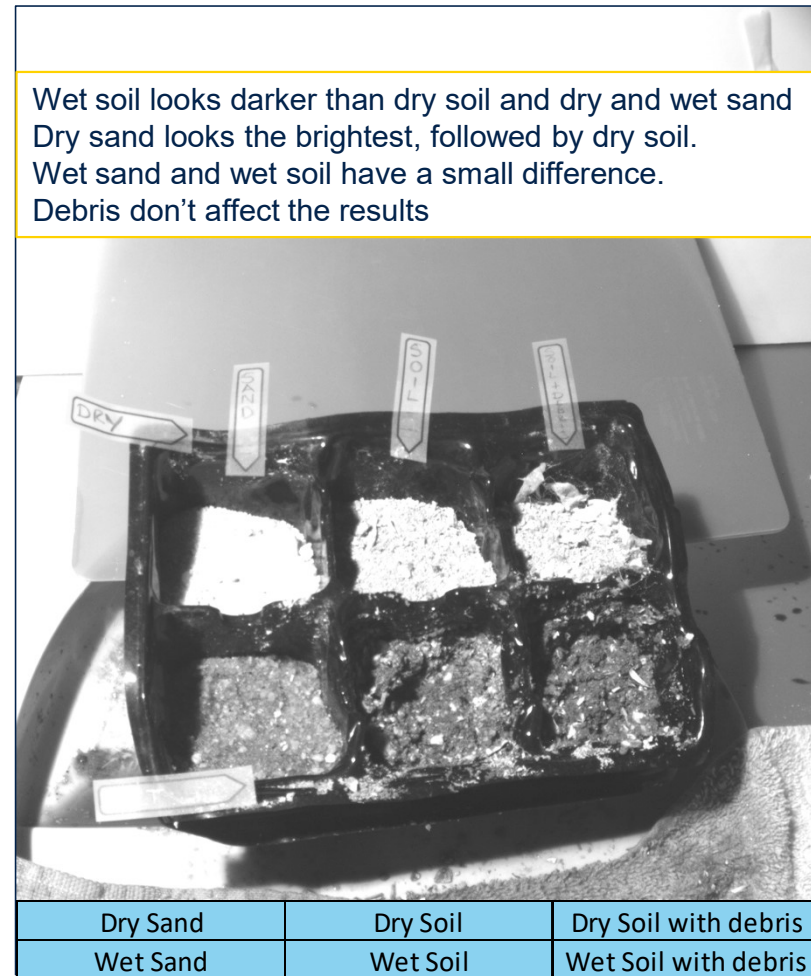
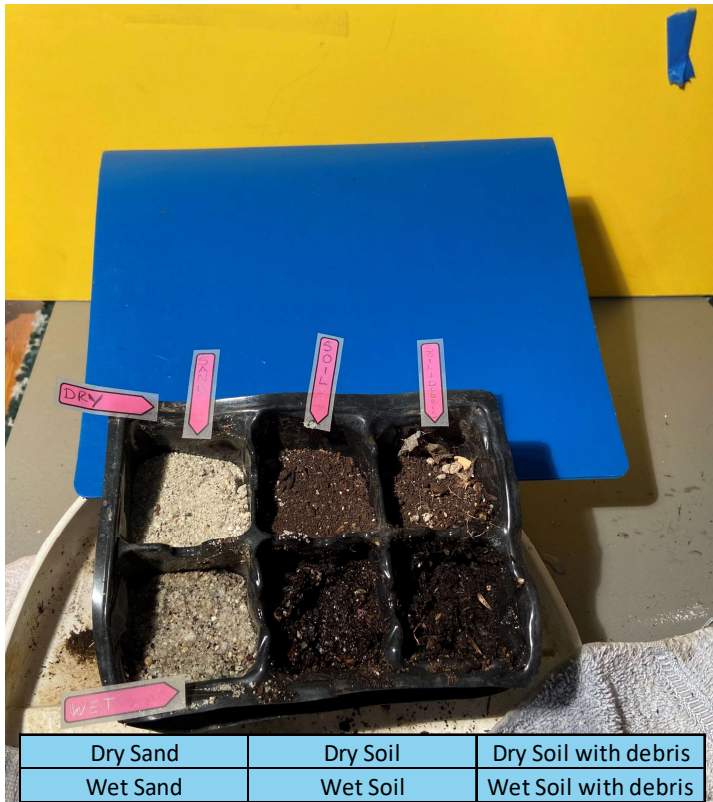


Mold and mold "dust" turns white while the fresh fruits turns dark @1380

Illumination: IR Lamp  
Distance from target ~50cm

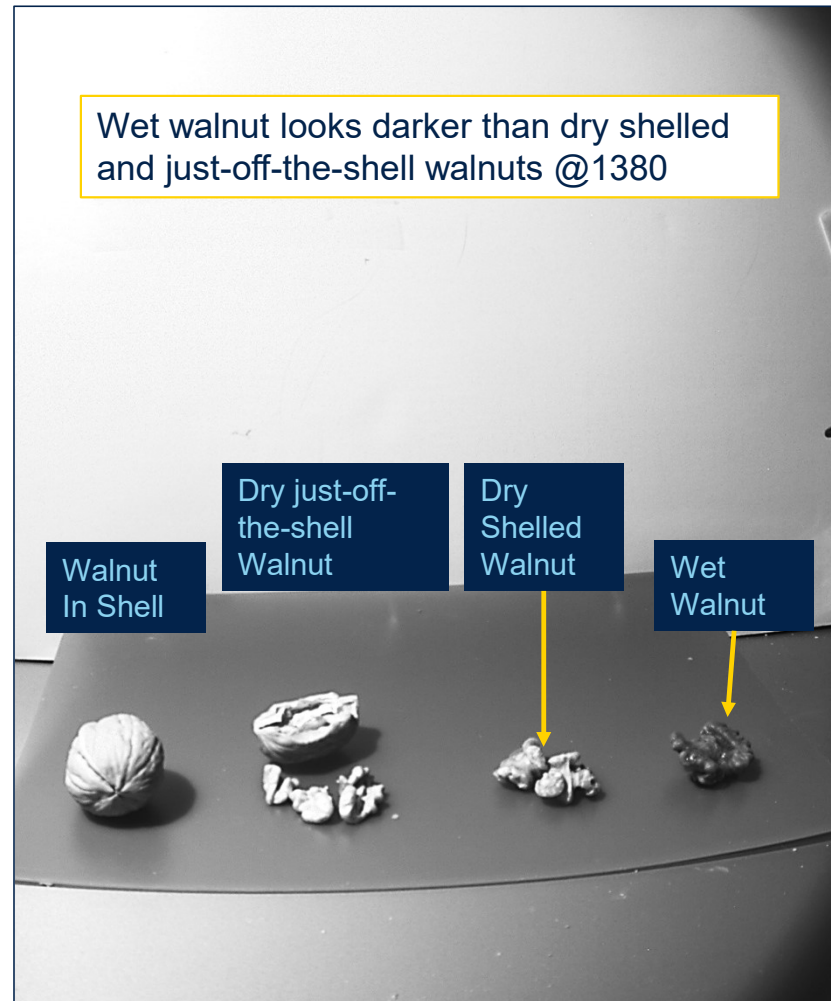
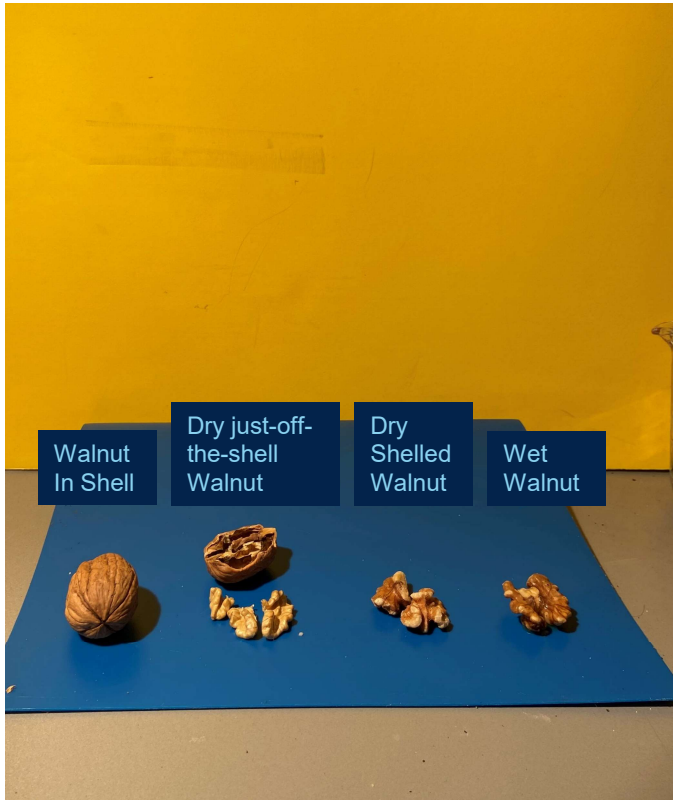
# SWIR for Wet/Dry Soil Comparison

Visible



# SWIR for Wet/Dry Walnut Comparison

Visible



# EPIC questions

- What can the others do for you?
  - ST is NOT a camera maker.
  - Need for camera partner for agriculture applications.
  - Need for illumination partner
  - Need for spectrometer partner (and associated database)
- What can you do for the others?
  - Provide evaluation kits.
  - Support implementation inside a camera
  - Support implementation for spectrometers

# Our technology starts with You



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