



# CID BIO-SCIENCE SALES TRAINING

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# OVERVIEW

- Introduction to CID Bio-Science, Inc
- Explanation of each product
  - Why it's important
  - How it works
  - Use cases and Applications
  - Advantages
- Sales opportunities

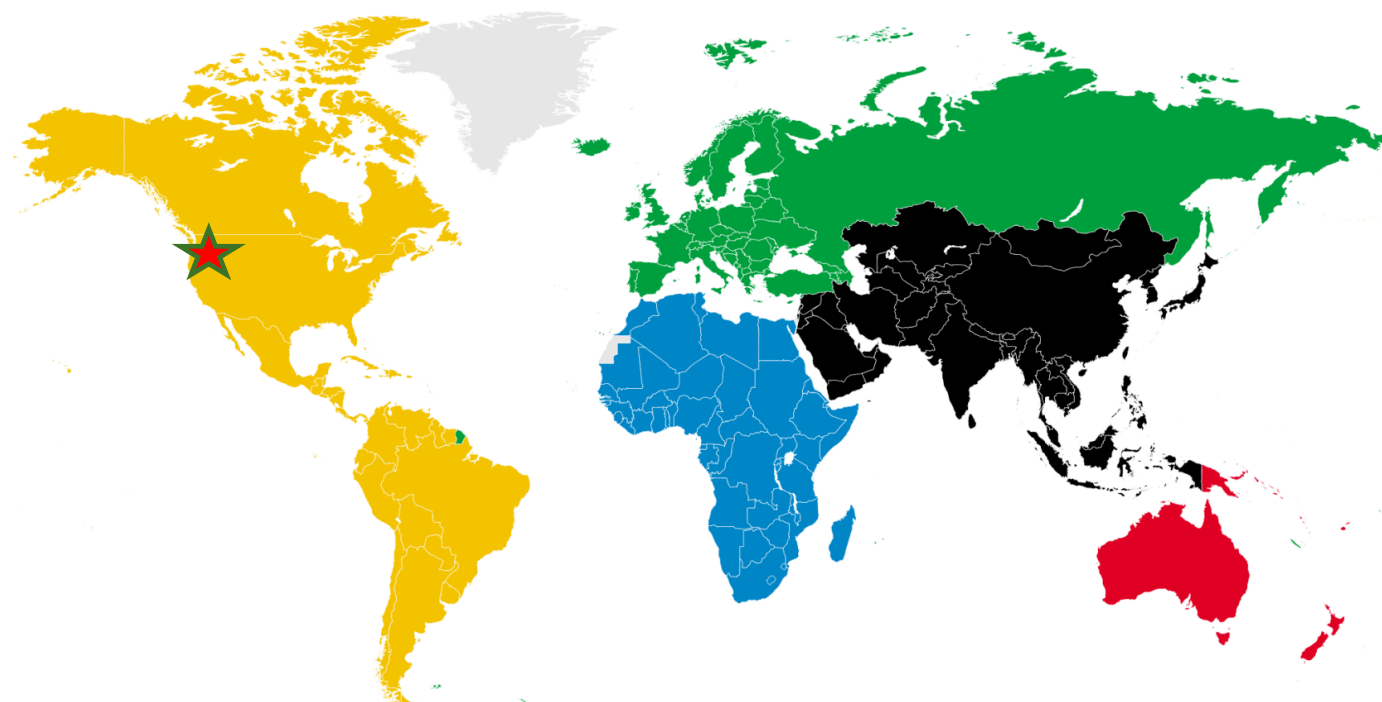


# ABOUT CID-BIOSCIENCE, INC

- Engineering, Manufacturing, and Business under one roof
- Founded in 1989
- Portable Instrumentation for Plant Physiology Measurement



DESIGN | ENGINEER | BUILD



All instruments built in  
Camas, WA USA

# FULL CID PRODUCT LINE

CI-110



Plant Canopy Imager

CI-202



Portable Laser  
Leaf Area Meter

CI-203



Handheld Laser  
Leaf Area Meter

CI-340



Handheld  
Photosynthesis System

CI-600



In-Situ Root Imager

CI-602



Narrow Gauge Root Imager

CI-710



Miniature  
Leaf Spectrometer

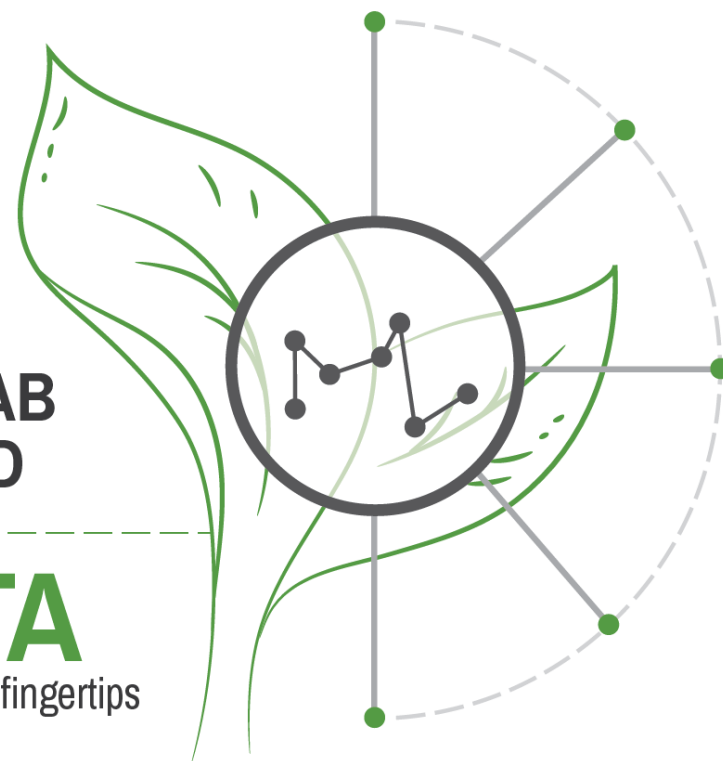


## CID LOGO AND TAG-LINE



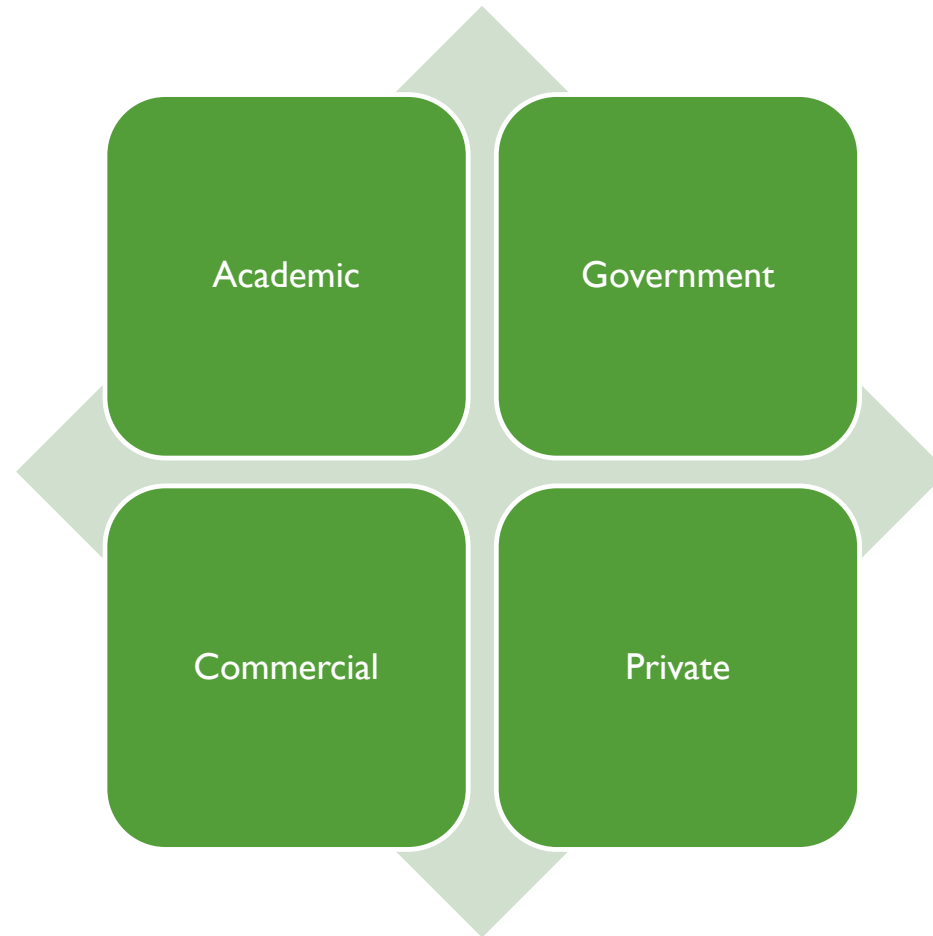
From the **LAB**  
to the **FIELD**

**DATA**  
at your fingertips



# NON-DESTRUCTIVE TOOLS FOR PLANT RESEARCH

- Rapid
- Real-time measurements
- Field ready
- Portable
- Data visible





# LEAF MEASUREMENT

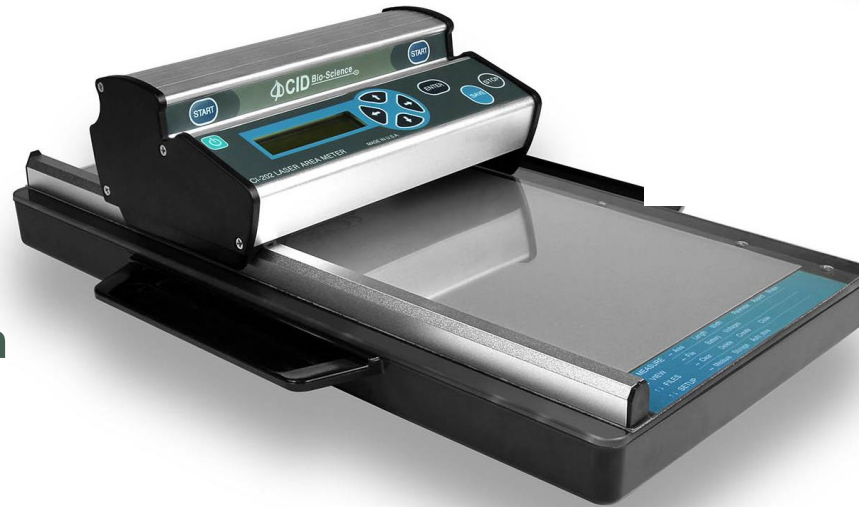
- Leaf Area Meters
  - CI-202 Portable Laser Leaf Area Meter
  - CI-203 Handheld Laser Leaf Area Meter
- Photosynthesis Analyzers
  - CI-340 Handheld Photosynthesis System
- Spectrometers
  - CI-710 Miniature Leaf Spectrometer





# LASER LEAF AREA METERS

- Palette-style or wand-style
- Attached or detached leaves
- Leaf area, length, width, perimeter, ratio, shape-factor
- Voids for insect or environmental damage
- Durable, laser-based approach



CI-202

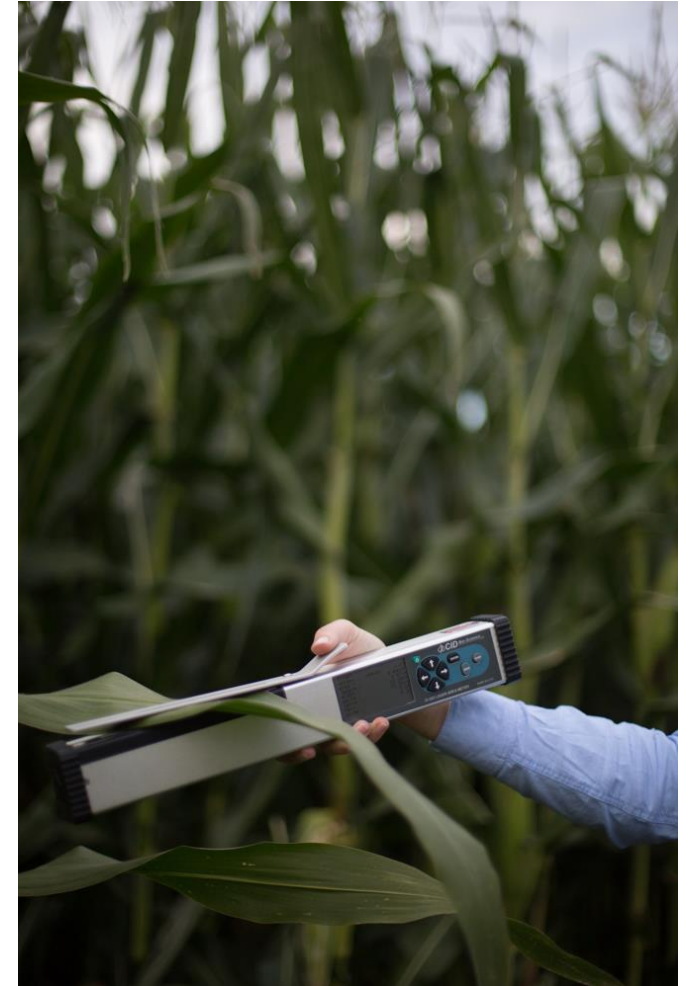


CI-203

# CI-202 AND CI-203 LASER LEAF AREA METERS



- Track developmental changes in leaf size and shape
- Measure leaf area response to biotic and abiotic environments
- Find specific leaf area (leaf area/dry weight)
- Record leaf size at various positions in plant canopy
- Link precise leaf area to other physiological functions



# CI-340 HANDHELD PHOTOSYNTHESIS SYSTEM

- Photosynthesis
- Respiration
- Transpiration
- Stomatal Conductance
- Internal leaf CO<sub>2</sub>
- Photosynthetically Active Radiation (PAR)
- Temperature
  - Leaf
  - Air
  - Instrument



# CI-340 HANDHELD PHOTOSYNTHESIS SYSTEM



- Gas Exchange System
- CO<sub>2</sub> and H<sub>2</sub>O analyzer
- Measures ambient air and air after it passes over the leaf
- Lightweight and portable
- Optional control modules for manipulating environmental variables
  - Light
  - Water (RH) and CO<sub>2</sub>
  - Temperature
  - Measure Fluorescence along with Photosynthesis

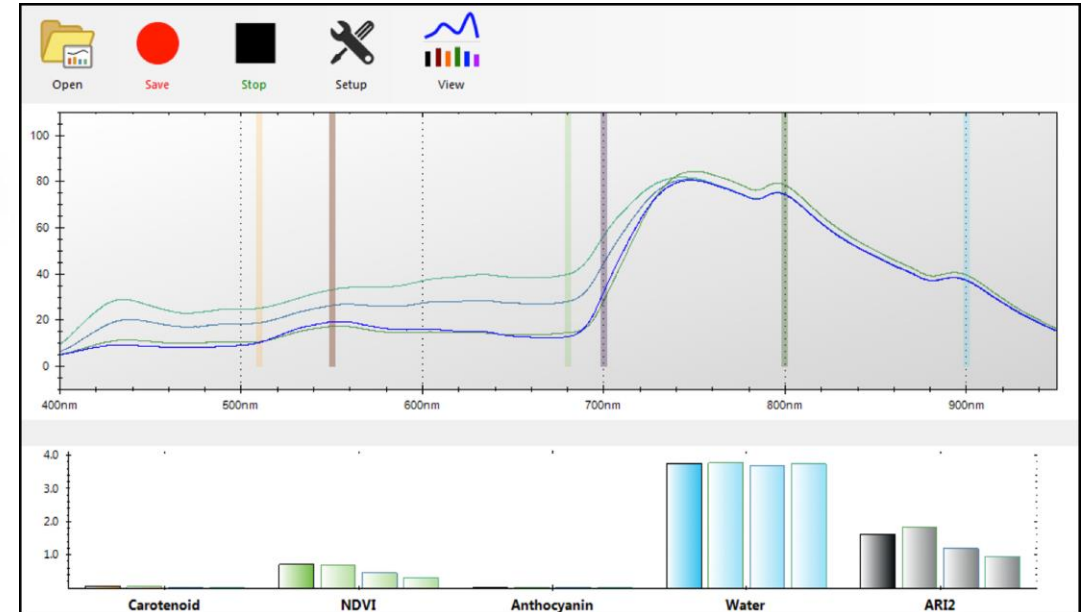


- Compare photosynthetic and respiration rate among related genotypes
- Related stomatal conductance and transpiration rate to water status
- Record changes in Photosynthesis as a response to light environment
- Measure gas exchange as a function of nutrient stress



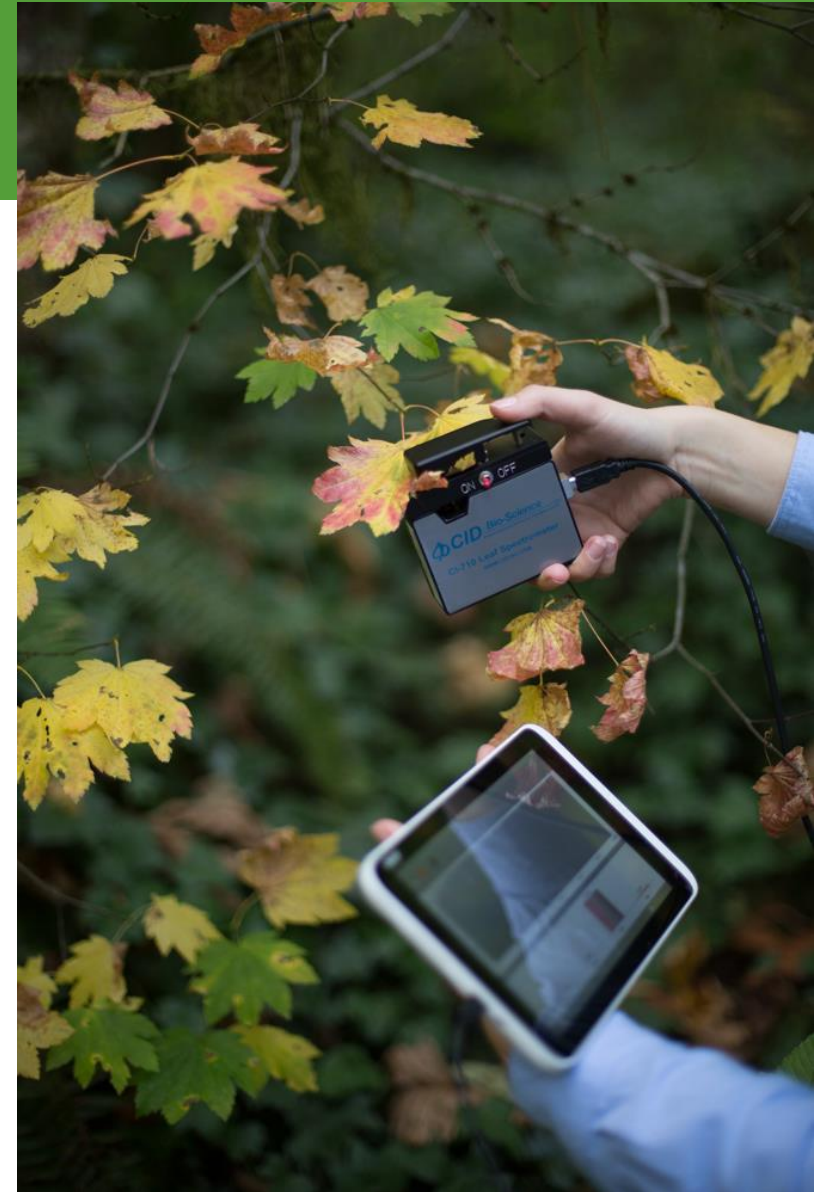
# CI-710 MINIATURE LEAF SPECTROMETER

- 400-950 nm measurement range
- Measures Absorbance, transmittance, reflectance
- Live-updating user interface
- Pre-loaded with pigment indices
- Programmable user-interface for custom indices



# CI-710 MINIATURE LEAF SPECTROMETER

- Indirectly monitors the status of nutrient uptake by plants
- Track changes in chemical content or concentration in plant organs
- Detect plant diseases
- Estimate concentration of plant pigments, including chlorophylls, anthocyanins, and carotenoids





# ROOT MEASUREMENT

- Root Assessment
  - CI-600 In-Situ Root Imager
  - CI-602 Narrow Gauge Root Imager
- Root Measurement
  - RootSnap! Software (included with purchase root imager)



# CI-600 IN-SITU ROOT IMAGER

- ▶ Many acrylic tubes
  - ▶ Replicates across treatments or genotypes
- ▶ Single scanner
  - ▶ Powered by tablet computer



- ▶ Minirhizotron
- ▶ Scanner based
- ▶ Non-destructive
- ▶ Very portable
- ▶ Scans in under one minute
- ▶ Three resolutions
  - ▶ 100, 300, 600 DPI



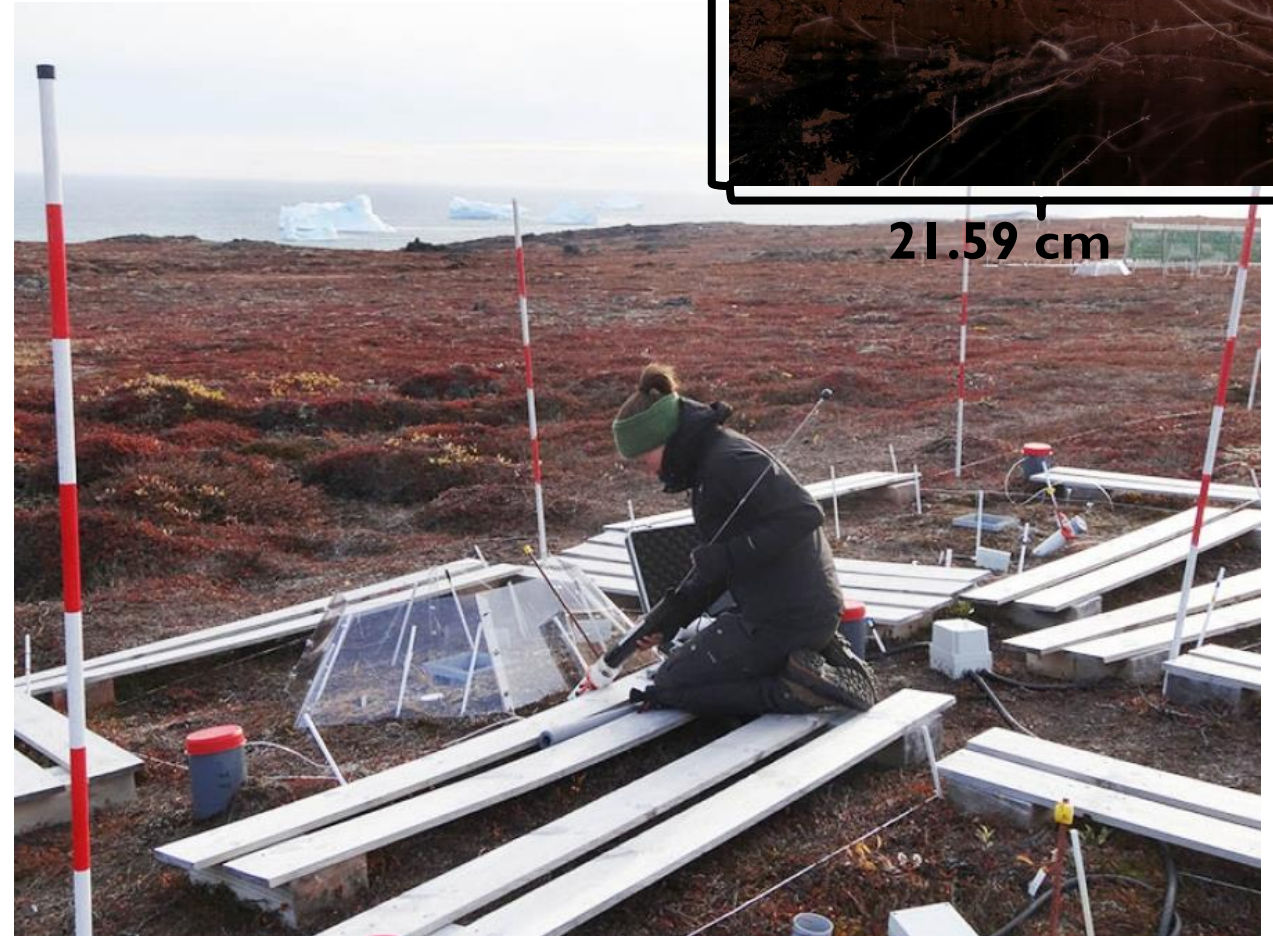
# CI-602 NARROW GAUGE ROOT IMAGER

- Designed for 2" ID tubes
  - Fits into Bartz competitor tubes
- Faster scan time
- 100, 300, 600, and **1200** DPI resolutions
- Scanner-based
- Powered by a tablet computer



19.56 cm

- ▶ Measure response of roots to drought stress
- ▶ Detect root diseases before above-ground changes are visible
- ▶ Estimate root longevity and turnover rates
- ▶ Image and measure root flush or new growth
- ▶ Image root pests such as parasites and nematodes





# ROOTSNAP! IMAGE ANALYSIS SOFTWARE

- ▶ Included with each CI-600 and CI-602
- ▶ Easy and fast tool for analysis
- ▶ Prevents the backlog of root images
- ▶ Touch-screen compatible
- ▶ Trace individual roots with finger or mouse

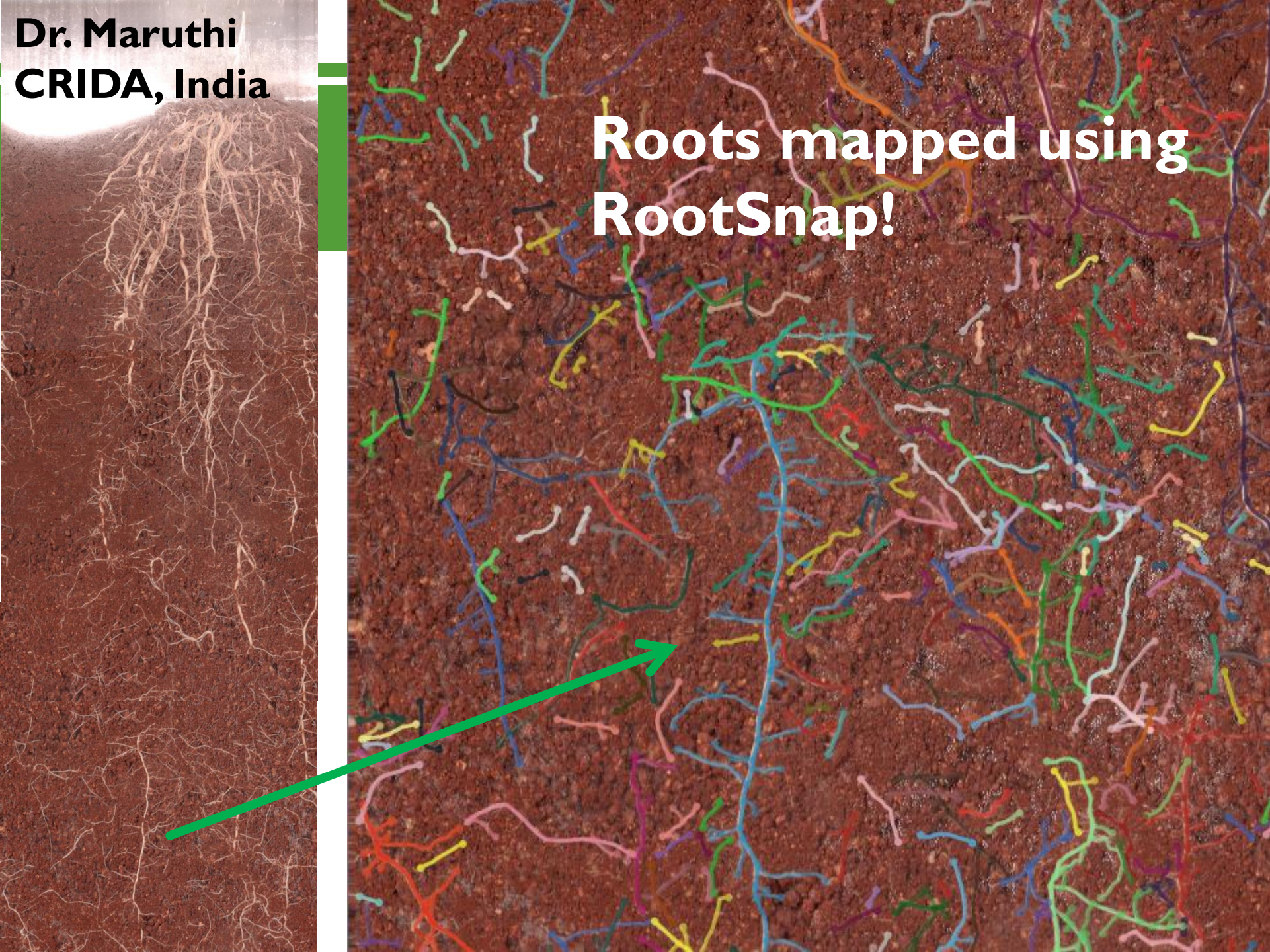


Root Count
Total Root Length
Total Root Volume
Total Root Area
Average Root Diameter
Average Root Length
Average Root Area
Average Root Volume
Window Depth
Date and Time of Image
Physical Size of Image
Individual Root Length
Individual Root Area
Individual Root Volume
Individual Root Average Diameter
Root Angle
Branching Angle
Branch Count
Diameter of Individual Root Point



**Dr. Maruthi**  
**CRIDA, India**

**Roots mapped using  
RootSnap!**





# WHOLE PLANT MEASUREMENT

- Leaf Area Index
  - CI-110 Plant Canopy Imager





# NEW! CI-110 PLANT CANOPY IMAGER

- Non-destructive calculation of Leaf Area Index (LAI)
- Sunflecks, and PAR
- New integrated design – more ergonomic
- Lens filter can be changed
- 150 degree digital hemispherical image of canopy
- 24 PAR sensors in arm
- Improved GPS constellation and compass for image collection and site-mapping



# CI-110 PLANT CANOPY IMAGER

- Track LAI changes across elevation gradients
- Measure seasonal changes in LAI
- Map impact of forest canopy on understory light levels
- Compare LAI of different phenotypes of agricultural crops



# KEY CUSTOMERS

- **Academic plant researchers**
- **New lab start-ups**
- **Applied Scientists**
- **Field Scientists**
- Agronomists
- Plant Physiologists
- Ecologists
- Environmental Scientists
- Botanists
- Horticulturalists

# SALES OPPORTUNITIES

- Customer visits
- **Evaluations are key!**
  - **Special discounts are available for Demo Instruments!**
- Annual maintenance recommended for all, especially CI-340

# RESOURCES

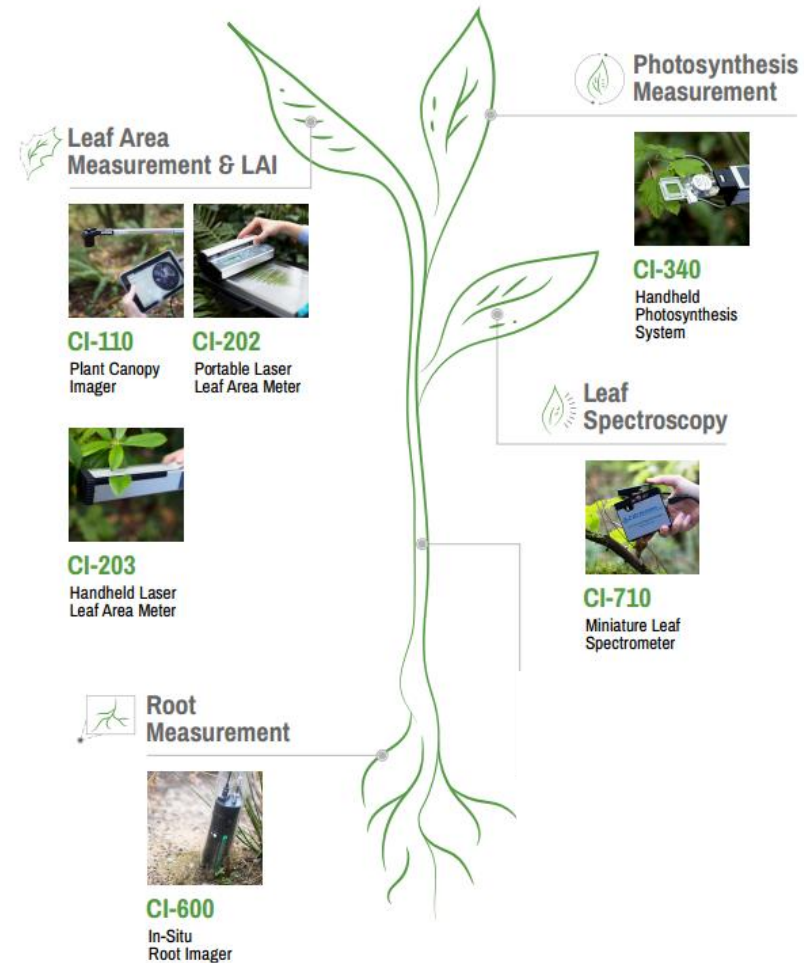
## **Sales Team Website**

[www.sales.cid-inc.com](http://www.sales.cid-inc.com)

- Brochures
- Photos
- Graphics
- Logos
- Videos
- Certificates
- Press Releases
- Manuals
- Specifications Documents
- Training
- Newsletters

# RECOMMENDED SALES ACTIVITIES

- Strong Web presence
  - Complete resources available at [sales.cid-inc.com](http://sales.cid-inc.com)
- Phone calls
- In-person visits
- Evaluations
- Conferences
- Tradeshows



# QUESTIONS

Suzy Truitt | International Distributor Manager | Sales  
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Kyle Hikalea | Application Scientist | Support  
[support@cid-inc.com](mailto:support@cid-inc.com)





# SUPPORT

- For support questions or issues we recommend going to the support page of our website <https://cid-inc.com/support/>
- Common questions available under each instrument
- If you cannot answer your question here, choose Open Support Ticket
  - Serial number required
  - First two digits of the last five digits in serial number are the year instrument was built example 202-3.01-15023 year built is 2015
  - We support all instruments for 5 years from manufacture, beyond five years we may be able to repair, but cannot guarantee
  - All instruments have 12 month warranty, extended warranties available for purchase

# FULL FELIX INSTRUMENTS PRODUCT LINE

F-750



Produce Quality Meter

F-900



Portable  
Ethylene Analyzer

F-920



Check It! Gas Analyzer

F-940



Store It! Gas Analyzer

F-950



Three Gas Analyzer

F-960



Ripen It! Gas Analyzer

Bringing plant science technology from the laboratory and into the hands of the commercial produce industry.

All Felix Instruments feature:

- SD Card for internal data-logging
- GPS for mapping sample locations