Dynamax

International Projects & Market Trends

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European Union Program for Research and Innovation

Installation Locations:

Italy
Turkey

Spain
Tunisia

Tomato Plant Research

System: Flow32

Sensors: EXO Skin

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← Iguessmed - We proud and...

Iguessmed
October 6 at 4:43 AM ·

We proud and happy of our first 2 official installations of iGUESSmed! We successfully installed our sensor devices in the CREA experimental greenhouses located in Pontecagnano and Pescia, Italy.

iGUESSmed is coordinated by CREA - Ricerca and is part of the PRIMA Programme supported under Horizon 2020, the European Union's framework programme for research and innovation EU Science & Innovation.

iGUESSmed is a joint project of:
#CREA, evja, Università di Pisa, Universidad de Almería, Grupo La Caña, #Bioplanet #Cajamar, IRESA(Institution de la Recherche et de l'Enseignement Supérieur Agricoles) Tunisie #IRESATUNISIE, Akdeniz Üniversitesi - Ziraat Fakültesi

The diagrams on the left and right display two installations of a Dynamax Sap Flow System in an Italian greenhouse as part of the European Union Program for Research and Innovation project.

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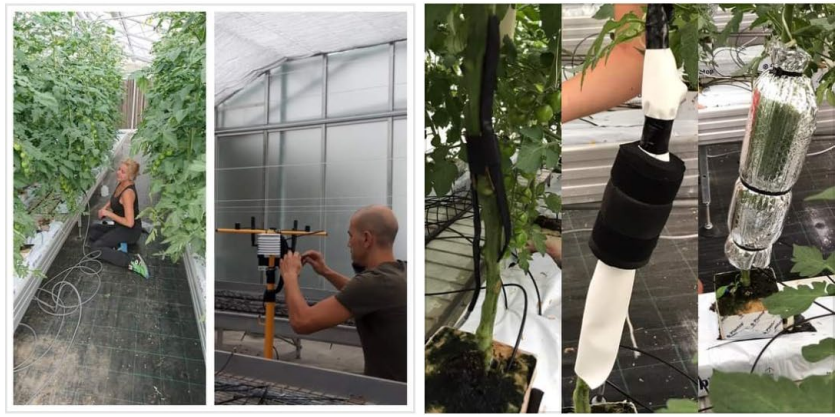

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Flow32-1K™ Sap Flow System

The Dynagage Flow 32-1K Sap Flow System and Dynagage sensors have been servicing research plant scientist thought the world for over 30 years.

The Flow32-1K software makes working with Flow 32-1k Sap Flow system easier than ever before with built-in algorithms.

There is no longer any need to export data to excel as it can be retrieved directly.

Features

- Advanced CR1000x data logger
- 4 MB data storage memory - optional removable microSD flash memory, up to 16 GB
- Real-time sap flow
- Direct transpiration readings
- 8 months of data memory capacity for sap flow calculations
- Modular and expandable system
- Auto Ksh, auto zero algorithm built in
- AVRD high efficiency regulator
- Easy to use logger support software, PC400

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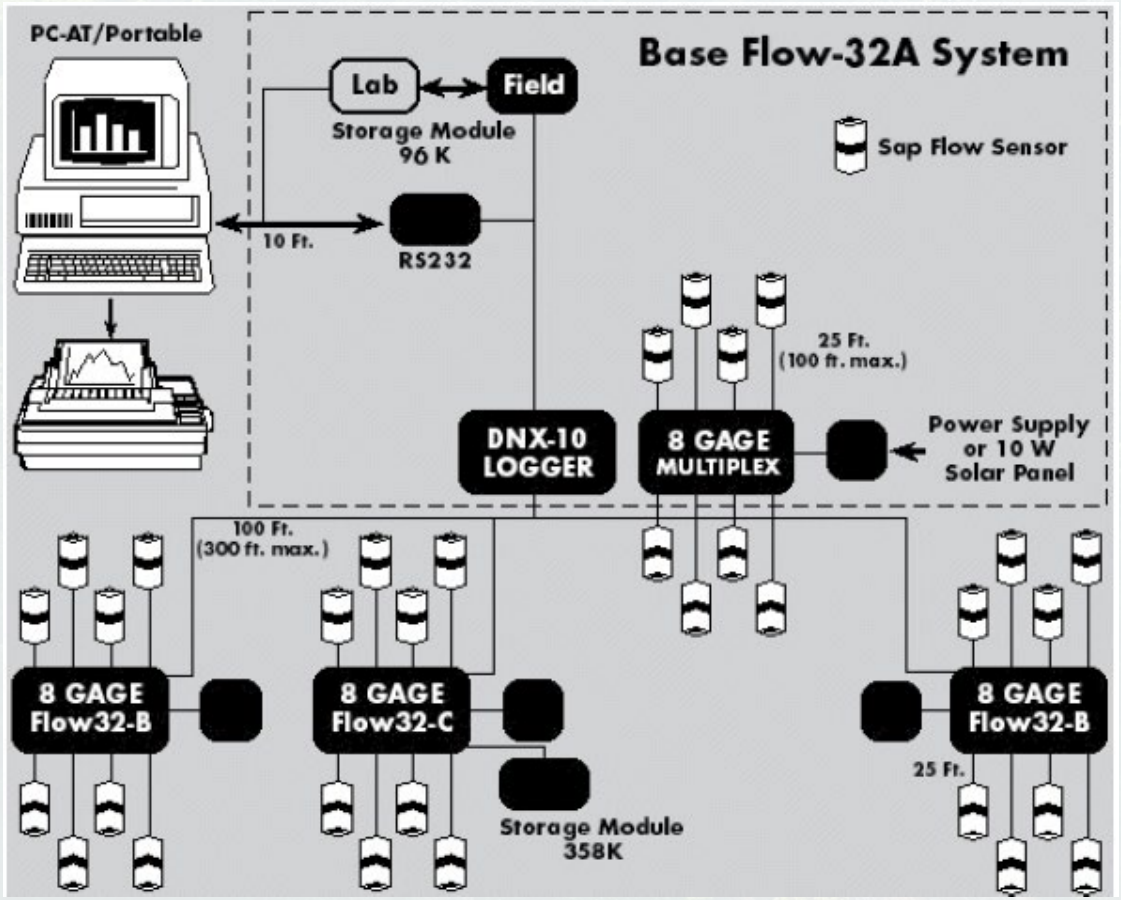

EXO-Skin™ Sap Flow Sensor

After 30 years of experience and worldwide production with Sap Flow sensor manufacture and design we have developed a 1-piece integrated Sap Flow Sensor.

The diagram to the right shows a Flow-32 System expansion module. This allows for several possible treatments or the collection of transpiration response of different varieties in a known environment which is a clear advantage to a commercial plant test or research project.

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Belgium

Phyto It

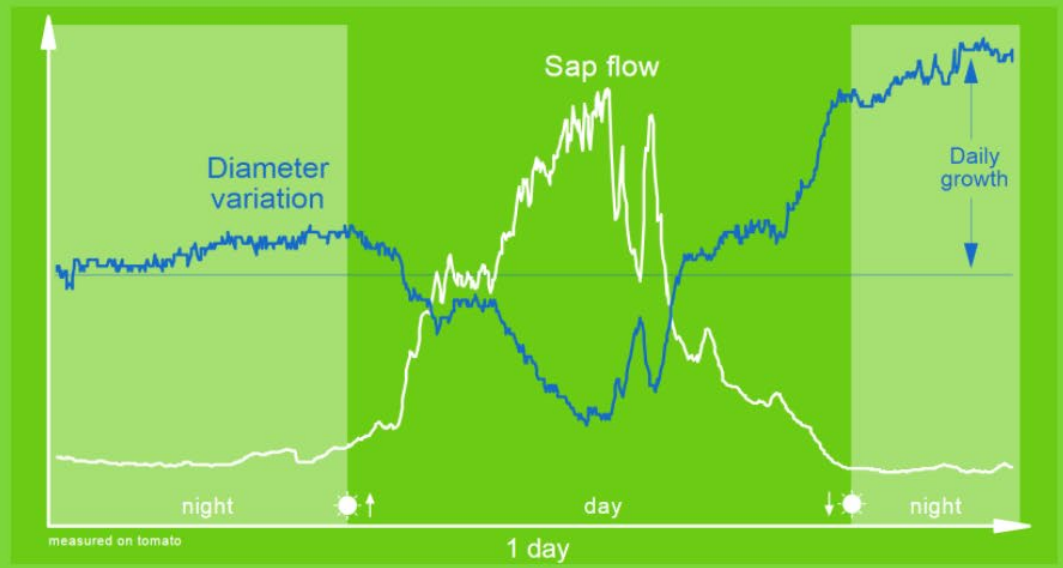
www.2grow.earth

“During the night a positive pressure in the stem cells allows the plant to grow”

The diagram below shows typical daily measurements using a Dynamax Sap Flow System

Typical daily measurements

In the morning, transpiration increases. At that time, the roots cannot supply enough water and the plant uses its internal water reserves from the stem to meet transpirational demand. As a result, the stem diameter shrinks.
At the end of the day , transpiration decreases, and the plant is able to refill its internal reserves. This causes the stem diameter to increase again.
During the night a positive pressure in the stem cells allows the plant to grow.



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The plant sensors consist of a sap flow sensor and a diameter variation sensor.

The sensors measure the reaction of the plant to changes in the climate (irrigation, exposure, etc.) or manipulations (pruning, harvesting, etc.). They can be installed on the plant throughout the growing season. Suitable for herbaceous (tomato, cucumber, paprika, etc.) or woody (grape vine, etc.) plants. Suitable for indoor and outdoor use.

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France

FRUITION SCIENCES

FRUITION SAP FLOW

The most powerful tool to monitor your water use efficiently

Fruition Sciences has 70 systems active in France

Directly installed on the plant, sap flow sensors remotely measure vine transpiration and provide the most accurate reading to manage your irrigation.

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EXO-Skin™ Sap Flow Sensor

Each sensor is supplied with foam body and donuts, reflective bubble shield and a raincoat weather shield.

SGEX-9 - 9 mm EXO-Skin Sap flow sensor
SGEX-10 - 10 mm EXO-Skin Sap flow sensor
SGEX-13 - 13 mm EXO-Skin Sap flow sensor
SGEX-16 - 16 mm EXO-Skin Sap flow sensor
SGEX-19 - 19 mm EXO-Skin Sap flow sensor
SGEX-25 - 25 mm EXO-Skin Sap flow sensor

Features

Flexible sensor skin for:

- Odd plant stems - shapes
- Growth
- New water shedding layer
- Wicks out water vapor
- Insulation and shielding provided

Applications

- Crops
- Vines
- Trees
- Vegetables
- Research AND Commercial Monitoring

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Sap Flow Sensors

Measurement of Plant Transpiration

g/hr, Gals/hr, Gals/Day, mm/d

Heat Balance

$Heat_{in}$ = Heat Sap Flow (Qf) + (Qr) (heat out)

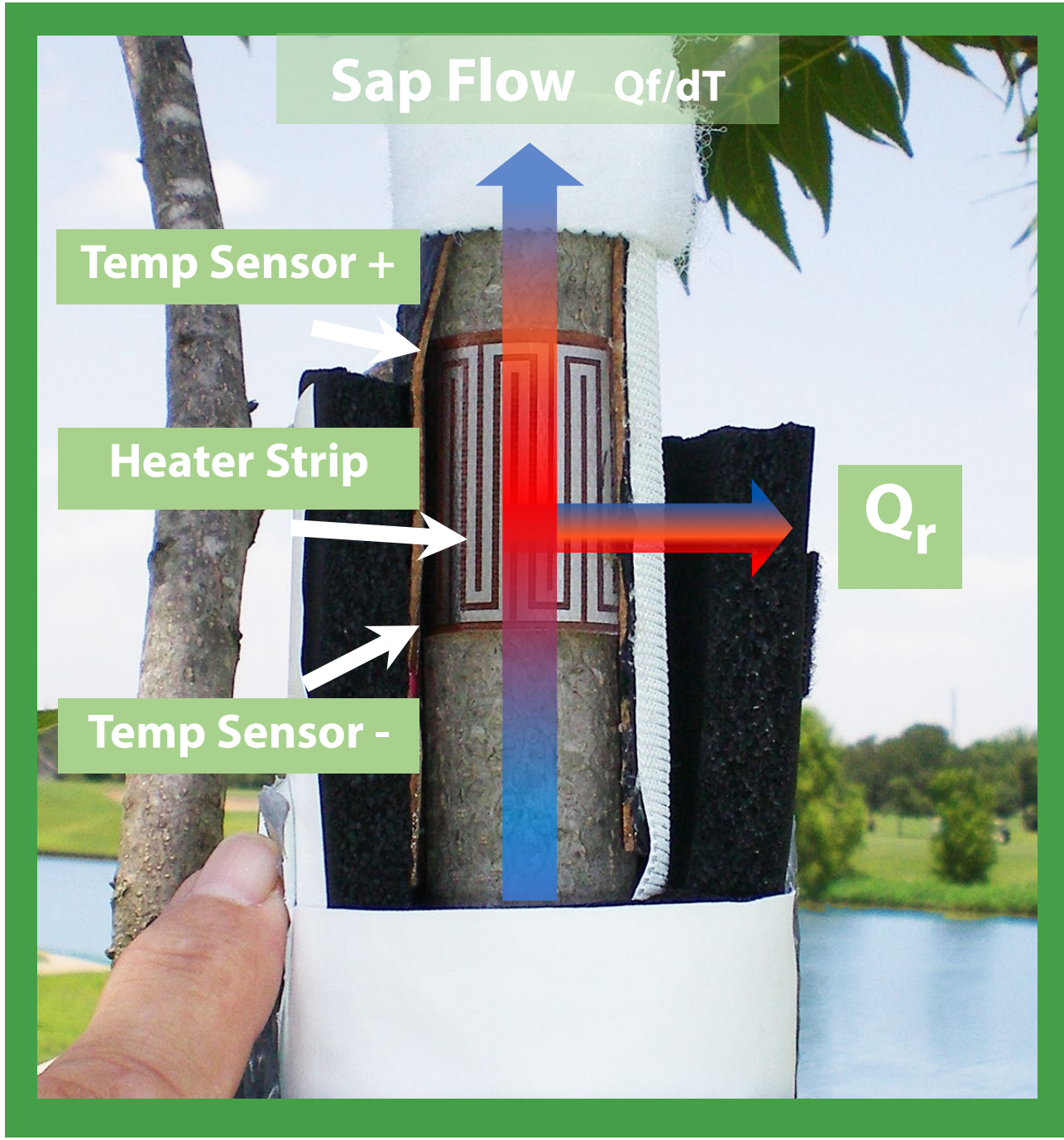
*Converted by Temperature(~2-3 deg) and Cp

Range of Sizes

2 mm up to 150 mm (6)

Works on Most Crops and Trees

Woody or Herbaceous Plants



Installation of Sap Flow Sensors on Grape Plants

Prepare the stem by smoothing the thin bark, or removing thick bark with sandpaper if necessary.

Measure the stem Diameter in mm.

Install the sensor around the stem, and tuck in and overlap the heater strip.

Wrap Velcro strap around the sensor.

Attach the cable.

Install the white waterproof membrane cloth with tape at the top and at the bottom.

Install the 3 foam bodies with Velcro straps.

Install bubble shield around the entire sensor and tape in place.

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What's going on in China
7 HPFMs SOLD

HPFM GEN3

High Pressure Flow Meter

Features

- High Res Generation 3 HPFM
- Reading Sensors direct in parts per million
- NIST calibration standard feature
- Instant data regression, and auto-saver aged results
- USB powered data acquisition
- New High speed sensor conversion module
- Flow ranges increased by 50%
- Improved overlap on conductance ranges by 50%
- Vista, XP, Windows 7, 8 and 10 supported
- Upgrade packages available to previous HPFM systems, with new factory calibration

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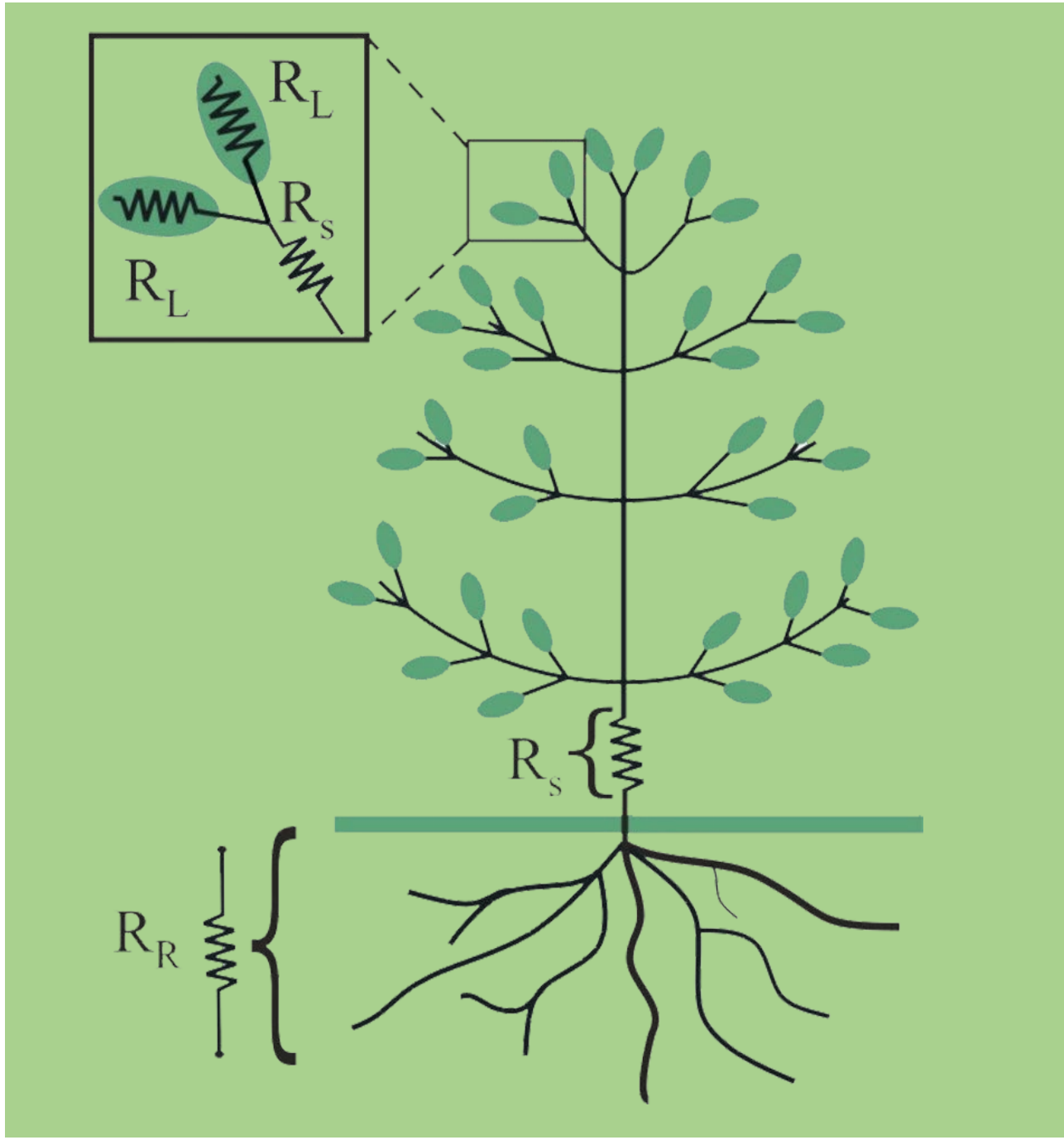
HPFM GEN3

High Pressure Flow Meter

The HPFM-Gen3 measures how water movement relates to the pressure differences required to draw water from the soil or through a plant.

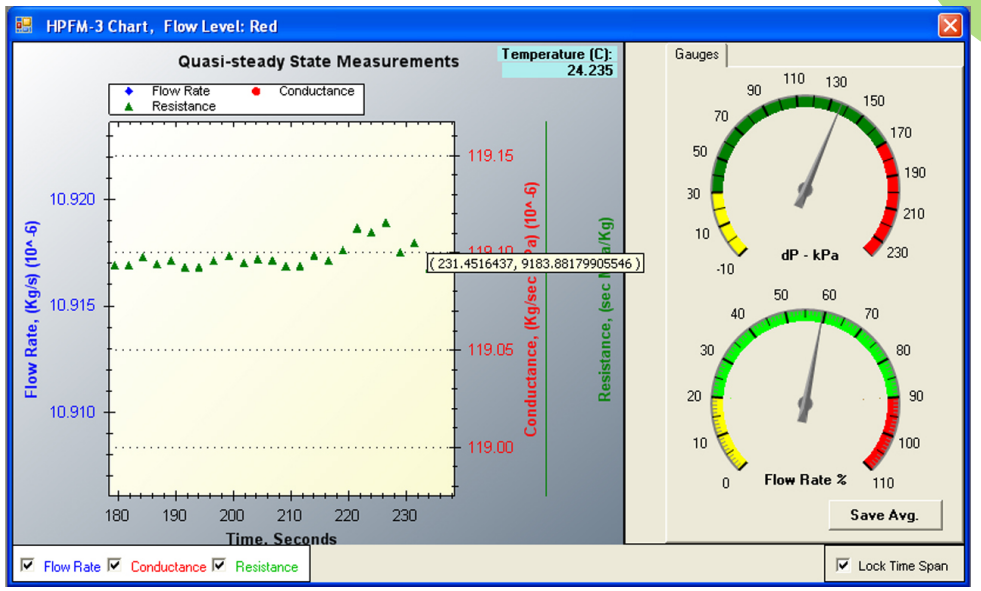
The hydraulic conductivity relationship is a quantitative analysis for roots and stems. The measurement is performed in the field, where in-situ root system can be measured in its natural environment.

In most cases, the analysis of a sample root or shoot is completed in as little as 10 minutes. HPFM-Gen3 measures the major components of the hydraulic conductance in the soil-plant-atmosphere continuum. The hydraulic architecture of a whole shoot or of a single leaf can be represented by a resistance diagram similar to the electronic circuit shown. One can measure the values of the individual hydraulic resistances, then compute the pattern of water flow and water potentials in the resistance network. Each hydraulic resistance element (R) equals the pressure difference driving flow through the element divided by the resulting flow (F).



HPFM GEN3

All data sets are saved within the Project Manager framework file structure. Transient results as well as QSS flow meter data are saved for easy viewing in with Excel, including the computed conductance, temperature and averaged results.



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We see a big demand for Worldwide Water Regulation to Improve the following:

- Product Quality
- Fruits and Vegetables, Grapes
- Nutrient Application
- Water Conservation
- New Clones and Hybrids for Drought Tolerance
- Managing Irrigation
- Manage Xylem Disease
- Plant Stress - Transpiration tracking

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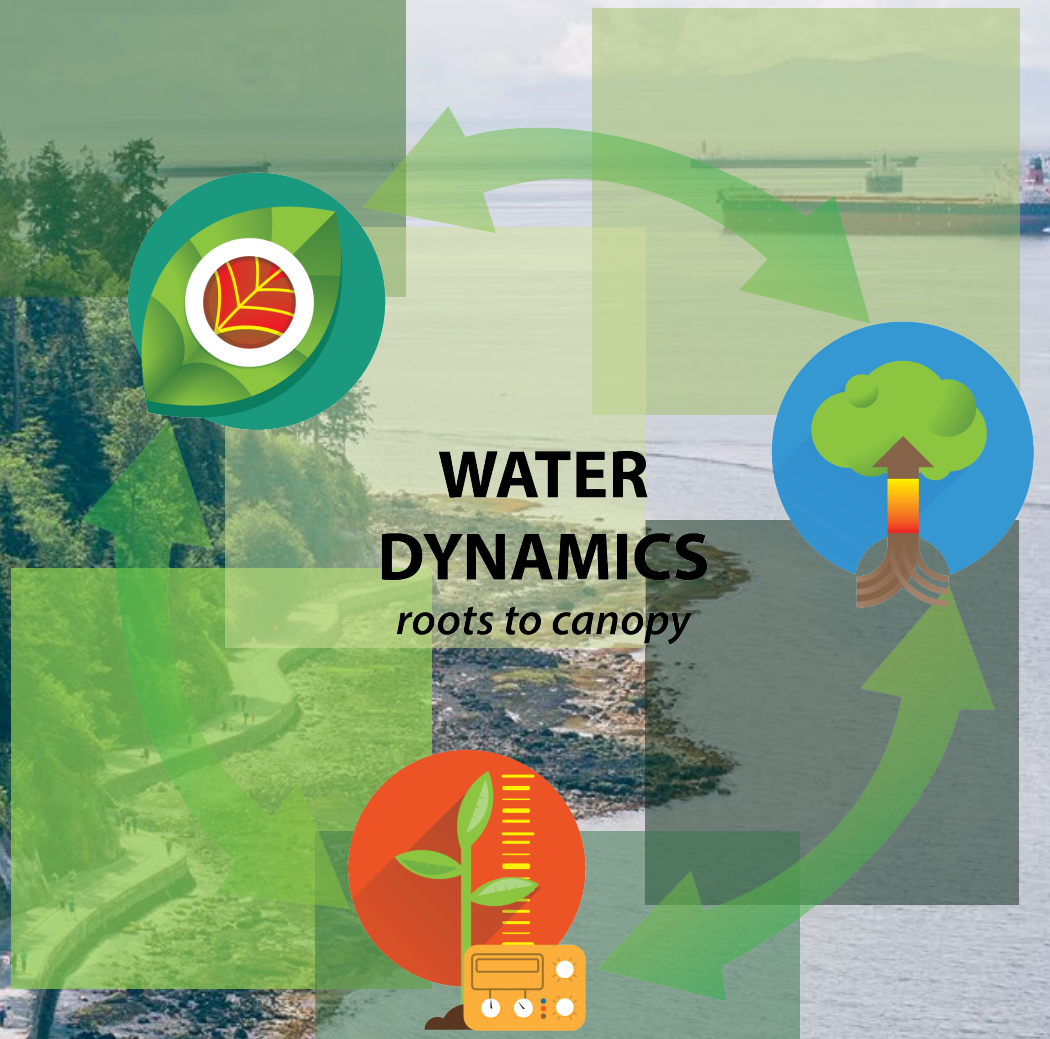
Thank You



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