



Together for sustainable irrigation

# EIA Winter Irrigation Forum

## 26 January 2023

# THE HOUSEKEEPING RULES FOR A SMOOTH FORUM

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- The event is recorded and will be shared
- Please present your full name and your organisation properly
- Please mute your microphones while you not participating
- Please use the chat box for questions and comments
- If you can, turn on your camera on so we can see each other

# THE HOUSEKEEPING RULES EIA CODE OF CONDUCT

- EIA believes it is important that its activities are at all times carried out in accordance with the applicable law, especially competition law.
- EIA believes that business shall be conducted in an atmosphere of free competition, i.e. based on price and quality.
- The Code of Conduct aims at providing clear rules to EIA's members, thus reducing the risk of improper conduct and consequently of fines being imposed.
- This Code of Conduct shall be binding on all members as well as all other participants when taking part in EIA activities.

## Agenda for this forum

16:00 -16:15	<b>Opening</b>  <b>The 2030 Agenda for sustainable Development, The EU taxonomy for sustainable activities</b>	Moshi Berenstein/ EIA President
16:15 -16:30	<b>Welcome &amp; introduction of New Members</b>	Fleur Martin/ EIA Communication Officer
16:30 -17:00	<b>Guest speaker</b>  <b>Advancing regenerative agriculture, carbon science, and ecosystem service markets: Opportunities for irrigation</b>	Agreena's Chief Science Officer, Nathan Torbick, PhD
17:00 -17:20	<b>Innovation and Technology</b>  <b>Control watering in green city environment</b>	by Paul Van Breda, Irri-Spec
17:20 - 17:30	<b>Open session for Q&amp;A</b>	

# The 2030 Agenda for sustainable Development, The EU taxonomy for sustainable activities



- The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity. At its heart are the famous 17 Sustainable Development Goals (**SDGs**)
- Undertaken by Europe, the EU climate and energy targets for 2030 were already set and is part of the **Green Deal** and other related documents.
- To reach these objectives the EU searched for a method to direct investments and activities towards more resilient economies, businesses and societies against climate & environmental shocks.
- To achieve this, a common language and a clear definition of what is 'sustainable' is needed.
- This is why the action plan on financing sustainable called for the creation of a common classification system for sustainable economic activities, or an "**EU taxonomy**"
- The EU taxonomy establishes a list of environmentally sustainable economic activities. In this way, it should create security for investors, protect against greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed.

# The 2030 Agenda for sustainable Development, The EU taxonomy for sustainable activities



The **Taxonomy** was published in the Official Journal of the European Union on 22 June 2020 and entered into force on 12 July 2020. The Taxonomy Regulation establishes six environmental objectives

1. Climate change mitigation
2. Climate change adaptation
3. The sustainable use and protection of water and marine resources
4. The transition to a circular economy
5. Pollution prevention and control
6. The protection and restoration of biodiversity and ecosystems

# The 2030 Agenda for sustainable Development, The EU taxonomy for sustainable activities



The Commission created an IT tool – the **taxonomy compass** – that will facilitate the use of the taxonomy by allowing users to navigate easily through its contents.

EU Taxonomy Compass								
Filter by sector or activity								Search
Sector	Activity	Climate mitigation	Climate adaptation	Water	Circular economy	Pollution prevention	Biodiversity	
Water supply, sewerage, waste management and remediation	Construction, extension and operation of waste water collection and treatment	⊕	⊕					

the **Complementary Delegated Act**, as published in the Official Journal on 15 July 2022. The Complementary Delegated Act will enter into application on 1 January 2023

- From 2023 updated Measurement and Publication expected for Eligible activities and alignment on technical criterion ;
- Focus on Contribution to the first two objectives: Climate change Mitigation and Adaptation; Consideration and solving negative impacts;
- Applies to 11,000 financial EU companies (> 500 employees) of 70 sectors;
- Extended to all SMEs in 2026... with an extended Taxonomy under construction

# The EU taxonomy for sustainable activities

## What does it mean for us?



- 1) irrigation in the front line, foster innovation adoption
- 2) Work towards the recognition of the importance of irrigation in meeting sustainability standards
- 3) Create common language & definitions for sustainability in our sector
- 4) Within the WG “sustainability” (headed by Giulia Giuffre & Giusy Inferrera) we are currently working on several initiatives:



- a. Defining what is “sustainable irrigation”?
- b. Set of criteria to measure and evaluate quality of irrigation and water management solutions; H/W, S/W, direct/ complementary.
- c. CERTIFYING SUSTAINABLE IRRIGATION: Labelling agricultural products through a collaboration with certification institutes of various types (adding irrigation requirements in the certification audit process). For example: Friends of the Earth to identify the sustainable irrigation requirements to be included in the existing agriculture and farming certifications.
- d. Ambrosetti House event 11/2022





# Welcome new members

- We are very pleased to welcome 7 new members in the association since our latest forum, in October.
- We now have 78 members

# AMIAD Water Systems

Contact for EIA: Philippe Meray / [philippe.meray@amiad.com](mailto:philippe.meray@amiad.com)



Amiad Water Systems is a world leader in water treatment and filtration solutions, and for 60 years has devoted its passion and commitment to developing a comprehensive line of water filtration systems for applications in the irrigation and industrial markets. With our screen, disc, microfiber and media technologies and broad range of automatic, semi-automatic and manual filters, we are able to effectively treat and filter water according to each customer's specific requirements.

<https://amiad.com/>



Established  
**1962**

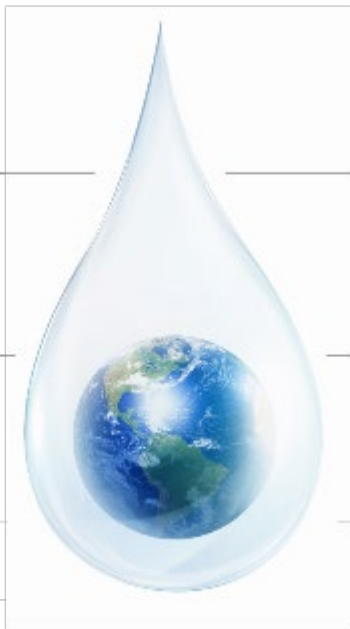
Over  
**700**  
Employees  
~400 in Israel  
~300 worldwide

Ticker: APS  
**AIM LISTED**  
Company since 2005

Solutions delivered  
through  
**15** subsidiaries  
& front offices

**32**  
Patents and  
Intellectual Property

International  
**QUALITY**  
Compliance

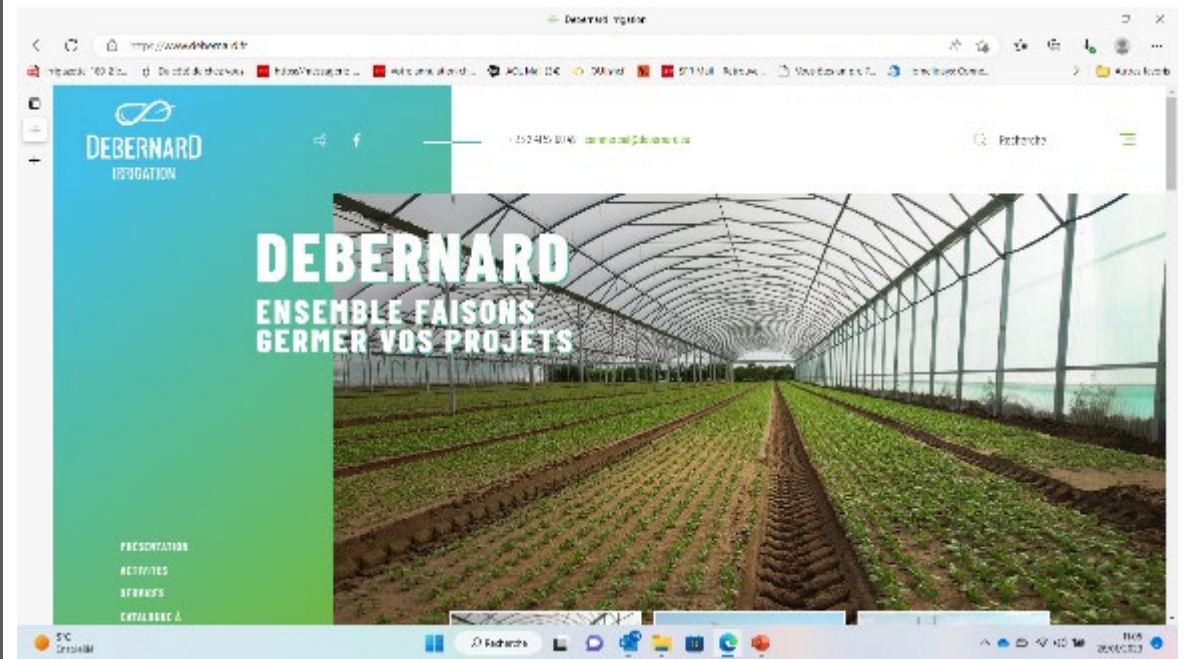



# Debernard

Contact for EIA : Louis Marie Stollsteiner



Email : [lm.stollsteiner@debernard.eu](mailto:lm.stollsteiner@debernard.eu)





# Inovato Engineering

Your innovative partner in the design and construction of  
irrigation systems

# Our partners

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# Innovative products from Inovato



Sprinklers



Nozzles



Controllers



Solenoid valves



Valve with electric actuator



Accessories



# LITE-SOIL

Austria, Vienna

Contact for EIA: Dorothea Sulzbacher  
[dorothea.sulzbacher@lite-soil.com](mailto:dorothea.sulzbacher@lite-soil.com)  
[www.lite-soil.com](http://www.lite-soil.com)



## Textile water storage and smart underground irrigation systems for gardening & landscaping



### LITE-NET

The water distribution net

- ✓ transports water & air very effectively to the roots

- ✓ 100% biodegradable or permanent



### LITE-STRIPS

The water storage strips

- ✓ store water near the roots

- ✓ easy and simple installation



### BLUELITE-NET

The underground irrigation system

- ✓ saves up to 70% water compared to conventional irrigation



## History

Our history begins in 1919, with the foundation of the Skala family's first private business.

In 1991. MR. Zoltan Skala has established the company Poliext Csövek Kft. in Hungary.

## Who we are

### Family-owned Production Company

#### We offer solutions in the field of:

- WATER SUPPLY,
- AGRICULTURE
- LANDSCAPE, and TURF IRRIGATION

#### Our Product:

- PE PIPES
- PP COMPRESSION FITTINGS  
PN16 and PN10
- COMPRESSION BALL VALVES
- Polidrip DRIP-LINES
- Dripline FITTINGS and VALVES

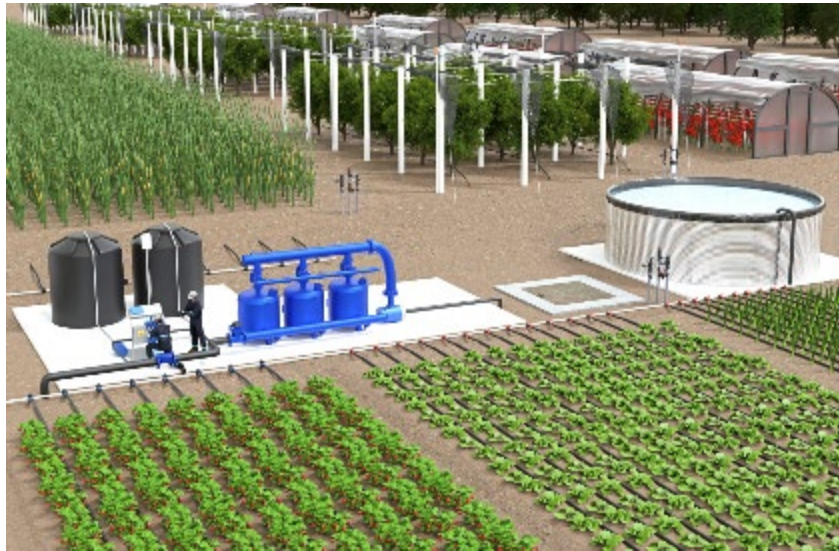
## Sales Network

We provide **high-quality water-saving solutions** worldwide.

Today Poliext export to **30 COUNTRIES**, including **4 CONTINENTS** with more than **1000 REGULAR CUSTOMERS**



# Complete Irrigation Solutions



## Our Irrigation Solutions include:

- Project Design
- Material & Equipment Supply
- Installation
- User Training and Support



## **Polixt is the main partner for RDI in Europe**

Advanced irrigation technologies are highly needed in the current agriculture system since there is an increased demand for water-saving irrigation practices to enhance water use efficiency.



# THE Machines

Contact for EIA : Ahai Loebinger

Email : [loebinger.a@the-machines.ch](mailto:loebinger.a@the-machines.ch)

**THE** MACHINES

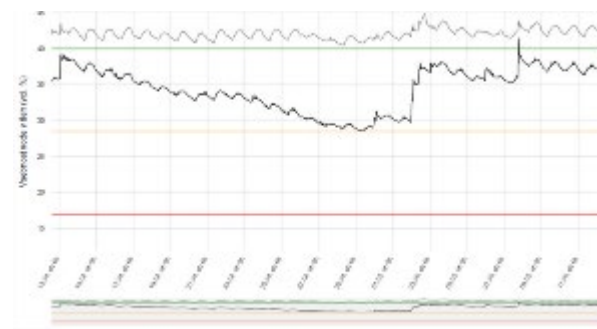
EXCELLENCE IN PRODUCTION TECHNOLOGY



# University of Ljubljana

Contact Rozalija Cvejić/ rozalija.cvejic(at)bf.uni-lj.si

- **UL a national leader:**
  - Agricultural water management
  - Irrigation design, development, implementation
  - Decision support systems for irrigation
  - Wastewater reuse for irrigation
- **Services we provide:**
  - Education & training
  - Innovation co-development & transfer
  - Mainstreaming solutions
  - Testing equipment in labs, polygons under controlled conditions & at farmer or catchment conditions
  - Policy programming & evaluation



## Growing market

- Irrigation (develop., moderniz.),
- frost protection,
- soil-moisture products



# Our Members



# Advancing regenerative agriculture, carbon science, and ecosystem service markets: Opportunities for irrigation



**Nathan Torbick, PhD**  
**Chief Science Officer**  
**Agreena**  
[nathan.torbick@agreena.com](mailto:nathan.torbick@agreena.com)

# Company snapshot: Agreena

Agreena grows the adoption of **regenerative agriculture practices** with our marketplace platform

- **HQ in Copenhagen**
- **130** Agreenians from **30+** nationalities
- **Best practices & standards**
- **>500,000** hectares enrolled
- **Making Impacts!**

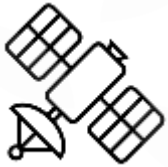


## marketplace platform

Quantify Certificate Transactions Impact



# Science @ Agreena



## Multi-source satellite remote sensing

- Optical, radar, thermal
- Tracking field conditions

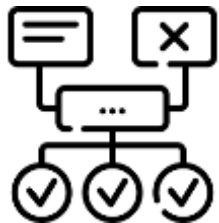


## Data science

- Machine Learning & BigData
- Space-time analytics



**Policy, Engineering, Platform,  
Customer Success, Commercial,  
Finance, Sustainability**



## Program

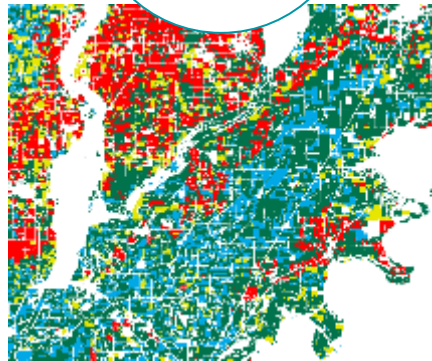
- Crop, Soil, & Emissions modeling
- Agronomy, Practices, Quantify outcomes

# Measurement, Reporting, & Verification: Example RA metrics

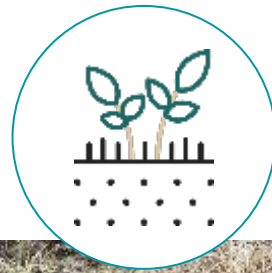
Tracking for all major row crops across Europe & central USA



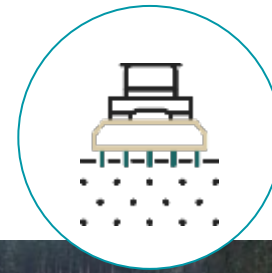
Field boundary detection



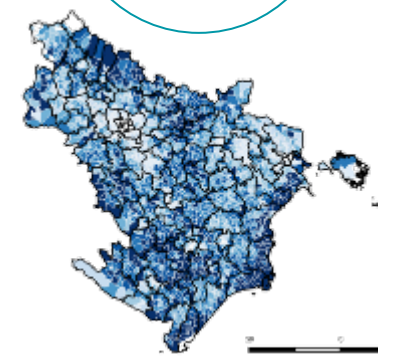
Crop type and rotations



Cover crop practice



Tillage tracking



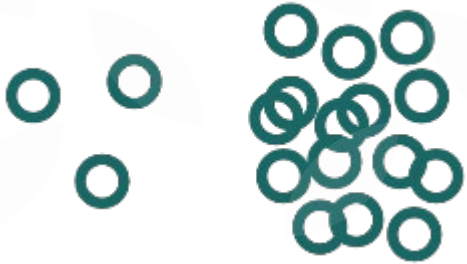
Quantified outcomes



# Agreena uses a multi-source EO approach

- Fusion of different satellite remote sensing observations
- Radar penetrate clouds with moderate resolutions
- Sensitive to structure, roughness, moisture

Number density



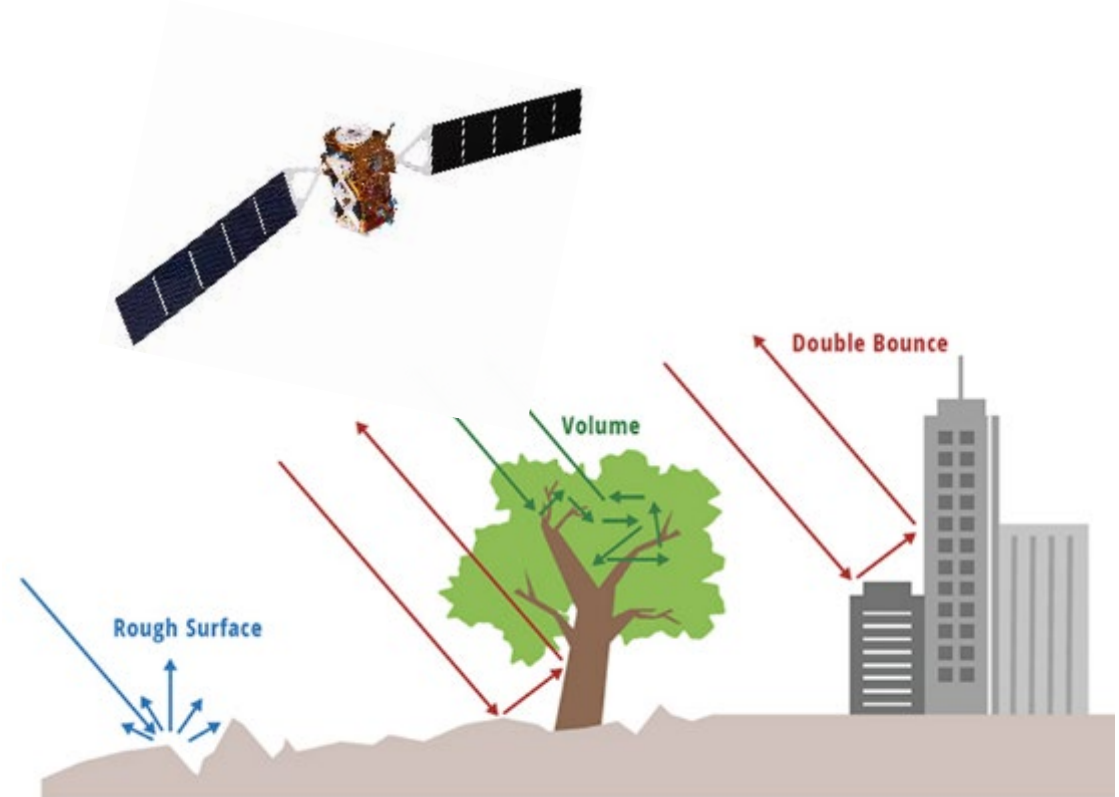
Size relative to wavelength



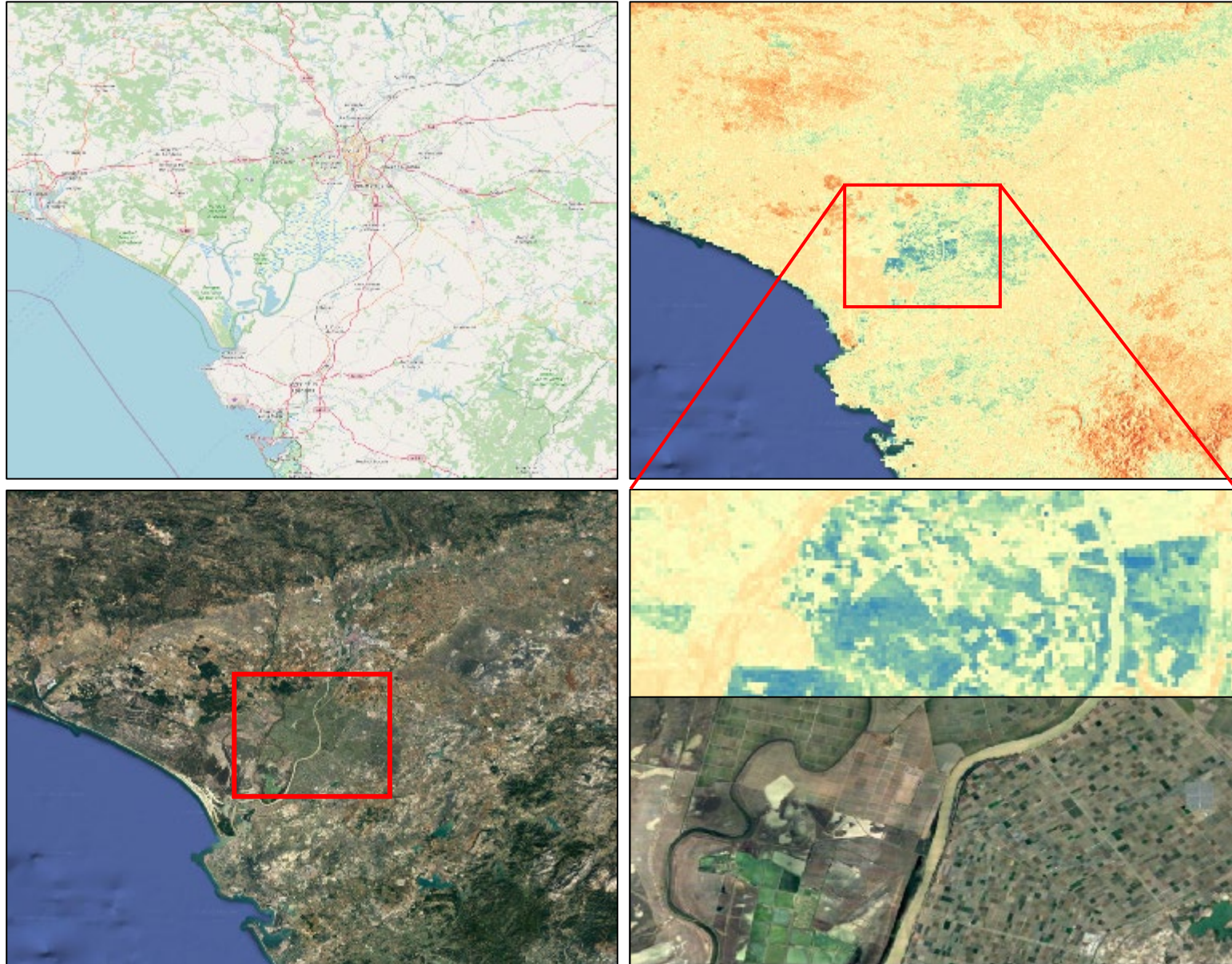
Dielectric contrast (moisture)



Orientation and shape

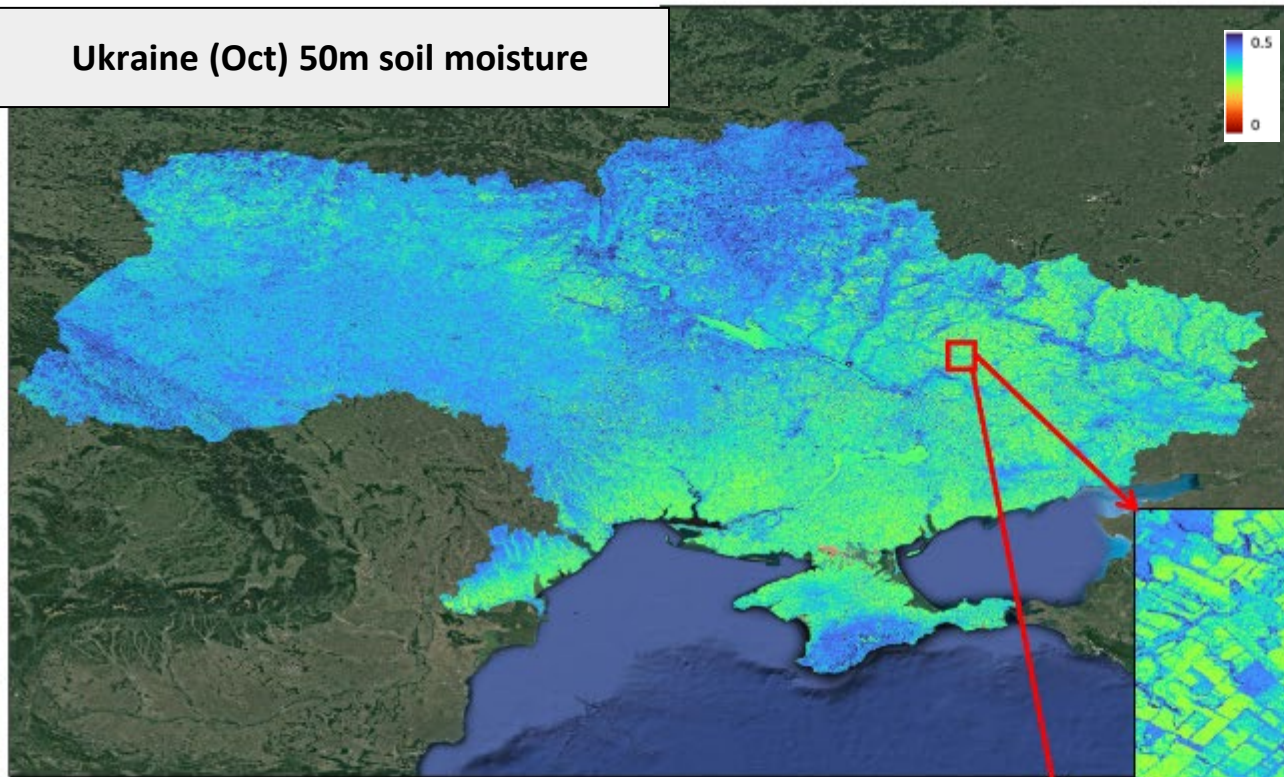


# Applying across Spain to track irrigation & resiliency

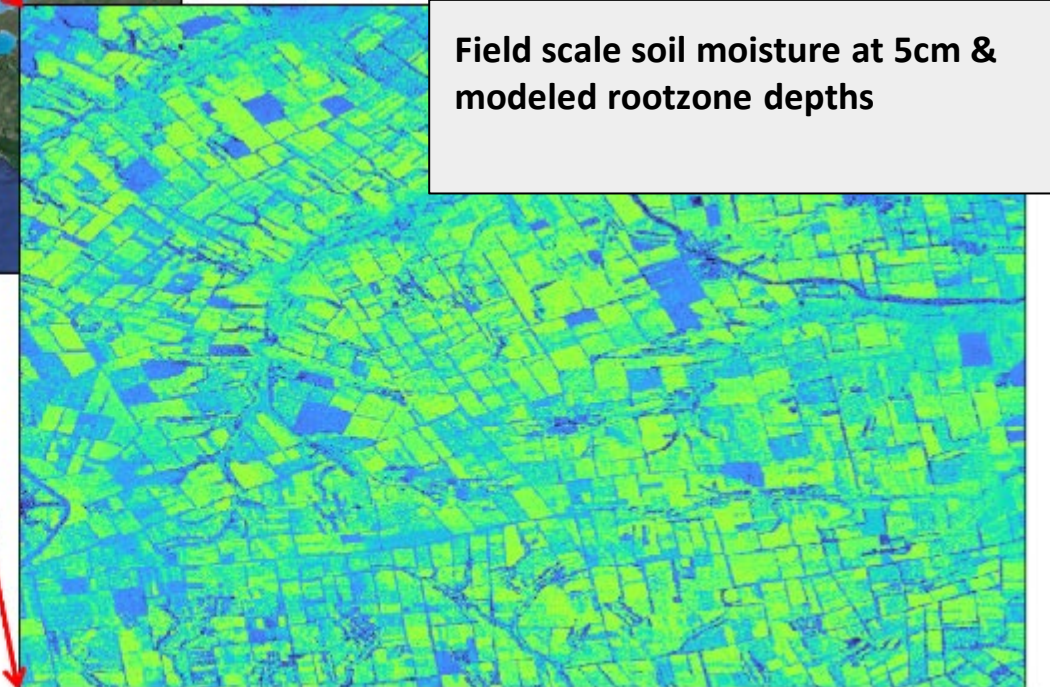


# Example daily 50m surface soil moisture

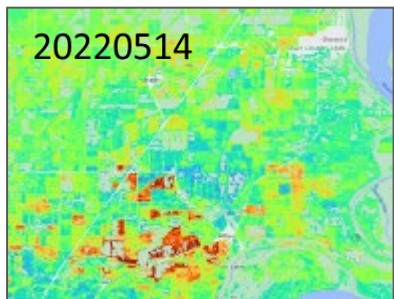
Ukraine (Oct) 50m soil moisture



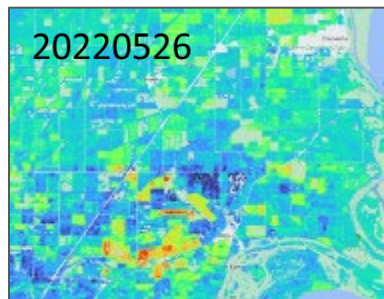
Field scale soil moisture at 5cm & modeled rootzone depths



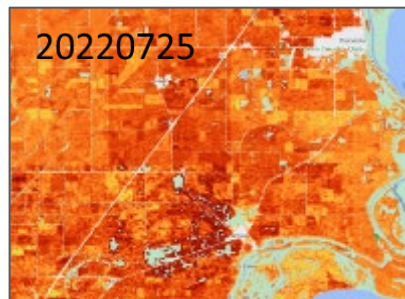
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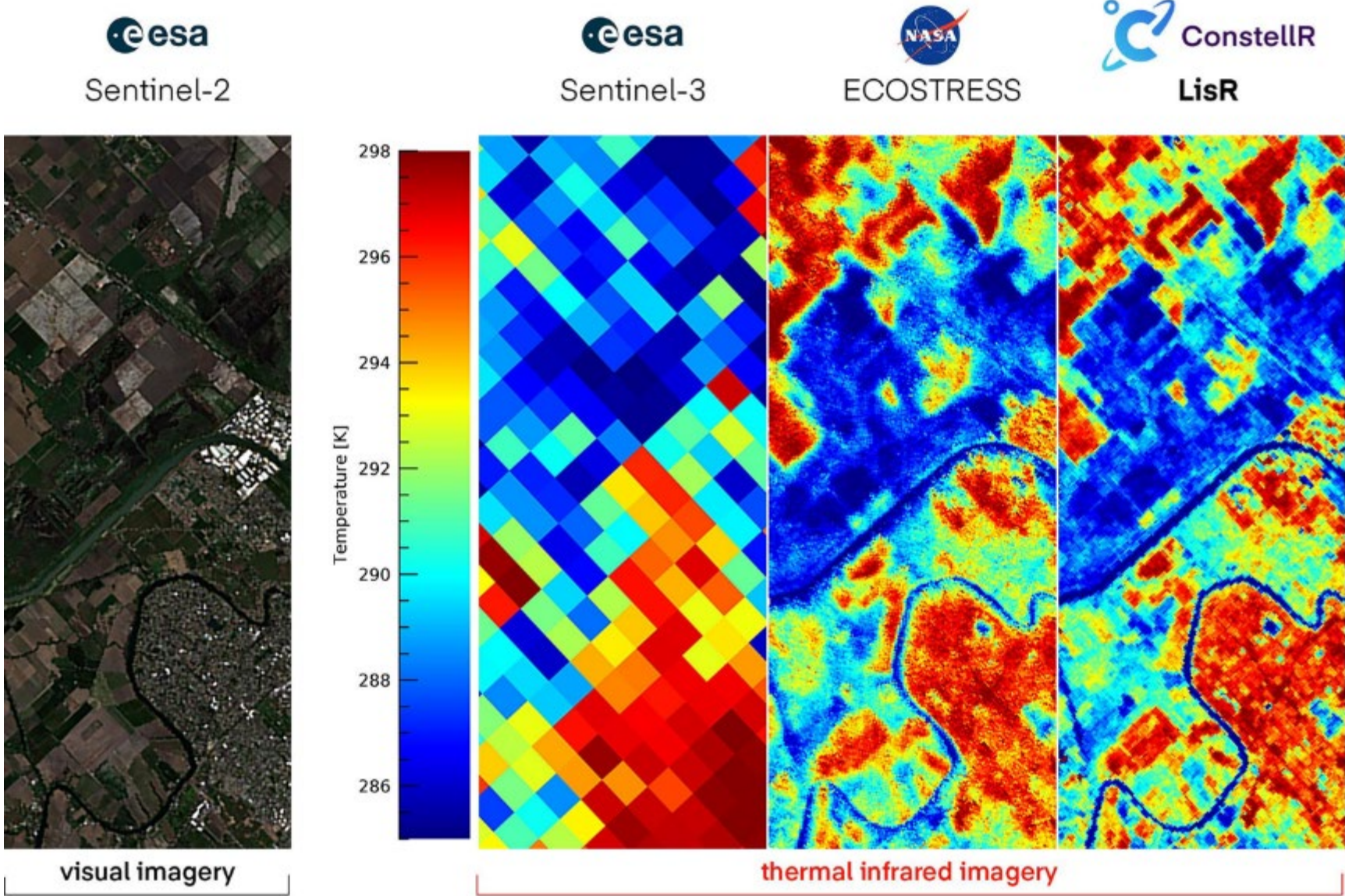
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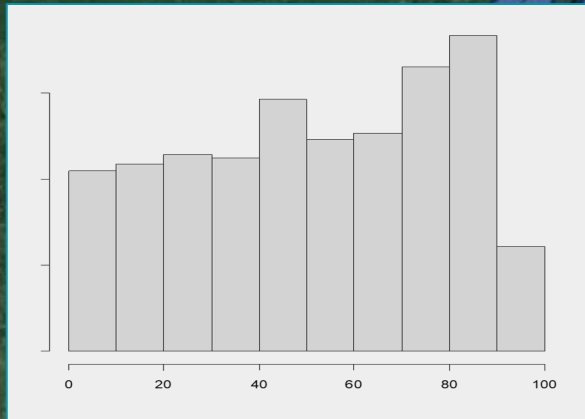
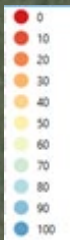
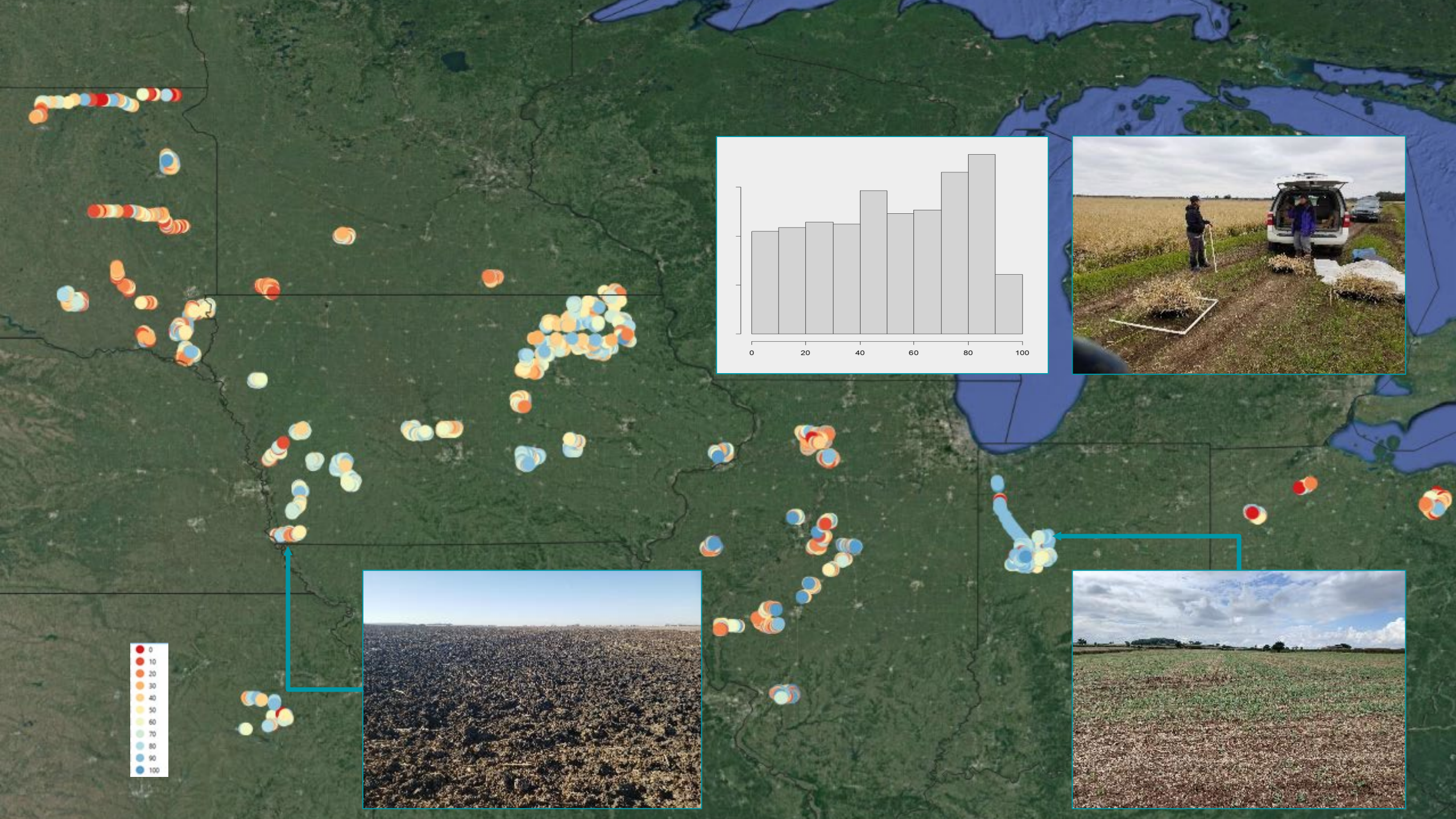


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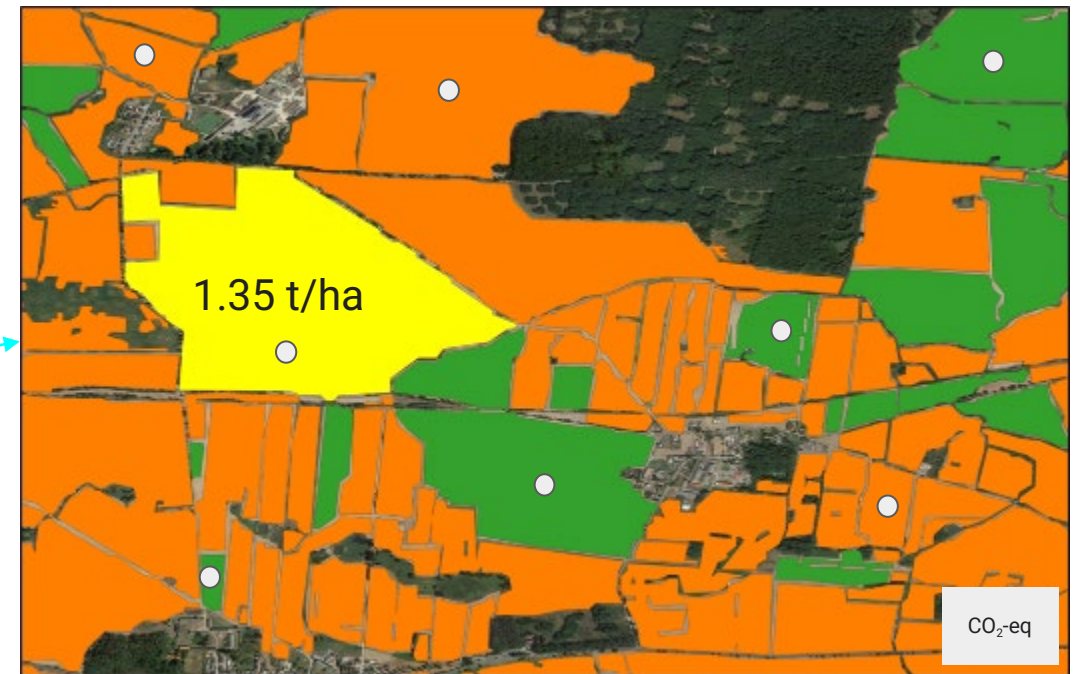
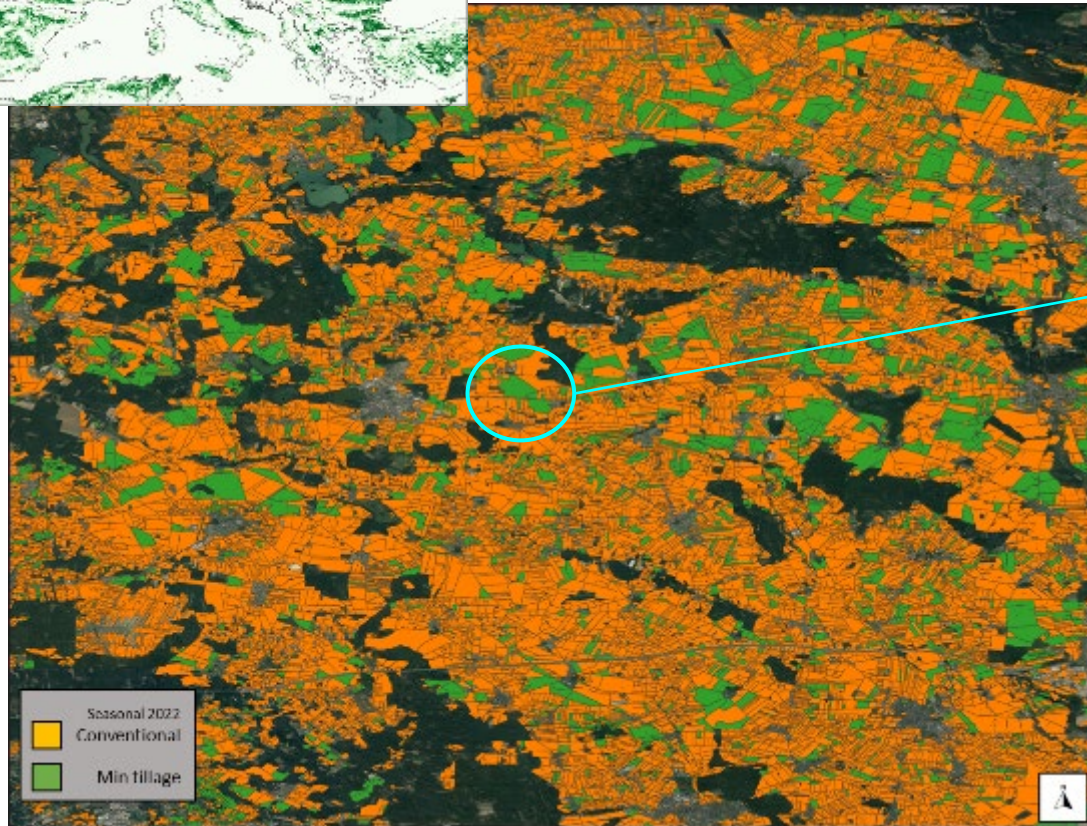
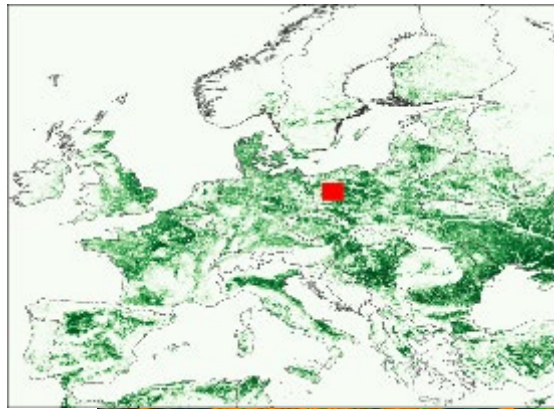


# PB of data: thermal observations and products (EvapoTranspiration)





# Quantify outcomes & convert into certificates

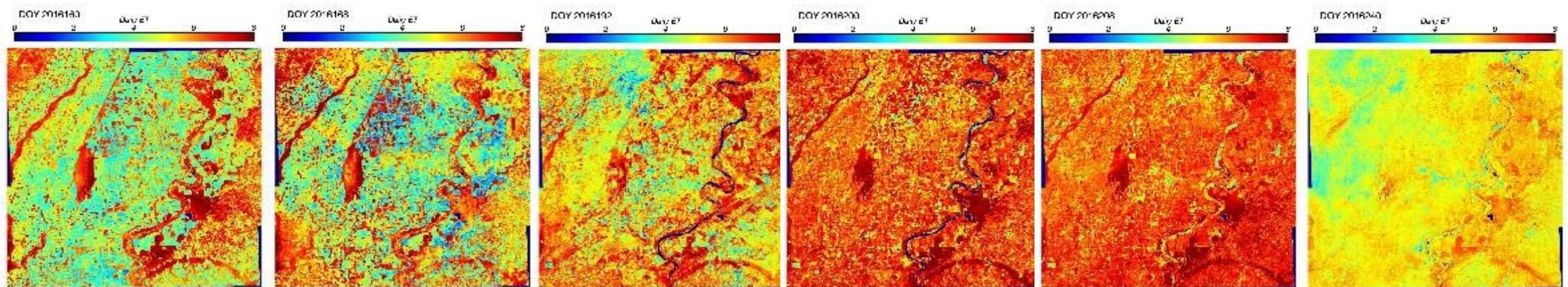
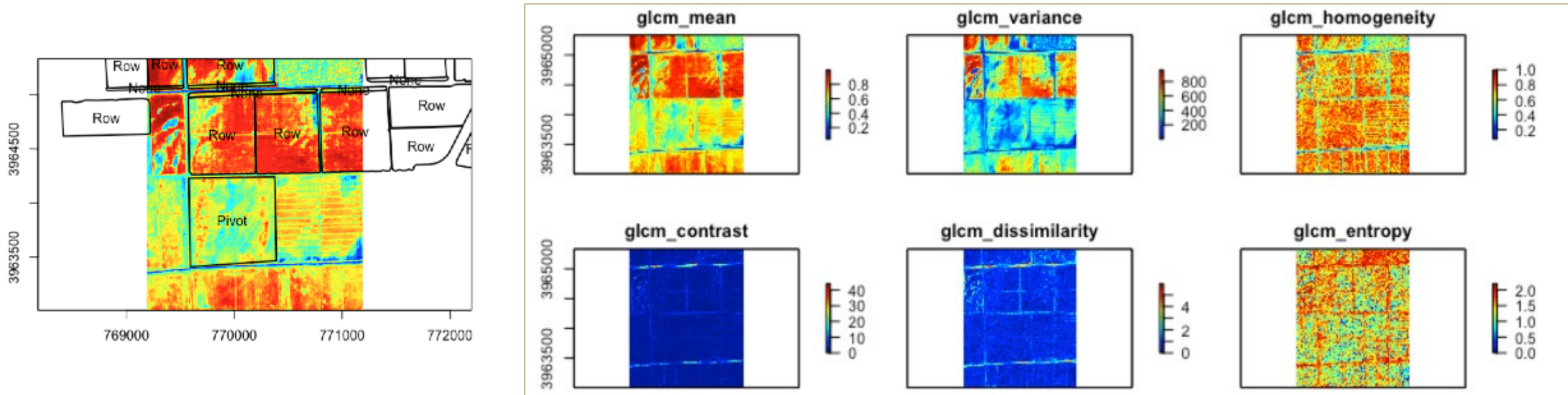


Markets vary, certificates range from \$10-40 today

# Example training data to teach models

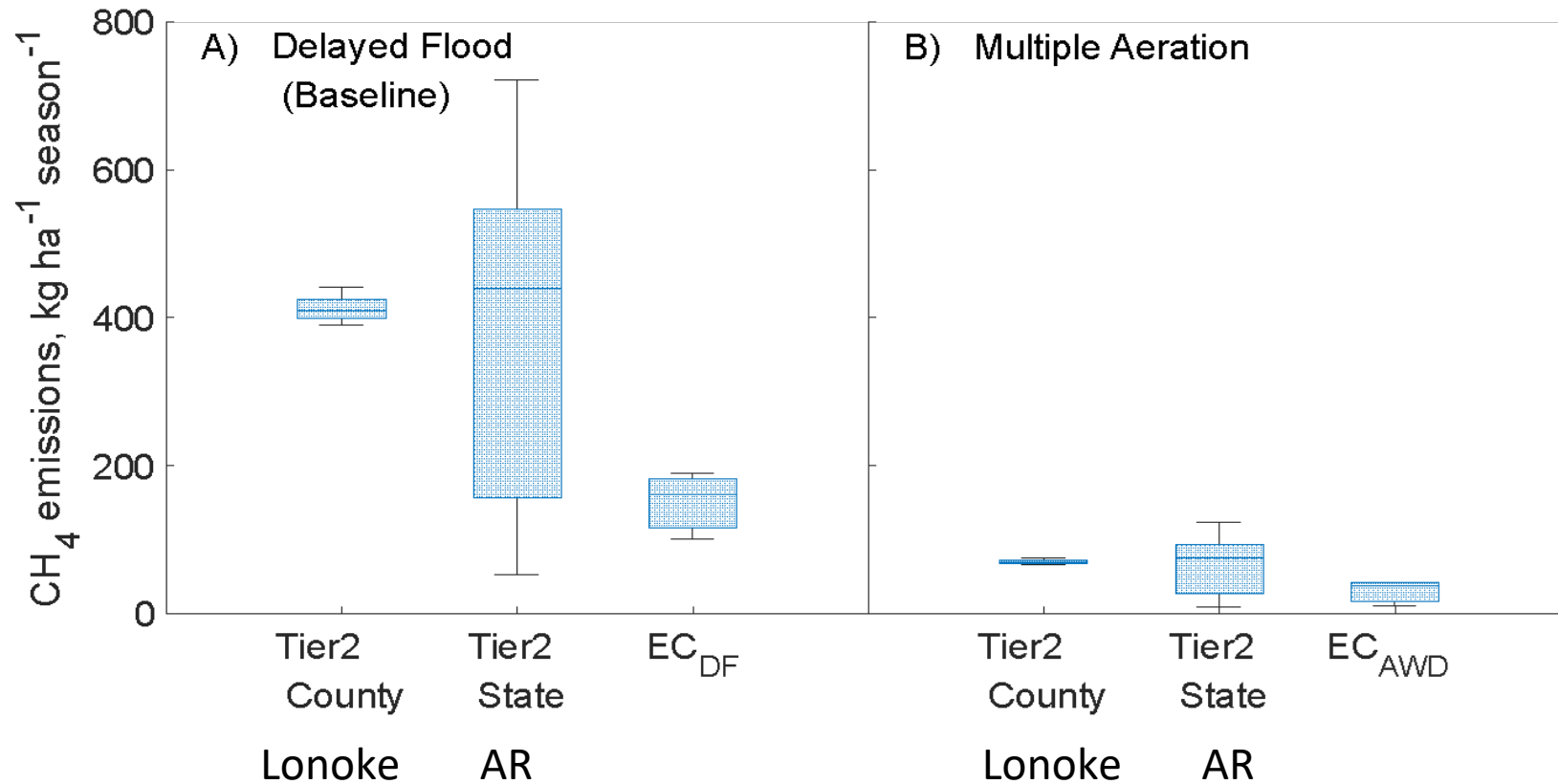


# Example training data to teach models

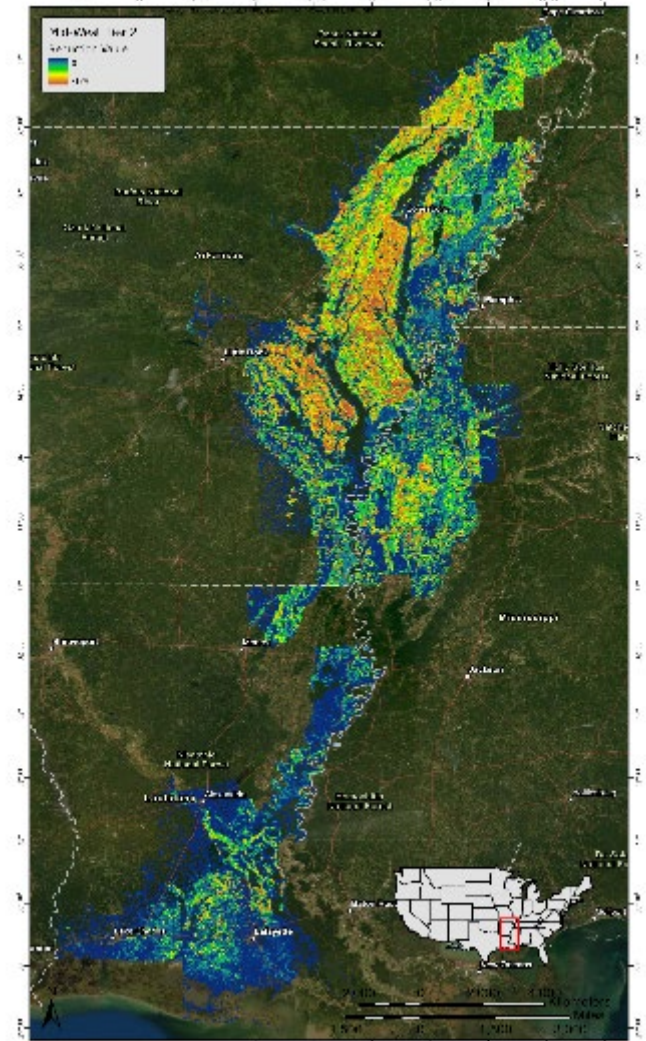




# Example: Impacts of AWD irrigation on GHG



Rice Methane Mitigation Potential (2008-2020) in the US-Mid-South.  
Between 2008 and 2020, there was approximately 1.33 Tg of unrealized methane reduction (M. Reba, pers com)



M. Reba, USDA, DWMU

# Take home messages

1. Agreena is growing regen ag practices & carbon markets today
1. RS & ML capable of tracking 'categorical' row crop irrigation practices & link with process crop models to gauge impacts (SOC, CH<sub>4</sub>, N<sub>2</sub>O)
1. Feasible to reduce GHG and enhance soil health with irrigation optimization
1. Early days for crop water policy, standards, & monetizing via certificates
1. Agreena passionate about crop water management; work groups or pilots

Thank you.



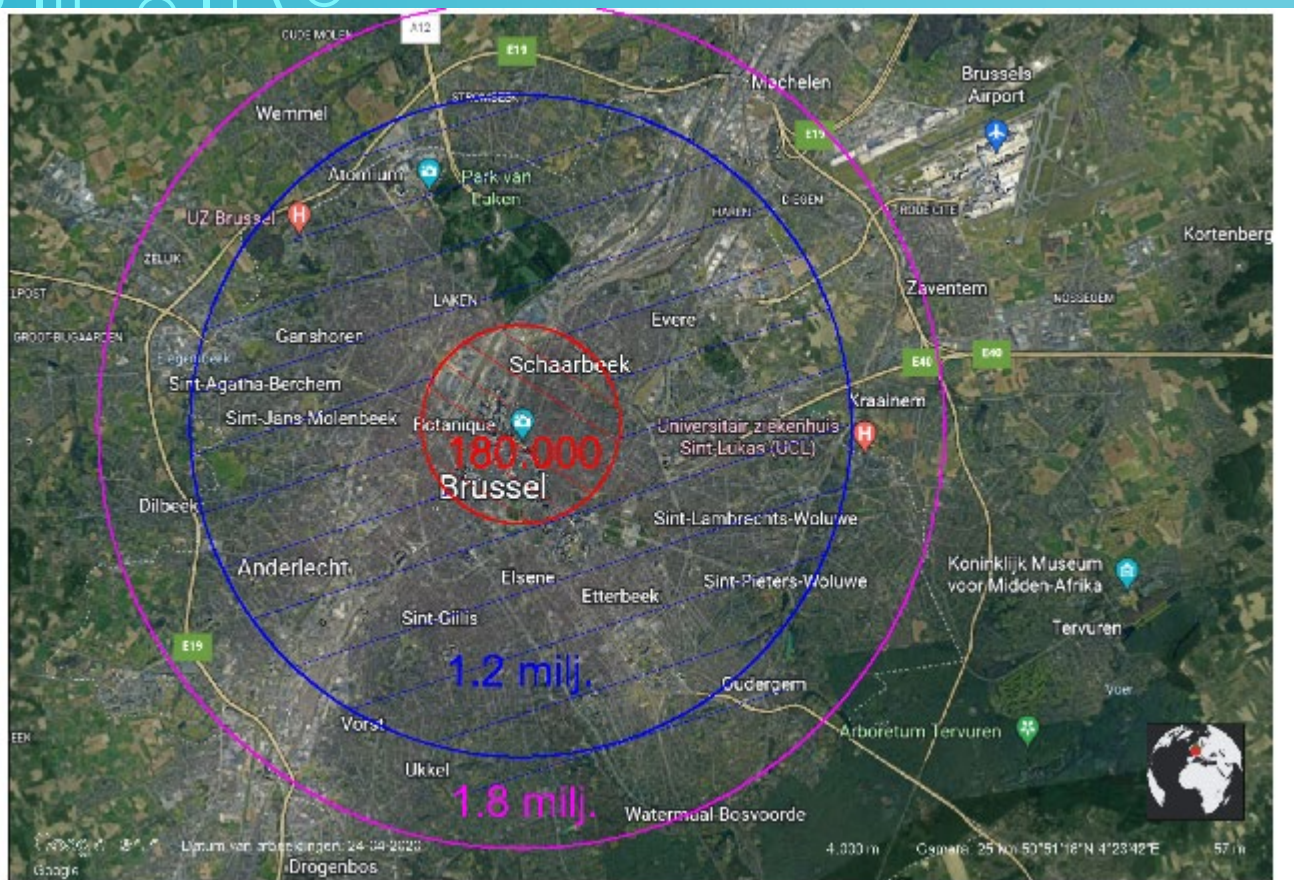
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# GREEN CITIES

## TIPS AND TRICKS TO REDUCE THE WATER CONSUMPTION ?

# A CITY ? THE CITY ? CITIES ?

## EUROPEAN CAPITAL : BRUSSELS



CAPITAL OF : Europe , Belgium , Flemisch Community , French Community and Brussels Capital Region.

Municipality : 188.000 inhabitants of which 1/3 in historical pentagon

33km<sup>2</sup> 1/3 in the northern sub municipalities

1/3 in European quarter

Brussels Capital Region - 161 km<sup>2</sup> 19 municipalities – 1,2 milj. Inhabitants

Urban area including suburbs - 1,8 milj. Inhabitants

**8000 Ha of green – parks – sportsfields – cemetery – Bois de soignies**

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# 50 SHADES OF GREEN



## BRUSSELS – THE GREENEST CITY OF EUROPE

Today Brussels still offers a big variety of greenspaces

Historical parcs and gardens

Playing gardens

Botanic garden

Sport fiels

Cemetery

2003 – 2016      14% lost of green areas

In the past 10 years 55 Ha of green areas added

in the public market – some smaller parks

in the pivate market - building projects ( roof gardens )

privat gardens – a fight for every m<sup>2</sup>

carpark or greenzone

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# BRUSSELS AND IRRIGATION

ETO = 4mm    ETP = 6,5mm    ETP weekly = 40mm



**IN BRUSSELS MAINLY POTABLE WATER IS USED FOR IRRIGATION**

PUBLIC LAWN - Parks ( limited )    Sportfields yes

PUBLIC PLANTATION - new planted

Watermanagement - all local    irrigation promoted by landscape architects

PRIVAT MARKET - Lots of investments - roofgardens mainly plantation

Higher standard of living in the south of the city – gardens are irrigated ( lawn and plantations )    local watermanagement without restrictions

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## BRUSSELS – A COMPLEX SITUATION

### What problems the city has to counter

An old historical City with a complex political system – Who is Who

Difference in suburbs – Molenbeek -Ixelle North – South – Historical pentagon

A lack of subsoil information – how deep can you dig – SOIL quality

Disrespect for public green – vandalism/demonstrations

No groundwater available – poor infrastructure to collect rainfall

Parkinglots versus green a fight for every m<sup>2</sup> private / public

No watermanagement plan ? - no communication with stake holders



## WHAT CAN CITIES DO TO CREATE A GREENER ENVIRONMENT

### SHORT TERM

- Install a central officer for the bigger region ( political effort )
- communication on a bigger scale with **ALL** stakeholders about the importance of green in the city. Natural Airco - Clean Air – Mental Health  
Natural Airco - level of influence    Trees – shrubs – groundcover / lawn



Upgrade maintenance teams to a higher professional level – create respect



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## WHAT CAN CITIES DO TO CREATE E GREENER ENVIRONMENT

### MID TERM

- Local Government

Public investments - focus on poor suburbs

Green deal with privat market - rainfall collectors – roofgardens  
vertical gardens – open spaces ( semi privat )



Create Streetlife with plant trays ( temporary irrigation with central control )

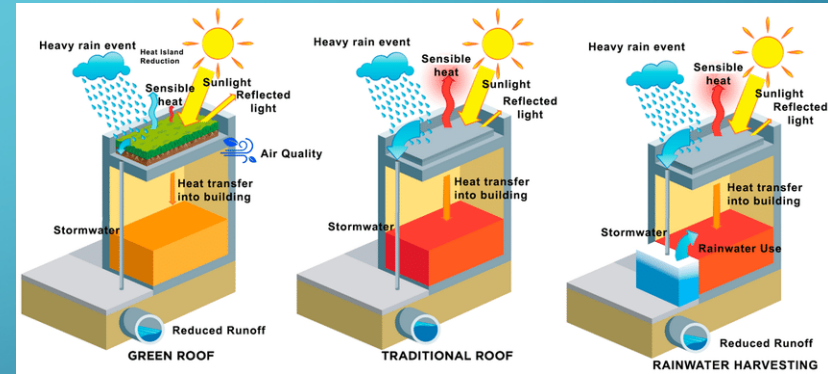
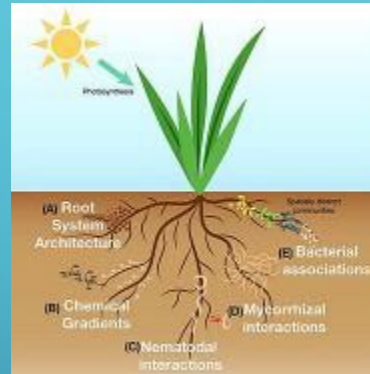
## WHAT CAN CITIES DO TO CREATE A GREENER ENVIRONMENT

# LONG TERM

PUBLIC AND PRIVATE

SOIL SCAN OF THE COMPLETE AREA – What will be possible – Rhizosphere !!! How deep can you go

RAINWATER HARVESTING – CIRCULAR WATER

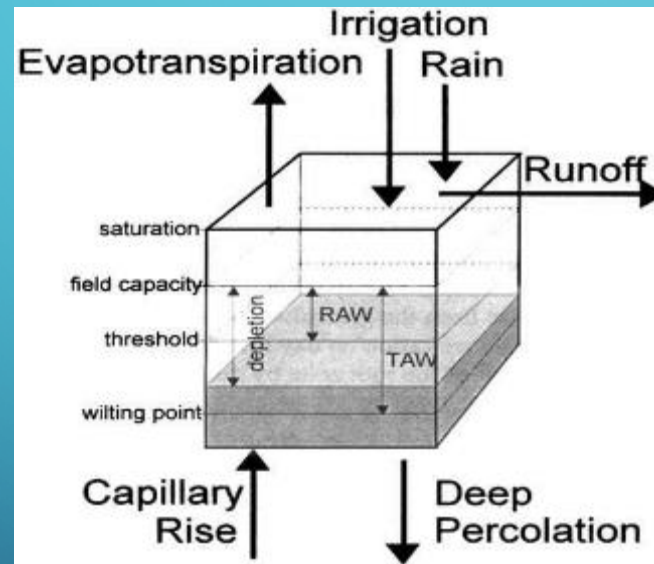


GREEN NEEDS SOIL – SOIL CAN CONTAIN NUTRIENTS – NUTRIENTS ARE DISTRIBUTED WITH WATER

# THE IMPORTANCE OF IRRIGATION IN THE CITY

## Level of importance

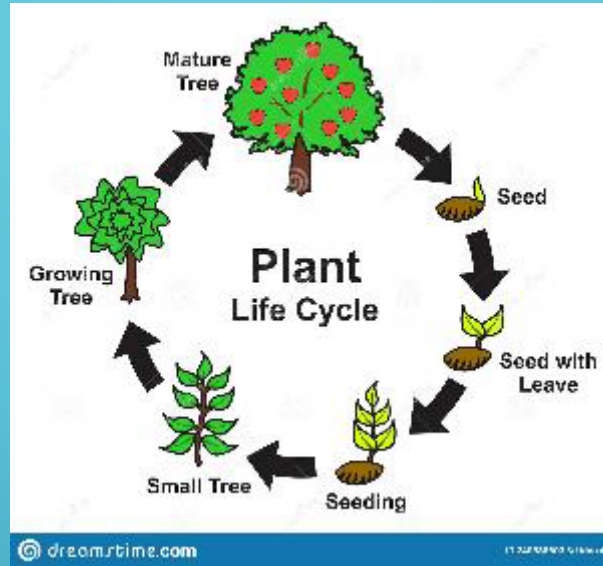
1. SOIL structure - texture – drainage ( saturation )
2. PLANT TYPE plantfactor - photosynthesis – rhizosphere
3. Irrigation  
available water ( fieldcapacity – wiltingpoint – TAW )  
MAD allowable depletion RAW



IRRIGATION ONLY HAS TO SUPPORT PHOTOSYNTHESIS

# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

In the city harvesting is not the goal – we're not growing food



We only need to support plantlife ( photosynthesis )

**We do so by CONTROLLED WATERING**

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# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

## ON THE ROAD TO CONTROLLED WATERING

Where  
every  
drop  
counts



### WHAT THE CITY NEEDS

**Plantations – Roofgardens – Vertical gardens – Small lawn areas ( trees – shrubs – groundcover )**

Micro irrigation - spot drippers – driplines – PC – Submersed ( vandalisme – rooth insertion )

SOLAR ENERGY – supporting photosynthesis we do in the heat of the day

Local watersupply ( decentralised ) ( potable – circular ) Check quality !!!

Central Control 4G – 5G – Ethernet CLOUD ( remote valve control ( battery ))

**Lawn/Turf irrigation public parcs and sportfields privat gardens and sports areas**

Rotors - best single legg profiles – top quality – vandalism protection

Local watersupply ( decentralised ) ( potable – circular ) Check quality !!!

Central Control 4G – 5G – Ethernet CLOUD ( remote valve control )

Avoid shallow roots - mowing and maintenance program soil conditions

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# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

ON THE ROAD TO CONTROLLED WATERING

Where  
every  
drop  
counts



WHAT THE CITY NEEDS



ZONING : plant life time ( rooth development ) – shadow – heat – rain  
do we want to run irrigation by the use of sensors only ??

MONITORING SOIL CONDITIONS 5G – LORA fixed sensors

Salinity

Watercontent - movement



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# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

ON THE ROAD TO CONTROLLED WATERING

Where  
every  
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WHAT THE CITY NEEDS



**ROOFGARDENS** Mainly privat investments

On top of buildings or parking lots

City farming

Greendead Privat/public open space – water supply  
the use of reclaimed water – rain – gray water

**IRRIGATION** Mainly micro irrigation

Central control – local

AI – self controlled systems

Remote monitoring with sensors

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# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

## ON THE ROAD TO CONTROLLED WATERING

Where  
every  
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counts



## WHAT THE CITY NEEDS



VERTICAL GARDENS Mainly privat investments  
A CONCEPT WITH INTEGRATED IRRIGATION

Often promoted as one of the best investments  
For cooling en CO2

### IRRIGATION

most of the concepts integrate irrigation  
poor watermanagement – shallow roots  
hydro culture - big water consumer  
Circular system ??? WHC ???  
Remote monitoring with sensors

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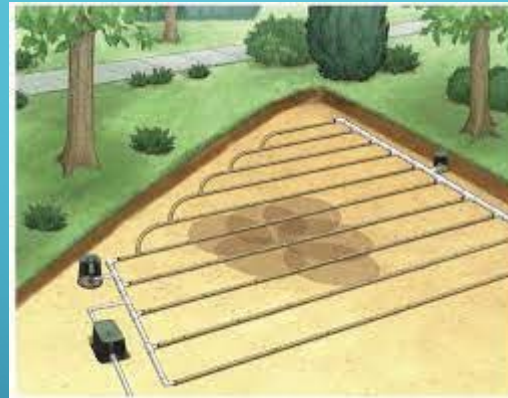
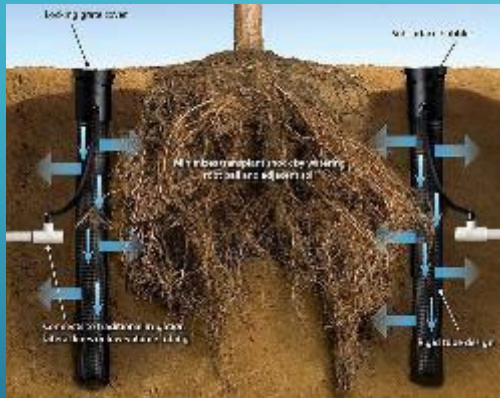
# OPPORTUNITIES FOR THE IRRIGATION INDUSTRY

ON THE ROAD TO CONTROLLED WATERING

Where  
every  
drop  
counts



WHAT THE CITY NEEDS



PUBLIC GREEN AREAS

Trees – shrubs – groundcover – lawn

Remember – SOIL CONDITIONS

IRRIGATION

Trees RWS in combination with driplines

Shrubs – groundcover driplines

Groundcover – lawn sprinklers

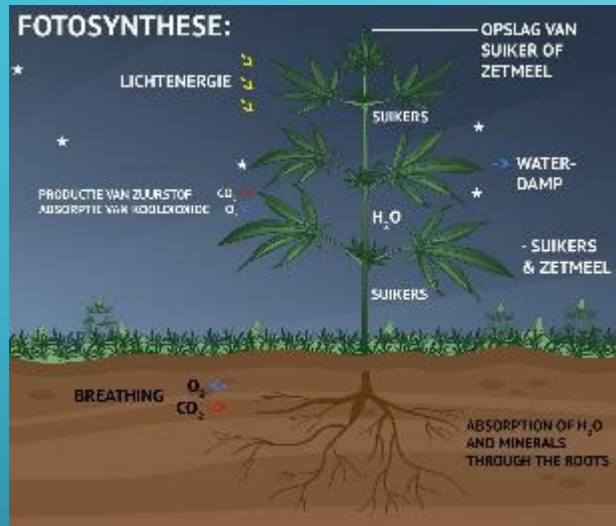
ZONING !! CENTRALISED AND REMOTE CONTROL

Remote monitoring with sensors

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# THE ECOLOGICAL FOOTPRINT OF IRRIGATION IN THE CITY

A TOPIC THAT NEEDS MORE RESEARCH



## JUST SOME THINGS TO THINK ABOUT

- Plant lifetime - deeper roots - less irrigation
- Controlled watering MAD – Weather forecast
- Green energy ( solar wind )
- Trees natural airco's
- Cleaner air
- No harvesting Carbon stays in the system

## QUESTIONS – REMARKS

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