

# Smart water management solutions to sustain agriculture and landscaping in the GCC region

Water preservation to protect our food supply chain and urban live space

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Hydrorock is a spin-off from AsbiprO



- 70 years experience within insulation
- 3 locations within the Netherlands
- Smart prefab insulation solutions
- Fire barriers for high-rise buildings
- Fabrication of Industrial insulation for Shell / BP
- Worldwide distributor and supplier of Rockwool solutions



Hydrorock is proud partner of Rockwool, world leader in stone wool products and solutions

Hydrorock has distributors in Abu Dhabi, China, Singapore, UK and Australia





## Our Vision

To protect our food supply chain and urban live space from excessive flooding or extreme water scarcity caused by climate change, we need to drastically improve the water retention capabilities of soil.

## Our Mission

To solve flooding and dehydration issues in cultivated and non-cultivated areas with sustainable Hydrorock® subsoil innovations.



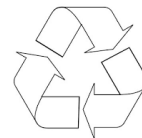
## A very natural process

Hydrorock's sustainable and innovative subsoil products are based on lightweight, 100% natural and ecology-friendly stone wool



- ✓ 100% natural material
- ✓ Volcanic rock basalt
- ✓ Molten rock, spun into fibers and formed into blocks

- ✓ Remains underground in optimum condition for decades
- ✓ Resistant against erosion by plant- and tree roots
- ✓ Inflow of soil not possible









Due to the composition Hydrorock blocks have the unique quality of storing large amounts of water and releasing this water in a dosed manner directly to the plant's root zone reducing irrigation water waste.

The variation in the specific filling solutions makes the Hydrorock solution adaptable to local conditions and implementation requirements.

The Hydrorock subsoil solution easily integrates in existing or new irrigation systems, effectively replacing topsoil irrigation systems (e.g. bubblers, sprinklers).





## Advantages of Hydrorock

- + Minimizes irrigation water use and reduces water waste → up to 50% reduction compared to conventional bubbler or sprinkler irrigation
- + Versatile and flexible: applicable to orchards, agriculture, landscaping, gardens, ...
- + Simple installation, low maintenance
- + Reduced labour and operational costs, incl. energy costs for irrigation and pumps
- + Insensitive for saline conditions so perfectly suited for GCC conditions
- + Excellent to combine with soluble fertilizers for precision feeding of plants
- + Easy integrates in existing irrigation systems: replacing e.g. bubblers or sprinklers
- + Smart monitoring and control using AgrIOT soil sensors, mobile apps and web portal in real-time anywhere anytime







## Hydrorock teams with Smart Farm Sensing

Hydrorock users can monitor water dispersing and control irrigation control using Smart Farm Sensing's AgriOT sensors, mobile apps and web portal in real-time anywhere anytime

Smart Farm Sensing's vision is to increase global agriculture productivity and sustain the future food chain with fully operational satellite, aerial and ground remote sensing data supply chains

Smart Farm Sensing developed AgriOT, a holistic geospatial ag data analytics and decision-making platform to support sustainable agriculture systems and increased productivity

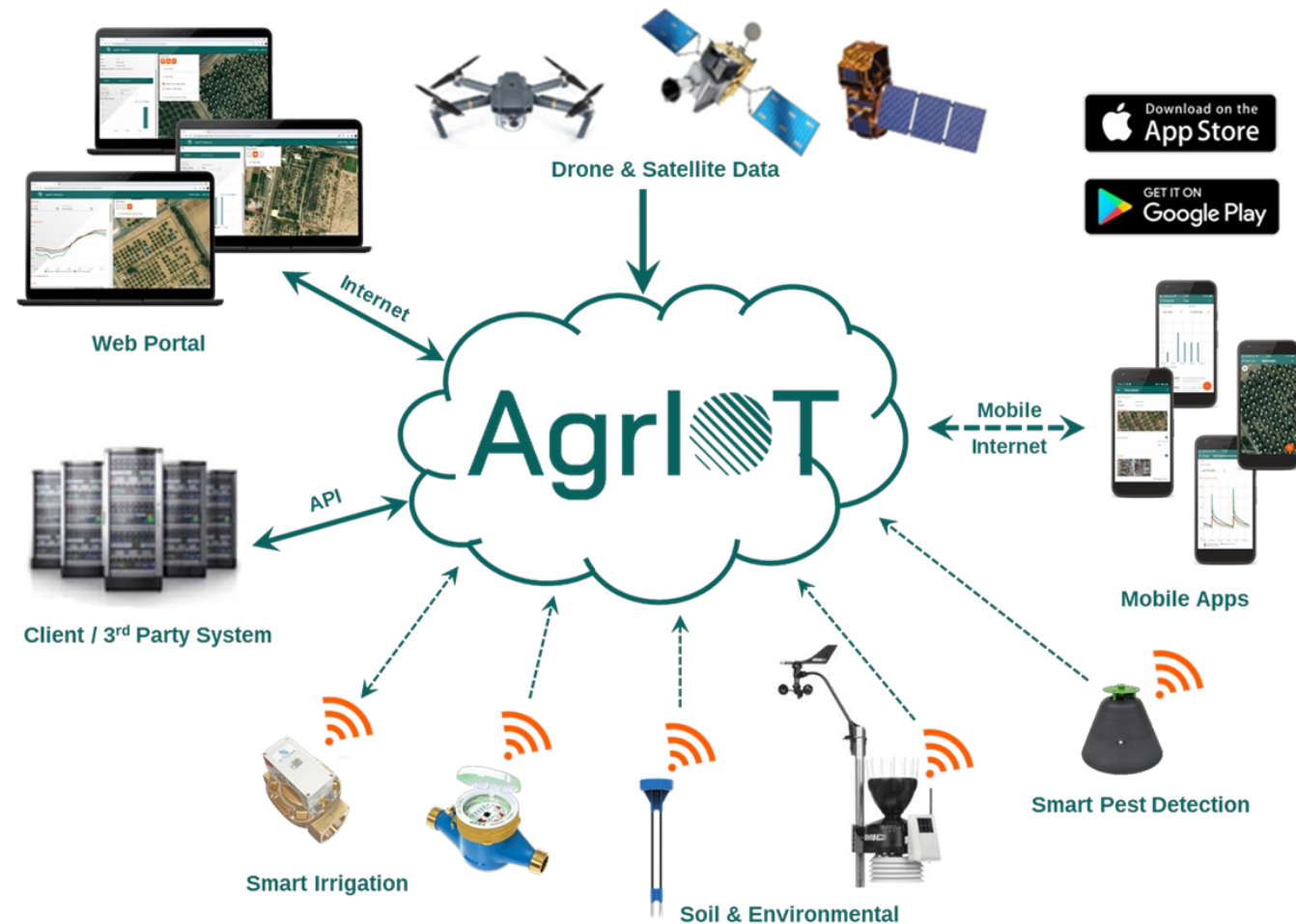






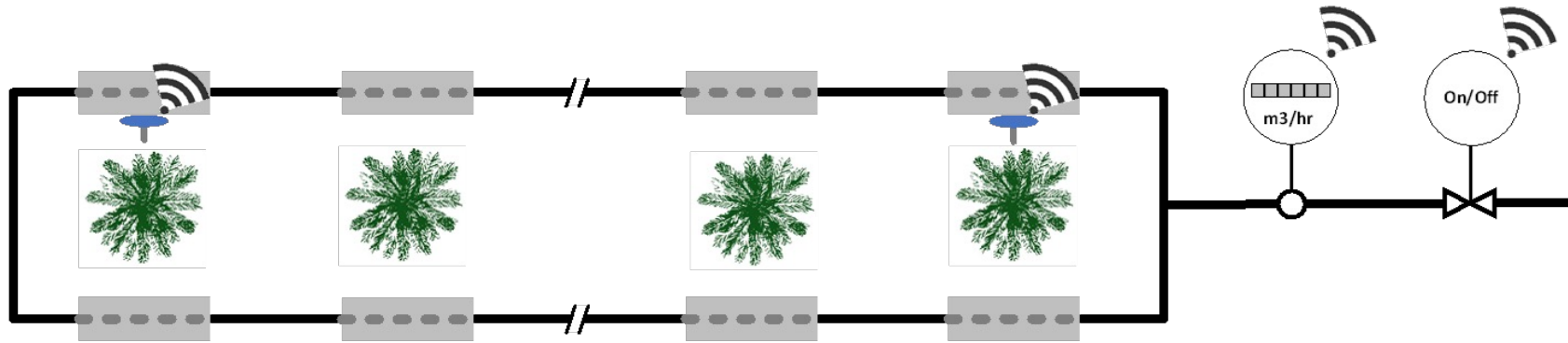
## What is AgriOT

- + AgriOT is a one-stop-shop agriculture data analytics and decision making platform
- + AgriOT is non-discriminating in IoT sensors and remote sensing data and not vendor-specific
- + AgriOT eliminates the need of many platforms and many apps to solve specific agriculture issues
- + AgriOT is massively scalable from one site up to organizations with hundreds of sites around the globe
- + AgriOT is personalized to specific customer issues and local circumstances; we integrate sensors and data and add proprietary sensors if needed





## Smart irrigation products



Smart solenoid valves



Smart water meters

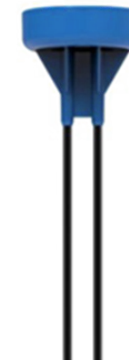
Hydrorock subsoil blocks



Weather stations



Soil moisture sensors







## Demonstration project Hydrorock & Smart Farm Sensing in UAE

Objective is to prove that Hydrorock subsoil irrigation solution including AgriIoT smart monitoring and control increases water use efficiency and production yield, improves crop quality, and reduces operational costs at different test sites

- Fruit trees and date palms → test sites Al Shareea park in Abu Dhabi, ICBA in Dubai
- Urban parks (landscaping) → test site Mussaffah Park in Abu Dhabi

### Scientific consortium partners

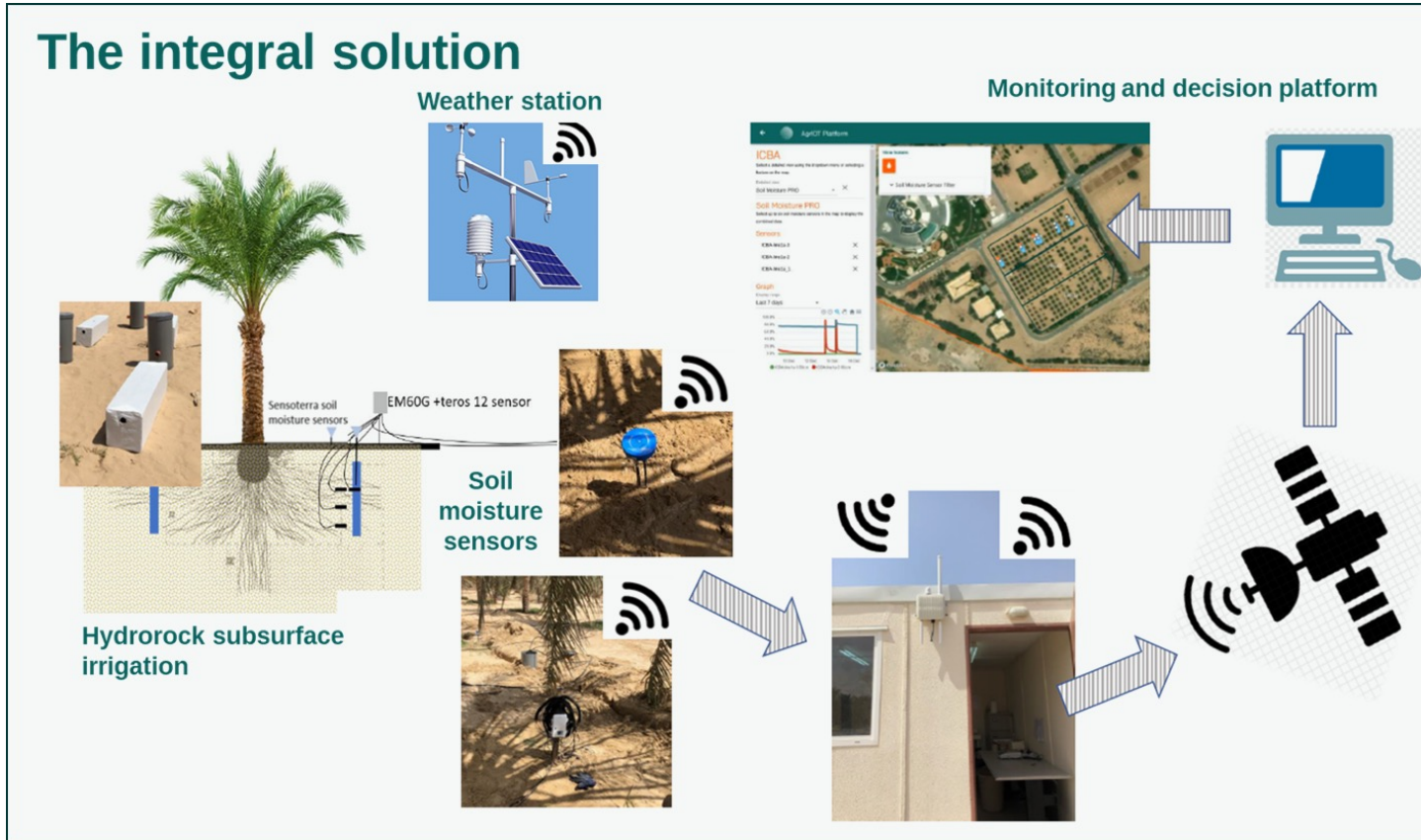
- International Center of Biosaline Agriculture (ICBA), Dubai
- Wageningen University & Research (WUR), The Netherlands



### Preliminary results of the project

- ✓ Reduced water use - less evaporation and leakage effects
- ✓ Improve food production yield - using the right fertilizers at the right time
- ✓ Improving vegetation quality - optimized irrigation directly to the root zone
- ✓ Reduced operational costs - less maintenance and no clogging

## Solution for date palms and fruit trees

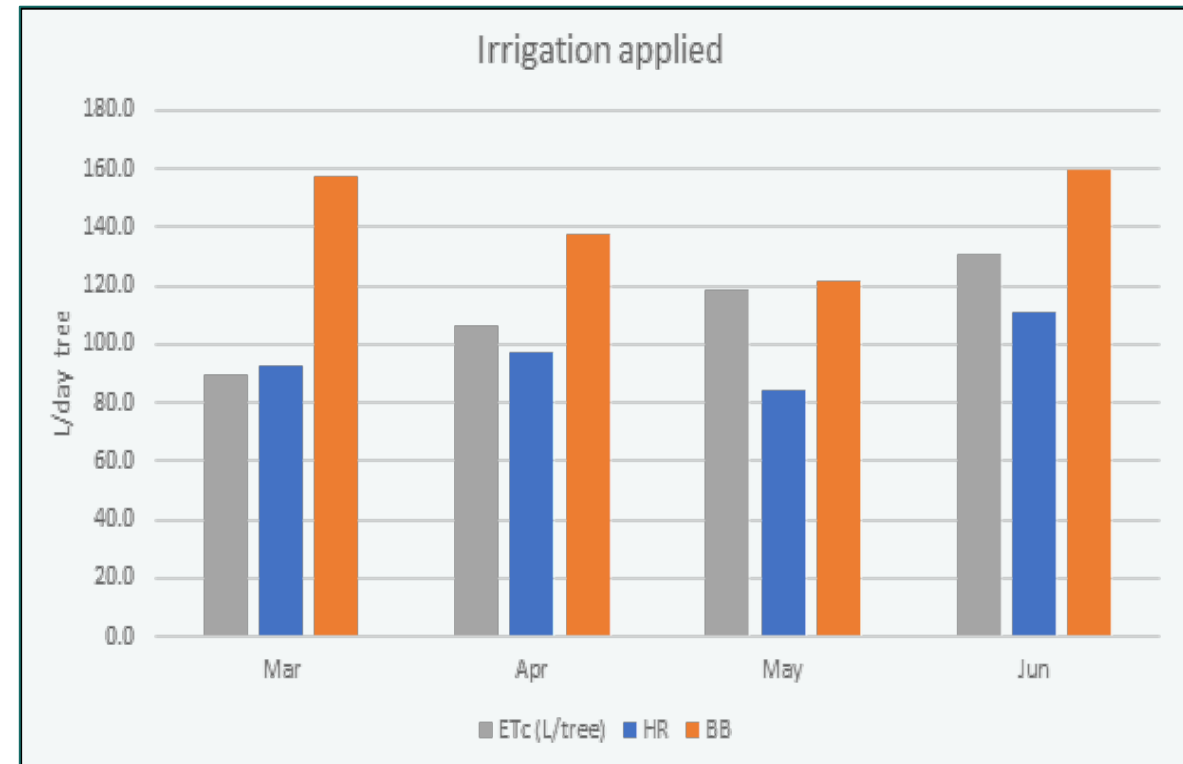






## Irrigation applied vs water requirements

- + At ICBA we are applying around 30% less water with Hydorock than with conventional bubblers (up to 50% reduction estimated for commercial farms)
- + The volume applied in Hydorock is lower than calculated ETc for the trees
  - **Hydorock preserves irrigation water from soil surface transpiration, even in desert summers**
- + No effects of salt accumulation in soil when Hydorock is operated with salty water (5 dS/cm)
- + There is no evidence of plant affection (leaves)





## Solution for urban parks

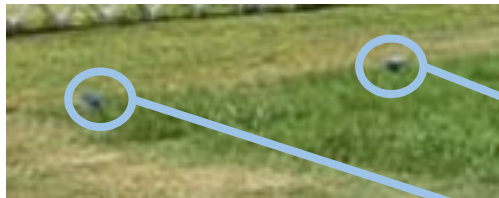


Hydrorock grass subsoil system



LoRaWAN  
gateway

Wireless soil moisture sensors



Mussaffah Park – Abu Dhabi

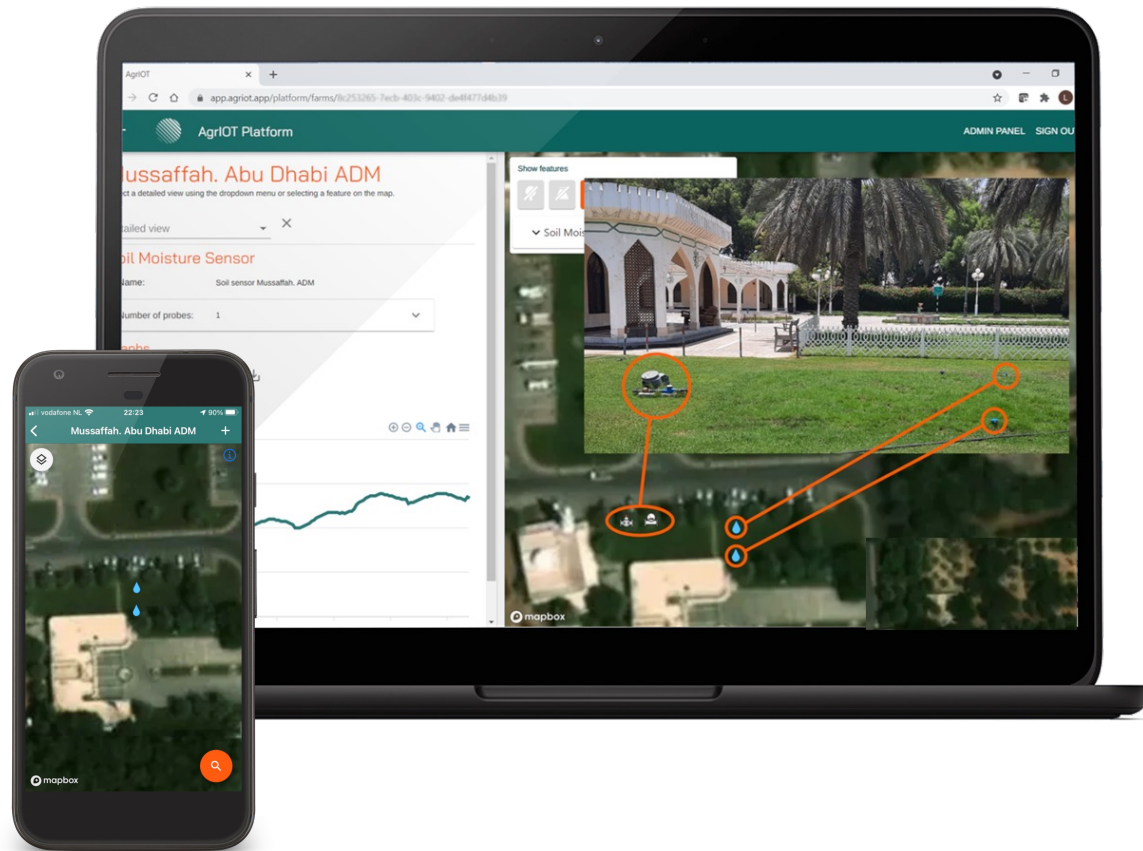
Smart valve &  
Smart flow meter





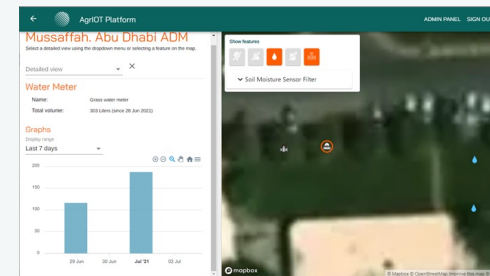


## AgriOT apps and dashboards for Mussaffah Park

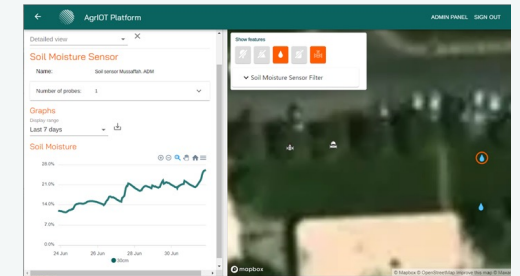


## AgriOT Smart Irrigation dashboards

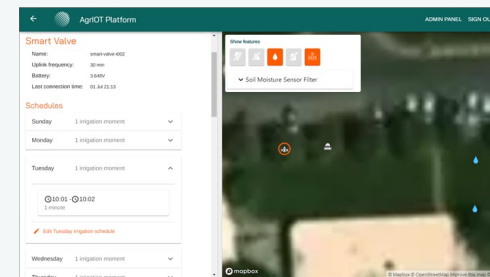
### Smart Flow Meter dashboard



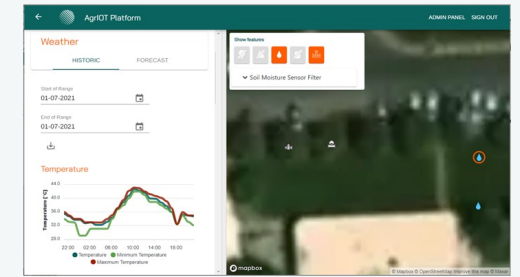
### Soil Moisture dashboard



### Smart Valve dashboard



### Local Weather dashboard





A simple and  
fast solution



Strength, usable  
under roads



Recycle



No connection  
to sewer



Flora



100%  
environment  
friendly



Easy to install



Option to inspect  
and clean



Quick  
Infiltration time



Using rainwater  
for plants



