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ONEX Technologies Inc.



# Smart Farming for Precision Agriculture!

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For more than 12,000 years people have cultivated crops using trial and error methods, received wisdom and how the soil feels when they rub it between their fingers.

Later on, the constant increase of human population, especially after the Industrial Revolution, created the need for the production of immense quantities of food in less time, so former methods were inefficient and time consuming.

Only recently in history though, mechanization revolutionized the countryside with machinery and replaced horses and oxes with tractors.

Nowadays, we're witnessing a new farming revolution triggered by the adoption of staggering new technologies: satellites, high precision positioning systems, smart sensors and a range of IT applications combined with high-tech engineering.







**Precision Agriculture** is about managing variations in the field accurately to grow more food using fewer resources and achieving reduction of production costs.

All aspects of the environment – soil, weather, vegetation, water – vary from place to place and all these factors determine crop growth and farming success.

Farmers were aware of this, but they lacked the tools to measure, map and manage these variables accurately.

**Precision Agriculture can make a difference to food production facing the challenge of a rising world population and can help farmers to achieve:**



**Greater  
Sustainability  
and  
Environmental  
Protection**



**Higher  
Productivity**



**Economic  
Growth – Cost  
Saving up to 40%**

In the past 10 years, **Precision Agriculture** shifted from good science to good practice - and has experienced unprecedented growth around the globe: **70 to 80% of new farm equipment** sold today has some form of Precision Agriculture component inside. Thanks to cost-effective monitors and controllers and the integration into single data management systems, Precision Agriculture is becoming more seamless, cost-effective and easier for farmers to install and use through IT applications. Without any doubt nowadays, we can refer to Precision Agriculture as

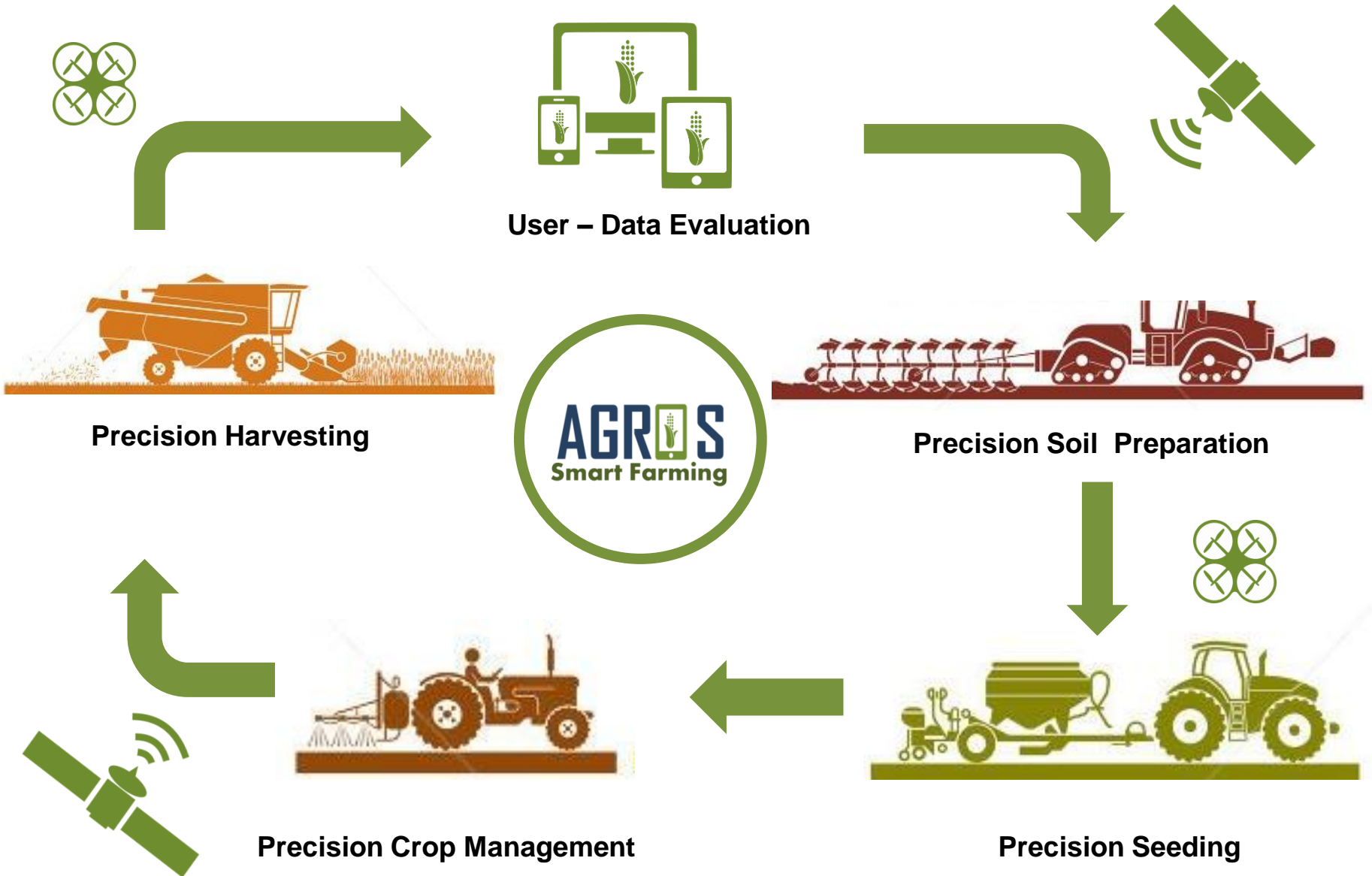
# Smart Farming!





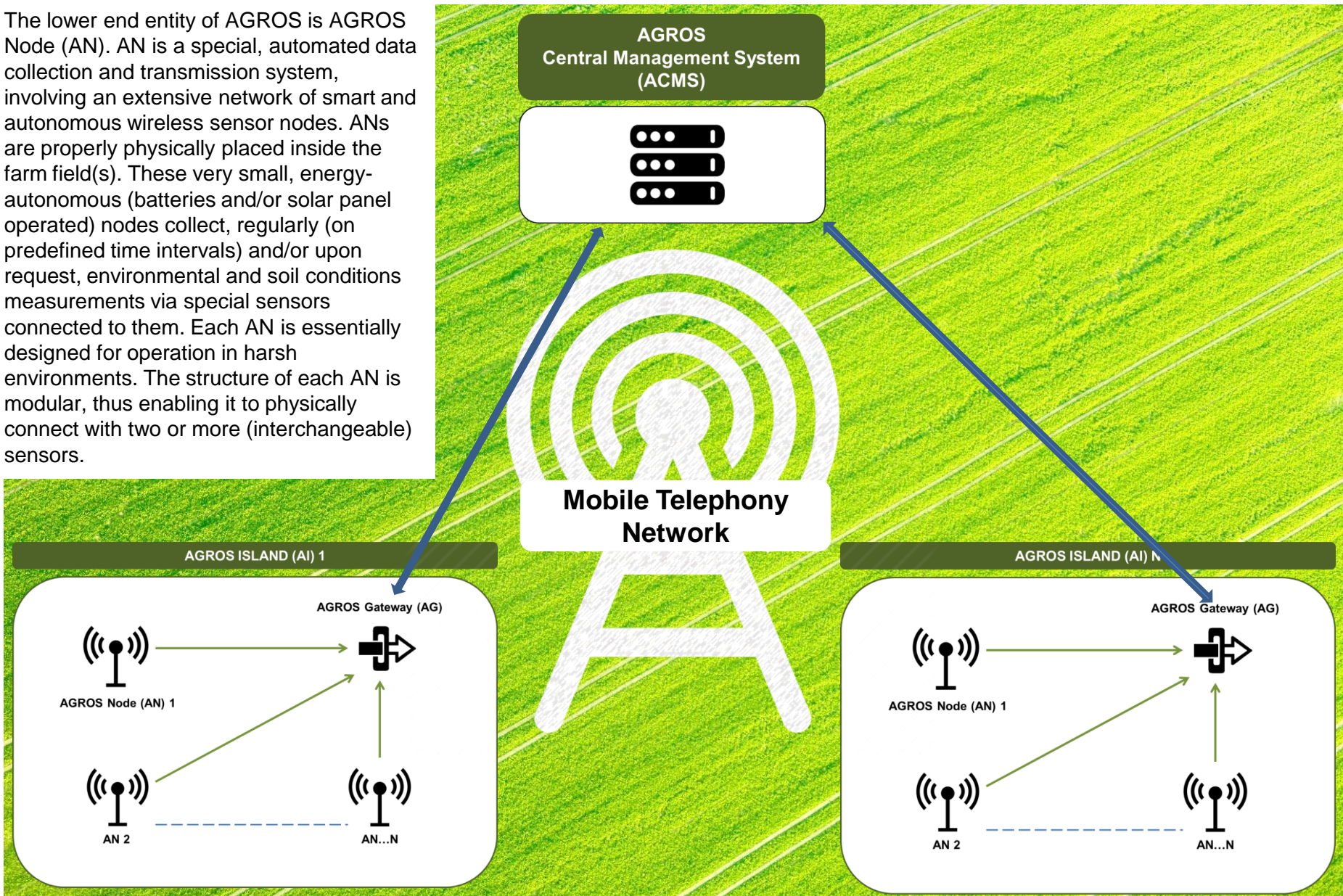


**AGRicultural Operations Support (AGROS), by ONEX Technologies Inc. is an integrated ICT system, consisting of specialized hardware and software, developed specifically for the efficient monitoring of environmental and soil conditions in order to effectively support the development of Precision Agriculture. AGROS aims particularly to high-value cultivations & related products, such as wine and special species of vegetables. The AGROS deployment is scalable, depending on specific application and/or end-user requirements. AGROS is fundamentally based on the Internet of Things (IoT) concept.**





The lower end entity of AGROS is AGROS Node (AN). AN is a special, automated data collection and transmission system, involving an extensive network of smart and autonomous wireless sensor nodes. ANs are properly physically placed inside the farm field(s). These very small, energy-autonomous (batteries and/or solar panel operated) nodes collect, regularly (on predefined time intervals) and/or upon request, environmental and soil conditions measurements via special sensors connected to them. Each AN is essentially designed for operation in harsh environments. The structure of each AN is modular, thus enabling it to physically connect with two or more (interchangeable) sensors.

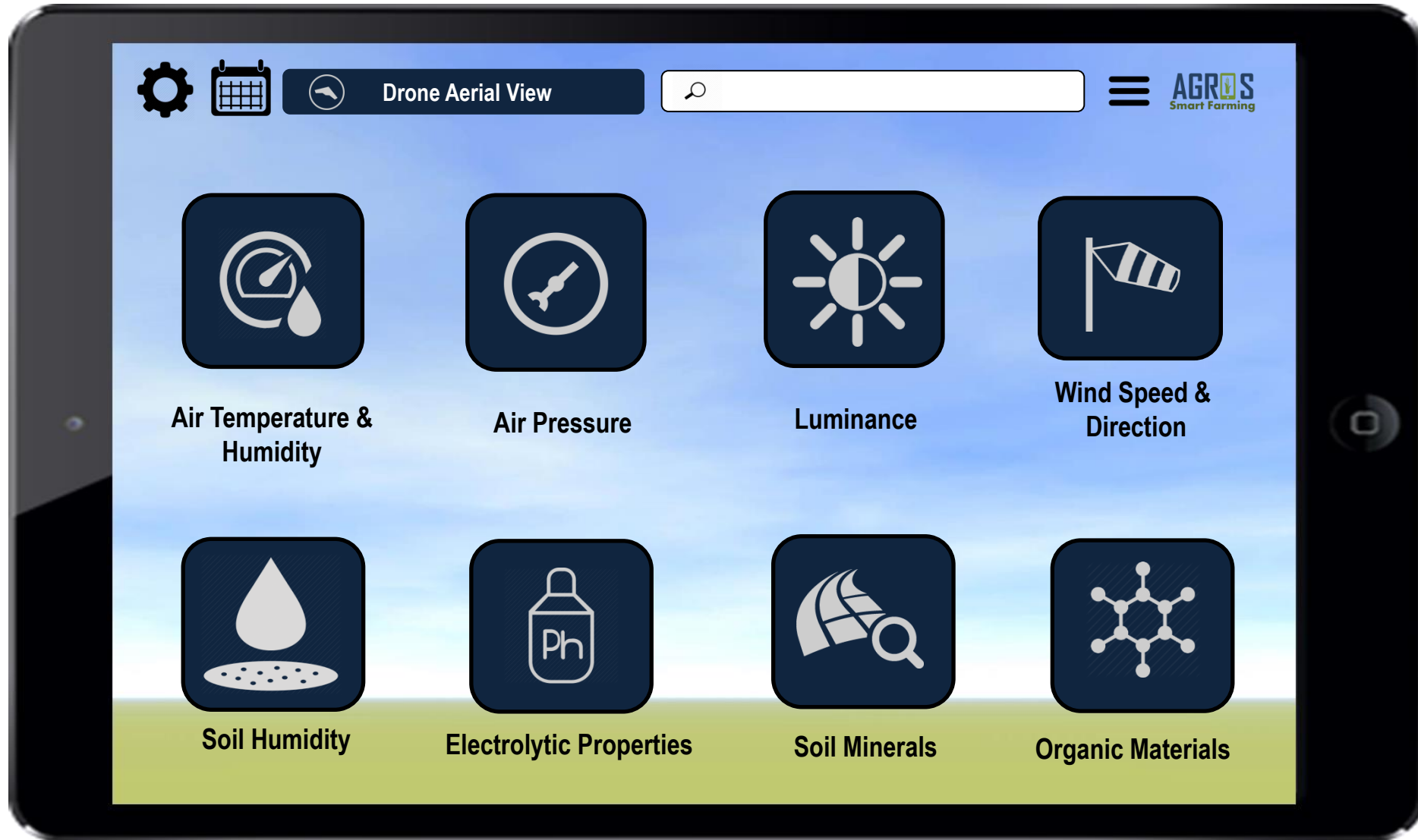




The operational use of AGROS™ leads to significant benefits for the farmer such as:

- Efficient monitoring of specific climate environmental and soil conditions for agricultural applications
- Assessment of desertification danger
- Development of plans for land use
- Effective tackling of extreme weather conditions
- Immediate detection of and control of plant diseases
- Saving costs & up to 20-40% and natural resources

**AGROS™ utilizes sensors capable of acquiring and recording, among others, the following parameters:**





**Our system is scalable, depending on specific application and/or end-user requirements. AGROS™ can be configured as per specific smart farming applications. For example:**

Application	Description	Sensors
<b>Wine Quality Enhancing</b>	Monitoring soil moisture in vineyards to control the amount of sugar in grapes and grapevine health.	Soil moisture, soil temperature, humidity, leaf wetness, atmospheric pressure.
<b>Green Houses</b>	Control micro-climate conditions to maximize the production of fruits and vegetables.	Soil moisture, soil temperature, humidity, leaf wetness, atmospheric pressure.
<b>Farms Irrigation</b>	Selective irrigation in dry zones to reduce the water resources required in the green.	Soil moisture (3 levels of depth).
<b>Compost</b>	Control of humidity and temperature levels in alfalfa, hay, straw, etc. to prevent fungus and other microbial contaminants.	Humidity, soil moisture, soil temperature.

- Two (2) nodes
- Getaway
- Sensor temperature, humidity and atmospheric pressure
- One (1) soil moisture sensor 1,5m
- Two (2) soil moisture sensors 4,5m
- One (1) solar radiation sensor
- One (1) Temperature / soil water sensor
- One (1) Temperature sensor
- One (1) foliar humidity sensor
- One (1) wind speed sensor
- Two (2) 6600mAh rechargeable batteries
- Two (2) photovoltaic panels
- Two (2) USB cables specifically for outdoors
- Three (3) international adapters
- GPS
- Software P & S Programming Service Kit
- Meshlium 4g 868/900 AP
- Meshlium visualization interface







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# AGROS

Smart Farming

Product Presentation



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