Water Management Solutions
for Agriculture

AquaSpy™ Intelligence in every drop

Save water	AquaSpy™ products can reduce water consumption by between 20 to 70 per cent depending upon current practice.
Improve root activity	AquaSpy solutions ensure optimum plant health by inducing root growth and improving root health.
Optimize quality and yield	AquaSpy products enable better plant management to ensure quality and optimize yield.
Increase profit	Increases in quality and optimizing yield maximizes profits.
Increase stress tolerance	Better water management increases drought and stress resistance.
Save pumping costs	A reduction in water use results in cutting the cost of pumping water.
Reduce carbon emissions	By minimizing water pumping, carbon emissions are reduced.
Save fertilizer	Leaching of fertilizer below the root level pollutes and wastes money.

The Water Challenge

Farmers, more than any other part of the community, know the importance of water and the value of Water Use Efficiency. Smart irrigation practices have been applied in agriculture for many years.

Smart irrigation management reduces the dependence on security water allocations, costly new desalination plants, recycling and the depletion of ground reserves. It means knowing how much water is being used and where it can be saved. To do this effectively you need intelligence - AquaSpy intelligence.

More than 70% of all water is used in irrigation. By using AquaSpy solutions, water use in agricultural irrigation can be reduced by 20-30% and produce a better quality product. Correct irrigation improves the quality of the plants by strengthening the root zone. Strong, deep roots mean healthy plants that are better able to withstand adverse weather conditions, minimal irrigation and drought.

With management tools from AquaSpy, increases in water use efficiency result in high quality product and optimum yields. AquaSpy solutions save water and directly increase profits by maximizing crop value and reducing pumping and fertilizer costs.

Irrigators have a responsibility to ensure efficient use of the volumes of water utilized to grow crops. National water plans are being developed across countries to focus attention on water. With water scarcity, it is increasingly pertinent that all growers adopt intelligent solutions to ensure agriculture remains at the forefront of efficient water management.

AquaSpy - Intelligence in every drop.

The AquaSpy™ Inc.

AquaSpy Inc. designs, manufactures and distributes moisture sensors and smart information technology for the irrigation market worldwide. AquaSpy Inc. is active in agriculture, biotech, urban landscape, turf, golf and municipal markets and has representation around the globe.

AquaSpy technology has been proven in the toughest environment of all – Australia – the driest inhabited continent on the planet. Our sensors have helped farmers improve yields by as much as 100%. Now they are being used across agricultural markets in the Americas, Australia and Europe. There are over 50,000 AquaSpy sensors in use around the world.

AquaSpy Inc. originated as a company focused on providing solutions to agriculture and research and this commitment continues. AquaSpy Inc. now has an extensive product range covering a wide spectrum of applications.

Agriculture Applications

AquaSpy solutions have been custom designed to meet the specific needs of the agriculture industry. AquaSpy's products precisely measure and monitor a wide range of agricultural parameters, including soil moisture, weather, salinity and water depth.

It is AquaSpy's product flexibility that allows each solution to be tailored to specific requirements, and ensures that the technology can enhance productivity and profitability across many applications. These include, but are not limited to, cotton, viticulture, tree crops, horticulture, vegetables, broadacre crops, nurseries and pasture.

Cotton

The remote access and detailed information provided by AquaSpy solutions have long been recognized for their benefits within the cotton industry. These include increases in yield of 30% and a 30-40% saving in water use which translates to water use efficiency gains of 60-80%. AquaSpy solutions are ideal for cotton applications.

Viticulture

AquaSpy technology assists in improving irrigation management within vineyards by providing detailed real-time information on the status of the crop. Thus periods of stress can be reliably induced and maintained with confidence to ensure optimal berry quality and provide higher returns to the grower.

Tree Crops

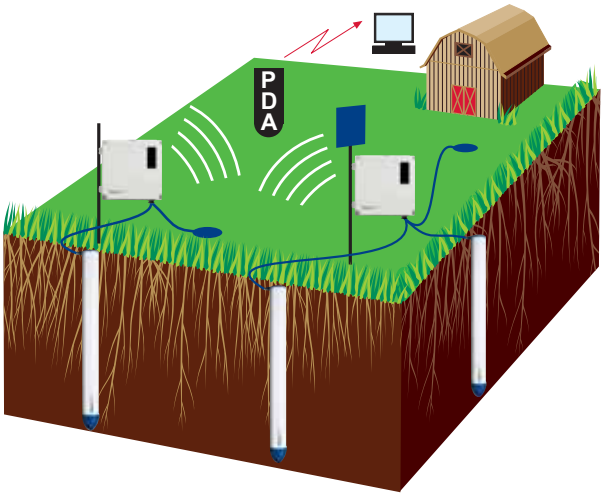
By using AquaSpy solutions to get site specific data, repeatable irrigation templates can be followed each growing season. With monitoring, growers can maintain correct moisture levels in the spring and summer to promote fruit set and fruit sizing and set much lower levels in the fall and winter. This provides overall improvements in quality and yield with higher wholesale price potential for the grower.

Vegetables

AquaSpy's low cost solutions are ideal for cost sensitive vegetable crops. Shallow rooted crops benefit from soil moisture monitoring to better manage irrigation requirements, to improve crop quality and yield, and reduce irrigation costs.

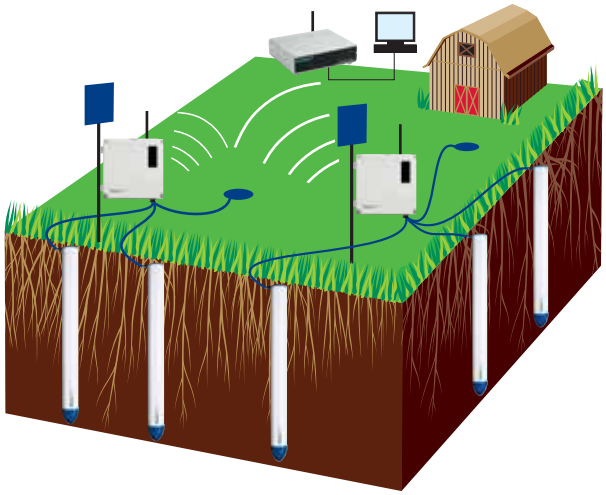
Nurseries

A low-cost continuous soil moisture monitoring solution is available for nursery applications. Utilizing multiple AquaSpy Sensors, potted plants can have accurate volumetric moisture readings to readily identify watering requirements.



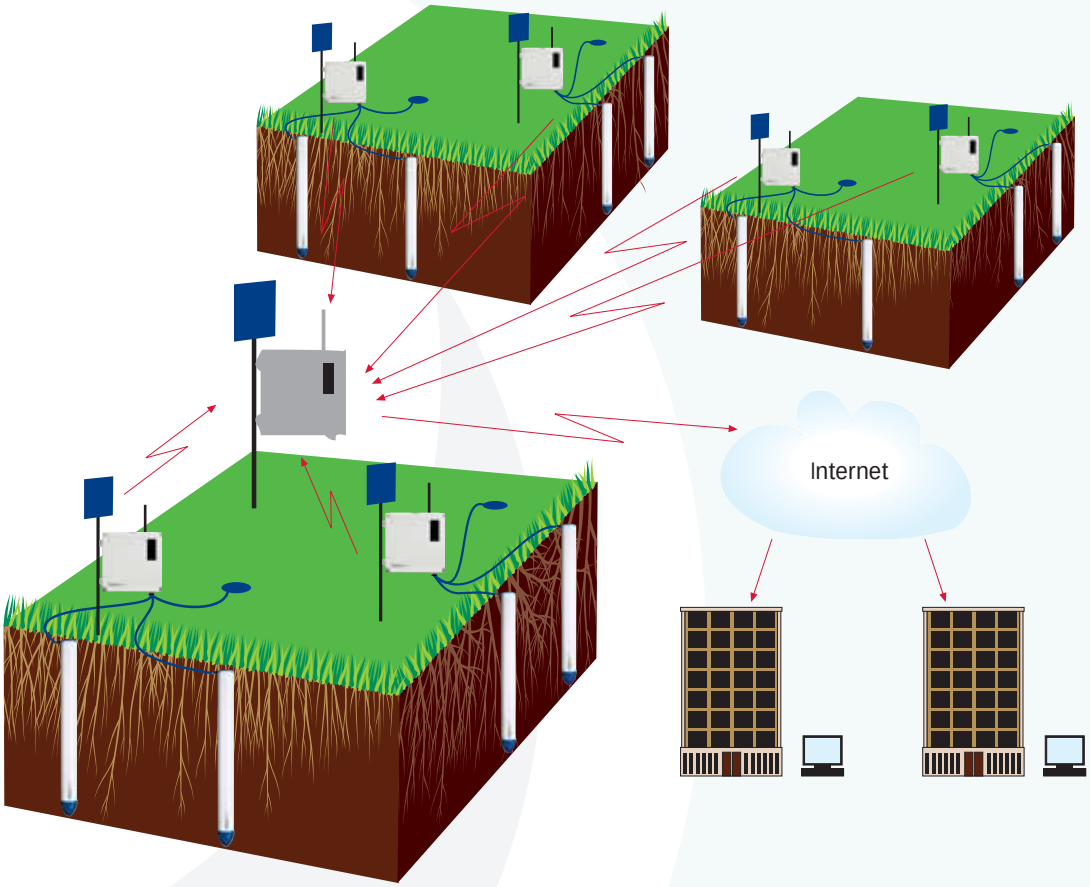
Data Node Solution

AquaSpy can provide a simple and low-cost solution for in-field data collection. A single probe connected to an AquaSpy Data Node will sample data every 15 minutes and is powered for up to 75 days on standard dry cell batteries. Alternatively, using a solar panel and rechargeable batteries, this green energy provides indefinite and continuous coverage when a number of AquaSpy Probes are connected. Data is collected via IrDA using a suitable PDA or by cable to a laptop computer.



Radio Node Solution

Off-field capability is provided through AquaSpy Radio Nodes. A number of multi-sensor probes can be connected to each AquaSpy Radio Node. The ISM band AquaSpy Radio Node provides long range line of sight communications in most situations and conditions. An AquaSpy Radio Receiver unit connected to a PC completes this ‘Plug and Play’ network.



Network Gateway Solution

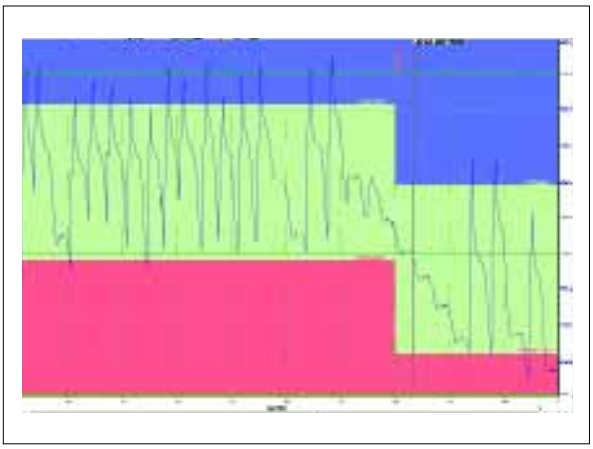
For a cost effective, yet flexible network solution, AquaSpy provides Radio Nodes that send data to a Network Gateway. The network gateway consists of a cellular modem and radio controller, enabling it to collect data from remote Radio Nodes and transfer to a server via a cellular network. The data can then be analyzed by either downloading to PC-based software or viewing on a web-based software package.

Independent Gateway Solution

In situations where radio infrastructure is unsuitable or undesirable, AquaSpy provides an Independent Gateway solution. Data from connected sensors is automatically transferred to a server via a cellular network. The data can then be analyzed by either downloading to PC-based software or viewing on a web-based software package. This solution is dependent upon good cellular coverage at all monitoring sites.

AquaSpy offers total solutions covering all budgets and user requirements.

Cotton Wetting Pattern



Almond Sum Graph

Cotton Case Study

AquaSpy has been the product of choice for soil moisture sensing in cotton since 2000. This extensive experience has helped growers to improve quality, optimize yield and reduce water use.

The following case study illustrates the benefits:

Figures based on a 40 acre management unit

	Standard Irrigation Practice	Revised Irrigation Practice
Yield (bales/acre)	3.0	4.0
(District average)	3.1	3.5
Production costs ($/acre)	$944.5	$944.5
AquaSpy cost ($/acre)	0	$7.6
Net returns ($/acre)	$461.5	$884.6
Water use (acre foot)	3.28	2.78
WUE	0.75	1.15

This case study demonstrated that a reduction of 15% of water used created a 31% improvement in yield and nearly a 100% improvement in profit.

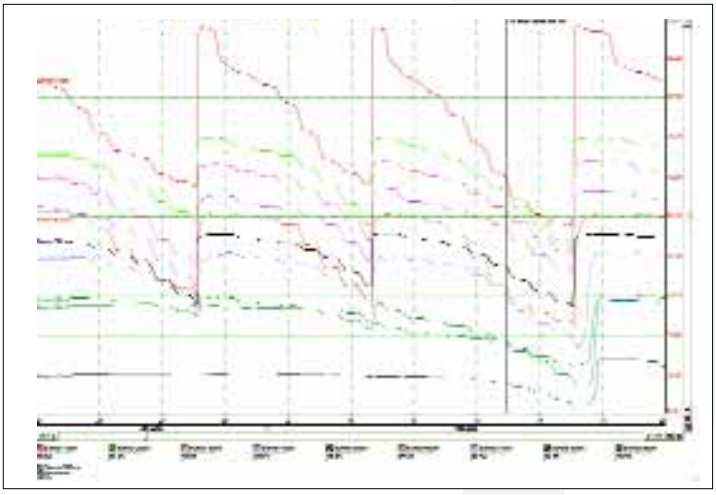
Almond Case Study

Over the last 10 years, AquaSpy products have helped improve quality and yield in tree and other permanent crops including almonds, citrus and grapes. AquaSpy provides the information needed to optimize irrigation scheduling for improved crop performance, using less water, and a positive return on investment.

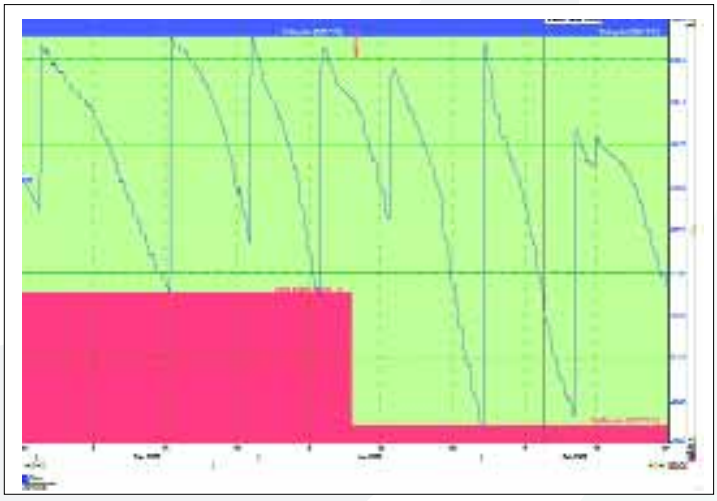
The image shows an irrigation management template in Almonds, where a 'dry-down' period was induced prior to harvest to improve the quality and harvesting ability of the nut.

The recommendation was to eliminate irrigations for a 7 day period and then irrigate every couple of days with a shorter irrigation run time. This resulted in a 50% reduction in water use, cut power costs and improved the quality of the crop.

Software Applications



Separate Layer Graph



Sum Graph

AquaSpy technology provides detailed analysis tools to allow experienced users to quickly and easily determine plant water use and the health and nature of the root structures on their crops and trees. The actual root depth can be viewed at a glance and can assist in putting together effective management practices.

Sensor readings are provided at 4 inch depths through the profile down to 60 inches to provide a soil moisture profile of the plant. It also assists in determining how the irrigation practice may need to be altered to improve the quality of the crops.

Irrigation templates use colored bands and the Sum Graph to provide a visual indication of overall irrigation demand. The Blue area illustrates that the soil is too wet and the Red shows it is too dry. The intent is to keep the soil at the right level of moisture so the Sum Graph is within the Green zone.

In addition to soil moisture monitoring, AquaSpy also measures salinity, weather conditions and Evapotranspiration (ETo). This information when coupled with the soil moisture data provides the user with a full set of tools to help them manage their crop development.

AquaSpy software analysis comes in various forms. It can be a fully functional Internet based solution providing detailed analysis, alarms, user security, remote data availability and asset management. Alternatively, AquaSpy also provide a FREE software analysis tool that can be used on a PC or Laptop computer.

AquaSpy Key Product Range

AquaSpy™ Probe
This capacitance probe is designed to measure soil moisture content at multiple depths (at every 4 inches) in deep rooted plants. Available in both subsurface and above ground variants, in lengths 20 inches, 40 inches, and 60 inches. This ensures best quality and optimum yield while significantly improving water use efficiency.

AquaSpy™ Turf Probe
This subsurface capacitance probe has been specifically designed to measure soil moisture content at multiple depths (at every 2 inches) for turf and shallow rooted plants. By accurately monitoring the effects of surface watering across the root profile, it helps to enhance root growth and optimize watering for healthier turf and superior performance.

AquaBlu®
An intelligent irrigation system regulator that oversees watering to ensure plants are never over-watered. A sensor that accurately measures the wetness of the soil is cabled to a smart controller, which connects directly to an automatic watering system or a valve. A user definable dial setting determines how wet the soil should be before watering is interrupted.

AquaSpy™ Sensor
Developed from AquaSpy Probe technology, this revolutionary sensor provides a cost effective soil moisture monitoring solution. The sensor's shape makes it easy to install in a variety of mediums, providing high quality, accurate measurements of moisture content.

AquaSpy™ Data Node
This inexpensive data logger has a large storage capacity and a choice of manual data transfer options for downloading to a PC. Data analysis software is included. It is compatible with a variety of sensors, including AquaSpy Sensors and Probes.

AquaSpy™ Radio Node
This uses the advanced technology of the AquaSpy Data Node, with the added feature of radio. Sensor data is collected and then transferred wirelessly to an AquaSpy Radio Receiver (required). This is a completely automated system delivering sensor data from remote monitoring sites via radio, directly to a PC for viewing.

AquaSpy™ Radio Receiver
A base station that connects directly to a PC and receives sensor data in the form of radio signals from remote Radio Nodes (required). The data is automatically uploaded to the PC, where it can be viewed using the included data analysis software.

AquaSpy™ Gateway
Based upon Data/Radio Node technology, this transfer solution includes a cellular modem. Collected sensor data is transferred via cellular technology to an IP address, uploaded and viewed in a data analysis software package. Independent and Network (can receive signals from Radio Nodes) Gateways available.

MetSpy® Weather Station
A state-of-the-art weather measuring device which provides affordable, intelligent weather monitoring. The advanced ultrasonic components have no moving parts for extended life and improved reliability. Information such as evapotranspiration (ETo) are fully supported, making it an ideal accompaniment to AquaSpy's soil moisture monitoring solutions.

Printed with sustainable forest fibre
using a carbon neutral printing process.
CO_2 savings = 1,135 kgs

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