Arthur D Riley & Co Ltd
WATERMETRICS

Watermetrics

Helping your business

Watermetrics provides the tools, the data and the thinking to manage your water properly.

Managing water correctly is important.

There are clear benefits with visibility around water usage and how it affects the productivity and profitability of your farm. It's about optimising water use to enhance growth and managing your consent for water.

Here's how Watermetrics can help

Water consent compliance

We provide radar detection for water use consent compliance to ensure you meet your irrigation consent obligations.

Water meter sales and installation

As metering assets reach their 8–10-year age, some meters might be aging faster than the manufacturers recommended life. If this is

happening to your meter, we provide cost effective and quality brands for new or replacement solutions to ensure consent compliance.

Meter verification

Water meters need to be verified at a regular time period with a verification certificate provided to the Regional Council.

Soil moisture and sensor probes

We can provide a number of cost-effective soil moisture/temperature sensors. A good soil moisture/temperature sensor will provide visibility into the status beneath your paddocks. Data can be viewed via Watermetrics' SMA service.

Tank level monitoring

Monitor water levels with user defined alerts and thresholds if levels exceed certain levels.

Scheme monitoring

We provide a number of tools to assist clear visibility of total scheme water data. Some of the tools and services we provide are water ordering, water transfer (between shareholders) and weather monitoring.

Sensor and metering hardware

We provide a number of sensors to help you monitor the things that are important on your farm.

FEP Data

Our data presentation provides complete and accurate records that can be easily used to meet audit requirements. Overuse of water is quickly identified.

Predictive Irrigation

We've partnered with Swan Systems, an international award-winning irrigation innovator to provide you with detailed soil, crop, satellite, and weather information to predict your irrigation amounts for the next 7 days.

Effluent pond height monitoring

We have a number of tools to help monitor effluent or pond height. You can easily create simple alerts on the web portal to ensure the risk of any effluent breach (and potential environment Court fine) is mitigated.

Contact

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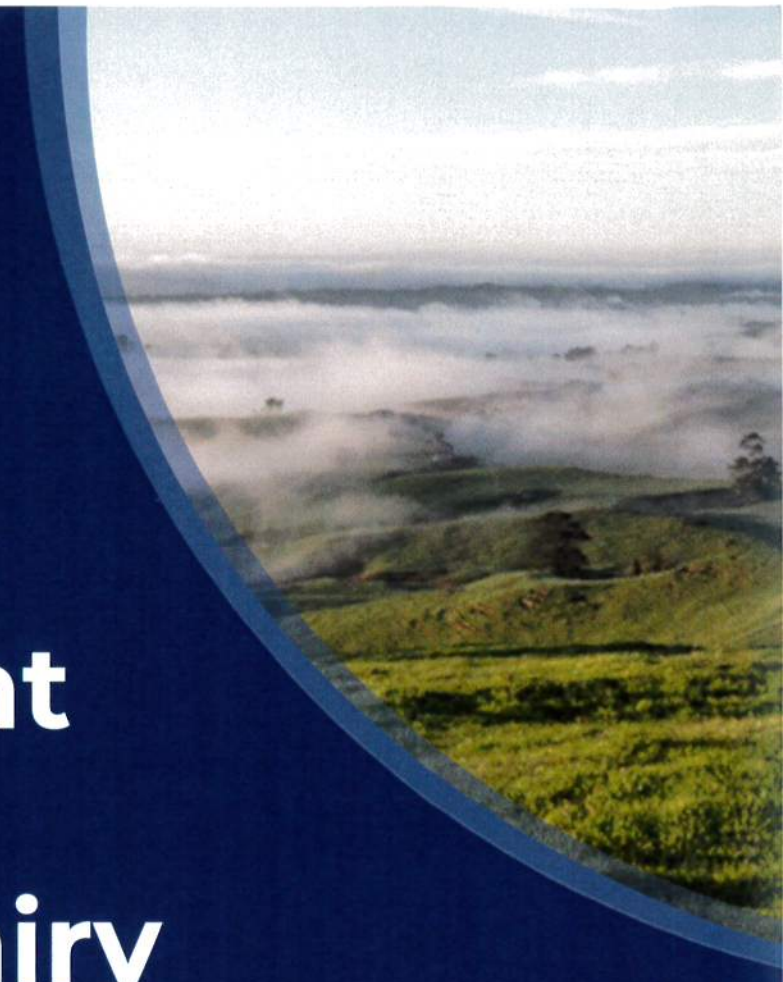

Good Management Practices in Applying Dairy Effluent to Land

Irrigation and Effluent management both require data to make sound application decisions and satisfy audit requirements.

Watermetrics produces comprehensive Data for water and soil management.

- Flow monitoring including volume and time.
- Climate stations.
- Predictive Irrigation.
- Soil monitoring Probes read temperature, moisture, at 100 mm intervals.
- Electroconductivity for soil and crop management.
- Water quality testing.

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- Each farm has to take into account Soil types, Climate, Waterways, Irrigation and Drainage to be able to plan inputs and management practices, so that any environment issues are properly addressed.

- This can be done by maintaining accurate and auditable records of all risks to water quality.

- In regard to Farm Effluent and Wastewater Farm Dairy Effluent systems should:

  Capture and store all effluent.

  Spread only when plants can uptake and record the applications.

  Take account of soil nutrient levels.

  Ensure uniform spread to the desired depth, concentration, and avoidance of pooling.

- In regard to Irrigation and water use.

  Measure volumes used.

  Justify each application with soil moisture management.

  Match pasture/crop growth stage requirements with available water.

  Make use of climate data as part of your irrigation decision.

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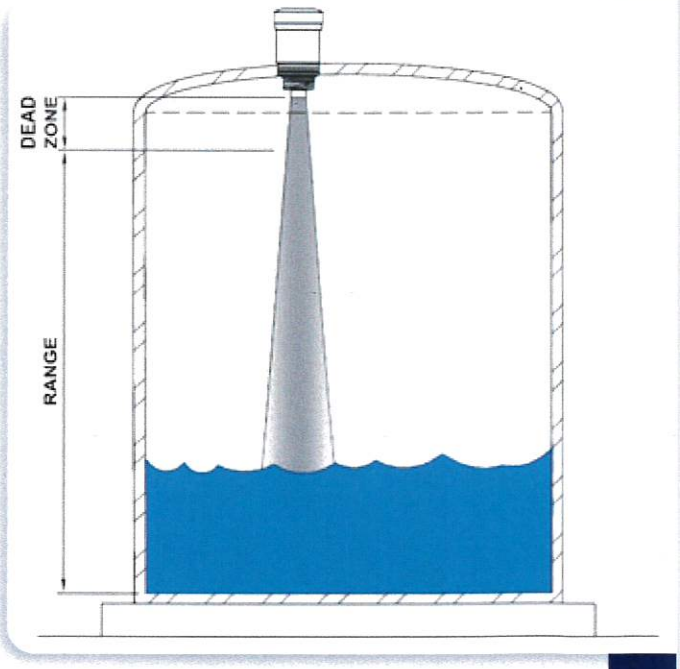
Ultrasonic Level Sensor

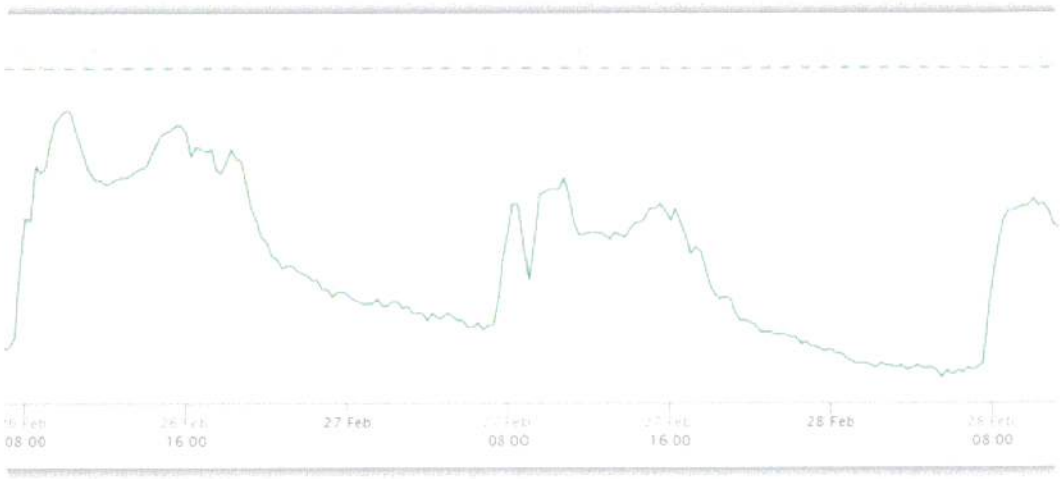
The Watermetrics Tank Level sensor is a LoRaWAN Distance Detection Sensor

The distance detection sensor is a module that uses ultrasonic sensing technology for distance measurement, and temperature compensation is performed internally to improve the reliability of data. It measures the **distance between the sensor and a flat** object (Liquid within the tank). With a 280mm dead zone the sensor is very accurate and has a measuring range of 280mm – 7500mm making it suitable for all tank sizes and shapes.

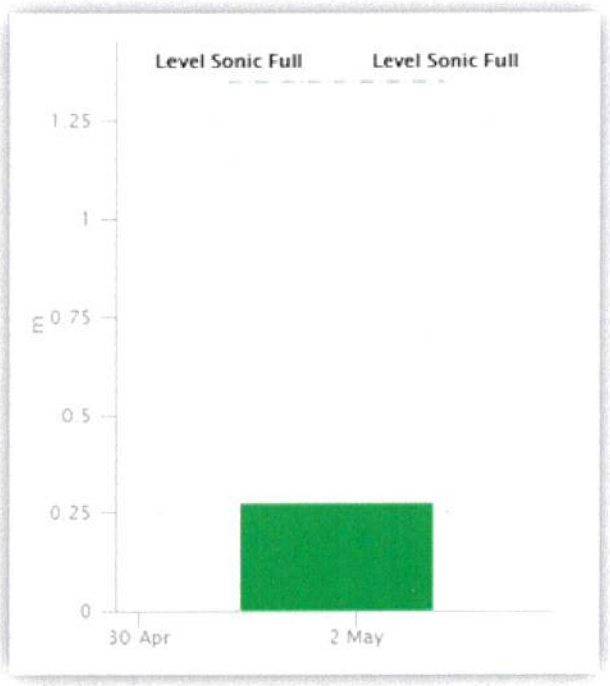
With a 4000mAh / 8500mAh Li-SOCI2 battery, it is designed for long term use up to 10 years. (Actually, Battery life depends on the use environment, update period.)



The measured values are uploaded via wireless connection to Watermeterics LoRaWAN Gateways. Information is displayed on the Watermetrics portal as the below graphs showing both current level and providing an oversite on water usage from the tank.



The Watermetrics portal allows alarm values to be set for current and low-level warnings which means the Watermetrics Tank Level sensor allows you to monitor your tank remotely and ensure your tank never runs dry.



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Ultrasonic Water Meters

Axioma Smart Meters

Qalcosonic

IDEAL FOR HOUSES , STOCK WATER AND WASHDOWNS

Designed for accurate measurement of water usage. A smart way to identify and minimise water losses. Also used for measurement of cold and hot water consumption in households, apartment buildings and commercial premises.

Made in Europe, these smart meters feature:

- **A static method of water flow** measurement - no moving parts
- Elimination of distortions caused by suspended particles and air pockets
- **Accuracy in low flows**
- Internal datalogger
- Maintenance free battery lifetime > 16 years

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Our meters are:

- Bi-directional
- Able to be installed in any positions - no straight section required
- Suited to smaller diameters

LoRaWAN CERTIFIED™ M-Bus wireless NB-IoT™

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Using Electroconductivity Readings

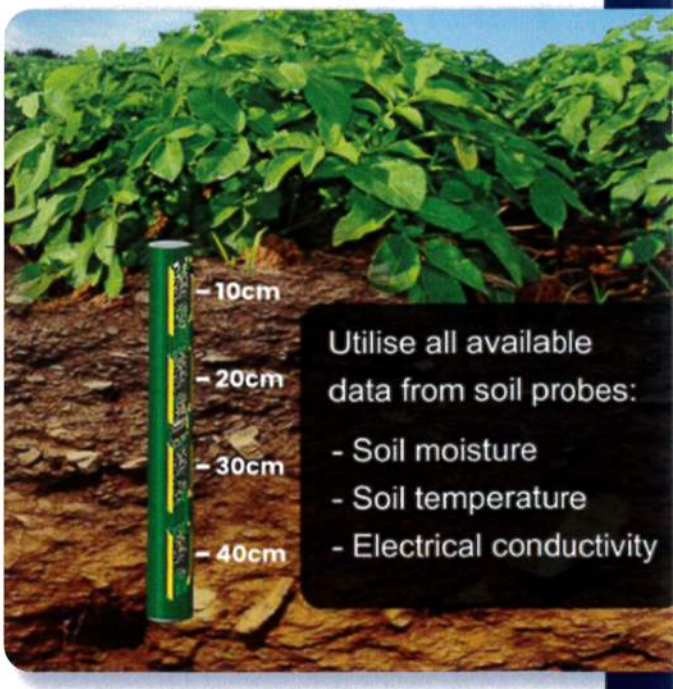
Enviro Pro soil probe

Enviro Pro soil probe

Watermetrics uses the **Enviro Pro soil probe** which accurately measures temperature, moisture and Electrocuoductivity.

Our presentation shows the **trends in EC.** These trends are a **vital management** tool in the management and application of fertilizer, manure and Irrigation.

It is very important in managing effluent applications to soil.



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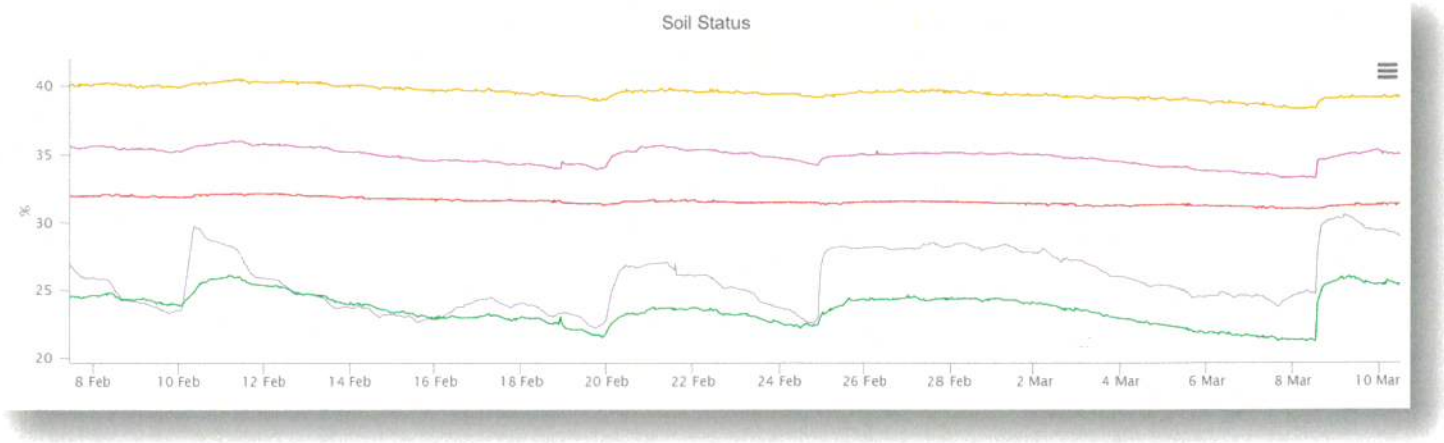

- Soil Electroconductivity (EC) is a metric of salt content in the soil.
- EC effects crop yield and quality, nutrient availability, and microbe activity.
- Salt Ions effect both mineral and water uptake by plants.
- Salt Ions can come from fertilizer solutions and water source.
- High EC can cause reverse osmosis meaning the soil can be moist but the plant cant use the water. There is increased probability of fungal diseases such as root rot.
- Low EC can mean insufficient nutrient is available.
- Each crop has an acceptable EC range.
- EC in soil is affected by fertilizer, manures and irrigation.
- Managing EC correctly is conducive to the healthy growth of crops and achieves increased yields and income.

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Irrigation enhances the productivity and profitability of the agriculture sector

The goal of irrigation is to use water in **the most profitable and sustainable way.**

To achieve this goal we need to understand:

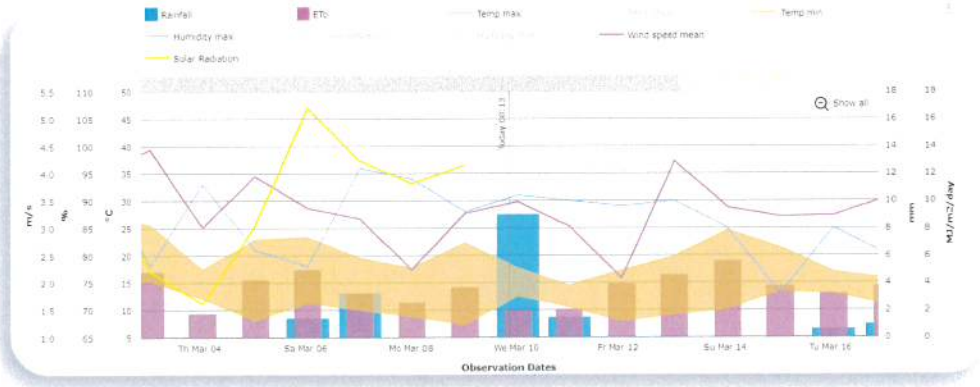
- How much water we have to work with
- When the water is available
- The volume, rate, and timing of water applications to promote optimum crop or pasture yields
- The soil water holding capabilities, plant available water and drainage losses
- The expected climate – rainfall, humidity and evapotranspiration

Combining all these factors into successful irrigation requires detailed scheduling and the irrigation manager needs to juggle the factors into the schedule.

When this is done correctly, crops grow to their potential, animals thrive, and often better performance comes from less water.

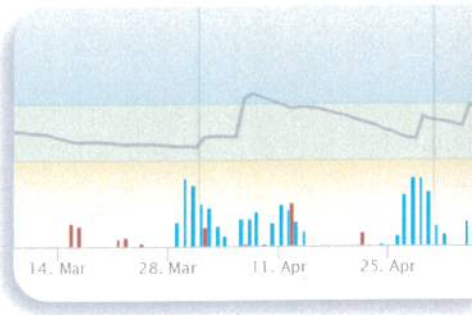
This all adds up to a better bank balance

Soil moisture readings



Weather station observations and predictions

Swan satellite imaging



Soil moisture analytics

However, to do successful irrigation you need quality data.

Quality data comes from quality equipment

- Flowmeters
- Soil moisture probes
- Tank, pond and well level sensors
- Weather stations
- Predictive irrigation models

Watermetrics is experienced in this field and stocks cost effective, quality equipment so that you get a **return on your investment. We have a field service** team that installs and services all of the equipment.

The data is handled by an experienced administration team and presented in an easy-to-use format that makes decision making easy. This includes phone apps and alert settings.

The administration will handle all your environmental monitoring and reporting on your behalf.

Our staff are supported by an agronomy team who are able to discuss the best way forward in using the data.

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Clean Water

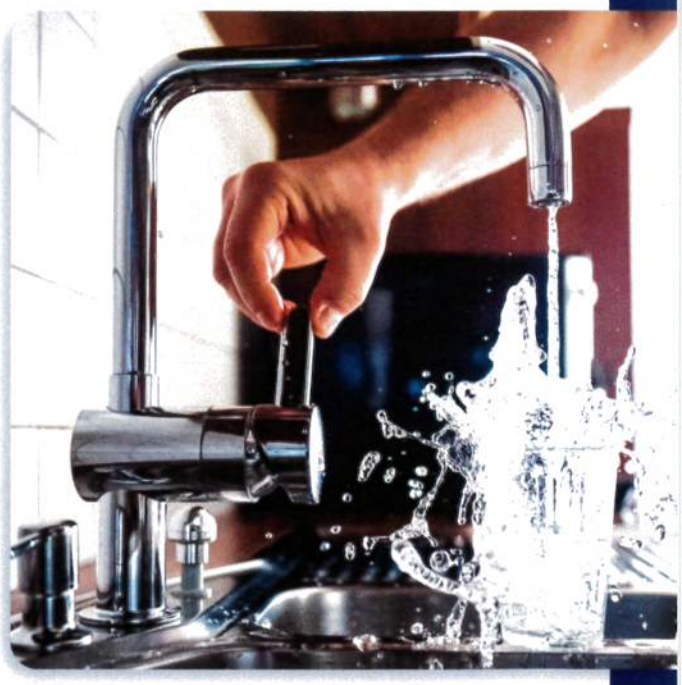
Solutions for safe potable drinking water

Potable or clean drinking water needs to meet legal standards for consumption. Watermetrics assists suppliers in meeting these standards.

There are many ways for water to be contaminated.

- Microbiological
- Chemical
- Nutrients
- And more

We can **test your water** and **meter your use**; **Use sensors** to check variaility; Set up **cleaning systems** using flters, chemical and UV treatments.



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Watermetrics can check what's in your water and then design a system to ensure it meets the necessary standard for consumption.

The following are typical water analysis parameters categorised by water source.

Basic Tests	Mains	Ground Water (Bone/Well)	Surface (river/dam)	Rain
pH	✓	✓	✓	✓
Conductivity	✓	✓	✓	
TDS	✓	✓	✓	✓
Total Hardness	✓	✓	✓	
Total Iron		✓	✓	
Turbidity		✓	✓	
UVT		✓	✓	✓
Silica		✓		
Nitrate		✓	✓	
Manganese		✓	✓	
Copper				✓
Chloride	✓	✓	✓	
Potassium		✓	✓	
Sodium		✓	✓	
Total Alkalinity	✓	✓	✓	
Fluoride		✓	✓	
Total Suspended Solids			✓	
Particle Size Distribution			✓	
Sulphates		✓	✓	
Extended Tests				
Metals Extended Test (incl. lead, arsenic, cadmium, mercury etc.)		✓	✓	
E. coli		✓	✓	✓
Coliforms		✓	✓	✓

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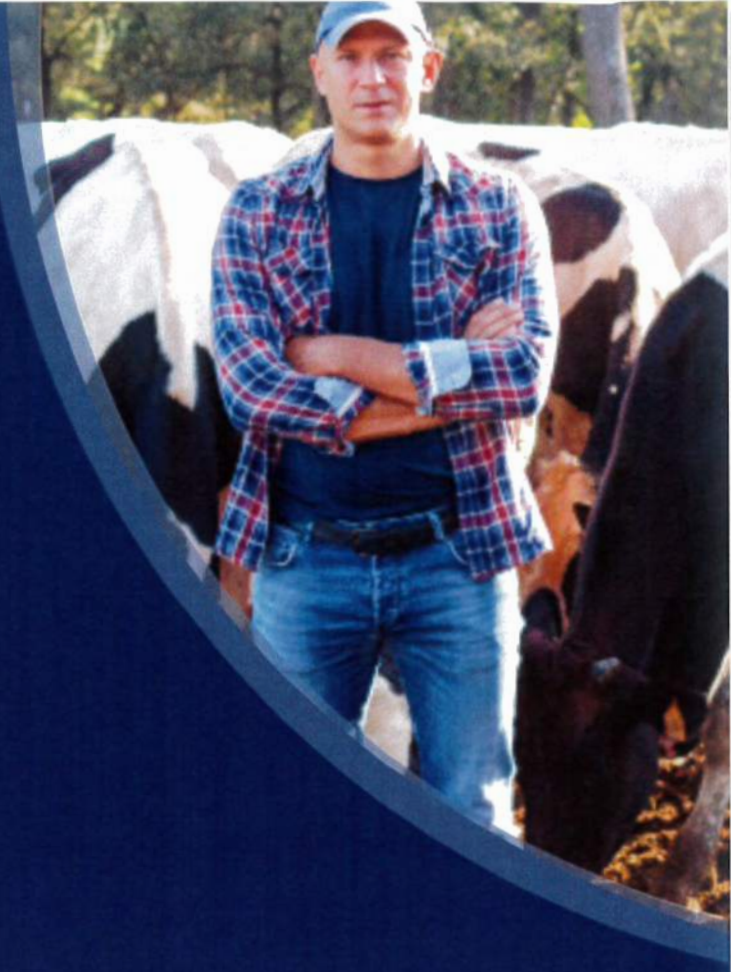


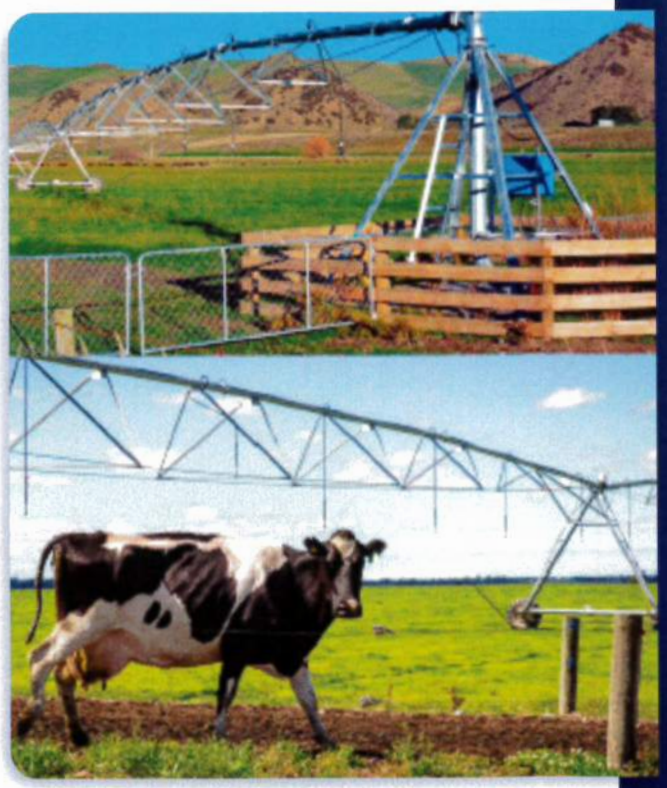
PREDICTIVE IRRIGATION

Partnering with SWAN Systems

SWAN is a complete water and nutrient management platform that helps irrigators be more **efficient with water resources,** manage annual water budgets and meet sustainability goals.

SWAN SYSTEMS:

- **Can increase your profits - you** can expect an increase in both quality and yield.
- Save money by optimising water and nutrients and reducing leaching of your valuable resources.



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New Zealand's leading provider of equipment, servicing and data management to ensure the best use of water and nutrients.

- Hardware independent
- Manage daily irrigation
- Manage annual water use
- Remote monitoring via satellite imagery
- Manage nutrients
- Customer support included

The complete water and nutrient management solution.

Benefits of SWAN Systems:

- **Customisable by crop type, lifecycle.**
- Allow for soil water holding capacity.
- Track irrigation timing and volumes per **field.**
- Helps identify missed irrigations and **allows rectification.**
- System suggested irrigation schedules for when to irrigate and how much to apply.
- Helps maintain optimal irrigation.
- Manage fertiliser planning and application.
- Large crop library.
- Spatial Imagery biomass tracking.
- Satellite imagery to identify crop stress/ **disease and in-field issues.**
- Reporting provides users with updates **on water use, soil moisture status and** fertiliser application history.

SWAN works with existing farm hardware devices such as probes, weather stations, and irrigation systems.

To find out how SWAN Systems can benefit your business, contact WATERMETRICS or

Book a FREE DEMO

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WATERMETRICS

ENVIRO PRO SOIL PROBES

MONITOR

MOISTURE
All models

TEMPERATURE
All models

SALINITY (EC)
Pro models

IDENTIFY TRENDS

CONSERVE WATER

SAVE TIME

IMPROVE YIELDS

MOISTURE Enabled in all models

TEMPERATURE Enabled in all models

SALINITY (ELECTRICAL CONDUCTIVITY)
All probes utilise salinity compensation for more predictable and accurate measurements, PLUS pro models can output salinity metrics.

EC UPGRADABLE – Pre or post purchase, pre or post installation
SENSORS AT 10CM / 4" INTERVALS
40, 80, 120 AND 160CM options – For suitability in all crop types

SAMPLE MORE SOIL – EnviroPro® sensors are uniquely designed to have a much larger field of influence than other capacitance probes of similar diameter, providing more meaningful measurements of the local soil.

COMPENSATED MEASUREMENTS – All EnviroPro® sensor models compensate salinity and moisture measurements for variations in temperature, as well as compensating moisture measurements for salinity variations.

DESIGNED TO LAST – EnviroPro® soil probes are long-life instruments that are fully encapsulated to ensure maximum immunity to environmental degradation.

MAINTENANCE-FREE – Each probe is individually calibrated in the factory, so they never need to be re-calibrated in the field. This means life-time sensor to sensor and probe to probe repeatability.

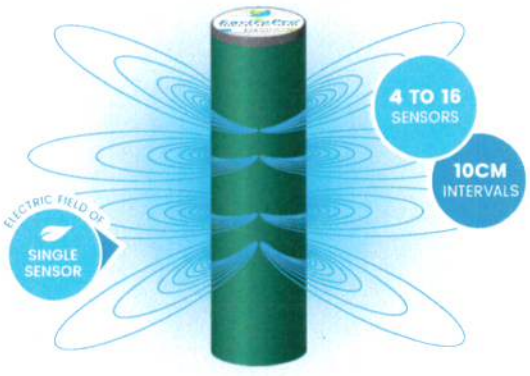
5 YEAR WARRANTY – We're confident in the quality of our products, and you should be too. All EnviroPro® soil probes come with a 5 year warranty to ensure low cost of ownership and peace of mind.

EASY INSTALL / REMOVAL – EnviroPro® installation kits used with recommended bentonite & sand slurry make both install and removal of probes quick and easy.

MANY APPLICATIONS – Applications include turf, trees, flowers, vegetables, citrus, vines, cane fields, grains and dry-land crops, and many other plantations. Other applications include mining, environmental monitoring and scientific research.

DESIGNED AND MANUFACTURED IN AUSTRALIA

OVER 20 YEARS OF PROVEN EXCELLENCE



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