

The Hills Hoist of Water Treatment

Doing the heavy lifting of Australian water problems from Adelaide

Livestock that have access to clean, vital and contaminant-free drinking water are less prone to illness and disease, gain more weight and produce more meat, wool and milk per hectare to optimise farm business returns.

High quality water that easily passes through broadacre cropping, horticultural and viticultural machinery and irrigation systems is also integral to boosting the productivity of these enterprises.

To improve the quality and ensure the integrity of farm water - and subsequent success of irrigation and crop spraying systems - South Australian-based agricultural water engineering specialist Hydrosmart has developed an innovative physical water conditioning system.

It is simple to install, long-lasting, does not require chemicals or filters, needs no maintenance and does not produce any waste streams.

The Hydrosmart technology has been used across all farming regions of Australia and exported to several overseas countries that have recognised its potential.

Hydrosmart chief executive officer Paul Pearce said the system was designed to help farmers improve the quality and performance of highly-mineralised, hard, salty, iron or calcium/gypsum-affected water from bores, rivers, town mains and saline areas.

He said it was based on particle physics research, which has established that scale layers and corrosion problems are related to how well minerals in water are dissolved.

"Because our Hydrosmart system dissolves a broad range of minerals that build-up in water carrying pipes, the water flows easier," he said.

"And, when dissolved, the minerals are held in suspension - without building-up to form new scale.

"These minerals then run out - with the water - through the pipes, pipeline drippers, sprayer units - and other equipment that is in full-time contact with treated water.

"They become a valuable asset after treatment that is better able to be metabolised by plants and animals.

"That means greener crops and healthier stock for all types of farmers, and all sizes of properties.

"It is a long-term effective treatment for tackling Australia's diverse - and often harsh - water problems to lift business returns."

The Hydrosmart process has proven to be more effective than simple magnets for water conditioning and has no waste streams, such as those produced when using reverse osmosis.

It comprises a computer processor and plastic pipe wrapped in coils that is inserted into an existing pipe flow system - whether this is on-farm or from another source.

Loop plastic pipe is used for units up to 100 millimetres in diameter and straight pipe is used where pipe diameter is 150-500mm.

The system provides more than three metres of contact and oscillating/pulse time to activate the water molecules as they pass through the pipe.

The electric fields and pulses disrupt and weaken the bonds of minerals on the water molecules.

Mr Pearce said this led to wide-ranging benefits in improved water quality, particularly from highly mineralised, salty, iron or calcium-rich sources.

"In short, our device softens hard water and releases minerals to improve overall crop and livestock production," he said.

"Just like a good overnight fall of rain - which can only be gifted by the weather gods - farmers can see a difference in their crops and animals in a few days."

During the past year, Hydrosmart has been trialing its water conditioning system on young, seedless citrus trees in California using highly saline water with 1200 electrical conductivity (EC) units.



The Boys

It involved monitoring girths and heights of 32 trees growing in sandy, desert soil that were treated with regulated levels of fertiliser.

The plots that received water treated with the Hydrosmart system had 30 per cent higher tree growth than those where water was untreated.

Mr Pearce said where Hydrosmart was used on livestock properties, farmers had reported significantly improved stock health - especially when the water source was from a bore and high in salt and minerals.

He said the system conditioned the water to ensure it was more palatable and meant animals could better metabolise nutrients in their gut for better health and growth.

"Our system is used by farmers for a wide range of livestock operations, including poultry, cattle, sheep and horses," he said.

Mr Pearce said beef producers, in particular, had recorded significant cattle growth rate gains after adopting the Hydrosmart system.

"For example, we worked with a Poll Hereford grazer who had been using bore water with 7000 parts per million (ppm) total dissolved solids (TDS) - which his cattle were not enjoying," he said.

"We supplied a solar-powered 50mm sized unit to treat the water and the cattle very quickly gained weight beyond what was being achieved prior to its installation," he said.

This was likely due to salts and elements in the hard bore water not having the same lock-up potential of nutrient uptake in the animal microbiome."

When Hydrosmart was first released, about 20 years ago, it was primarily used in SA's grape production regions and had fast uptake by industry.

"Vineyards such as d'Arenberg's, Jenke's and Hardy's wines were reporting a pick-up in vine health and growth within weeks of putting in a Hydrosmart unit," Mr Pearce said.

He said beyond improvements to water quality, the Hydrosmart process had the advantages of not producing wastewater and only using five watts of power to produce the necessary electromagnetic fields and resonance frequencies.

This meant low electricity input costs - or the system could also run from solar power.

"The units arrive complete as an appliance, are simple to install, taking only a few hours to set up, and are completely maintenance-free," Mr Pearce said.

"The water conditioner improves all water sources in a sustainable way and works for decades without the need for any filters or consumables.

"It simply requires a typical 10 amp power point, or solar panel and battery, and a location that protects it from the elements."

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