

DAVEY INNOVATION CASE STUDY

Main Use	Vineyard irrigation
Challenge	Inability to monitor pump system performance without manual check and intervention
Solution	A system that provides real time performance data, anytime on any device allowing faster response and peace of mind that the system is working as intended
Davey Product	Monsoon IQ intelligent pump system triple set
Customer	De Bortoli Wines Yarra Valley Estate
Location	Dixons Creek, Yarra Valley, Victoria



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Above Day breaks over the vines at De Bortoli, Yarra Valley
Below Rob Sutherland, Viticulturist And Vineyard Manager, De Bortoli Wines

Monsoon IQ Keeping the wine fine

Davey's Monsoon IQ intelligent pump controller is set to simplify irrigation management at the Yarra Valley's biggest vineyard, where getting the water level right can mean the difference between a fine drop and a ruined crop.

At 600 acres of vineyard, De Bortoli's Yarra Valley Estate, managed by Rob Sutherland, is twice the size of the next largest vineyard holding in the region. Conditions in the area are incredibly variable, from frosts at minus 2 or 3 degrees at one end of the season to scorching days of up to 42 degrees, so irrigation is crucial not just to keep the vines watered but to help manage the temperature swings.

"Towards the end of the season the berries on the north or western side of the vines can get up to 55 degrees," Rob says. "As the liquid expands during the heat, the berries rupture and then we lose crop. We can lose crop really quickly.

"You can preload the soil with irrigation but getting it on at the right time in the right amount, especially when you have limited quantities of it, is really important to save that crop."

There's an enormous amount of variability to manage across topography, orientation and temperature. Davey's Monsoon IQ with remote monitoring makes it easier for Rob to set the exact irrigation specs he needs given the weather and field conditions.

"The vines at the top of the slope are in shallow gravelly soils. They need one-and-a-half to two times the water required at the bottom of the slope where soils are better quality. With Monsoon IQ we can tailor irrigation in the field which is matched to the pumping system to deliver the right amount of water to the vines. If the pump is too hot, if the flow rate is too high or pressure is too low, we now get immediate feedback, so we can tell something is amiss and an area is not getting irrigated properly."



The Davey Solution

Working with his trusted local dealer Sprinkler Fix, Rob decided on a 3-pump system, VM32-8 (15kW) pumps in a duty/duty/duty configuration, all fitted to VSD's. Inclusions were temperature sensors for each pump, flow sensor, suction transducer and a pressure transducer.

De Bortoli is using the system as part of a 150 acre vineyard which includes a new block of closely spaced rows. The spacing, common in Europe but new to Australia, allows Rob to get 5km of vines per hectare from the more typical three, plus the closeness provides extra shading which can help protect against heat and sun damage.

This area, where Rob is trialling his most innovative ideas, is the perfect spot to put the Monsoon IQ through its paces. The system takes water from one of De Bortoli's 13 dams either manually or using a valve control system, allowing irrigation of particular blocks for certain periods of time. The system allows Rob to easily change delivery and flow rates, which gives him greater control over his energy usage.

"If you're pumping out at, say, 200 cubic metres per hour and it's a block that only needs 50, you're wasting a lot of energy putting pressure through a little pipe. The Monsoon IQ helps us manage energy and be more efficient.

The controller uses a modem connection to communicate to the cloud, where data is stored for easy access from any device by logging into Davey's customer portal my.daveywater.com

"Knowing we get feedback from the system helps me sleep better at night, because I know if something goes wrong, then I can fix it and prevent crop damage from happening. We can manage the vines so that those impacts of them missing out on one, two or maybe three irrigations can be avoided. Before this system, there was no easy way to know if something was wrong." Rob says.

"We would set the irrigation program, go off and do something else and if you noticed that the pump had shut down or if you noticed the water wasn't in the right block you knew something went wrong but you didn't really know where it went wrong, or which area missed out."



Top Rob gets familiar with the Davey Monsoon IQ interface
Bottom The system installed at De Bortoli

The Monsoon IQ is a system built at Davey in Melbourne. When you install a Davey Monsoon IQ, you're supporting local manufacturing, training and expertise.

Key Advantages in this System

- > Remote monitoring and control
- > Turn pumps on and off via phone, tablet or laptop
- > Set SMS alerts for faults like loss of prime, overheating or sensor failure
- > Data on water and energy usage, pump pressure, flow, power, voltage
- > Touchscreen interface where you can turn the pump on/off manually and update settings and parameters
- > Settings, historical data and parameters can be viewed and updated from Davey HQ, reducing service time.

With timely and accurate watering such an essential element of his operation, Rob says the local support and back up is as important as the advanced features of the Monsoon IQ system.

“The good part about working with Davey and Sprinkler Fix is if there is something wrong we get that notification on our phone or computer and then we can contact them, they come out and have a look and they can say it is a burst pipe or this pump is getting a bit hot because there is air in it or something like that, and we can rectify these situations really quickly and get back to doing the irrigation that we need to.

“Part of our choice of using a Davey product is that they are a local company and they provide that backup and service that we all hope for. It only takes a couple of days of 38 plus degrees here in the Yarra Valley and vines will stress and the quality of the wine will suffer in that short a period. It’s invaluable knowing we have people on hand that can come out and fix a problem if we have one, and then we can get going again and make good wine.”

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Left A tractor mows between the vines
 Centre Monitoring via the Monsoon IQ app is easy on a tablet from anywhere
 Right Rob looks on as Nathan Bast of Sprinkler Fix inspects the irrigation



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