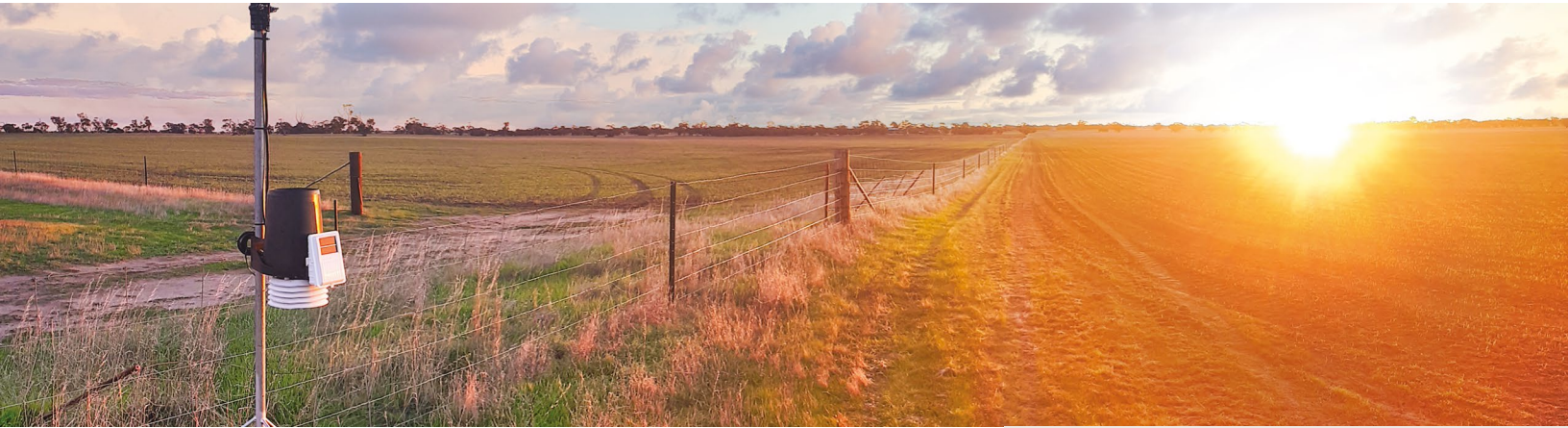


How Precision Agriculture Helps Yarrock Farm Stay Resilient in the Face of Weather Extremes



Evolving weather challenges reveal need for data

OVERVIEW

Yarrock Farm is in the western portion of Victoria, Australia outside a little town called Kaniva (about halfway between the cities of Adelaide and Melbourne). This family farm produces a mixture of crops, including cereals, legumes, and oilseeds. It also raises merino sheep and Prime lambs.

As a fourth-generation Kaniva farmer, the farm's owner, Steven Hobbs, has a pretty good feel for the area's historical weather patterns. Starting in the early 1990s, he noticed what appeared to be a decline in annual rainfall and an increase in late-season frosts. To test and quantify his suspicions, he needed more data.

Quantifying the critical challenges

Through the help of his Davis Instruments Vantage Pro2™ weather stations, Steven Hobbs has been able to confirm that Yarrock Farm is indeed facing more frequent weather extremes. The measurements provided by his stations have helped him precisely quantify several concerning trends:

1. REDUCED RAINFALL

Compared to the area's 100-year average rainfall, the farm has experienced an 18% decline in annual rainfall and a 20% decline in growing season rainfall.

2. INCREASED HEAT STRESS ON CROPS

The timeframe during which temperatures reach 32°C (~90°F) or higher has expanded by about 6-8 weeks.

3. SHORTER GROWING SEASON

Although there are now fewer frosts, the overall frost season has expanded from 100 days to 147 days.

FARMING BY THE NUMBERS

To collect the data he needed, Steven Hobbs purchased his first Davis Instruments Vantage Pro2 weather station in 2014. By leveraging Davis' WeatherLink.com to analyze the data, it didn't take long to confirm that the farm was indeed experiencing more frequent weather extremes. To further understand these extremes and how they might vary from one area of the farm to another, Hobbs purchased a second Vantage Pro2 in 2022 to collect observations at the west end of the farm.



My Davis weather stations are a very important and significant tool in helping me to identify, evaluate, and make fundamental changes to the WHOLE of my farm business...The weather stations are the most used piece of equipment on the farm.

— Steven Hobbs,
Owner, Yarrock Farm

The Solution: Data-driven decision-making

Thanks to the insights provided by his Davis Instruments weather stations and WeatherLink.com, Steven Hobbs has gained a precise understanding of how weather conditions are evolving at Yarrock Farm. More importantly, he has leveraged that information to implement a variety of changes that are helping the farm remain resilient in the face of growing weather extremes.



ADJUST PLANTING TIME

Shift the time of planting to minimize the likelihood of frost damage occurring during the critical window of crop flowering.



ADJUST CROP MIX

Utilize faster-growing, mixed-species plantings that are more resistant to damage from drought and frost.



ADJUST HUSBANDRY PRACTICES

Breed and select for faster-growing sheep that mature faster. Adjust the timing of births to reduce lamb mortality.



GUIDE OTHER FARM ACTIVITIES

Leverage weather station data to determine when humidity is at the correct level for bailing hay.

Increasing resilience and profit at Yarrock Farm

Steven Hobbs continues to leverage available data to test new ways of making Yarrock Farm more resilient against weather extremes. Not every experiment has resulted in success, but many have. For example, Hobbs says the farm can now raise fewer sheep and grow more feed for them – all while enjoying greater overall profit. To support further testing, he is now exploring options to expand the area over which his Davis Instruments weather stations can capture observations.



WHY AEM?

AEM's Davis Instruments brand has been delivering accurate, hyperlocal environmental data for over three decades. With its dedicated team of AgTech experts, the brand understands the unique needs of farmers. Davis Instruments empowers growers to make critical crop decisions with scalable hardware solutions that reliably monitor essential data points and intelligent software solutions that translate those data points into actionable insights.

RELIABLE SENSING

Research-grade sensors deliver data with scientific precision. Rugged construction means they will continue to do so year after year, even in the toughest of conditions.

SCALABLE MONITORING

From stand-alone weather stations to self-optimizing EnviroMonitor® networks, our solutions can be scaled from the smallest gardens to the largest farms... and everything in between.

ACTIONABLE INSIGHTS

Dashboard views of each field show real-time information about current and forecasted conditions. Color-coded flags and customizable alarms focus your attention where it's needed the most.