Remote Irrigation made easy

CASE STUDY

KEY FACTS

- **Business:** RDS Farming Co.
- **Product:** Veggies & broadacre
- **Location:** Nobby, Queensland
- **Irrigation:** Centre pivot and lateral irrigation
- **Pumps:** 6 pump sites
- Solution: FMS remote irrigation system

FARM PROFILE

Located near Nobby on the Darling Downs in Southern Queensland, RDS Farming Co. is owned and operated by Alan Richards, his wife Catherine, son Matthew and daughter-in-law Emma. The mixed farming operation produces onions, carrots, corn and broadacre crop for supply to food manufacturing companies including Kellogs, Corson and Three Three's Condiments. Onions are the predominant crop, which are planted in May and harvested in October, followed by a second crop planted in January and harvested in April. Crops are irrigated either through a 495 megalitre underground annual entitlement or a 480 megalitre dam entitlement. In total, the farming operation includes six pump sites and eight onion drying towers.

Previous Situation

Before the installation of FMS, RDS Farming Co's irrigation system was semi-automated with a UHF line of site wireless system that was used to start and stop pumps once the irrigator had finished its cycle. However, after diversification of the farming operation, the system had reached the maximum amount of outputs and Alan could no longer control all pumps. Alan had also installed variable speed drives (VSD) on their 75kw and 90kw motors in order to reduce water and power consumption. This created new challenges as he was then required to travel to site to adjust the pressure set point depending what paddock they were watering to.

What was implemented

RDS Farming Co. conducted a risk-free trial of FMS, choosing to install the system on their weir site to control their 75kw VSD irrigation pump. Once installed the FMS system controlled their 75kw VSD and pressure set point, as well as two pontoon pumps on soft starters, and a flood pump on a star delta starter. The system had also integrated with their existing UHF system so there was no requirement to replace their existing irrigation equipment.

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Outcome

The FMS system immediately had a huge impact on RDS Farming Co's productivity, significantly reducing outputs such as time, labour and energy. Following the installation of the first system and its results, Alan proceeded with the installation of FMS on all of their irrigation pumps/bores.

Yearly Forecasted Savings

206 pumping days p/year across 6 pump sites	**Before FMS**	**After FMS**	**Yearly Savings**
Labour Savings $25 p/hour	618 hrs/ year $15,450	206 hrs/ year $5,150	412 hrs/ year $10,300
Fuel & Vehicle Savings ($1.20 p/km)	4,120 km/ year (20 km/ day) $4,944	412 km/ year (2 km/ day) $494.40	3,708 km/ year $4,449.60
Energy Savings (0.22 p/kw 8 hour pumping shift)	420,240 kW/ year (2040 kW/ day) $92,452.80	270,422 kW/ year (1313 kW/ day) $59,493	$32,959.80
Total Input Savings			**$47,709.40**
Total Water Savings	492 megalitres	479 megalitres	**13 megalitres**

N.B. Forecasted savings are verified by the grower and are unique to their irrigation situation

Farmer Feedback

"With FMS we are saving on average about 2 hours per irrigation event. The system has eliminated the need to travel the average 20km trip to our pump sites to adjust pressures or turn the pumps on, which as a result has also eliminated the need to replace a vehicle every two years!

With the use of scheduling we have also done away with our old-school timers and now receive a notification when the pumps are turning on and off, allowing us to easily change the pumping time as water allocation changes. Comprehensive fault reporting also means I can be off site and rely on the system to inform me of progress.

FMS has also given us insight to our weir operation by monitoring the weir level through an ultrasonic sensor, water pressure on both our pontoon pumps and the 75kw VSD, motor speed and motor current on the VSD, allowing us to visibly see the running cost per hour.

We can now also monitor the creek flood level with FMS, giving us an immediate notification when the creek level is high enough during a flood (allocated by the department) so we can start our PTO driven pumps. This can translate into megalitres of water savings which we otherwise may have missed out on overnight.

Not only have we been able to run both the existing UHF system and FMS in parallel, FMS has now enabled full functionality of our VSD's so we can monitor the cost p/hour versus water flow giving us the optimal set point. This saves us significantly on energy costs which we estimate to be around $8 - $14 p/hour on the larger pumps.

Overall, with the installation of the FMS system we're now able to grow higher-value crops using less labour, water and energy."

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