



# Incorporating AgTech into a sheep and beef enterprise

## Focus Farm case study

After careful thought, the Schulz family are implementing a range of AgTech solutions including management software, water monitoring, electronic identification (eID) based record keeping, new sheep yards and a sheep handler.

### Enterprise snapshot

**Owners:** Joanne, Jason and Penny Schulz

**Property name:** Coolaroo

**Location:** Field, Upper South East, SA

**Size:** 1,000 ha

**Brief enterprise description:** Merino ewes joined to Border Leicester rams, Limousin and Lim-Flex seedstock business and cattle trading

**Number of employees:** 1.1 full-time employees

**Average annual rainfall:** 450 mm

## Background

The Schulzes' property 'Coolaroo' is 35 km from Meningie in the Upper South East of SA. The farm is 100% livestock, focused on Merino ewes joined to Border Leicester rams and Limousin and Lim-Flex (Limousin x Angus) seedstock cattle. Soils are well-drained sandy loams over clay, and rotationally grazed lucerne and veldt grass pastures, with some crops sown for winter grazing and fodder conservation.

This case study focuses on how AgTech is being implemented and used at Coolaroo to improve the enterprise, as well as other best practice approaches in use at the property.

## What improvements are the Schulzes targeting?

- Better record keeping of livestock numbers, movements and treatments
- Increased lambing rates and lamb survival
- Improved growth rates in lambs, and better records of growth rates
- Ability to distinguish single lambs from twins, and sell lambs to alternative markets
- Easier animal handling so that 'anyone on the farm can do it'
- More efficient sheep yards
- More efficient weighing of cattle and monitoring of individual weight gain
- Enhanced water security.

## Technologies currently in use

- Water meter monitors (monitoring usage and flow) on SA Water meters
- AgriWebb farm management software
- Stockbook animal management software for cattle seedstock operation
- Sheep pregnancy scanning and precision lambing
- eID eartags fitted to all ewe lambs in 2021
- MateSel (software tool to maximise genetic gain through informed sire selection for joinings) for cattle seedstock



**Fig. 1.** Ewes lambing on lucerne and veldt grass at Coolaroo in April 2021.

### Water monitoring

Water on Coolaroo is supplied by mains water. Two water meter monitors have been installed by Alpha Group Consulting. These provide daily SMS updates of minimum and maximum water use, and alerts if usage is outside threshold values. High readings indicate a likely leak, while low readings suggest a problem with water supply. The great benefit of the system, according to Jason, is in detecting excessive use and water leaks before they become costly (detecting a major leak early can pay for set-up of the system). Water monitoring also provides peace of mind in knowing water usage is in the normal range, especially when away from the farm. In addition, the system allows detection and fixing of minor leaks by switching off different lines over successive nights.

## Management software

Penny and Jason use the AgriWebb software program to map paddocks and record stock movements, deaths and sales. This makes it easier for staff on the property to find and feed stock, especially when casual labour is used, and helps manage grazing rotations. Paddock and livestock treatments, with batch numbers, are also entered into the program, making market compliance easier and helping with vendor declarations.

## Joining, scanning and lamb survival

The Schulzes pregnancy scan their sheep each year. Ewes are condition scored regularly in spring and supplemented with silage where necessary to ensure they are score 3.0 or better at joining. Ewes are teased with testosterone-treated wethers for two weeks before joining, with rams introduced mid-late October for five weeks only. Ewes are scanned for multiples 90-100 days after joining, and multiple-bearing ewes are drafted off at scanning to allow preferential nutrition to begin.

Having completed both the Lifetime Ewe Management and Lambs Alive programs, Penny and Jason pay particular attention to lamb survival. Twin-bearing ewes are run in the smallest mobs possible (70-90 ewes) on the best feed in the best lambing paddocks. The Schulzes also record lamb survival in every paddock every year and find twin survival can reach 90% in small mobs in the best lambing paddocks. For Jason, the ideal lambing paddock is “probably small and square with scattered single trees rather than a block of scrub or a treeline, reducing the chance of mismothering”. Because ewes are teased, most lambs are born within the first two weeks of lambing.

## Technologies to implement next

- New sheep yards (permanent bugle shoe-horn design yards with roof over main work area)
- Sheep handler (ProWay bulk handler)
- Sheep autodrafter with radio-frequency identification (RFID) panel reader to collect eID and weight data (growth rates)
- eID tags to be fitted to all lambs
- New weigh box to be purchased this year for easier recording of cattle weights
- Remote monitoring of pasture biomass.

## New yards, sheep handler and weighing equipment

The Schulzes are going to install new sheep yards this year, as well as a six-metre ProWay bulk handler and a three-way autodrafter. The yards are being designed to have a roof over the main work area and the handler and autodrafter permanently installed. The new equipment will significantly reduce manual labour in the sheep operation and enable more convenient weighing of lambs, animal health treatments and monitoring of sheep condition.

In the cattle operation, cattle are currently weighed in a crush, but in future the Schulzes plan to install a dedicated weigh box in front of the crush for more convenient weighing of cattle.

## eID

While the Schulzes have not used eID tags in sheep previously, all ewe lambs will be given an eID eartag this year at marking. Tags will be numbered, with low numbers given to lambs born as singles and high numbers to lambs born as twins, enabling birth status to be tracked visually or electronically. Weaning and post-weaning weights will be recorded through the autodrafter equipped with an eID reader. The use of eID tags in first-cross ewe lambs may give the Schulzes greater access to interstate buyers, particularly from Victoria, and buyers could also be provided birth status and growth rate data – potentially adding value to the lambs on sale day.

In the cattle enterprise, calves are tagged with eID eartags at marking. Once the new weigh box and RFID readers are set up, weighing of cattle will be faster and easier, with weights recorded against eID rather than management tags.



**Fig. 2.** Limousin and Lim-Flex cattle are run at Coolaroo.

## General management

Coolaroo is sown to lucerne, veldt grass and rye grass pastures. Fencing was a priority for Jason and Penny when they first started managing the farm, with the property now set up in 20 ha paddocks either side of a central race. Laneways have reduced labour required to muster stock.

Pastures are rotationally grazed, except when ewes are set stocked during lambing. The Schulzes find that rotational grazing leads to better pasture production utilisation and prevents overgrazing pastures.

All ewes at Coolaroo are Merinos, bought in as 4- or 5-year-olds, with most sourced as cast-for-age ewes from the same suppliers each year. The Schulzes prefer buying cast-for-age ewes, avoiding buying other people's culls, and find the ewes to be good performers until sale two or three years later. All wether lambs are sold direct to abattoirs, while the ewe portion is sold at the Naracoorte first-cross ewe lamb sale. Sheep are shorn in July.

In the cattle enterprise, which comprises approximately 100 Limousin cows, reproductive technologies such as artificial insemination and embryo transfer have been used, and data collected on young cattle from birth to sale, with data sent off to Breedplan and managed in Stockbook. The Schulzes also utilise the MateSel tool to assist with beef seedstock breeding decisions, allowing genetic gain while maintaining genetic diversity. Now that the Schulzes are gaining more experience with individual animal management, it is expected more data will be recorded utilising the eID tags rather than management tags. Young cattle that do not meet seedstock standard are sold to the prime market or sent to a cattle trading operation.

## Pasture management

While Jason and Penny are confident managing pastures in their grazing system, Penny is keen to utilise remote monitoring technology to measure pasture biomass in future. It is hoped more pasture data will provide further insight into pasture productivity, identify pasture or soil issues and improve grazing management decisions. Such technology may also help meet carbon accounting requirements in future.



**Fig. 3.** The Schulzes use AgriWebb to keep track of stock locations and paddock details at Coolaroo.

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Focus Farms are an initiative of the Red Meat and Wool Growth Program from the Government of South Australia, supported by Meat and Livestock Australia, SA Sheep and Cattle Industry Funds and SheepConnect SA.