

Striving for Efficient Business Practice

Gary, Ros and Justin Zweck
Farm-Link Host Farm

Did you know? Efficient farm practices that improve productivity and profitability also reduce greenhouse gas emissions.

Whether or not you believe the climate is changing and whatever you believe the causes may be, the fact is that profitable dairying and reduced emissions go hand in hand.

This is because reducing emissions from dairy cattle means they are more efficiently converting feed into milk.

DairySA's Farm-Link project, part of Dairy Australia's national Profitable Dairying initiative, is demonstrating how dairy farm businesses can improve efficiency and profitability while reducing greenhouse gas (GHG) emissions.

Profitable Dairying recommends the key ways to reduce GHG emissions are:

- › **Identify and cull less productive animals.** Your most productive cows make the most money and produce the least GHG emissions.
- › **High quality feed is always best.** Feed a high quality diet to increase milk production and reduce GHG emissions.
- › **Get your nitrogen fertiliser strategy right.** Apply nitrogen at the right time, in the right place, with the right product and at the right rate to improve on farm nitrogen use efficiency and reduce GHG emissions.
- › **In calf, on time, every time.** This makes your herd more profitable and reduces GHG emissions intensity.
- › **Keep cows comfortable.** During extreme weather events this will reduce stress and associated losses in milk production.
- › **Smarter energy use.** Monitor electricity consumption and equipment performance.

Four Farm-Link farms across SA are demonstrating practical use and adoption of industry programs such as DairySAT and Fert\$mart, among others, which aim to improve productivity and profitability. The farms are located in different dairying regions of the state and they operate varying systems ranging from TMR to virtually entirely pasture-based.

Emissions and their sources have been calculated for each farm using the Dairy Greenhouse Gas Abatement Strategy (DGAS) tool and business analysis of all four farms has also been completed to identify the best areas for each business to focus on for improved profitability and reduced greenhouse gas emissions.

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Reducing emissions by 'Keeping cows comfortable' and 'Providing high quality feed'

Farm facts

- › Blyth
- › 757 ha (9 ha for TMR milking herd)
- › Holstein Friesian
- › Total herd 425 cows (230 milkers)
- › 2013/14 milk production 1.79 MI

Gary and Ros Zweck and their son Justin operate a TMR system on their Blyth farm, along with a cropping enterprise, with the crops used partly as feed for the cows and partly sold to create cashflow for the business.

Gary's goal is to achieve 2 million litres milk production, but he is aware that this will require a significant investment in infrastructure.

"We can't just work harder in the existing system," he says.

"I believe to achieve this production goal we need to put up a shed to improve cow comfort and reduce heat stress, as well as reduce feed wastage and increase automation."

The Farm-Link project is helping Gary to identify the steps he needs to take to achieve his goal, as well as the actions that will reduce greenhouse gas emissions from his operations.

Keeping cows comfortable, particularly during extreme weather events, reduces stress and associated losses in milk production. Providing shade also encourages cows to keep eating.

Permanent shade structures over feedpads can make a big impact on overall farm productivity, thereby reducing GHG intensity.

When looking at priorities for cooling cows, shade is first on the list to minimise heat gain and block solar radiation.

Permanent shade structures are an investment that provides excellent protection from solar radiation – but they must be well designed and constructed, taking into account waste management, feeding, animal health and welfare, orientation, floor fall and many other factors.

“We have been researching barn systems to provide shade and shelter for feeding and loafing, but our sticking point at this stage is whether to invest in a full infrastructure plan, or do all the research ourselves and just get a quote on a shed,” says Gary.

“One thing leads to another; we need to decide which way to push the shed waste- we dry scrape because our access to water is limited- and we would like to install an auto ID system and, ultimately, a robotic milking machine.”

A shed would allow the Zwecks to set up a small, lined lagoon and collect rainwater from the roof, providing water for washing and fire prevention and helping to address their lack of access to this precious resource.

“Whatever we do needs to allow for future developments and additions, so we need to begin with the end in mind,” he says.

To scrape or not to scrape...

Data from DGAS analysis of TMR systems has shown that even if the milkers spent exactly the same time at the dairy and feedpad, scraping and stockpiling the feedpad waste results in substantially lower waste methane emissions when compared to the waste being held in a pond or lagoon system.

While nitrous oxide emissions from the stored feedpad waste under the stockpiled system is slightly higher than for the lagoon waste, overall it is still much better to scrape and stockpile the feedpad waste than it is to retain it in a lagoon system.

Gary's current feedpad and the proposed shed system enable him to manage the cows' diet to provide a high quality ration.

High quality feed is always best: feeding a high quality diet will increase milk production and reduce GHG emissions.

By using a combination of home grown and purchased feed, following advice from a nutritionist, feed testing and incorporating mineral pellets into the ration, the Zwecks do their best to feed a balanced diet to their herd.

Gary notes that feed is a key in their operation.

“Being a TMR system, we have the opportunity to manage the diet in a detailed way based on the needs of the animals,” he says.

“We like to learn as much as we can and always improve our nutrition management.”

“Balancing nutrition requirements, especially protein, between home grown and bought feed is always a juggle and depends on seasonal conditions and prices.”

Why focus on the diet?

Methane emitted from rumen fermentation and nitrous oxide lost from dung and urine are in part due to the inefficient utilisation of feed and nutrients by dairy cows. By improving diet quality and better matching feeds with dietary requirements you can improve the efficiency of your farm system and reduce these greenhouse gas emissions at the same time.

A best-practice management approach to pasture and supplements, using high quality, high digestibility feed, together with a balanced protein content, will maximise milk production and minimise greenhouse gas emissions per kg of milk solids.

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