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Tom Kent is sure of a few things when it comes to dairy farming. The 24-year-old Gippsland farmer wants to milk more cows, but he does not want to milk "bad cows".

Read his story on page 88.

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# Adapting to a new world

THE Australian dairy industry, like pretty much everyone else, is adapting to a vastly different world as the COVID-19 crisis sweeps across the planet.

It's hard to believe that in just a few short months so many things we took for granted have changed.

The crisis was a real test for the Dairy Australia issues management team. I spoke with the DA staff in charge of managing the industry's response and was given a fascinating insight into how it works.

The story starting on page 12 paints a picture of how the team tries to manage the fast-changing challenges the crisis is creating.

One small example shows what it is up against. An early priority for the team was ensuring it could establish protocols to allow milk to be collected safely. Milk tankers travelling from farm to farm could be seen to be a potential source of spread – not to mention how to protect the drivers of those tankers as they would have multiple contacts throughout a day.

So the response team developed a series of protocols to ensure contactless pickup and hygiene practices were in place to minimise the chance of spreading or catching the virus. These included using disinfectant wipes and disposable gloves.

Just a couple of weeks after the protocols were implemented, a new problem emerged. Shortages of the gloves and wipes on which the protocol relied. So the protocol needed to be adapted.

The crisis is also having an enormous impact on the global economy. As ADF president Terry Richardson explains in a piece on page 8, the hit is forecast to amount to $US9 trillion dollars. The Australian economy is forecast to contract by 6.7 per cent this year – not that far short of the 9.5pc contraction in the Great Depression.

Although it has been encouraging to see consumers suddenly realising the value of food, and dairy in particular, during this crisis, no one can pretend that this type of economic hit is unlikely to influence dairy markets.

The scenes of dairy farmers in the northern hemisphere dumping milk because there is no longer a market for it reveals how precarious the world-wide outlook is at present.

Unfortunately, the picture of how this will play out is very unclear.

***'Although it has been encouraging to see consumers suddenly realising the value of food, and dairy in particular, during this crisis, no one can pretend that this type of economic hit is unlikely to influence dairy markets.'***

The situation is changing so rapidly that analysts and processors themselves are uncertain about what this will mean for prices in the next 12 months. Our report on page 15 looks at some of the market factors already at play for Australian farmers.

Dairy farmers need to be aware of what is happening and keep a close eye on market information. They need to talk with their business advisers and think about the range of scenarios that might transpire as they look at the season ahead.

It may be easy to dismiss reports from analysts and processors and say they are deliberately trying to talk down the market or that they know nothing, but the situation the whole world is facing is unprecedented.

This season, more than ever, it will be vital for dairy businesses to be agile and ready to change and probably change again as the situation unfolds. D

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The Australian Dairyfarmer

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MILK MATTERS
provided by Australian Dairy Farmers Ltd
Australian Dairy Farmers

# Keeping up milk supply

**Key points**

- ✔ Dairy defined as an essential industry
- ✔ National Response Group convened to manage industry response
- ✔ Extensive range of resources developed

By **Terry Richardson**
**ADF president**

THESE are unprecedented times. At the time of printing, our governments are doing everything they can to stop the spread of COVID-19.

This includes imposing harsh restrictions on social and business activity, shutting down state borders, and banning non-essential travel.

Basic household necessities like toilet paper, hand sanitiser, meat and, at times, milk remain a rare commodity on many supermarket shelves. The pleas of Prime Minister Scott Morrison for shoppers to stop their panic buying have clearly been falling on deaf ears.

But while this continues to play out, federal and state governments have acknowledged the importance of maintaining a continuous supply of food for Australia's 25 million residents.

This is a relief for all food production, but particularly dairy, because it means that all dairy operations will remain unaffected during these escalating restrictions. That being said, it is important that we also ensure that all ancillary support services that underpin business activity also remain unaffected.

This includes ensuring supply chains remain open to manage product flows, allowing factory workers to move across sites, and enabling service providers such as feed companies, rural stores, equipment providers and engineering companies to perform their roles. These measures are critical to ensuring the dairy industry can continue supplying nutritious products for supermarkets, households and food-service facilities (e.g. child care, schools).

**The dairy industry response group is working to ensure supply chains remain open to manage product flows - including picking up milk and allowing factory workers to move across sites.**

***'But whatever happens, Australians will still need dairy. The dairy industry still has a vital role to perform.'***

The Australian Dairy Industry Council went so far as to write to all federal and state agriculture and health ministers seeking their support in maintaining dairy operations.

The Australian dairy industry is taking the impact of COVID-19 extremely seriously.

The ADIC has convened a National Response Group to provide guidance to federal and state governments and a united voice on behalf of the Australian dairy industry.

Providing a safe work environment for all workers in the dairy supply chain remains a priority for the dairy industry. In these challenging times, dairy manufacturers and farmers together with others in the supply chain have been working to keep milk flowing and on shelves without risking the health of those working in dairy businesses.

A whole-of-industry working group has been collaborating to manage issues related to COVID-19 and is comprised of representatives from Australian Dairy Farmers, Australian Dairy Products Federation and Dairy Australia.

COVID-19 presents challenges for all agricultural sectors and the working group is responding to issues as they emerge by developing industry-specific advice to support dairy businesses.

Dairy Australia has prepared extensive resources around managing the impact of COVID-19, and I encourage you to look at them if you are uncertain about how your business could be affected. If you have an employee who has just returned from overseas, if you're concerned about whether you will be able to still buy everything you need for your business, if you need tips on how to protect yourself against the virus, you can find this information there.

Life will undoubtedly change for all of us over the next few months and no doubt in the longer term as well. But whatever happens, Australians will still need dairy. The dairy industry still has a vital role to perform.

During this time, I urge you to stay safe and carry on business as usual but with all the safeguards necessary to ensure you, your family and your employees remain healthy. D

**See the Dairy Australia resources directory at website https://www.dairyaustralia.com.au/C19.**

# Industry committed to ensuring milk flows

**Key points**

- ✔ Milk being dumped in parts of northern hemisphere
- ✔ Little risk of this occurring in Australia
- ✔ Processors working together to ensure all milk picked up

**The Australian dairy industry is working together to ensure the supply of milk to retail outlets.**

THE Australian dairy industry has reinforced its intention to maintain milk flow during the COVID-19 pandemic, putting practices in place to ensure this happens.

The Australian Dairy Industry Council made the call after footage emerged of dairy farmers in the northern hemisphere having to dump milk due to an oversupply created by the shutdown of restaurants and other bulk buyers to slow the spread of the virus.

ADIC chair and Australian Dairy Farmers president Terry Richardson assured dairy farmers there was little risk of milk needing to be dumped in Australia.

"These are turbulent times and we feel for our colleagues in the northern hemisphere because spring marks the start of peak milk production period and food-service outlets have shut down, but it's a different situation in Australia," Mr Richardson said.

"The dairy processing sector has a strong track record of ensuring the reliable collection of raw milk over many years and through various crises."

Farmers in the United Kingdom took to social media to share their experiences.

One farmer Ellie Young posted on social media: "Goodbye 16,500 litres of milk down the drain. The effects of COVID-19. With hospitality services shut e.g. restaurants, cafes, schools, airlines etc, there is no demand for our milk, so the processors don't want it."

Another Llyr Griffiths wrote that he had to dump 11,500 litres of milk as a result of this.

In Canada, where dairy farmers produce a set quota of milk that can be moved up or down as needed depending on anticipated national demand, the industry has also been hit hard.

Dairyfarmers of Canada vice president David Wiens told the Globe and Mail that farmers now have "a huge surplus of milk now, which had nowhere to go".

Demand for milk has plummeted as eateries across Canada shut their doors, with only some restaurants continuing to operate serving food to go.

Mr Wiens, who operates a dairy farm near a small town about 70 kilometres south of Winnipeg, said that while demand fluctuated, cows kept producing milk daily.

"There's no tap that you can just slow down, and, you know, turn on and off as we wish," he said. "It doesn't work that way."

In Australia, the dairy industry has kept a united response to the COVID-19 pandemic by forming a National Response Group to ensure the maintenance of supply chains and product quality and to protect the health and safety of farmers and workers.

Comprised of representatives from ADF, Australian Dairy Products Federation and Dairy Australia, the NRG has worked to ensure dairy and all supply components are classified as an "essential service", and have implemented measures to keep supply chains operating.

"During COVID-19 the industry continues to work collaboratively to ensure continuous, safe and efficient milk collection from the farmgate, right through the supply chain, with no interruptions," Mr Richardson said.

> ***'The message for Australia is clear. The dairy industry is essential and open for business.'***

ADIC deputy chair and ADPF president Grant Crothers said processors and haulage companies continued to work together to ensure milk pick-ups would occur safely under any circumstances.

"Dairy farmers' milk will continue to be collected, and we see no reason whatsoever for milk to be dumped," Mr Crothers said.

"Should any dairy processor not be able to pick up milk, they'd simply need to pick up the phone and call another processor or the ADPF, it's as simple as that.

"As long as farmers continue to produce safe, fresh and nutritious milk, Australia's processors will ensure supply across retail and replenish all products.

"The message for Australia is clear. The dairy industry is essential and open for business."

# Dairy farmers must plan for the future

**Key points**

- ✔ COVID-19 delivers major hit to global economy
- ✔ Likely to impact global dairy prices
- ✔ Farmers need to seek advice to manage risks

By **Terry Richardson**
**ADF president**

The COVID-19 crisis is likely to adversely impact global dairy markets in the coming months.

THE Australian dairy industry response to the COVID-19 pandemic was swift and comprehensive: a collaborative effort across the whole supply chain continues to address key risks facing us in the next few months and beyond.

Our first priority was to ensure the safety and well-being of all people in the industry. We also took steps to develop protocols to provide supply chain continuity, from farm to retail shelf. These measures remain in place and have served to provide reassurance to markets that milk will continue to be harvested, collected, processed, and distributed.

Our attention now turns to the longer-term economic risks that are becoming apparent. There is no way to sugar-coat the impacts of COVID-19 on the global economy. There is likely to be extreme market volatility across industries, and the dairy sector is not immune.

The International Monetary Fund (IMF) recently forecast that the "Great Lockdown" to fight COVID-19 will cost the world economy $US9 trillion dollars. The IMF predicts the Australian economy will contract by 6.7 per cent this year, or almost $130 billion. To put this in perspective, during our last recession in 1990-91, GDP (Gross Domestic Product) fell by 1.7 per cent.

In fact, this outcome would be the single biggest hit to the Australian economy since the onset of the Great Depression in 1930, when the economy is estimated to have contracted by 9.5 per cent.

This is serious, and farmers need to be prepared for the potential market-related risks of COVID-19 as the new milk production season approaches.

Rabobank's latest *Australian Dairy Seasonal Outlook*, released in April, has highlighted the potential challenges we face with milk price estimates for the 2020-21 season. While acknowledging recent higher milk prices and export returns, the report also states that prices have fallen in the first quarter of 2020 as the pandemic spreads and global dairy fundamentals deteriorate.

***'In fact, this outcome would be the single biggest hit to the Australian economy since the onset of the Great Depression in 1930.'***

This sounds like pessimism, but we should still keep in mind Rabobank's forecast is based on current indicators which, some argue, sit at the conservative end of market expectations. However, the report is a reminder that we should be cautious in our planning for the next few months. There is a lot of uncertainty about the impacts of social disruption and policy settings across the global economy.

So far, a weaker Australian dollar has largely safeguarded the dairy industry from the threat of lower milk prices. But Australia is not immune from global market influences and there will almost certainly be some impact on domestic dairy prices, even if it is cushioned by a weaker dollar.

The message here is that while it is still too soon to provide any guidance on prices, farmers must manage their business risks for the possibility of a tumultuous year.

There are several factors that the industry must consider.

As far as supply goes, we must look at the prospect of milk supply growth in the United States and European Union, and the potential influence of policy decisions by those governments on that growth.

On the demand side, we must consider how far the virus has spread through south-east Asia and Japan. Disruptions through China's ports and logistics channels are now starting to ease, which is good news for Australian dairy exporters. But demand remains lower than pre-COVID-19 levels due to an increase in local powder production and a deterioration in the economic outlook.

At home, there has been recent growth in sales due to "panic buying" of food products. But if we do head into a recession, as the IMF has foreshadowed, we may see a limit on the purchasing power of Australian consumers. This is likely to upset recent growth in value-added product lines and risks prompting a return to discounting strategies by major retailers.

In the long term, the deterioration in economic outlook is expected to dampen the growth rates of global demand for dairy.

Even with a weaker Australian dollar, depressed global commodity prices will likely face increased import pressure, especially in the foodservice sector, as it struggles to recover from the financial impact of COVID-19 restrictions.

But as I said before, we must remain confident. Milk supply is returning to growth and processors are still competing for product, meaning there is sufficient demand to absorb any additional milk production within Australia.

This is uncharted territory for all of us. While we want to stay confident about the next year, we can't stay ignorant of the potential financial impacts of COVID-19. I urge all farmers to seek advice for managing risks to their business in preparation for the new season.

# Developing standard form contracts

**Key points**

- ✔ All contracts must comply with mandatory code of conduct
- ✔ ADF developing contract template
- ✔ Aims to improve trust and transparency

THE mandatory code of conduct has been in place for a few months now, but the real test of its effectiveness comes with the negotiation of new milk supply agreements in the lead up to the new season.

All contracts signed after January 1 this year must comply with the code, while prior agreements have 12 months to transition to become compliant.

The Federal Government made a commitment in the lead up to last year's election to develop a standard form contract that meets the requirements of the mandatory code and can be used by processors and farmers in negotiating supply agreements.

The government contracted Australian Dairy Farmers to develop this template, which will provide a foundation for the obligations of both farmers and processors under the code with the least cost to industry.

Farmers and processors won't have to spend time becoming experts in the code or contract management nor will they have to spend time developing new agreements from scratch. They can simply adopt the template, or develop their own contract using the template as a basis.

The template will also help to resolve a number of issues identified by the Australian Competition and Consumer Commission in its Dairy Inquiry report.

The competition watchdog made several recommendations related to contracting practices, including that milk supply arrangements should be acknowledged in writing, processors should provide farmers with all contractual documents before the start of their contract, and that those contracts should be simplified.

The ACCC Dairy Inquiry found that many farmers have had no contracts with their processors or contracts that may have contained complex terms. The new standard form contract will ensure that all farmers will have a contract with acceptable and meaningful conditions.


**ADF is developing a template for farmers and processors to use when developing contracts that are compliant with the Mandatory Code of Conduct.**

***'The ACCC Dairy Inquiry found that many farmers have had no contracts with their processors or contracts that may have contained complex terms.'***

ADF's goal is to ensure that farmers have a stronger bargaining position when negotiating contracts with processors. One of the key findings of the ACCC Dairy Inquiry was that contract arrangements between processors and farmers have been favourable to processors and exacerbated most farmers' weak bargaining power.

The template was developed by comparing the mandatory code and other legal requirements to current contracts in the marketplace. It will be made widely available on the internet so that anyone wanting to use the contract or even compare their own milk supply agreements can do so.

Of course, ADF expects that many farmers will have questions about the template and it will seek to answer those through a series of webinars and other online tutorials.

The past few years have been difficult for the dairy industry, underscored by diminished trust between farmers and processors.

One of the key commitments of the Australian Dairy Plan is to improve trust and transparency along the dairy supply chain.

The new standard form contract will help this process. ADF will be encouraging farmers and processors to use this template and seek further information from ADF, either by attending one of the information sessions when they are organised or by contacting ADF's office.


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# Reform plans need further engagement

By **John Brumby**
**Independent Chair**
**of Australian Dairy Plan**

**Key points**

- ✔ Dairy Plan delayed slightly by COVID-19
- ✔ Industry structure reform needs more industry engagement
- ✔ Hope to hold vote by end of year

IT'S 100 years since we've had a health crisis of the magnitude of COVID-19. It has placed huge demands on governments around the world and reached into virtually every aspect of our lives.

Businesses of all sizes have needed to make big adjustments and there have been major impacts for many, along with significant job losses.

My years in government provided plenty of crisis management experience and I've been impressed by the dairy industry's response to this situation. The three main dairy organisations have pulled together effectively to provide co-ordinated support across the dairy supply chain. The roll-out of targeted practical advice was exceptionally quick – and provided an example to many other agriculture sectors.

Inevitably the focus of these organisations on supporting farmers, processing companies and service providers to manage COVID-19 has had a knock-on effect on the timings of the Australian Dairy Plan, resulting in a slight delay to the finalisation of the plan.

Following the release of the draft plan in December last year, we have received valuable feedback both online and through face-to-face meetings. The finalisation of the plan is nearly complete and some revisions are being made in response to the feedback received.

The partner organisations are working to deliver the plan as quickly as possible in order to start rolling out some key initiatives from July 1, 2020, with preliminary work already underway in some areas.

In late January this year, we released the final report of the JTT (Joint Transition Team) on industry structure and advocacy arrangements. Since its release, there has been considerable feedback, discussion and debate as we work to further refine and shape the proposal for industry reform.

The JTT's recommendation to create a single, whole-of-industry national dairy organisation is a bold proposal, which undoubtedly addresses a widespread desire across industry for transformational change.

As I said in my column in the previous issue of this publication, I share the JTT's view that an organisation of this kind would have more influence in supporting the interests of this vitally important industry. I also believe that collaboration and investment between farmers and processors in pre-competitive activities like industry marketing and sustainability would benefit the whole of dairy.

I also appreciate that there are concerns around regional representation in this proposed new structure and questions around how advocacy can work when there is a lack of alignment between farmers and processors on a given issue.

Getting the reform of industry structures right is key to delivering so many aspects of the Dairy Plan. Public engagement sessions are therefore vital, but will need to be delayed until current COVID-19 restrictions are lifted.

In the meantime, we are recruiting an Engagement and Design Team to continue discussions underway with dairy organisations and prepare for these public engagement sessions.

I want to make it clear that we will not be proceeding further on the process of industry reform without the engagement and support of industry. No decisions on future industry structures will be made until this has occurred.

An industry vote on these reforms will also need to be delayed for the same reason, but the objective is to hold a vote by the end of the year, subject to review and remaining mindful of current circumstances.

**The COVID-19 crisis has shown that our communities recognise the Australian dairy industry as an essential service.**

***'We remain committed to industry reform, but circumstances mean that the reform process will be lengthened.'***

We remain committed to industry reform, but circumstances mean that the reform process will be lengthened and we will continue to provide regular status updates as conditions change.

On behalf of the Australian Dairy Plan Committee, I would like to thank all the organisations and individuals who have been involved in supporting the development of the plan to date.

When COVID-19 passes and the world economy rebounds, we want the Australian dairy industry to be ready and equipped to take advantage of new market opportunities. I am confident that the range of priorities and actions contained in the Dairy Plan can make a big difference to the prospects of this industry.

This crisis has shown that our communities recognise the Australian dairy industry as an essential service and I trust that you, your families and staff are staying safe and are able to sustain your businesses in these challenging conditions.

**For more information on the Australian Dairy Plan visit https://www.dairyplan.com.au/.**

# How dairy responded to COVID-19 crisis

**Key points**

- ✔ Dairy COVID-19 response at highest level
- ✔ Develops extensive directory of resources
- ✔ Key issue ensuring milk production continues

By **Carlene Dowie**

THE Australian dairy industry first identified COVID-19 as a potential threat in early January.

As the situation escalated in the following months, the industry followed its well-tested issues management framework to co-ordinate the response. By mid March, this was ramped up to the highest level with a National Response Group formed to manage the enormous challenges the COVID-19 crisis was creating.

Dairy Australia's stakeholder relations and issues manager Georgia Nicholls is in charge of co-ordinating that industry response. It's a big job in an industry that has an extensive farm and manufacturing base across the country.

Part of Ms Nicholls's normal day-to-day job is monitoring for issues that might have an impact on the industry. This includes a fortnightly meeting with staff from DA, Australian Dairy Farmers and the Australian Dairy Products Federation.

"So fairly early in 2020, we had COVID-19 come onto the list in the industry scan meetings, and we were keeping an eye on things as they were proceeding in China," she said.

"Our immediate concern was around whether COVID-19 had a direct impact on livestock. It was less apparent at that stage how globally significant this disease was going to be, but it certainly was immediately relevant in terms of dairy export markets, as well as the potential for livestock vulnerability, so that was the initial focus.

"As it became more apparent that there was going to be a much more significant human health impact, and therefore an economic impact, both in our trading markets as well as in Australia itself, we fairly rapidly identified the need to escalate our preparedness to respond."

Initially two issues teams were formed: one around how DA would continue to operate and service the industry and one around the response and supporting the industry to maintain food production. The second group included a significant number of DA technical staff, as well as ADF and ADPF staff.

"We were meeting every other day initially and talking about how we needed to gear ourselves up for response," Ms Nicholls said.

When an issue hits this stage two, DA appoints one of its leadership team to lead that issue, to support Ms Nicholls and to bring back issues where DA resources are needed. For COVID-19, DA's sustainability manager (including food safety and integrity) Helen Dornom was appointed as the lead.

Ms Dornom said as the issues became more encompassing, the co-ordination by Ms Nicholls became more important. "Everyone starts off dealing with particular issues, and after a while many things merge," she said. "So this role is making sure we're all dealing with the things we need to deal with and not all falling over each other dealing with the same things."

The highest level response – the National Response Group – is implemented when the issue becomes critically important for the whole industry. The COVID-19 NRG is chaired by ADF president and Australian Dairy Industry Council chair Terry Richardson and includes ADPF president and ADIC deputy chair Grant Crothers and DA managing director David Nation.

"So they are steering the ship, if you like, and making decisions on behalf of the entire supply chain, where dairy is asked for an opinion or a response or information on behalf of the whole industry," Ms Nicholls said.

ADF chief executive officer David Inall said having the three organisations work together was a bit like dairy's version of the national cabinet. "It worked really well; we were able to make quick decisions if needed," he said. "It was good to see such as really good, constructive collaboration with the processing sector."

At DA all group managers have been meeting daily to discuss the response and how to marshal its resources to deal with challenges, as well as providing daily briefings to the NRG.

## Initial focus

Ms Nicholls said the initial focus for the industry was to ensure the government classified dairy as an essential industry and to show that milk, and food in general, were not part of the transmission process of the virus.

The second was to ensure that both the pre-farmgate and post-farmgate sections of the industry could continue to produce the product safely – particularly in how staff could be managed to reduce the risk of transmitting the virus.

The third was dealing with potential labour force challenges. "We are an industry that is very reliant on labour and skilled labour particularly," Ms Nicholls said.

Ms Dornom said one of the challenges was that the situation was changing rapidly, making it difficult to ensure information being provided was accurate.

"Everybody wants an answer today about what it means for their business," she said. "But you only have to see the change in the messaging from Scott Morrison where that first started and where it is now ... so all of us are operating in the ambiguity, trying to get some consistency of message," she said.

"We need to be on safe ground because we are not going to tell you something for it to turn out to be wrong. So the farm team and employment team took a little time to make sure we had some legal advice about how people were interpreting what it might mean, so we could be on safe ground, albeit, we know, shifting ground."

But once it had the information, the response team moved quickly to put it out, without worrying too much about how it looked or was designed. ▶

The Dairy Australia rapid response team meets daily to discuss the industry response to the COVID-19 crisis and how to marshal its resources to deal with challenges.

Ms Nicholls tapped into some of the industry's already established groups to quickly develop tools and resources. For example, a steering committee formed some time ago to develop a milk tanker operator course stepped into the breach to develop pick-up protocols that were going to keep everyone safe.

"But also we have now had to adjust those due to a shortage of PPE (personal protective equipment), particularly gloves and in some cases disinfectant wipes," she said "There's been a real sense of urgency to get those adjusted because it has become a real anchor point for industry in terms of offering assurances to the community and their employees and themselves that there is a safe way to continue to conduct business."

## Industry-wide issues

The scope of issues the dairy industry faces is enormous. It's extensive manufacturing businesses operate in a range of markets, including domestic retail, foodservice and export markets. Some of the smaller manufacturers, like cheesemakers servicing the restaurant trade, have been particularly hard hit by the COVID-19 closures.

The dairy industry response has included providing information to these manufacturers about how to reorient their businesses.

The farm sector relies heavily on a range of service providers, from artificial breeding companies to seed companies and contractors to vets.

Ms Dornom said early on the response group developed a list of the various services providers for both the farm and manufacturing sectors, ranking their importance, the need for them to visit workplaces and how often this needed to occur.

When border closures happened, a template was developed from this list for people to be able to use if they needed to get across the border.

## Positive response

Ms Nicholls said the dairy industry response to the crisis showed what could be achieved by a united, co-ordinated approach.

"It's been a really strong demonstration of the output of the industry when we truly work together," she said. "The collaboration across the three organisations from my point of view has been fantastic and demonstrative of the kind of value of the aims that have been published in Dairy Plan."

Mr Inall said ADF held weekly teleconferences with the state dairy farming organisations and played a pivotal role in liaising with the National Farmers Federation.

Ms Nicholls said the response to the crisis had also prompted DA and the wider industry to become more thoughtful and flexible in the way it delivered information.

"So we've had webinars, we've had podcasts, we've had social media content, we've got a number of different forums happening at the regional level in virtual time as well as our website content," she said.

"And different organisations are offering different opportunities to connect, including weekly teleconferences for the processing side of the industry, weekly teleconferences for the farmer rep organisations, constant liaison with the food safety regulators at the state level on an almost daily basis.

"It all starts to move as a machine quite quickly and to develop some innovative ways of doing things."

Ms Nicholls said a website directory containing a comprehensive range of resources has recorded thousands of visitors.

The COVID-19 crisis has also helped the industry hone the issues management framework.

Ms Dornom said Ms Nicholls had introduced a process of putting a quick survey out before a meeting asking for participants to identify key issues. "So the meeting can be more efficient – rather than going around the table and getting issues out," she said.

Ms Nicholls said this meant the work plan of the rapid response team was industry led.

## Future focus

Ms Nicholls said several issues were appearing on the horizon as the COVID-19 crisis continued to unfold.

Mental health was top of the list. "Dairy businesses tend to be quite connected by their very nature and having to put in place processes that make staff much less connected in their day-to-day operations and the challenges associated with it," she said.

Ms Dornom said DA's regional development program teams would start the process of ringing around farmers in their areas, something that had worked well in the industry responses to bushfire and floods. "That's why it is good having that central manager role because you can learn from all the past experience and bring it to play," she said.

"The other thing is making sure we are constantly vigilant in talking about the workforce implications because that will obviously, depending on the rate of infection and how that either accelerates or continues to slow, really determine the level of impact on the major part of the industry," she said.

So the response team was talking with the Federal Government and its agencies such as Centrelink and the Department of Foreign Affairs and Trade about trying to tap into the pool of people who were seeking work.

Ms Dornom said this was being supported through the development of resources such as an online training course giving a quick introduction to milking that could be used by an inexperienced staff member. D

**Access the dairy industry's COVID-19 resource directory at www.dairyaustralia.com.au/C19.**

# COVID-19 crisis to hit dairy prices

**Key points**

- ✔ COVID-19 to create global recession
- ✔ Likely to hit dairy commodity prices
- ✔ Processors say outlook is uncertain

By **Carlene Dowie**

DAIRY analysts and processors are warning the COVID-19 crisis will put pressure on global dairy prices well into 2021 and will hit opening prices in Australia.

Rabobank's Australian senior dairy analyst Michael Harvey warned Australian farmers to budget for more conservative opening prices.

In its *Australian Dairy Seasonal Outlook* report, the bank said although the Australian industry had been buoyant thanks to recent record-high milk prices and export returns, COVID-19 was hitting global demand.

A more cautious approach to southern export milk prices was necessary, particularly considering a global market down cycle similar to that of the global financial crisis was now plausible, Mr Harvey said.

"Around the world, in major dairy markets, demand will inevitably fall as unemployment rises and discretionary spending slows," he said.

Under the worst-case scenario, demand would significantly weaken, supply inventories would build up and dairy commodity prices, particularly in Europe, could fall 10-15 per cent on April 2020 levels.

**Rabobank's global dairy strategist Mary Ledman says a likely global recession will keep dairy product prices and farmgate milk prices under pressure into 2021.**

Under this scenario, the report predicts the commodity farmgate milk price for 2020/21 across Australia's southern export region might sit at $5.20 a kilogram milk solids.

But Mr Harvey said the low Australian dollar would boost export returns while domestic market premiums could help bolster farmgate returns.

"The Australian dollar is likely to be lower than it was during the global financial crisis, an almost unprecedented fall that will be a game-changer for the Australian export sector, helping support farmgate returns in 2020/21 and proving key to preserving farmgate milk prices above breakeven levels," he said.

Mr Harvey said the ongoing battle for milk supply would also ensure there were premiums above the commodity mix on offer in the market.

Some dairy farm businesses were also insulated from the global market downturn due to contractual supply arrangements and/or exposure to domestic consumer markets.

He said Rabobank's base case scenario, taking into account these factors, for an annualised southern export milk price in 2020/21 stood at $5.70/kgMS.

## Uncertainty ahead

Processors are also warning about uncertainty.

Bega Cheese executive general manager - ingredients Mark McDonald said global commodity prices were softening.

"Global incomes are an issue now," he said. One of the key drivers of global incomes was oil prices, which at US$30 a barrel were now well below the cost of production, which was having a huge impact on oil-producing countries, including in the Middle East and Russia.

Global milk production was growing at 1-1.5 per cent, which in a normal world would be a contraction of supply relative to demand, but in the current environment, demand was difficult to forecast.

"It will be an unsettled period for the next 6-12 months," Mr McDonald said.

Saputo president and chief operating officer Kai Bockmann told a market briefing that downward ▶

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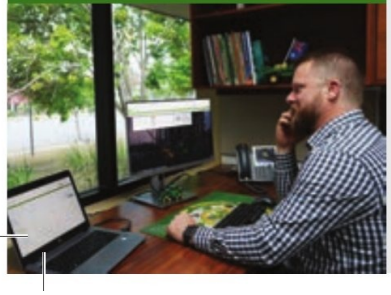

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pressure on global commodities was having an impact on its Australian business, while lower oil prices were affecting demand from the Middle East.

Fonterra chairman John Monaghan in a letter to farmers in April said it was clear the COVID-19 outbreak would continue to have an impact on the health and wellbeing of people and economies across the globe for an extended period, likely deep into 2021.

"The global recession will impact people's purchasing power and that will be reflected in prices for all products and services," he said. "The scale of the impact is impossible for economists to predict right now."

But all three companies are seeing improved signs from the Chinese market.

Mr McDonald said there had been some delays due to tight capacity in Chinese ports but these were sorting themselves out.

Mr Bockmann said there had been some softness in China and South-East Asia due to lockdowns in countries there.

"But the good news is that we are starting to see the Chinese ports and transport in that country slowly getting back to normal," he said.

"So we anticipate that those markets like China will pick up steam as we start to enter the second and third quarter of our fiscal year."

Mr Monaghan said progress in containing the virus in its export markets would be the key to how the crisis impacted its performance.

"Key amongst those markets is China," he said. "That economy is slowly returning to a new normal. Chinese bidders returned to the last GlobalDairyTrade auction at levels closer to their historic participation.

"We are starting to see key foodservice outlets such as Starbucks and McDonald's re-open their doors in China. While that's good news, there's a lot of recovery still needed in that market."

***'Around the world, in major dairy markets, demand will inevitably fall as unemployment rises and discretionary spending slows.'***

Mr McDonald said it was paramount that borders remained open to allow trade to continue.

"Because while Australia has a very strong domestic industry, which is wonderful, it also relies on exports, and to a degree imports, to support the consumer and the farmers themselves," he said.

## Global outlook

Rabobank's global dairy strategist Mary Ledman said the global dairy sector was in uncharted territory.

The sector was expected to experience three waves of market movement in the next 12 months before it returned to a 'new' normal.

"The first wave is characterised by a spike in domestic dairy demand driven by panic-buying during the first month of reduced mobility," she said.

"Retail demand will offset a larger portion of declining foodservice demand.

"The second wave is characterised by more muted retail demand and increased logistical and financial challenges.

"Consumers are expected to return to stores on an as-needed basis to fill gaps in their pantries and refrigerators rather than large shopping occasions."

She warned that in the medium term, the prolonged impact from lower foodservice sales, the seasonal peak in northern hemisphere milk production and a significant slowdown in global trade would contribute to rising stock levels, putting downward pressure on dairy commodity prices and farmgate milk prices.

Without government assistance, dairy companies would max out processing capacity, storage availability and credit terms.

The third was global recession.

"In the longer term, the third wave includes a likely global recession and widespread loss of income and savings, among other factors, that could keep dairy product prices and farmgate milk prices under pressure into 2021," she said.

The bank has adjusted its latest global dairy commodity outlook but warns, given the magnitude of market disruption, current forecasts were often outdated before they were published.

The disruption is hitting particularly hard in the northern hemisphere as it heads to peak seasonal production.

"Increased milk-dumping, plant closings and force majeure are reported in Europe and the US," the report said. "Dairy processors in France, Italy, and the US have asked producers to reduce milk deliveries by up to 5pc."

Dairy farmers, particularly those in intensive housed systems, may face potential limited supply of supplements and other veterinarian-related products due to manufacturing issues in China, which is a significant producer of these products.

"Similarly, feed quality and quantity could be impacted as nearly 80pc of active ingredients for crop protection products are made in China," the report said.

"As a result, there is a risk to the quantity and quality of feed, which could lead to lower milk production growth and higher costs of production for farmers." D

# Basin communities frustrated: report

**Key points**

- ✔ Socio-economic impacts of Murray Darling Basin Plan
- ✔ Communities being ignored by governments
- ✔ Communities supportive of basin plan aims

*'They just hope the plan is fair and equitable for all and managed soundly.'*

By **Jamieson Murphy**

BASIN communities feel "over-consulted and under-listened to", but remain open to supporting the Murray Darling Basin water reforms, an independent report has found.

The socio-economic assessment Murray-Darling Basin conditions report found mental health, front-line services, trust in the government and water reform were the top-line priorities.

The government-appointed independent panel behind the report made 20 draft recommendations.

Independent chair Robbie Sefton said the panel's role was to listen, understand and articulate what was happening on the ground as a result of the Murray Darling Basin Plan's implementation.

"We heard from people caught in a one-way conversation – over-consulted and under-listened to," Ms Sefton said.

"They were frustrated that decisions are being made for them, often with short-term objectives as the predominant driver."

Despite the frustrations, the report found "above all, many basin communities remain open to supporting basin water reform".

"It was clear that people do recognise the importance of enhanced environmental outcomes in maintaining a healthy working river and improving conditions for basin communities," Ms Sefton said.

"They just hope the plan is fair and equitable for all and managed soundly. For this outcome to occur, affected communities must be at the heart of decisions deciding their future."

## Draft recommendations

**Recommendation 1:** All basin governments commit to providing greater clarity and certainty around long-term policy to build trust.

**Recommendation 2:** Slowing further recovery in the basin, and accelerating efforts to relax delivery constraints.

**Recommendation 3:** The Australian Government should extend the Murray-Darling Basin Economic Development Program beyond its 2023 completion date, and increase its scale.

**Recommendation 4:** The Australian Government should prioritise future investment in the Murray-Darling Basin Economic Development Program in vulnerable and disadvantaged communities most negatively impacted by basin water reforms.

**Recommendation 5:** Where an upwater recovery proposal fails to meet established neutrality criteria, this failure should trigger a formal process to consider and agree on whether and how third-party impacts could be offset in a way that is acceptable to those negatively affected by the change. This process must be community-led.

**Recommendation 6:** Reflecting community concerns, basin governments should continue addressing deliverability constraints as a priority.

**Recommendation 7:** Improve water security planning and investment for basin towns and cities.

**Recommendation 8:** The Australian Government should develop regional pilot programs for alternative urban supply sources, including indirect potable reuse.

**Recommendation 9:** Governments should do more to increase First Nations communities' access to water for cultural and economic purposes

**Recommendation 10:** The Australian Government (potentially in partnership with state governments) should fund First Nations groups to work with

experts in valuing ecosystem services provided by, and the benefits arising from, culturally significant sites

**Recommendation 11:** Basin governments should work to better embed and mainstream First Nations participation in water policy and planning at all levels over the long term.

**Recommendation 12:** To improve decision making and enable well focused and timely responses to wellbeing concerns, governments should agree on a framework to more regularly monitor and, where feasible, develop improved and more granular indicators of community wellbeing in the basin.

**Recommendation 13:** Basin governments should fund a program for First Nations groups to build a baseline and track social and economic conditions, and water reform outcomes.

**Recommendation 14:** Improvements in monitoring and evaluation should include creating a solid baseline and tracking environmental outcomes from water reform, and how these impact basin communities' social and economic wellbeing.

**Recommendation 15:** In response to the emerging risks in basin, increase the focus and funding of research and innovation

**Recommendation 16:** Governments should invest to improve essential infrastructure in basin communities, particularly in outer regional and remote communities that are at a relative disadvantage.

**Recommendation 17:** Governments should consider developing a basin-specific infrastructure fund, with a focus on digital connectivity. Basin communities already have a significant infrastructure deficit, and they should not have to compete with other regions in a new fund.

**Recommendation 18:** Community Service Obligations may be helpful in some circumstances to clarify future service requirements and how costs are shared when off-farm infrastructure is provided to achieve water recovery.

**Recommendation 19:** Basin governments should direct resources to attract and retain frontline service providers that specialise in addressing household distress, mental health issues, and financial hardship, in basin locations experiencing acute social or economic issues.

**Recommendation 20:** Governments need to work with communities in the basin with acute social and economic issues to develop action and outcome plans that will address these issues over the next three years. Such plans should build on any existing plans and be driven by local communities that are provided with additional skills and expertise to help them develop long term and short term tailored plans. D

## Keeping water in the district

A GROUP of farmers in the Cohuna district in northern Victoria have come up with an innovative idea to keep irrigation water in their community.

The Gannawarra Water Guardians (GWG) would like to see retiring local farmers lease a parcel of their water assets to younger irrigators in the region.

Gannawarra Water Guardians steering committee member Skeeta Verhey said their group was started around 18 months ago when a few concerned irrigators got together to discuss the impact low water allocations and high water prices were having on their businesses and community.

Mr Verhey said many of the irrigators in their region were dairy farmers and they were seeing their water traded downstream for permanent plantings.

Mr Verhey said the idea was that retiring farmers put a portion of their water up for a medium-term lease within the local area.

He said keeping water in the community was crucial for every local irrigator, both economically and socially, no matter their water portfolio.

"It's not just about the dairy farmer, it's about our services, keeping the doctor, the teacher, the pharmacist in town," Mr Verhey said.

Fellow committee member, Stephen Henty, has been a dairy farmer since November 1973.

While, he's not ready to give the gig up yet, he said he had thought about what he will do with his water assets when he retires.

**Dairy farmers Stephen Henty and Skeeta Verhey, Cohuna, Victoria, would like to see retiring irrigators lease water to farmers in the community.**

"I like the idea of saying, okay the water, that's my superannuation, I take some of the money and buy a house in town and some of it I could put in a pool that could be leased out to farmers."

**- Olivia Calver**

# Time to take a stand on hidden issue

**Key points**

- ✔ Sexual harassment prevalent in agriculture
- ✔ Limiting opportunities to attract staff
- ✔ Everyone needs to address the issue

By **Carlene Dowie**

WHEN Tiff Davey was 19, she landed her first real job in agriculture, as a jillaroo on an outback station.

She soon discovered that the boss on that station had told the jackeroos she worked with that the first person to have sex with her would get $1000.

"The night I found out, I told myself you know what, one day I will have a voice and I will be respected enough to be able to stand up and say actually that wasn't OK," she told the Australian Dairy Conference in Melbourne in February.

"And to make sure no other girls were ever made to feel like that again. I was young, I was fresh, I was keen, I was out there jillarooing, with the pretty Instagram pictures and everything else.

"I didn't realise that I was part of the culture within the industry.

"So my first real job and when I was told 'this is something you have to deal with', I was like 'Oh OK'."

It wasn't until a few years later that Ms Davey realised what had happened to her was part of a big problem within the Australian agricultural industry.

She was at an industry event where Dr Skye Saunders shared a statistic from a research paper she had released: 93 per cent of women working in agriculture had experienced sexual harassment at some point in their career.

> ***'As an industry, this isn't a man's problem, this isn't a woman's problem ... this is an issue we have to resolve together.'***

"At first I was defensive," Ms Davey said. "The agricultural industry is literally the industry I have devoted my life towards.

"So for someone to say that we are bad or that there is something bad within the industry, I was like 'how dare you, we are perfect'.

"Then I got to thinking."

Ms Davey said she realised that a lot of behaviour she had experienced when she had travelled around Australia working on outback properties was not OK.

"Some of the stuff I had experienced on these properties, I simply blew it off as 'this is just a part of working out here'," she told the conference.

"And it is something you are told: 'this is how it is'.

"And now I realise that's not good enough. It wouldn't be OK in an office environment in the city, so why is it OK out in the paddock or on a property?"

But in trying to help shine a light on the issue, Ms Davey found herself subjected to vicious online attacks.

She submitted her story to a national inquiry into the issue and it was later used as an example in a television interview on the ABC.

"Well the industry came back defensive, they came back hard," she said.

"So those within ag didn't like me for a while there, particularly on Twitter."

Comments included: 'What's so horrific about this, there's no rape', 'I am woman, hear me whine', 'This sounds like a fantasy for a bit of publicity'.

Ms Davey, who at the time was working in the live export industry and travelling on ships, said the attacks were as extreme as those she was receiving from animal activists.

"I was being trolled as well by animal extremists," she said.

"Everything to being listed on the Aussie maps site to phone calls and death threats.

"But the extremists I could handle ... I have those conversations, I know what I stand for and I am proud of what we do," she said.

"But what I struggled with was the backlash from the industry.

"Farmers and ag professionals coming down hard and saying sexual harassment isn't a thing.

"I've stopped having the conversation now about how we got the 93pc and whether that's a problem or not.

"In my eyes, if 1pc of women came forward and said something had happened to me, we have an issue."

Ms Davey said it was time for agriculture to do something about the problem.

"As an industry, this isn't a man's problem, this isn't a woman's problem


**Tiff Davey says it is time for agriculture to do something about the issue of sexual harassment.**

... this is an issue we have to resolve together," she said.

"We need to rewrite the bush narrative.

"We need to call out bad behaviour, find ways to change.

"This movement isn't about man-hating or placing blame, it is about identifying the issue and putting the steps in place to rectify it."

Ms Davey said the issue was like that of animal welfare – people knew of those who weren't doing the right thing, but by not talking about it, they allowed the bad stuff to be portrayed to the wider community.

"So it actually does affect all of us," she said.

"We've got to hold people accountable because it is not OK any more, and the majority of us don't think it is OK.

"But no one is being held accountable, so we're led to believe that it is."

This meant agriculture was missing out on a potential workforce.

"I know for a fact we are losing a workforce, a demographic of people too afraid to go out to these regional properties because this is what they see," she said.

Ms Davey said the only option people in agriculture had at present to deal with sexual harassment was to lodge a complaint with the Human Rights Commission or Equal

"As an industry, we can do better than that, so I think we should start now," she said.

She also called for people to be kind to each other, particularly online.

"It was a really, really hard place to be in at that point in time," she said. D

# Consumers calling the shots in food markets

**Key points**

- ✔ Consumers drive food markets
- ✔ Key for producers to align with major trends
- ✔ Protein big opportunity for dairy

By **Carlene Dowie**

CONSUMERS are now firmly in control of food markets, the Australian Dairy Conference in Melbourne was told. Retailers and producers who want to make money out of food need to understand consumer trends and ensure their products align with those.

Dairy has massive opportunities within these trends, particularly in promoting itself as a source of high-quality protein.

But cheap milk won't be disappearing from supermarket shelves anytime soon, so dairy producers and farmers need to look at identifying high-value niche products to drive higher returns.

Consumer insights specialist Julian Mellentin and Woolworths head of chilled Chris Jones provided a fascinating insight at the conference into what is driving the retail market for food, around the world and locally.

Rabobank analyst Michael Harvey set the scene for the discussion.

"We are operating in a consumer-led industry and as a result you will find consumers are rattling the dairy value chain," he said.

"The Australian consumer market is our largest dairy market and by some way. If you just look at the dairy aisle alone, it's worth more than $7 billion on an annual basis.

"More of our national production is now consumed in the drinking milk market than is in the skim and butter ingredients stream. But it is a mature market; if you look at some stats from Dairy Australia recently, per capita rates are starting to fall slowly in some of the key categories."

Mr Mellentin, whose consultancy New Nutrition Business helps primary producers around the world add value to their produce, said food retailing had faced massive disruption in the past 20 years.

Previously people had created a concept then gone to market with lots of money and created a large and successful brand.

**Julian Mellentin says protein is the nutrient that can do no wrong.**

**Chris Jones says customer data is at the core of what Woolworths does and how it does it.**

"The consumer is now in control," he said. "All of our businesses are like corks tossed on the ocean."

Mr Jones said Woolworths used customer data, including surveys of 30,000 customers a week, to drive its business.

"Customer data is at the core of what we do and how we do it," he said.

Mr Mellentin said the best way for producers and companies to ride that was to understand the big trends influencing consumer behaviour.

## Snackification

Snackification was the biggest mega trend in food markets, Mr Mellentin said. It was a huge driver that was transforming all consumer food categories.

"People snack all the time; the average American snacks four to fives times a day; the average Australian about three times per day," he said.

Some products meeting this trend were extremely profitable, Mr Mellentin said, citing as an example a lactose-free yoghurt from Sweden called ProPud.

Mr Jones said snacking and convenience were a big trend for Woolworths products.

## Fragmentation

Mr Mellentin said fragmentation was a big trend influencing all markets.

The phone in everyone's pocket gave them more information about food nutrition health than anybody had ever had in the whole of human history.

This meant people trusted experts less – so it was no longer possible to think about consumers as a unified group on any issue.

## Protein opportunity

Mr Mellentin said dairy had a huge untapped opportunity in the high quality of its protein.

"Protein is the nutrient that can do no wrong," he said. "Protein is for fit bodies, firm bodies, weight management, looking good, feeling good, energy and all sorts of other motivations in consumers minds."

There was a lot of talk about plant proteins but these simply did not compare for nutritional value with dairy protein.

Mr Mellentin gave examples of several dairy companies around the world who had successfully tapped into the high-protein trend.

Mr Jones said YoPro – a high-protein yoghurt – had partnered with the Australian Olympic team to promote its brand and had sold well in its stores.

## Digestive wellness

Mr Mellentin said digestive wellness was another consumer trend driving sales of products, but it was something that people would not discuss openly.

"So consumer research has underestimated the importance of this driver," he said.

Michael Harvey says the Australian consumer market is our largest dairy market.

Dairy fitted into this trend as both a negative and a positive.

Some people switched from dairy milk because they perceived it caused digestive issues. But dairy products such as lactose-free milk, a2 milk and probiotic and fermented products offered solutions to those issues.

Mr Mellentin said Australia was a leading-edge country in many trends, including this, primarily because it was one of the richest countries in the world. "This illustrates why people are prepared to pay a premium price for something they think they need," he said, citing the example of Yakult that sells for $12.30 a litre.

## Plant-based foods

Mr Mellentin said plant-based foods was another trend, and in the milk category, driven partly by digestive wellness.

Plant-based milks really took off in 2007 when almond milk came on to the market, offering a better taste than soy milk, which had been the only option up until then for people with digestive issues with dairy milk.

But it was still a niche product.

In the United States, it had 7 per cent of the market by volume but 14pc by value.

"So it is a big niche – it is a low-volume, high-margin niche," he said.

"Retailers ... love plant-based milks because the cash margin, the amount of dollars they get per square metre of shelf space, is way ahead of dairy milk, which is why in supermarkets around the world you see the plant milks arranged at eye height level."

But the dairy industry was starting to compete – offering more lactose-free alternatives, that also fetched a premium.

Food processors were struggling to produce quality non-dairy cheese and yoghurts because they could not reproduce the taste and texture of dairy. "Non-dairy yoghurt is some water and almond powder made to stand up with starch – and have you ever tried eating wallpaper with a slight hint of almond?" Mr Mellentin said.

The word milk was well established on plant products, so the naming standards could change but it would not change consumer behaviour.

Mr Jones said Woolworths research indicated people were not confused about the product because of the name – they knew what they were buying. But he did point out that plant-based milks had brought people who had previously stopped buying dairy back to the dairy aisle.

"We are seeing consumers that have rejected dairy for whatever reason are actually coming to the dairy fixture and what we are seeing is that when they are buying a plant-based product they are also buying a dairy product," he said.

## Woolworths strategy

Mr Jones said Woolworths based its food retailing strategy around occasions – promoting breakfast, back-to-school, Easter or other occasions when people were looking for food.

Dairy fitted into several of these categories and the strategy allowed Woolworths to create sustainable demand for products.

The company also tried to cater for different groups of consumers – so it would not be moving away from offering a cheaper supermarket-brand milk.

"I think it is about offering choice," he said. "There is a role absolutely that private-label milk plays, that there is the driver across the whole industry and that volume provides multiple benefits all the way through the supply chain."

Woolworths had implemented a localisation strategy, so it was not offering the same products in every store, which meant, for example, some offered little private-label milk.

Mr Jones said Woolworths drought-milk initiative had allowed it to have conversations with its customers about the value of milk. It had also ▶

created a richer dialogue with the broader dairy industry, including with farmer groups and industry bodies.

Mr Mellentin said there was little opportunity in the commodity liquid milk market. "Even big companies in Europe are giving up on that end of the market because they can't make any money out of it," he said.

The opportunity for producers exclusively supplying that market was to be as efficient as possible.

## Value-add opportunity

But there was a big opportunity for dairy farmers and dairy processors to move into value-added products that aligned with the key consumer trends, Mr Mellentin said.

He gave the example of a Scottish dairy farming family Graham's Family Dairy that had moved into processing.

Initially it had supplied supermarket label milk on a long-term contract, collecting milk from 100-plus farms.

"But they felt this really wasn't the best way to create long-term value for their family," Mr Mellentin said.

So they moved into value-added products, including Kefir, Skyr high-protein yoghurt, Jersey milk, butter and a high-protein low-sugar ice-cream, selling through Aldi. These products now account for 22pc of their sales but generate 70pc of profits.


Mr Mellentin when challenged about whether all dairy farmers could be involved in this, said farmers did not have to go it alone.

They could work together as a group to explore these options for their surplus milk, or they could partner with outsiders. "You don't need to go it alone, the world is full of entrepreneurs and cashed-up people who have sold out of food and beverage businesses," he said.

Mr Jones said Woolworths was selling more localised products – something that was offered in only a handful of stores in a specific region.

He encouraged farmers who were interested in developing local products to talk with Woolworths staff who could provide advice.

# Detecting lameness with 3D cameras

**Key points**

- ✔ 3D cameras and computer learning to develop lameness detection
- ✔ Locomotion scoring by humans is subjective
- ✔ Could eventually lead to large-scale objective monitoring

By **John Gardenier***

AUTOMATIC lameness detection and monitoring of dairy cows using computer vision and machine learning could improve animal welfare and economic performance.

Lameness is a common health issue and 5-20 per cent of a herd may be lame at any given time. It is the third most costly health issue behind mastitis and fertility, and costs roughly $250 per case in reduced milk production, animal treatment and labour.

Despite this, systematic on-farm monitoring of lameness levels is not common, neither at herd level nor per individual animal, due to the time and skill required to perform locomotion scoring. An example of a locomotion scoring system is the Dairy Australia Healthy Hooves four-level scale, where cows are classified depending on their gait as:

- 0: not lame.
- 1: uneven gait, could be mildly lame.
- 2: lame.
- 3: very lame

Recent research in Australia and abroad shows that on-farm estimates of the number of lame cows (levels 2 and 3) are a lot lower than those identified by systematic locomotion scoring.

In a NSW study, only 27 per cent of lame cows had been identified on-farm, while in a Western Victorian study only 24pc were identified on-farm. Each study scored about 19,000 cows across many farms.

Even when systematic locomotion scoring is done, it is still a subjective process and humans are just not good at providing reliable scores, especially at mildly lame levels.

Automatic lameness detection and monitoring has the potential to provide frequent, objective and consistent lameness scores to farm staff.

I am a PhD student at the Australian Centre for Field Robotics at the University of Sydney working on this technology, using recent advances in computer vision and machine learning to detect and monitor lameness. These approaches coupled with large amounts of data have led to a performance that is better than humans in a range of automatic monitoring applications.

In my research, I use commercial off-the-shelf Microsoft Kinect 3D cameras mounted at the exit of a rotary milking platform. These cameras provide depth images, where the value of a pixel represents how far away an object is from the sensor.

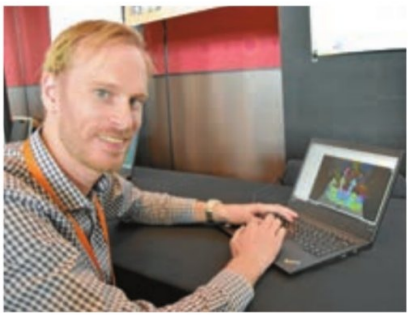
Two cameras are mounted above the race to record head, spine and hip motion as the cow walks past, and two cameras are mounted at knee height alongside the race to record limb motion. A GoPro camera five metres to the side is used to record each cow passing for ground-truth lameness scoring by two expert scorers.

In each image, a convolutional neural network is used to detect body points of interest for lameness monitoring. These include hooves, fetlocks, carpal/tarsal joints, hip, collar and the tip of skull. Training this neural network involves manually clicking on the body points in hundreds of images, and running these images through the network for hours on end while it learns what body parts to look for. After this process, the location of each body point can be determined in each new image.

From the body points in the side images, hoof placement location and time is determined. Multiple classical gait metrics are derived from this, such as stride length, stance time and step overlap. From the overhead body points, head bob, spine curvature and vertical hip displacement gait metrics are determined.

Gait metrics of each cow passing are used to classify the cow into two classes: not lame (scores 0, 1) and lame (scores 2, 3). The accuracy of predicting the correct class on 144 cow passings is about 65pc at the moment. This is similar to the agreement between two expert scorers who gave 70pc of these passings the same score.

The definition of correct lameness class is difficult, as scorers themselves only agree 70pc of the time. Prediction accuracy is expected to improve by lameness scoring more cow passings. It is also expected to improve by modelling each cow individually and looking for deviations from its non-lame baseline gait instead of modelling the entire herd together.



John Gardenier is hoping his research will lead to automatic lameness detection using computer vision and machine learning.

***'The sensing system presented here could not only be used for direct treatment of lame cows, but could contribute to better genetic selection on a longer timescale.'***

The sensing system presented here could not only be used for direct treatment of lame cows, but could contribute to better genetic selection on a longer timescale. Continuous large-scale objective monitoring of both lameness and other phenotypes such as udder conformation and body condition score can contribute to improved genetic traits, allowing for healthier, more efficient cattle for Australian dairy farmers.

My research is supported by Dairy Australia and the Faculty of Engineering, and is supervised by Assoc. Prof. Cameron Clark, Dr James Underwood and Dr Mitch Bryson. Dairy Australia has extensive online guides for identifying, treating, and preventing lameness, along with a lameness cost calculator and links to Healthy Hooves extension workshops. D

**John Gardenier, PhD candidate at the University of Sydney, was the winner of the Australian Dairy Conference's Young Dairy Scientist Award competition. This is an edited version of the article he submitted as part of that competition.*

# Production system key to dairy's woes

**Key points**

- ✔ Production system underlying cause of Australian milk production decline
- ✔ Need to move to low-cost pasture-based systems
- ✔ South Africa example of how this could work

By **Carlene Dowie**

THE answer to the Australian dairy industry's woes lies in changing the production system, according to a leading dairy business analyst.

In the past 20 years the Australian industry had drifted from low-cost, low-risk, pasture-based profitable farming systems to cow-centric, high-input, high-risk systems that struggled for profitability, Red Sky Agricultural managing director David Beca said.

But this key issue was not being addressed in the Australian Dairy Plan, which was focused on factors beyond the farmgate as the cause of the industry's stagnation, he said.

Mr Beca has just completed a detailed analysis comparing the Australian dairy industry with New Zealand, United States, Argentina, Uruguay and South Africa.

The analysis looked at why a significant proportion of dairy farm businesses in Australia have lost their competitiveness compared with other major dairy producers in the world

Mr Beca used business data sets from all six countries going back to 2003 to look at the impact of factors such as milk price and weather on farm profitability.

He concluded the key factor for any dairy industry exposed to export markets, like Australia's, was having farm systems based on a high percentage of directly grazed pasture in the cows' diet and having the right cow for that type of system.

It also concluded that if a lower cost of production system was adopted on Australian farms, these farms would improve their profitability, and if this was done by significant numbers of dairy farmers, the Australian dairy industry could return to annual milk production increases of 2-3 per cent.

Mr Beca pointed to South Africa as an example of what could be achieved if a dairy industry was prepared to change tack and move to a low-cost system.

## Profitability key issue

Mr Beca said farm profitability was the key issue the industry needed to address.

"I believe this is the central issue – there is nothing else that comes close," he said.

But the Australian Dairy Plan did not address this issue beyond motherhood statements about wanting everyone to be more profitable and setting a profit margin as a goal.

"Introduce me to one farmer in the industry who doesn't already have a goal of being more profitable," he said. "What they need is a way to become more profitable."

The problem did not lay with factors outside the farmgate – like milk price, the weather, the government or industry structures.

"Actually the problems are on the farms and the farmers could actually fix the problems themselves," Mr Beca said."And most farmers have the skills to do that as opposed to needing new skills."

**Dairy business analyst David Beca argues the Australian dairy industry could become more profitable by changing production systems.**

## Pasture in diet key factor

Mr Beca's analysis showed the decreasing percentage of pasture in the cows' diet led to an increase in the cost of production.

This was primarily due to the increase in total feed cost per litre and the lower cost pasture being replaced with higher cost supplement.

"It really is just so clear, pasture is a much lower cost feed than supplements in all countries where pasture can be grown, that is, in temperate climates where there is sufficient moisture to grow pasture," he said.

One of the challenges was that most of the economic principles involved in dairy farming were counter intuitive – they ran counter to the biology

**Table 1: How Australian costs of production compare with other countries**
**Primary cost areas expressed as USD cents/litre and as percentage of total expenses**

| 2010-2019 | Total Expenses per Litre | Total Feed Cost/litre | Total Labour Cost/litre | "All Other" Costs/litre | Feed Cost as % Total Exp. | Labour Cost as % Total Exp. | "Other" Costs as % Total Exp. |
|---|---|---|---|---|---|---|---|
| Victoria (AUS) | 34.0 | 18.9 | 6.6 | 8.5 | 55.6% | 19.4% | 24.9% |
| Tasmania (AUS) | 31.7 | 15.8 | 7.1 | 8.8 | 49.8% | 22.4% | 27.8% |
| New Zealand | 27.0 | 11.9 | 6.0 | 9.1 | 44.1% | 22.2% | 33.7% |
| United States | 41.9 | 28.3 | 4.6 | 9.0 | 67.5% | 10.9% | 21.6% |
| Argentina | 32.9 | 19.3 | 6.1 | 7.4 | 58.8% | 18.5% | 22.6% |
| Uruguay | 36.6 | 20.3 | 6.3 | 10.0 | 55.4% | 17.3% | 27.3% |
| South Africa | 32.3 | 20.0 | 3.8 | 8.5 | 61.9% | 11.9% | 26.2% |

Source: Red Sky, Dairy Farm Monitor Project, DairyBase, AACREA, FUCREA, Genske Mulder

or what made sense from a physical point of view.

So maximising milk production or potentially even maximising pasture production were not the keys to maximising profit.

For dairy – or other pasture-based industries – the key was minimising the cost of production and maximising the profit margin.

Retaining a larger margin also significantly reduced risk, so when things like the milk price, weather or feed price changed, farm businesses were in a better position to manage these.

"You actually come close to maximising profit while you minimise risk," Mr Beca said.

"Which is actually really neat and a very unusual business principle, because normally you need to risk more to make more."

## Milk price not critical

Mr Beca's analysis showed other factors, including milk price, weather, deregulation and farm size, had not played a part in Australia's declining production or falling farm profitability.

The analysis showed Victorian dairy farmers along with farmers in Tasmania and South Australia were effectively paid a competitive milk price in the period analysed (2003-2019) compared with other major exporting countries such as New Zealand, Argentina and Uruguay.

It also showed that from 2008, Queensland, NSW and Western Australian dairy farmers received milk prices similar to or above the prices paid in the US, which was a substantial premium above the internationally traded milk prices and above the prices received in Victoria, Tasmania and South Australia.

However, these comparatively high milk prices were not sufficient to arrest declines in milk production in NSW and Queensland.

***'Introduce me to one farmer in the industry who doesn't already have a goal of being more profitable. What they need is a way to become more profitable.'***

Mr Beca said that even industries that supplied only a domestic market, like South Africa, no longer received a significant premium over internationally traded prices.

This was linked to what happened to international prices about 2008 when two major changes occurred in world markets with China becoming a huge importer and the US becoming a huge exporter.

This meant the world price dictated the farmgate prices in all countries, unless the government was prepared to ban imports or pay certain producers big subsidies.

Given Australia wants to freely trade a fair number of commodities, the government was unlikely to offer these market supports to one group of producers, he said.

## Challenges for some regions

Mr Beca said the principle of getting more pasture into the diet applied regardless of where people farmed, the climatic conditions they faced or if their processor demanded a flatter milk supply curve.

"The answer is it doesn't matter what the weather is, what the climate is, north or south, or what the dairy company is asking, encouraging, demanding for a milk supply curve, the principle is simple: high amounts of home-grown grass directly harvested by the cows is the opportunity to reduce cost of production," he said.

"So the answer is the same. The difference is that the further north you go, the harder it is without a doubt to have a lower cost of production."

Mr Beca's analysis did concede that northern Victoria, as well as parts of NSW and South Australia that were reliant on Murray-Darling basin irrigation water, had been negatively impacted by changes in water policy and competing irrigated land uses.

These changes had both increased the cost of water and reduced its availability, resulting in reductions in pasture production and increases in average feed costs. This has driven up the cost of production and made these regions less competitive with southern Victoria and Tasmania, for instance, or Australia's international competitors.

So farmers in the Murray-Darling basin would need to be smarter than their peers when developing their production system and more focused on the percentage of pasture in the diet – not the reverse.

"They have to be even more focused on the pasture side to get it right, not follow what people naturally do, which is to say, well the weather or lower long-term water allocations means we've got to use more grain and therefore go down that track," he said.

If they decide they could not utilise a high percent of pasture and so not have a competitive cost of production compared to other regions, then the business decision for the farmer could be to move to another region where fundamentally they could compete longer-term.

"There is unfortunately no middle ground here. Other than … if they ▶

◀ can convince a government to make payments to them separate to the rest of the industry. That's the only other way," Mr Beca said.

But he said within the larger message, there was enormous opportunity.

"There's this huge scope across all the country, including all the way to Queensland or Western Australia, for many, many farmers to significantly change their production system by increasing the percentage of pasture in the diet and at the very least this would make them a lot more profitable than their peers around them," he said.

## Operator not the sole key factor

Mr Beca also challenged the view that the individual operator – not the system – was the sole key to driving profitability.

Although it was true that some operators ran profitable high-input systems in Australia, it was equally true that the choice of production system would drive the average and the range of cost of production across farms.

Those successful outliers, running profitable systems and producing 9000 litres per cow per year, were not relevant to the analysis.

It was vital to look at a substantial data set over a significant period of time to discern overall trends.

It was also important to understand the underlying principles and then look for the causal relationships, not just correlations.

## Slow drift

Mr Beca said the change in the Australian system had been a slow drift over 20 years or more.

"It's not that you look at the present situation and say how silly is this," he said.

"Because dairy farms are such complex businesses and because farmers take all these small steps when changing their production system – and that's what happened.

"What happens is 10 or 20 years down the track you haven't noticed the yearly impact of the small steps but you wake up and say something's bloody wrong now."

The core of the problem for the industry in Australia now was a dominating focus around the centrality of the cow.

The analysis argued a change in the production system of this scale would create two major farm business challenges.

Firstly, it would require a reduction in stocking rate on many farms, which with an additional reduction in milk production per cow from lower concentrate feeding, would mean less milk production per hectare and reduced revenue per hectare.

Although this could improve the cost of production and level of profitability, it would be a significant challenge to manage.

The second major challenge for many farmers would be that because of the type of cow being milked, a significant reduction in concentrate feeding would result in cows losing too much bodyweight and being unable to efficiently produce milk or get pregnant.

So farmers would need to start breeding a cow that could efficiently produce milk with a high percentage of pasture in the diet and for many farmers this could take five to 10 years to achieve.

## South Africa an example

But change was possible – as demonstrated by farmers in South Africa, who have moved from focusing on cow production and partial mixed ration systems to lower cost pasture-based systems.

"South Africa, I keep telling anyone who would bother listening to me, is an extraordinary success story," he said.

"It is rare to see an industry change tack and they have and that story is so relevant to Australia."

Mr Beca said change there was led by individual farmers who were already successful but realised that they should have been getting much better margins. These farmers led the change and industry bodies followed when they realised they were becoming less relevant.

**The full report completed by Mr Beca is available from www.redskyagri.com/page/redsky_51.html.** D

# Milk production heads south

AUSTRALIAN milk production has steadied in recent months with big gains in Tasmania and Gippsland.

Despite widespread bushfires affecting many key dairy regions across the summer, national milk production steadied following timely rainfall, according to Dairy Australia's March *Situation and Outlook* report.

But industry insiders are concerned about what the Coronavirus pandemic could mean for supply and demand of dairy products in the coming months.

Australian milk production bounced in February with production up 8.1 per cent on the previous year. The big increase followed a 0.6pc increase in January and a 0.2pc increase in December.

But year-to-date production was down 2.6pc to the end of February.

The figures have not been adjusted for the leap year with an extra day in February this year.

February milk production was up in all states, except Queensland.

Gippsland and Tasmania are leading the resurgence. Production in Gippsland was up a massive 22.1pc on the previous year, while year-to-date production was up 4.4pc.

Tasmanian production jumped 16.8pc in February with year-to-date production up 3.3pc.

Other regions recorded more modest increases in February: SA up 4.7pc (down 4.4pc year-to-date), NSW up 2.7pc (down 5.6pc year-to-date), WA up 0.5pc (down 3.7pc year-to-date), northern Victoria up 0.6pc (down 5.8pc year-to-date) and western Victoria up 3.9pc (down 5.3pc year-to-date).

Queensland continues to bleed production, down 4.9pc in February and 13.1pc year-to-date, confirming its position as Australia's smallest milk producer, with just 3.5pc of the nation's total.

Dairy Australia industry insights and analysis manager John Droppert said many farmers had been able to capitalise on favourable weather conditions and continued high farmgate prices, with the bulk of the milk production recovery centred on Gippsland and Tasmania.

"A recent recovery in national milk production, together with substantially more favourable weather conditions across many dairy regions have been positive developments at a time of strong local and global dairy market fundamentals," he said.

During the summer bushfires, as many as 128 dairy farms, were impacted, with even more affected by issues such as power cuts, but had little overall influence on milk production.

The loss of milking cows was limited and most affected dairy farms were able to resume milking quickly due to effective co-operation between authorities, milk processors and industry bodies.

DA continues to forecast a drop in national milk production of between 3pc and 5pc to 8.3 billion litres to 8.5 billion litres for the full 2019-20 season.

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# Move south throws up challenges

**Key points**

- ✔ Move from northern Victoria to Gippsland
- ✔ Challenging season with flooding to contend with
- ✔ Business analysis at heart of decision

By **Marian Macdonald**

MOVING his dairy farm and his family from one side of the state to the other chasing rain didn't frighten Daryl Hoey but he wasn't prepared for what South Gippsland threw at him.

"I've never had a day in my life when I haven't wanted to be a dairy farmer," Mr Hoey said. "August certainly challenged that."

Mr Hoey left Katunga in northern Victoria, which has an annual average rainfall of about 450 millimetres, for Gippsland's Wonthaggi and its relatively reliable 938mm annual average.

But last season was cruel.

January to April was dry, recording only half the normal rain, and then the heavens opened in May, saturating paddocks with 170mm.

When August brought another 150mm, half the farm was under water and another 40 per cent cut off from the dairy, leaving the cows just 10pc to graze.

"We were certainly told before we bought the farm that it floods but it's not until you've actually had to deal with the floods and seen how much water is on the farm that you realise the extent of the issue," he said.

It took such a toll, Mr Hoey's parents came down from Queensland to lend a hand.

The rest of the family was still in northern Victoria five days a week and would be for six months.

Mr Hoey's wife, Lani, was teaching and their son finishing his schooling.

The move had been a very quick one.

"The thought process all happened driving home from Melbourne from a meeting in December," Mr Hoey said.

"I had seen what the spike in water prices was that day and was working out in my head what that would cost us to restart in the autumn.

"I drove home and said to Lani, 'We have to move or we have to look at moving'."

Mrs Hoey "didn't have any objections" and Mr Hoey himself, no qualms.

"I view all those things as a business decision," he said. "So emotion doesn't get to play much of a role.

"It was a case of this is what it was going to cost to stay, this is what potentially it was going to cost us to move, and it made a lot of sense.

"Just get on and deal with it, make the decision and work it out."

After a month of inquiries, the Hoeys looked at four Gippsland farms and had an offer for their Katunga property.

**There were plenty of surprises in store for dairy farmer Daryl Hoey after moving from northern Victoria to south Gippsland.**

***'I have always enjoyed farming that much that, to me, farming does provide me with some of my work-life balance.'***

The couple had a carefully-considered shopping list.

"The three non-negotiables were a good house, a dairy as good, if not better, than we had, a farm that was going to be easy to manage, and we definitely wanted 300-plus cows," Mr Hoey said.

Three-and-a-half months after their exploratory trip, the herd of 330 milkers, the young stock and Mr Hoey moved into Wonthaggi.

Moving brought all the expected challenges for Daryl Hoey, plus a few more.

A simple diary blunder meant the cattle trucks arrived a day late and a Metro tunnel closure sent many of the cows on a detour that stretched the four-hour trip another hour.

Even so, the entire herd was milked twice that day, at 2am at Katunga and at 6.30pm at Wonthaggi.

In fact, the biggest adjustments, apart from the weather, had concerned people rather than cows.

Mr Hoey doesn't miss the routine around managing irrigation but he does miss some certainty.

"Up north, it's certainly got drier and more variable but it's just a case of, if you can afford to add water, you just add water, and you, to an extent, control your seasons," he said.

"You control your startup, you control your spring, your water for as long as you can, depending on your budget and access to water.

"Moving to an area where you are 100pc at the mercy of the climatic conditions and I have no control over, it is an adjustment."

On the flipside, that rainfall brought a confidence that meant locals were less active in advocacy and had also changed the nature of Mr Hoey's industry involvement.

"Probably the biggest struggle is going from a position where you're so heavily involved in the industry, chairing the Basin Plan task force from ADF (Australian Dairy Farmers) for nearly 10 years, to almost just being Daryl Hoey, dairy farmer from Wonthaggi, though I still do have a role at ADF," he said.

"It's been a big adjustment from spending probably two-thirds of your time working on industry issues, whether it was off-farm or just on the phone or thinking about it, to now having 90pc of my time spent on-farm thinking about farming."

Mr Hoey has joined two discussion groups to forge new friendships and relearn how to grow grass without irrigation but said it would take time to rebuild the network of trusted advisers and friends the family had built at Katunga.

But nothing, not even the August-that-was, could dent his love of dairy farming.

"I have always enjoyed farming that much that, to me, farming does provide me with some of my work-life balance," Mr Hoey said.

"It mightn't necessarily provide it for the rest of the family.

"But I just do enjoy milking cows and growing grass and farming that I can get relief just by doing that." D

# Why difficult conversations matter

**Key points**

- ✔ Difficult conversations produce growth in people and industries
- ✔ Most people can take a hard message if delivered well
- ✔ Set clear rules for group meetings

By **Carlene Dowie**

DIFFICULT conversations are critical for industries and people to grow, Gardiner Dairy Foundation Dairy Leaders Luncheon was told earlier this year.

Leadership specialist Anneli Blundell challenged those at the luncheon to not shy away from conversations that were needed for the industry to create a brighter future.

"People can handle the truth we don't want to give them," she said.

But it was critical to ensure the message was delivered in the right way and by the right people.

Ms Blundell said teaching people how to have critical conversations was one of the biggest areas in leadership training.

People were hard-wired to avoid difficult conversations.

"Because right back to our tribal beginnings, when we used to hunt and gather in tribes, it was very dangerous to rock the boat, it was very dangerous to have a different idea and perspective," Ms Blundell said.

"Because if you were ousted from that group, your survival was in jeopardy.

"So at some level our brain thinks if I create tension between me and this person, I may be socially isolated, I may be kicked out of the tribe."

But if people avoided difficult conversations, they were prioritising present comfort over potential conflict.

Some hoped that in time the problem would simply take care of itself or that somebody else would deal with it.

"Hope is not a strategy," Ms Blundell said.

But being too direct was also not an effective strategy for having difficult conversations.

**Anneli Blundell says it's important to have difficult conversations to help people and industries grow.**

"Sometimes it is just too brutal for people," she said.

Being effective relied on there being a level of trust and respect, otherwise there was the danger of bruising relationships.

## Why we avoid difficult conversations

"RUOK Australia did a workplace survey on conflict," Ms Blundell said.

"And they found that 46 per cent of people would rather look for another job than handle a workplace conflict or be in a difficult conversation with someone."

People also avoided these conversations out of concern for the impact on the other person or because they felt they lacked the capability to conduct them.

Others avoided them because the outcome was uncertain.

Sometimes people felt they did not have permission to have the conversation – that it was not their place to raise the matter.

"Does it affect you? Yes? Then you have permission to put it on table," she said.

Avoiding these conversations was not really helping people or the industry to grow.

One research result showed that 72pc of people thought they would improve their own performance with critical feedback, but it did depend on having trust in the relationship between the participants.

"Most of us can take a hard message if it is delivered well," Ms Blundell said.

Difficult conversations needed to occur at the boundary between support and challenge, because that was where growth occurred.

Too much support – "everyone gets a trophy" – did not build resilience, but too much challenge, people lacked perseverance, they gave up.

Ms Blundell warned that the harder the conversation and the challenges faced, the more important it was to get the process right.

It was vital all voices were heard.

To do this, leaders needed to slow down the process and create space.

"The harder the message, the slower you need to go; people need time to absorb and respond," she said.

## Learn to 'sit in the discomfort'

Leaders also needed to learn to "sit in the discomfort", to give people time to process and come back into the conversation.

"Don't be too quick to pull out of that conversation," she said.

Leaders also needed to ensure that they were showing up in service and that what they were doing was for

the good of the industry. "Sometimes the most important conversations we need to have, the hardest conversations you'll ever have, will be the ones you have with yourself," she said.

Ms Blundell said it could be difficult to have a conversation with someone who did not want to participate.

If the person's brain had been "hijacked" and it was a struggle to get them to consider an alternative point of view, there was nothing to do until they were in a state to have a conversation.

So a less direct tack might be needed.

Begin by having a conversation about the need to have a conversation or firstly talk about the problem of not being able to discuss the issue, before tackling it.

Ms Blundell warned that having difficult conversations in groups could be detrimental to the outcome.

Group meetings meant the loudest voices dominated, so it was vital to have a strong chair and clear rules about who and how long people could speak to ensure equal airtime for the quiet ones.

Ms Blundell also warned that sometimes there was no point in flogging a dead horse. "Focus on the people who will get you there," she said.

"If you spend all your time with the few dissenters, and they are loud and they have media people and big reputations, and you have a whole lot of your time invested here, you are going to ignore all these people here who can actually do something about the change.

"So, spend the time where you are going to get the best return for that time. Not everyone is going to come with you." D

***'Sometimes the most important conversations we need to have, the hardest conversations you'll ever have, will be the ones you have with yourself.'***

# Leaving the ocean to find a new way of life in dairy

GROWING up in Ocean Grove, Vic, Audrey Kottek knew little about Australia's dairy industry and certainly had no inkling of working in it.

Today, Ms Kottek has exchanged the sandy beaches of the tourist town for the rolling hills of Korumburra, Vic, and a blossoming career at Burra Foods.

Ms Kottek's involvement in the industry stemmed from her participation in the Monash Industry Team Initiative (MITI) in partnership with Gardiner Dairy Foundation.

Her 12-week summer MITI placement led to a full-time job and Ms Kottek is now helping Burra Foods to improve its yields and reduce its waste.

It's far removed from what she expected, but Ms Kottek is relishing the challenge and the rural lifestyle.

"Ocean Grove is a bit bigger and a lot more touristy than Korumburra but I didn't enjoy living in Melbourne and definitely prefer living somewhere regional," she said.

Ms Kottek has settled into Gippsland life, playing for the local soccer team and coaching a junior squad. "It's been a good change," she said. "It feels a bit wetter and colder here in the hills in winter but I don't mind."

The program also opened her eyes to the breadth of employment opportunities in the dairy industry. "Before I did the MITI project, I never thought of working in the dairy industry and didn't really know anything about it," she said.

The Burra placement was one of three projects nominated by Ms Kottek, who has a Bachelor of Chemical Engineering.

"MITI has a list of projects from different places and you can nominate three of interest," she said. "I picked Burra because it was looking at waste and yield on a packing line and it sounded interesting to me."

During the placement, Ms Kottek identified some key sources of loss, including a high number of underweight bags that had to be removed from sale.

After completing her degree, Ms Kottek secured full-time work with Burra Foods in reducing waste and improving yield. She particularly focuses on the chemical-recovery plant, finding ways to recover and reuse chemicals used in cleaning silos or drains. "We help to look after the plant and optimise the way it's running to reduce our water consumption or increase our yield," she said.

She's now a dairy industry convert. "It's very interesting and there's a lot going on," she said. "It's a lot more complicated and a bigger industry than most people think and it's an important part of this community.

"The regional opportunities appeal to me as well because I know I don't like living in the city."

Ms Kottek attributes her change in attitude to the MITI program and Gardiner Dairy Foundation support. "I wouldn't be on this path if I hadn't done the MITI program. It definitely changed what sort of roles I was looking at," she said.

Gardiner Dairy Foundation partnered with Monash University to introduce the first dairy industry MITI program in 2014-15 after manufacturers identified challenges in attracting highly skilled young employees to work in regional facilities. Engineers were particularly sought after.


**Audrey Kottek was attracted to work in the dairy industry as the result of an industry-sponsored program with Monash University.**

The MITI program adds value to the Victorian dairy industry by exposing some of the best and brightest students to the industry as a potential career prospect and helping to attract high calibre individuals to work in regional Victoria.

At least six students who have taken part in the program are now working in the dairy industry with Burra Foods and Bega Cheese and joint projects by processors have achieved new shared outcomes for industry, including developing an app to record milk temperature at farmgate pick up.

**For more information please go to https://www.gardinerfoundation.com.au/ or email Richard Meredith richard.meredith@gardinerfoundation.com.au.**

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Dairy Australia

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# Dairy responds to COVID-19 threat

By **David Nation**
**Managing director**
**Dairy Australia**

**Key points**

- ✔ Dairy industry responded quickly to COVID-19 crisis
- ✔ Developed a range of resources
- ✔ DA continues vital work in research and innovation


**Dairy Australia has developed an extensive web-based directory of resources to help the industry manage the COVID-19 crisis.**

THE spread of COVID-19 and response of governments worldwide is unlike anything we have seen in our lifetime. It has caused major disruption to our everyday lives and significant impacts to businesses.

Dairy organisations came together quickly to address the threat to our supply chain, using the industry's issues management framework, which we mobilise in times of crisis.

I've been representing Dairy Australia in a National Response Group together with Australian Dairy Farmers and Australian Dairy Products Federation, to provide guidance to government and a collective industry voice. You can read more about the work of this group on pages 6 and 12.

We worked fast to provide a range of information resources via our website. This includes practical advice for milking while maintaining social distancing, developing new milk-collection guidelines to help minimise infection risk and how to manage any employee impacts. An article on page 36 summarises these resources.

Our Learning & Development team has accelerated work already underway to offer virtual services while government restrictions are in place. We're prioritising some of our signature extension activities like Cups On, Cups off, Transition Cow Management and Our Farm, Our Plan.

***'We worked fast to provide a range of information resources via our website.'***

We've rolled out a new online learning platform called Enlight as a virtual 'classroom' for farmers to access custom-made workshops, discussion forums and learning management tools. It is a fantastic resource – please take a moment to read a related article in the following pages or contact your regional office if you'd like additional information.

Another focus area has been ensuring that consumers have access to reliable and factual information on dairy in relation to supply, safety and usage. We've partnered with ADF and ADPF on a print advertising campaign in national and regional media reassuring consumers that 'Dairy is here for you'. It acknowledges the support Australians have provided to farmers during challenging times.

During all of this, we've been carrying on with most of our regular activities. This includes investing in research and innovation, one of Dairy Australia's key roles on behalf of industry.

It's a subject close to my heart, having spent much of my career as a research scientist prior to my current role. In this issue of the *Australian Dairyfarmer* we continue our focus from the previous edition on innovation in dairy, with a range of articles that demonstrate the breadth of innovations under development and the huge potential of this work.

This includes a fascinating look at gestational length trait research being undertaken by DairyBio scientist Mekonnen Haile-Mariam and also the milk productivity benefits coming out of DairyFeedbase's First 100 Days and Smart Feeding projects.

DairyBio scientist Jennie Price and Michelle Axford at DataGene also provide updates on other work underway in their organisations. This includes a look at the latest Australian Breeding Values releases.

While improved conditions have supported a partial recovery in national milk production, the full impact of COVID-19 on dairy markets is unknown at this stage. A report by our senior industry analyst Sofia Omsted on page 89 provides the latest information.

Everyone's minds will be turning to the longer-term impacts, with an immediate focus on next year's milk prices. It will be an important year for business planning and actively preparing for different scenarios early on, so that you are equipped for any changes.

I hope you and your families are keeping safe during these times and that we will catch up in person once normal life resumes.

# Dairy develops COVID-19 resources

**Key points**

- ✔ Dairy industry develops directory of resources to help manage COVID-19
- ✔ Provides practical advice in variety of formats
- ✔ Regional reams provide localised support

NEW industry-specific resources are available to dairy farmers, processors and service providers to prevent the spread of COVID-19 across the dairy supply chain and keep businesses successfully operating to deliver high-quality products to consumers.

The Dairy Industry COVID-19 Directory is an online information hub developed by Dairy Australia and industry partners Australian Dairy Farmers and the Australian Dairy Products Federation to provide insights and information on the effects of COVID-19 on the dairy industry, with practical advice for people working across the supply chain to manage health and safety requirements.

Resources on the directory have been developed by industry experts, with the input of dairy farmers, service providers and processors.

For people working on farm, regular updates are provided on state and federal government requirements, with tools to put these requirements into practice day to day. This includes a useful farm business checklist and a wealth of resources for preventing the spread of COVID-19 during tasks such as milking, milk collection, contractor and service provider visits, and managing stock.

The directory is a go-to for employers, with information to help interpret and implement regulations for managing family and staff, including a list of frequently asked questions, examples of quarantine and isolation scenarios and a flow-chart to help work through employer responsibilities. There is also information available on financial assistance for businesses.

Podcasts and videos bring the information to life, providing examples of what other dairy farmers are doing to manage their farm and team. Posters to display in the dairy to remind people on farm about COVID-19 protocols are also available to download.

***'Podcasts and videos bring the information to life, providing examples of what other dairy farmers are doing to manage their farm and team.'***

The directory also hosts updates on industry services and supply-chain operations, with information to support business planning in case of disruptions. Businesses moving essential supplies across state borders can also find a certification template for display in vehicles.

Similarly, for processors, the directory includes resources for safely managing the workforce, understanding employer responsibilities, and maintaining a clean, hygienic environment.

Beyond the online directory, eight regional teams are providing localised support to dairy farmers and service providers to prepare for and manage COVID-19. Although face-to-face extension activities have been suspended, regional teams are offering programs through digital channels such as webinars, discussion forums, videos, podcasts and Dairy Australia's learning platform 'Enlight'. Based on input from dairy farmers across the country, the first programs to be run include signature courses Cups on Cups off (CoCo), Transition Cow Management and Our Farm, Our Plan.

**Visit dairyaustralia.com.au/c19 for more information.**

## Consumer marketing during COVID-19

CONSUMERS have many questions at this time and Dairy Australia wants to ensure they have access to reliable and factual information on dairy in relation to supply, safety and usage.

Dairy Australia has partnered with the ADF and ADPF on a print advertisement campaign reassuring Australians that 'Dairy is here for you'. The advertisement acknowledges the support Australian's have provided farmers during challenging times and reaffirms that Australian dairy farmers and products are here to provide fresh, healthy and nutritious milk every day in these uncertain times.

The advertisement has been placed in national newspapers such as *The Australian* as well as high-circulation regional newspapers and is being supported by social media and influencer engagement.

A dedicated page on DA's consumer website has also been developed with FAQs and content related to COVID-19. For more information visit dairy.com.au/covid19.

With many schools now closed and children undertaking learning from home, DA is distributing its free curriculum-linked resources its Discover Dairy website https://www.dairy.edu.au/ to teachers and parents via EDM and social channels. Its is also developing new online activities and resources to entertain and educate children during this time.


**As part of its COVID-19 response, the dairy industry ran a print advertisement campaign reassuring Australians that 'Dairy is here for you'.**

It is also focused on:

- Ensuring doctors and dietitians have the facts to continue to recommend dairy.
- Profiling farmers and the work they are doing to ensure dairy supply.
- Engaging social media influencers to deliver dairy usage and health content relevant to the current situation.

# Farmers take learning online

**Key points**

- ✔ Dairy Australia moves courses and extension to digital platforms
- ✔ Discussion groups held via Zoom
- ✔ Creating online courses for signature programs

DAIRY farmers across the country have the opportunity to embrace online learning as Dairy Australia moves some key courses and extension to digital platforms.

Face-to-face extension activities have been postponed due to current restrictions, but the country's 5500 farmers can still tune in to virtual activities and access virtual Discussion Groups.

Dairy Australia's learning and development manager Felicity Blackstock said it was a new world for dairy farmers but one Dairy Australia has been preparing for and was crucial under current circumstances.

"For farmers, it means we are changing the way we deliver extension," she said.

"Whether it's in relation to COVID-19 and how to make sure you're prepared, the way we deliver more standard extension programs like Cups on Cups Off or more regional specific extension activities, we will be moving online.

"Farmers will also obviously continue to be able to find resources via our website, from factsheets to useful podcasts and videos."

Dr Blackstock said 'Virtual Discussion Groups' had been meeting with great success using the Zoom platform allowing farmers to connect while social distancing measures were enforced.

More formal learning is also available through Dairy Australia's 'Enlight' learning platform, which is free for all dairy farmers who register for a course through their Regional Office.

Dairy Australia has been working to develop online learning modules via Enlight for courses that farmers are identifying as a priority at this time and offer the most benefit as the industry works through the challenges around COVID-19. These courses include milking training for new entrants and employment basics.

The Enlight platform is a secure, virtual 'classroom' for farmers of all levels with custom-made workshops, discussion forums and learning management tools. It is easily accessed through a web browser (https://enlight.dairyaustralia.com.au/) or can be available on a phone through a free App, for easy mobile learning while on the farm.

***'Virtual Discussion Groups' had been meeting with great success using the Zoom platform.'***

"We are working hard to create online courses for some of our signature Dairy Australia extension activities like Cups On, Cups off, Transition Cow Management and Our Farm, Our Plan and they will all be available by end of May.

"As we're sure you can appreciate, this is something that takes a bit of time," Dr Blackstock said.

"We are testing a few of the courses currently with farmers and you'll hear from your regional teams as soon as they are available."

**Dairy Australia's 'Enlight' learning platform is offering formal online courses for farmers.**

Benefits of the new online courses was the mix of self-guided, one-on-one and group learning, and the flexibility of timing around farm and family commitments

The new developments in online learning are part of a new Learning and Capability Development Strategy that aims to facilitate learner-centred and industry-guided learning opportunities that are enhanced through the use of technology.

Speak with the regional team to get enrolled in online extension courses, Virtual Discussion Groups or attend Zoom presentations. D

## Online learning in action

FARMERS in Tasmania have been some of the first in the country to access online learning including Farm Business Analysis and COVID-19 updates.

Scottsdale, Tas, dairy farmer John Leech said the opportunity to access farm business management training at this time online via Zoom sessions was perfect for his expanding business coming into the new season.

"I've never used DairyBase before so it was an eye-opener to see what is happening for us across the business," he said.

"DairyBase is fantastic and it's useful for us to see what parts of the business are costing us more money and allow us to make plans to fix the pain points."

Mr Leech said not having to travel and the planning associated with having a day off-farm was the real benefit of the sessions being online.

"It's a crucial part of the year for us as we set our planning and budgets for next season, so it was great timing," he said.

"Going online has definitely been a help to me I may have been travelling 100 kilometres to get to a face-to-face workshop."

It was also helpful for his wife, a partner in the business, who still able to participate and keep an eye on their children.

DairyTas regional extension officer Liz Mann was thrilled by the response from farmers.

"Reception has been really positive," she said.

"Farmers have been very happy to get online and give it a go. The best bit is they keep coming back, and farm business analysis means farmers feel more confident about their business skills

"Some of the benefits are that farmers can still keep learning given the current climate. It is also opening up access to our courses to some people who wouldn't be able to access them otherwise, such as stay-at-home parents or people from either end of the state."

Ms Mann said she did miss not getting out on farm but was really pleased to still be able to deliver for farmers while socially distancing for COVID-19.

# Australia's dairy innovation framework

**Key points**

- ✔ Innovation delivered through two key programs
- ✔ DairyBio improving pastures and cow genetics
- ✔ DairyFeedbase lifting farm productivity

DAIRY Australia is part of a network of industry partners who invest in dairy research and innovation to deliver transformational herd and forage productivity gains for Australian dairy farmers.

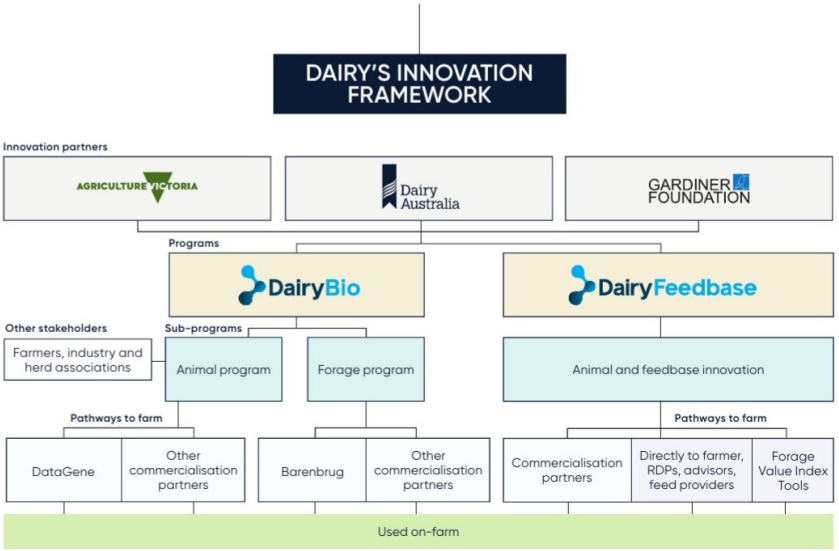
The two main research and innovation programs that Dairy Australia invests in are DairyBio and DairyFeedbase. A relatively small amount of levy money investment (15 per cent of the total of these programs) has attracted a significant amount of additional funding from Agriculture Victoria and the Gardiner Dairy Foundation.

Launched in 2016 the DairyBio program is based at the AgriBio facility at Bundoora on the outskirts of Melbourne. DairyBio's team of research scientists are focused on delivering farmer benefits through the use of bioscience to drive genetic gain – in both animal and forage – and herd improvement in the Australian dairy industry. DairyBio includes research and International collaborations with universities, industry and farmer organisations.

To enable the DairyBio programs to get the innovation to farm, they partner with organisations such as DataGene, BarenBrug Agriseeds and other investors. The money that is generated from these collaborations helps to fund on-going DairyBio research.

DairyBio forages is focused on developing and delivering high-yielding, highly palatable and highly persistent pastures. This will enable improved pasture utilisation on farm – including increased availability and intake for grazing animals – driving improved animal productivity and farm profitability. DairyBio Forage research has the potential to increase on-farm income by $800 per hectare.

The DairyBio animal program is focused on delivering improved animal genetics, new traits, lower animal health costs and improved reliability and confidence in Australian Breeding Values. The DairyBio Animal Program research has the potential to increase on-farm income by $350/cow/year.




DairyFeedbase focuses on applied research to gain individual cow, herd feeding and forage productivity improvements. These projects are mainly based at Agriculture Victoria's Ellinbank and Hamilton research farms where the research is conducted on the commercial dairy farm and large-scale pasture plots.

The DairyFeedbase projects are only 21 months into a five-year program. A significant route to farm is through the Dairy Australia regional extension and service adviser networks, and where required, commercial agreements are being put in place to take innovation to farmers. The DairyFeedbase program has the potential to deliver returns in excess of $100 million a year within 10 years.

## Key on-farm innovation successes

- DairyBio Animal Program – first in world to incorporate a heat tolerance breeding value into breeding index.
- DairyFeedbase – increased profit of 73 cents per cow per day in 'first 100 days' with innovative supplementary feed management and a benefit of additional 50 cents per cow per day for the rest of the lactation.
- DairyBio Animal Program – developed 8 new ABVs including gestational length and mastitis – two of the biggest challenges for farmers.
- DairyFeedbase – Smart Feeding – Innovative feeding can produce up to an extra 5 litres of milk per cow daily for some cows in some herds.
- DairyFeedbase – Pasture Smarts – Currently on-farm proving of prototypes for automated technology measuring pasture dry matter and other pasture characteristics.
- DairyFeedbase – Future Forage Value Index – Benchmarking pasture cultivars for optimal performance for different regions.
- DairyBio Animal Program – Selecting sires using the Balanced Performance Index (BPI) incorporating a number of different traits in the ABVs – which utilises DairyBio genetic research. This can result in high BPI daughters delivering an additional $300 per cow more on farm.
- DairyBio Animal Program - MIR (mid infra-red) technology – shining a light through milk is enabling targeted management, selection and culling decisions.

# Simple feed changes can generate $52,000

**Key points**

- ✔ Research looks at using different supplements in early lactation
- ✔ Total gains of $52,000 in 300-cow herd
- ✔ Cows have fewer metabolic issues

FARMERS have long known that the first 100 days is the most critical stage in each cow's lactation. Dr Bill Wales and his team – including Dr Vicky Russo, Dr Christie Ho and Dr Rodrigo Albornoz – are working on the DairyFeedbase First 100 Days project, which aims to assist Australian dairy farmers to make management decisions about supplementary feeding to get the most production benefit, while maintaining good animal health.

DairyFeedbase is the dairy industry's leading applied research and innovation program and is a joint venture between Dairy Australia, Agriculture Victoria and the Gardiner Foundation. The First 100 Days project is one of five projects for DairyFeedbase run at Agriculture Victoria's Ellinbank research farm.

The First 100 Days project is targeting outcomes of an extra $2 per cow per day profit (milk income minus supplement cost) in the first 100 days of lactation, plus an ongoing benefit of $100 per cow from days 100 to 300 of lactation, and $50 per cow from avoiding metabolic issues over the entire lactation cycle.

"The First 100 Days project focuses on the critical start of the lactation period, which sets up a cow for optimal performance for the season," Dairy Australia manager of major innovation projects Australia and Dairy Feedbase co-director Kevin Argyle said.

Some 21 months into the five-year project – and still in the experimental stages – Dr Wales and his team have already identified gains of about 73 cents per cow per day in the first 100 days in milk (DIM) by managing the amount and type of supplement fed to grazing cows in early lactation; and a carryover increase of 50¢ per cow per day after they return to the main herd and are fed a common diet. Even though it is early in the project, three different experiments have shown consistent economic outcomes and Dr Wales is confident this information can be readily adopted by dairy farmers.

***'Even though it is early in the project, three different experiments have shown consistent economic outcomes and Dr Wales is confident this information can be readily adopted by dairy farmers.'***

The extra 73¢ per cow per day profit for the first 100 days was delivered by feeding a grain mix at a constant rate, compared with feeding a straight cereal grain for the first 100 days. The grain mix strategy involved feeding maize grain in the first 21 DIM then a mix comprising wheat grain (25 per cent), barley grain (50pc) and canola meal (25pc) at a rate of 7 kilograms per cow per day from 22 DIM to 100 DIM. For the purposes of illustrating the potential benefit, if these responses were achieved for the average Australian dairy herd of 300 cows, this would mean an extra $22,000 in profit.

At 101 DIM, the cows involved in the research were returned to the standard herd and were not given any special attention, yet they showed a higher residual milking rate for the remainder of the lactation cycle (~200 days). This higher carryover milk production is worth about 50¢ per cow per day profit for the 101 to 300 DIM lactation phase – meaning, on average, an extra $100 per cow per lactation cycle. For the average Australian dairy herd (300 cows) that means an additional $30,000 profit, on top of the $22,000 from the first 100 days.

"Dr Wales and his team have shown that certain supplements during the first 21 days and then the following eight weeks or so can enable cows to peak higher, have less metabolic issues and to then produce more milk for the remaining lactation," Mr Argyle said.

**Dr Bill Wales and his team have already identified gains of about 73 cents per cow per day in the first 100 days in milk (DIM) by managing the amount and type of supplement fed to grazing cows in early lactation.**

"The targeted benefit to farmers is an additional $350 per cow per annum. Already this project can pay dividends for farmers with a strategy that is simple to implement and can deliver $52,000 extra profit for a dairy farmer with an average size herd."

The team are currently confirming these results with further experiments under different conditions and are in the planning stages of quantifying benefits of the early detection of metabolic disease. D

**For more information visit www.DairyFeedbase.com.au.**

# Helping all cows get a fair share of feed

**Key points**

- ✔ Smart Feeding project looks at difference in cow order on feed intake
- ✔ Identifies difference in milk yield
- ✔ Looking at mitigation strategies to overcome problems

Grazing Habit trials at Agriculture Victoria's Ellinbank research farm in Gippsland. Photo courtesy of Agriculture Victoria

MANY dairy farmers have identified that the first cows into the dairy produce more milk than the last cows so now Dr Martin Auldist and his team – as part of the DairyFeedbase 'Smart Feeding' project based at Agriculture Victoria's Ellinbank research farm – are working on developing farm management systems to increase the herd's milk yield by neutralising these differences and increasing the average milk yield response per kilogram of feed.

The Smart Feeding project has found that the first cows in the milking order and therefore the first ones back in the paddock produce up to 5kg more milk than the last cows. The team – including research scientists Dr Marlie Wright, Meaghan Douglas and Dr Pablo Alvarez – have been working on comparing milking order, individual cow dry matter intake and milk yield to identify feeding strategies to overcome these differences.

"Farmers have long known about the milk yield difference, but the cause hasn't been clear," Dr Auldist said.

"The many theories included that the lead cows want to be milked because they are higher yielders and have greater udder pressure, that the higher-yielding cows are hungrier and want to get to the grain, that there are dominance issues driving milking order, and that the last cows are sick, lame or older and therefore lower yielding. Our research has shown that the difference is mainly correlated with the amount of time they are away from the paddock and therefore feed."

The project team used on-cow jaw movement recorders to monitor grazing behaviour and found that the last cows back to the paddock modified their grazing habits to compensate for being late back. While they might spend up to nine hours per day away from the pasture, they actually spend more time eating trying to catch up.

***'It's not that they don't have time to eat, it's more about the fact that they're not getting a fair go in the paddock.'***

"It's not that they don't have time to eat, it's more about the fact that they're not getting a fair go in the paddock," Dr Auldist said. "By the time the last cows get back to the paddock, nearly 40 per cent of the pasture dry matter is gone. As well as that all the good stuff is gone because grazing animals tend to select the pasture with the highest energy and protein first and leave the part that is higher in fibre".

The next step in their project is to test some mitigation strategies. In the coming months, the team will focus on splitting up paddocks and experiment with different ways of reserving some for the cows that get back to the paddock later (including virtual fencing, smaller herds and smaller paddocks). They will also assess different supplement strategies that may help even up dry matter intake across the herd.

Some considerations for the team for those strategies is how labour intensive the process is; how much infrastructure is required; and how technology can assist in these strategies. Part of the project scope is to trial the mitigation strategies selected and then assess them according to return on investment.

Smart Feeding project team members Meaghan Douglas and Dr Pablo Alvarez. Photo courtesy of Agriculture Victoria

The key question that Dr Auldist and his team are looking to answer is whether implementing different feed strategies will increase the whole herd milk yield rather than just equalising the yield from each cow.

DairyFeedbase co-director and Dairy Australia director of major innovation projects Kevin Argyle said: "The work that the Smart Feeding project has done on identifying and confirming the 5kg yield difference is fantastic, and with Dr Auldist and his team looking to show a herd yield increase with different feeding strategies, we are hopeful of an overall increase in the milk yield which could be in the order of $120 per cow per year." D

**DairyFeedbase is a joint venture between Dairy Australia, Agriculture Victoria and the Gardiner Foundation, and is the dairy industry's leading applied research and innovation program.**

# New traits for genetic improvement

**Key points**

- ✔ Research into new Australian Breeding Values
- ✔ New gestation length ABV released
- ✔ Mastitis resistance ABV now available

THE DairyBio Animal Program is targeting an additional value of $350 per cow per year in Australian dairy herds through genetic improvement, lower costs by enabling selection for health traits and developing improved breeding management tools.

Genetic improvement for traits associated with cow health, fertility, efficiency and longevity will lead to greater farm income and improved sustainability and animal welfare, all of which are vital for a vibrant future of the dairy industry.

DairyBio is the dairy industry's leading bioscience research program and is a joint venture between Dairy Australia, Agriculture Victoria and the Gardiner Foundation.

In April, eight new/updated Australian Breeding Values identified by DairyBio were released by Datagene and added to the ABVs in the *Good Bulls Guide*. The ABVs in the guide assist farmers and semen resellers to select semen suited to a farm's breeding objectives and increase productivity through genetic gain. The Good Bulls Guide contains the top active bulls that meet the minimum criteria for Balanced Performance Index and reliability.

"The BPI combines productivity, type and health traits for maximum profitability according to the dairy farmer's objectives," Dairy Australia major innovation projects director and DairyBio co-director Kevin Argyle said.

"With DairyBio leading the research, the BPI is Australia's flagship national animal selection index. Using genetically superior sires can improve gross margins – cows with higher BPI produce more milk and last longer in the herd compared to lower BPI cows."

Senior research scientist Dr Mekonnen Haile-Mariam is one of DairyBio's lead researchers and identified the Gestational Length ABV opportunity. He also worked to improve the Calving Ease ABV and has participated in the development of the Mastitis Resistance ABV. Dr Haile-Mariam grew up in Ethiopia, and while it might be a long way geographically from the AgriBio Centre for AgriBioscience in Melbourne, where DairyBio research is carried out, for Dr Haile-Mariam the 11.4 million dairy cows in his home country dwarf the 1.5 million in Australia.

**Dr Mekonnen Haile-Mariam at AgriBio, the Centre for AgriBioscience, in Melbourne. Photo courtesy of Agriculture Victoria.**

***'The gains you make with each generation are permanent and accumulate over time, leading to long-term improvements in your herd's performance.'***

Dr Haile-Mariam credits the significant agricultural concerns in his hometown with his desire to work in agriculture and when he completed his first degree the only university in Ethiopia at that time was employing new graduates to do teaching and research.

"I thought it was a good opportunity – so I joined," Dr Haile-Mariam said.

"One clear benefit of being a researcher at a university is you get opportunities to do further education such as a Masters of Science and PhD degrees. In most cases, if you are lucky, employment with the university gives you the opportunity to travel and study overseas."

Dr Haile-Mariam had finished his PhD in Sweden when he realised the opportunities to do the dairy research he truly loved were limited in Ethiopia, so in 1999 when he saw a position advertised to work as a post-doctorate at the University of Melbourne with Professor Michael Goddard he applied, knowing that would give him the opportunity to work on improving Australia's dairy herd through genetic advancements.

When he joined Agriculture Victoria to work with Dairy Futures CRC and then DairyBio, he was delighted to see the research results reaching Australian dairy farmers almost immediately through DataGene.

"The research I have been involved in over the last two decades in Australia is designed to help farmers to reduce cost of production, by improving fertility, health and animal welfare," Dr Haile-Mariam said. ▶

"Now, and into the future most ABVs that I am involved in developing can help Australian dairy farmers to rank bulls for traits that have effect – not only on productivity and profitability – but also on animal welfare."

Working with industry is important to his research. "I always want more data – better quality and quantity of data from dairy farmers is the key for providing more reliable ABVs for breeders and farmers to improve the productivity and profitability of the industry," he said.

Mr Argyle said: "To have so many world-class researchers and research facilities working on enhancing the productivity of the Australian dairy herd is fantastic. Dairy Australia invests in this research to ensure that the Australian dairy industry maintains productivity and profitability into the future."

Cows grazing at Ellinbank research farm. Photo courtesy of Agriculture Victoria

## Gestation Length ABV

The Gestation Length ABV, along with daughter fertility and calving ease, is an important trait to assist with managing dairy herd fertility. One of the major advantages of a shorter gestation length is to help to tighten a herd's calving spread, which allows farmers to better match milk and pasture production, improving milk income over feed costs particularly for seasonal and split-calving herds.

Cows that calve earlier also have more time to recover and cycle before the next mating, increasing their chance of getting back in calf to artificial insemination early. For year-round herds, there are also fewer cows with long lactations, shorter average days in milk and greater opportunity for culling of genuinely low producing cows.

The gestation length for a calf is mainly dictated through the genes of the bull the cow is mated to, this is a natural variation. Most bulls fall into the ±2 days category, but some bulls can influence as much as a 11-day shorter gestation period.

By selecting bulls with a shorter Gestation Length ABV a farmer can manage the herd calving spread more efficiently, and a shorter gestation length can also be selected when completing genomic testing on cows. To breed for shorter gestational length select a high BPI bull from the *Good Bulls Guide* that has a Gestation Length ABV of less than zero – the further from zero the number the shorter the gestation.

Gestation length can also be a useful indicator for calving ease as the existing calving ease ABV has low heritability. By using a multi-trait model – which combines traits like Gestation Length and calving size (subjectively scored by farmers) that correlate with calving ease – this results in a higher heritability ABV, which provides greater opportunity for selection.

"Recently, in addition to developing the new ABV for gestation length my research improved the reliability of the ABV for calving ease by 15 per cent, and I also worked on clinical mastitis, which addresses some productivity and animal welfare concerns of the dairy industry," Dr Haile-Mariam said.

Dairy Australia animal health and fertility lead Dr Stephanie Bullen summed up how useful this new ABV is on farm. "Including the Gestation Length ABV in your herd's AI sire selection process, along with other fertility traits such as daughter fertility and calving ease, is one of the steps you can take to improve the calving pattern and fertility of your herd in the long term," she said.

"The gains you make with each generation are permanent and accumulate over time, leading to long-term improvements in your herd's performance. The trait is not only highly relevant for seasonal calving herds, but also split and all-year round herds to reduce unnecessary culling and improve production."

The Mastitis Resistance ABV was also released in April and is a multi-trait ABV – utilising a combination of udder depth, somatic cell count and clinical mastitis records. Due to low hereditability of mastitis, management practices and environmental conditions will continue to have a higher impact on mastitis, but for farmers the Mastitis Resistance ABV is another tool in their belt. To breed for improved mastitis resistance select a high BPI bull from the *Good Bulls Guide* with a Mastitis Resistance ABV of higher than 100.

As Australian dairy farmers know gestational length and mastitis are important considerations in their management practices, the research that Dr Haile-Mariam and the DairyBio team are doing, which is leading to ABV releases such as these, will help Australian dairy farmers with animal health and welfare responsibilities and at the same time drive greater productivity gains.

To find out how to use these, listen to the Dairy Australia Podcast featuring principal research scientist for Agriculture Victoria and La Trobe University Professor Jennie Pryce. To read more about the eight ABVs and the April ABV release see page 45.

**DairyBio is the dairy industry's leading research innovation program and is a joint venture between Dairy Australia, Agriculture Victoria and the Gardiner Foundation. For more information on DairyBio visit www.DairyBio.com.au.**

# Herd improvement delivers for dairy

**Key points**

- ✔ DairyBio and Datagene key genetics improvement investments
- ✔ Genomic sequencing focus at DairyBio
- ✔ Datagene develops Australian genetic evaluation information

DAIRY Australia has an important role in innovation in the dairy industry on behalf of the 5500 dairy farmers across Australia.

Collaborating with industry partners such as the Gardiner Foundation, Agriculture Victoria and others, Dairy Australia ensures the maximum value is extracted for any levy-funded research.

We asked DairyBio animal program leader Professor Jennie Pryce and DataGene group leader: genetics and delivery Michelle Axford to give an update on these two key herd-improvement investments and how genetic research from DairyBio's animal program is making significant productivity gains for Australian dairy farmers.

Jennie Pryce heads the DairyBio animal program, which has six main projects, all focused on genetic improvement.

## Jennie Pryce

**What is DairyBio is and why is it important to the Australian dairy industry?**

DairyBio has two main programs. One is responsible for delivering improved forages and the other is focused on genomic prediction or improvement of dairy cows and it's known as the animal program.

The work is funded by Dairy Australia, Agriculture Victoria and the Gardiner Foundation, so it's funded by taxpayers and farmers and is real value for money for farmers in terms of future prosperity to the dairy industry through innovation.

**Can you tell us about some of the active research that's happening?**

We've got six main projects. All of them are focused on genetic improvement or helping with herd-testing organisations and there's one that's focused on how to use genome sequence data. So that's understanding every variant there is in an animal's genome.

We also work in developing new methods to do genomic predictions for breeds other than Holsteins and Jerseys and crossbreds as well.

*'It's very simple for us to do the research and then we have the very capable hands of DataGene to translate that into tools that farmers can use.'*

We also have a research project that's helping DataGene, where we are working on improving existing breeding values.

And we've got another project, which is very much focused on new breeding values and that's focused very much on the health and environmental impact space.

**Why should we care about genomic sequencing? Why is that better than traditional genetic improvement genetic selection methods?**

The way that genomic selection works is that we use 50,000 genetic markers that are equally spaced across the genome.

And we pretty much work out the relationship between those genetic markers and whatever trait we are interested in improving.

Now, where the sequence data comes in is that we recognise that there are really important parts of the genome. That if we put a bit more emphasis, or be able to kind of track exactly what's going on in those parts, it can actually give us a lift in terms of the accuracy within the genomic predictions.

So it's some way of enhancing what we currently do with current genetic or genomic evaluations.

The interesting thing is that the enhancement works best for traits other than production, these are the lower heritability traits that we don't have so much data on.

One thing that we're working on at the moment is improved fertility breeding values and we're looking at lots of different sources of data. One researcher is having a look to see if we can use herd test information in a novel way and this is the midinfrared spectral data that we get from herd testing and whether we can use that to improve our genetic predictions. ▶

We're also looking to see if we can bring in data that's been collected by other collaborators. So we have a collaboration with Dairy NZ on this cool study where they've got high and low fertility breeding value cows – around 500 of them.

We're interested to see if there are genetic variants that crop up in either the high or the low fertility group that we can then use to help with our genetic predictions in Australia.

**How does your research reach farmers?**

So this is the beautiful thing. It's very simple for us to do the research and then we have the very capable hands of DataGene to translate that into tools that farmers can use.

We're really fortunate to have this model and it's a very seamless transition for us to be able to convert the research into applications that farmers can use.

**Are there any specific success stories in terms of the translation of this research on to farm?**

There's lots of examples, I think that's one of the really gratifying parts of my job to talk to farmers about their experiences.

A fertility example that comes to mind is the relationship that you see between six-week in-calf rate and the daughter fertility breeding value.

This is a beautiful piece of work that John Morten did as part of the InCalf program and he showed that the relationship was really tight that you get exactly what you would expect in terms of the increase of daughter fertility breeding value and the increment in six-week in-calf rate.

## Michelle Axford

**What is DataGene and what does it do?**

DataGene might be best known for providing the genetic evaluation, which is delivering the breeding values for bulls and cows to Australian dairy farmers with releases in April, August and December.

These days, our activities are geared around how we can use genetics and herd improvement to improve herd performance on farm. We're involved in components of research, development and extension as well.

**What are Australian Breeding Values and why are they important for Australian dairy farmers?**

Australian Breeding Values let us compare animals by looking at the genetic differences between bulls and that helps farmers choose the bulls they might use in the upcoming mating season.

Breeding values also help farmers choose the best replacements that are going to go into their herds. Farmers want to make sure the herd is doing the best job it possibly can and we can use breeding values to select the right heifers that are going to enter that milking herd.

What I find always fascinating is if we see a herd of cows, they've been given the same access to feed and the same care and attention, but we see some cows do a better job than others. One of the reasons they can do a better job, whether that's being more fertile or more productive or lasting longer, comes down to genetics and the ABV is our way of measuring those genetic differences.

**Does genetics work as well in herds that have low inputs to very high levels of inputs?**

It's something that we hear from farmers quite a lot – that the BPI (Balanced Performance Index) doesn't work for me.

We had the opportunity to look at five different feeding systems and look at the performance of high versus low genetic merits cows in those herds. All the way from feeding system one, which was feeding less than a tonne of grain per cow per year, to the fully intensive total mixed ration feedings systems.

In all feeding systems, the high genetic merit cows produced more than the lower genetic merit cows. They lasted as long, if not longer, if they were a high genetic merit cow.

In the lower feeding systems, with not as much extra grain being fed, sometimes people say the genetics we use doesn't matter because they are not feeding huge amounts and so the cows are doing the same.

What we found was really interesting. These high genetic merit cows were still producing more and lasting longer than the low genetic merit cows.

And at the other end in the total mixed ration groups, sometimes people would say we don't want to use the high BPI animals because maybe they don't last as long. Maybe they produce so much that they don't last.

DataGene group leader: genetics and delivery Michelle Axford says the organisation is involved in components of research, development and extension.

But when we looked at the data we found that there's actually no difference in survival between the high and the low genetic merit animals in these herds. So those high genetic merit animals have produced heaps more and they're not leaving the herds early.

I think that's really valuable to think about and helps us when we're planning our next joining periods to make sure that we're choosing the right bulls for our herd.

**How do we choose the right bull for our herd?**

At DataGene we've grouped the bulls together that are high genetic merit, so they've reached a certain standard for BPI, and they've also reached a certain standard for reliability. The companies have told us that those bulls are active and can be purchased during this next season.

We put those bulls together on a good bulls list, which we present in the *Good Bulls Guide* in paper format and online but the easiest way to access this list is using the Good Bulls App, which is freely available.

# Breeding for mastitis resistance

**Key points**
- ✔ 8 new or updated ABVs released
- ✔ Mastitis resistance ABV developed
- ✔ Uses wide set of data

AUSTRALIAN dairy farmers can now breed specifically for Mastitis Resistance, a trait which delivers animal welfare and economic benefits.

The Mastitis Resistance Australian Breeding Value is one of eight new or updated health and type traits released by DataGene in April.

The health traits are:
- Calving Ease;
- Gestation Length; and
- Mastitis Resistance.

The type traits are:
- Overall Type;
- Dairy Strength;
- Feet and Legs;
- Rump; and
- Mammary System.

The three new or updated health ABVs will complement on-farm management practices.

Trevor Saunders and Anthea Day have been looking forward to having a Mastitis Resistance ABV. The couple milks 950, predominantly Jerseys, across two farms at Shady Creek in Gippsland, Victoria.

"Mastitis resistance is a significant thing for us," Mr Saunders said. "We were using cell count as one of our key selection criteria, but we will change that to Mastitis Resistance because it brings in more aspects, other than just cell count.

"For example, the Mastitis Resistance ABV includes records for clinical cases of mastitis; this makes it a significantly more rounded ABV."

While the Mastitis Resistance ABV has the potential to make huge improvements in dairy herds throughout Australia, Mr Saunders said nothing was more important than on-farm management when it came to reducing mastitis.

"Mastitis resistance is a low heritability trait, similar to fertility," he said.

"When you use it in a breeding program, it is a compounding trait and it relies on generations of use. It is still important to have good management in place.

"Nevertheless, it's a really good development for DataGene to have a Mastitis Resistance ABV, I've been really keen on it right from the start."

*'Mastitis resistance is a significant thing for us.'*

The Mastitis Resistance ABV is available for all dairy breeds and even young genomic animals.

To breed replacements with improved mastitis resistance, select animals with a Mastitis Resistance ABV of greater than 100.

Previously the Cell Count ABV was used an indirect selection criterion for mastitis resistance, but this new ABV draws on three sets of information to directly target mastitis.

These include:
- 305-day somatic cell count;
- udder depth; and
- clinical mastitis records.

The Cell Count ABV will continue to be published as it is a useful tool to breed cows that contribute to a lower bulk milk cell count.

## Calving Ease

Farmers will now have more Holstein bulls to choose from if they want their cows and heifers to calve easier.

Thanks to the inclusion of genomics in the updated Calving Ease ABV, most Holstein bulls have a Calving Ease ABV, including – for the first time – young genomic sires.

To breed for improved Calving Ease, select bulls with a Calving Ease ABV of at least 103.

## Gestation length

The new Gestation Length ABV gives farmers a breeding tool to manage late calving cows, help tighten calving patterns and avoid culling and induction.

The ABV identifies bulls and cows whose calves are born earlier than their expected due date. Cows that calve earlier are in-milk for more days before re-joining and have longer to recover post-calving.

Tim Humphris farms at Nirranda South in south-west Victoria and anticipates using a combination of the Gestation Length and Calving Ease ABV to increase his confidence selecting Holstein sires. These Holstein bulls will be used over his 400-cow herd which includes Aussie Reds and three-way crosses (Aussie Red, Jersey and Holstein).

**Trevor and Anthea Saunders will be using the new Mastitis ABV as a key criterion for selecting bulls to use over their 950 Jersey cows.**

"Given the three-way crossing, we do use Holstein bulls," Mr Humphris said. "When we use Holstein bulls over the heifers, if that's the cross, we will definitely select on calving ease."

To breed for a shorter gestation, look for bulls and cows with a Gestation Length ABV of less than zero. Every 1 ABV is about 1-day shorter gestation.

## Type

The updated Overall Type ABV has been introduced to help breeders identify animals with higher classification scores, according to DataGene's Michelle Axford.

This change has been reflected in DataGene's latest bull and cow rankings as Overall Type and Mammary system are included in the three indices: Balanced Performance Index (BPI), Health Weighted Index (HWI) and Type Weighted Index (TWI).

The new type traits complete the set of composite traits and this means farmers have an overview of an animal's strengths for rump, feet and legs as well as dairy strength.

The new and updated type breeding values are published for Holsteins, Red Breeds, Guernseys and Ayrshires. Type ABVs are unchanged for Jerseys.

The new ABVs are the result of DairyBio research, drawing upon records supplied by Ginfo herds. DairyBio is a joint initiative between Agriculture Victoria, Dairy Australia and Gardiner Dairy Foundation. Herd test centres and software providers supply data used in genetic evaluations. D

**For more information, visit www.datagene.com.au.**

# Genes reveal elite dairy cow

**Key points**

- ✔ Top BPI cow from a commercial northern Victorian herd
- ✔ Impressive production and fertility
- ✔ Ordinary looking cow

By **Marian Macdonald**

THERE'S a lesson for every livestock farmer in the story of how a couple discovered Australia's most profitable dairy cow: never judge a cow by its coat.

Andrew and Christine Sebire were left scratching their heads after hearing they owned the nation's highest genomically ranked cow.

Although it scored a staggering Balanced Performance Index (BPI) of $436, neither of the Echuca West, Vic, dairy farmers could remember the heifer aptly-named Ivyhurst Mystery OC.

Even after doing a few laps of the paddock on their quad bikes searching for their elite cow, the couple was left bemused.

When they finally found the cow, the Sebires rang Holstein Australia to apologise. She wasn't a classic black-and-white specimen of the breed.

In fact, the "OC" following her name stands for "off colour".

Mr Sebire describes Ivyhurst Mystery OC as a "nugget" and jokingly begged for its photo not to be taken.

But this rising three-year-old's rather average appearance belies the stellar performance.

In its first lactation, Ivyhurst Mystery OC produced 4.51 per cent fat and 3.79pc protein, totalling 591 kilograms of milk solids as a heifer.

That's 1.18kg MS/kg of body weight.

Impressive production didn't compromise its reproduction either, as it has got in calf with a single straw of semen each time.

DataGene genetics and delivery group leader Michelle Axford said the $436 BPI reflected all-round performance.

"I think this strikes at the heart of the Balanced Performance Index (BPI)," Ms Axford said.

"There are more than 45 traits that we can breed for – which can be pretty tough to work with – so DataGene combines the traits with most economic value into an overall number that we use to rank cows, herds and bulls.

Christine Sebire and husband Andrew found it difficult to find the stellar young cow, which lived up to its "Mystery" moniker, and turned out to be a rather average-looking quiet achiever. Photo by Greg Tiller

***'So that's been a lesson for us: not judging them by their appearance but by their potential.'***

"This means top cows and bulls can have different combinations of strengths and weaknesses.

"In the case of Mystery, she has particular strengths for production with an extraordinary ASI (Australian Selection Index) of $310 and well above-average daughter fertility score of 113."

Neither Mr or Mrs Sebire would have identified Mystery OC as an elite cow without the benefit of genetic and herd-test data.

"The genetics could tell us that she was going to be a fertile cow and that's proven to be true," Mrs Sebire said.

"The genetics could tell us that she was going to be a good producer. She is and yet she doesn't look like that."

The Sebires contribute to the Ginfo project, Australia's national reference herd for genetic information.

Ginfo gathers detailed information on more than 30,000 cows including ▶

ABS

Profit From Genetic Progress

# Specially selected SEXCEL™ SIRES to increase your heifers

*For use on heifers and cows*


*[L-R] KIMBALL DTR: JARNDIE KIMBALL 3281 GP-83 (photo Bradley Cullen); SPOCK DTR: JARNDIE SPOCK 3305 (photo Bradley Cullen); SPECTRE DTR: DENOVO SPECTRE NEVADA 2 (photo Jane Steel); CLARITY MGD: PEAK CHARM-ET VG-85 (photo Beth Herges).*

29H018073
## KIMBALL RC
***SILVER x Numero Uno***

+325 BPI | 112 Dtr Fertility

29H018693
## CRIMSON
***SPECTRE x Rubicon***

+305 BPI | +792 NM$

29H018674
## CLARITY
***SPECTRE x Rubicon***

+671 NM$ | +126 CF&P Lbs

29H018066
## DANNER P
***Powerball P x AltaJackman***

105 5.0 Calving Ease | 110 Dtr Fertility

29H018182
## SPOCK
***SILVER x Supersire***

+320 BPI | 104 Calving Ease

29H018208
## SPECTRE
***Yoder x Supersire***

220 ASI | 103 5.6 Calving Ease

1800 ABS BULL www.absglobal.com/au

◀ their genotypes, classification scores and performance data from herd testing.

Ms Sebire said the results had been eye-opening.

"Sometimes the most impressive-looking cows actually have really low BPIs," she said.

"So that's been a lesson for us: not judging them by their appearance but by their potential.

"We are starting to see how that can be used to justify which cows you keep and which you don't. The ones you think are really valuable may not necessarily be."

As for Ivyhurst Mystery OC, the Sebires don't have any special plans.

"We asked Holstein Australia to come and explain what we do now that we've got all this information," Ms Sebire said.

"We're not great breeders, we're just ordinary farmers giving it our best shot, keeping good records and getting hair samples done.

"Do you treat her any differently to anybody else? Well, no, probably not, but certainly, we waited for her calf to be born.

"And it was a little crossy-looking bull that was pretty useless."

But Holstein Australia's Rohan Butler said that while Ivyhurst Mystery OC might have cross-bred looks thanks to a Jersey ancestor, genetic results confirming its sire and grandsire made it a proven Holstein.

Its registration and the performance data also demonstrated how farmers could add value to their herds.

"Every farmer has that opportunity to be doing this," Mr Butler said.

"Most farms are investing good money year-on-year in genetics, be it for semen, embryos or sexed semen.

"There's an opportunity to make what is sometimes referred to as the 13th milk cheque out of either pure-bred heifers that go to export or to improve productivity out of better cows."

Mrs Axford said that while elite individuals like Ivyhurst Mystery OC were exciting, the bigger picture was always the priority.

"Andrew Sebire told me about the importance of the herd, rather than a single cow," she said.

"Our main aim is to breed a better herd so the focus in the breeding program is about what they will do next with the whole group, rather than doing something special for just one cow like Mystery.

"We can apply this to bull selection as well.

"Breeding programs that use teams of bulls are always less risky than focusing on just one or two individuals." D

# Genetic test could help cut losses

**Key points**

- ✔ Inbreeding can reduce profit from genetics
- ✔ Chromosomal mating helps identify better matches
- ✔ New tool developed in the US

By **Elizabeth Anderson**

A NEW genetic tool is emerging worldwide to help dairy farmers to select the right pairings of sire and dam.

Speaking the DairySA Central Conference earlier this year, ST Genetics' genetics services leader Sara Westberry said there was increased potential to improve profitability through the use of chromosomal mating.

Ms Westberry said chromosomal mating had been available for the past 18 months in the United States and worked well in partnership with genomics.

She said often when selecting for the optimal traits in a sire, there was an increased risk of inbreeding.

While this did not always result in a negative impact in the offspring, it was important to be aware of the potential result.

Ms Westberry said chromosomal mating would look at the females and the herd and the bull team and assess the potential economic impact as a result of different levels of inbreeding.

***'Often when selecting for the optimal traits in a sire, there is an increased risk of inbreeding.'***

"We don't need to limit this to an arbitrary number, but we do need to be aware," she said.

There had been an increase in inbreeding, coinciding with the update of genomics in the past five years.

"It is something we need to be aware of, as it can affect profitability," she said.

Ms Westberry said for each key trait that farmers selected, such as milk, fat or protein, every 1 per cent of inbreeding had the potential to bring the profitability of the offspring down.

For an animal using the US Net Merit profitability index, this is decreased by $25.

But in some cases, inbreeding could lead to higher profitability.

"We could have a bull that has higher trait values and higher inbreeding, compared to a lower trait values and lower inbreeding," she said.

She said in that case, the first bull would be the preferred sire.

With the technology developed in the US, Ms Westberry said much of the information was using US data, which while similar to Australia, uses different reporting methods and weightings on indexes.

**ST Genetics' genetics services leader Sara Westberry at the DairySA conference where she spoke about a new tool coming out of the US.**

ST Genetics has been in talks with DataGene about incorporating Australian information into their system. D

# AUSTRALIA'S #1 BPI(g) SIRE


## PROGENESIS PROCEED

GENOMAX A2A2 GOOD BULLS GUIDE

0200H011749 CHALLENGER x BANDARES x DELTA *CVC

**Proceed is the #1 Holstein genomic sire for all 3 indexes in Australia's April Good Bulls Guide 2020!**

BPI (g) **+430** Rel. 65% HWI (g) **+362** Rel. 65% TWI (g) **+438** Rel. 65%

ASI **+200** Rel. 76% OT **+106** Rel. 55% MS **+109** Rel. 55% Dtr. Fert. **+115** Rel. 49%

SOURCE: ABV(g)s 20*APR

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# Herd health vital part of genetic choice

WITH 2000 cows on his Tatura, Vic, dairy farm, Markus Lang knows the importance of maintaining good herd health.

And with barely a handful of sick cows at any given time, the farm's record is outstanding.

"One of the most pleasing things about the herd we've been able to breed is their health and ease of function," Markus said.

"It's uncommon for herds this size not to have more sick cows and the fact that we don't have a sick herd for the number of cows we run is something we're very proud of."

The health of the mostly Holstein herd has been transformed in the past decade since Lang Dairies switched to VikingGenetics.

"The health traits are coming to the fore so we're not hassled by sick cows," Markus said. "A big thing for us is simplifying the system, and that includes never having a sick herd and part of that comes from having the right genetics.

"I'm milking 720 at the moment and we've only got five in the bucket because they're on antibiotics. We can control and prevent a lot of problems, which means we don't need a sick herd."

In addition to the focus on health, easy calving, high fertility, improved production and longevity are top priorities.

With such a big operation, efficiencies are essential.

Lang Dairies is a far cry from when Markus's parents Werner and Josie arrived in Australia from Switzerland in 1982, settling at Tatura in northern Victoria with 50 hectares and 90 cows.

Markus and his brother Phil took over management of the business in 2015, while Werner and Josie continue as active farmers. They now operate as one business spread across three farms and 1500 hectares, sharing resources and machinery and employing five full-time staff and three part-timers.

Irrigated perennial pastures are the feed base with cows grazing year-round, backed by a partial home-grown mixed ration on a feedpad towards the end of summer, allowing the farm to maintain a stocking rate close to 4.5 cows per hectare on the dairy platform.

Each farm has its own dairy while the feed infrastructure and silage are kept on the home farm and transported as needed. Titles aren't formalised but Markus is effectively operations manager and Phil handles the financial side of things.

Markus and Werner Lang are part of a family operation milking 2000 cows in northern Victoria.

While there is some negativity in the industry, Markus says northern Victoria is a great place to farm.

"It can get hot over summer but having access to irrigation water means we can grow most crops and productive, quality pastures," he said.

Tougher weather conditions mean the Langs must be efficient and they say that using VikingGenetics as their semen provider has been the key to success.

"Dad started using VikingGenetics about 10 years ago, with Easy Calving Viking bulls on our maiden heifers," Markus said. "The results were fantastic, and it was one of the easiest calvings we've had.

"Through growing the herd as fast as we have, we were trying to join maiden heifers back to Holsteins to get the animal we want. They assured us we'd get an easy calving bull and we were blown away with the results.

"Calving now is much easier. We used to check cows most nights. We've got to a stage now where we check the calving paddock at 9 in the evening and there could be 100 cows in there and I'll know they'll be okay, which means a better quality of life for the family."

The Langs built on that experience. "We'd get what we asked for, so we've come to the point where we're using VikingGenetics exclusively," Markus said.

Along with health improvements, the farm is achieving better production, with nearly 7000 litres herd average, 3.3 per cent protein and 4.2pc fat for just under 500 kilograms of milk solids.

"The component percentages have been increasing. We put that down to genetics and partly that we're getting better at nutrition," Markus said.

The farm's females aren't tested for NTM (Nordic Total Merit) but Markus tends to use bulls around 30 NTM-plus.

Fertility has been improving. "Each pregnancy test improves a couple of percentage points. Fertility isn't something we put a lot of effort into but through genetics we can passively improve, which is what we're seeing."

The Langs look for easy-to-handle cows that produce good components with minimal fuss, are easy to get in calf, have good udder and hoof health, are able to walk long distances and will have longevity.

"What's really pleasing is that we get what we've been breeding for; a short-stature cow that's robust, looks balanced, has less health problems and they're a pleasure to milk," Markus said. "The Viking cow for us is the complete package. ▶

# NARUTO

*Montana x Supershot*

**New release A2A2 Sire with +371 BPI.**
**He will drop rumps and lengthen teats.**
**Offers great Type and Udders with positive components, excellent health traits and good calving ease.**

AUSTRALIAN GENOMIC ABV 04/20

| BPI | HWI | TWI | ASI | TYPE | UDDER | MILK | PROT | FAT | SCC | CE | FERT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 371<br>68%R | 328 | 366 | 149 | 104 | 104 | 338 | 21kg<br>0.22% | 21kg<br>0.1% | 177 | 104 | 113 |

Geipt


**Agri-Gene Pty Ltd**
Ph: 03 5722 2666 Fax: 03 5722 2777
Email: info@agrigene.com.au www.agrigene.com.au

"The balanced approach to how they do the breeding is really showing through in the herd."

Markus is proud to say Lang Dairies is a profitable business.

"Driving the bottom line is what we're trying to achieve," he said. "We work too hard not to make a dollar. The system we've been able to build around the Viking cows does it year in year out."

He admits there is negativity around dairy farming in northern Victoria "but we can do it well here; even in dry times we can perform quite well and we expect to continue growing.

"Had you told mum and dad when they arrived in 1982 that we'd be milking 2000 cows on three farms, I'm not sure if they would have laughed or cried. Now we're very happy and anything is possible for our future," Markus said.

**Article supplied by VikingGenetics, website vikinggenetics.com.au.**

**The mostly Holstein herd has been transformed in the past decade since Lang Dairies switched to VikingGenetics.**

# Semex lineup tops genomic BPI listing

THE Semex sire lineup is stronger than ever following the April genetic evaluations.

Led by two sires from Semex's product development program, Progenesis, and two from Semex partners Westcoast Holsteins, Semex is now home to four of the top 10 genomic Balanced Performance Index sires in Australia.

This hot lineup, combined with Semex's suite of solutions including Immunity+, A2A2 and FertilityFirst, positions Semex to help all Australian producers.

"It's really remarkable to see so many different sires topping rankings in key markets including Australia," Semex sales and business development senior vice president Drew Sloan said.

"We're extremely pleased to be known for profitable sires in multiple proving systems, especially in these times when it is so prudent to be able to deliver the product our client needs for his own profitability. This is true global leadership."

0200HO11749 Progenesis Proceed is the number one BPI Holstein sire at +430 BPI.

It's the number one type weighted index and health weighted index genomic sire and is A2A2. Lower in stature, Proceed offers a unique pedigree as an early Challenger from a Bandares from a Delta. It will deliver strong mammary systems, high components, great fertility and it is +200 Australian Selection Index, +0.48% fat, 0.28% protein, +106 overall type, +109 mammary system and +115 daughter fertility.

**Progenesis Proceed is the number one BPI Holstein sire at +430 BPI.**

0200HO11665 Westcoast Almamater is an Alcove son from the popular donor dam Westcoast Montana Riza 4700 VG-85-3YR-CAN. Almamater is the number four 4 BPI sire at +415 BPI, +203 ASI, +0.32% fat, +0.36% protein, +105 mammary system and +112 daughter fertility. It is also an Immunity+, RobotReady and A2A2, siring long-lasting, healthy cows.

At +404 BPI 0200HO11284 Progenesis Powerhouse is the number six sire. It is an elite BPI sire, being a Bandares from a Jedi that is a full sister to the popular Progenesis Padawan.

Its dam will be close to 12,000 kilograms of milk in its first lactation, from a balanced maternal line. Semex has worked with this family extensively in the Progenesis program, with great results. It is a complete sire, being RobotReady, +215 ASI, +34kg protein, +0.29% protein, +103 overall type and +107 mammary system.

0200HO11385 Westcoast River is a true health and fertility specialist at +116 daughter fertility, +187 cell count and +114 survival, and should sire fertile, profitable cows.

In April it is the number seven BPI sire at +404 BPI, +104 overall type and +103 mammary system. A maternal brother to Almamater, sired by Westcoast Guarantee, it is a predominately black-coated bull and an Immunity+, FertilityFirst, A2A2, and GrazingPro sire, making it the perfect fit for Australia.

No stranger to the lineup, 0200HO10777 Progenesis Perseus will remain a popular BPI genomic sire following April proofs at +371 BPI. By Penmanship from a VG-88 Doorman dam backed by the Pine-Tree Martha Sheen family. Its first daughters are calving in Australia, with promising early reports. It has a great profile being Calving Ease, RobotReady, A2A2 and leads the breed in Calving Ease at +107.

**Article supplied by Semex, website www.semex.com.au.**

# GENETIC GIANTS

**#3 BPI +451**

## PEAK FSCNTR **AltaGLOW**-ET

011H015023 | A2A2

Fascinator x AltaTOPSHOT x Silver

- ▲ Rare combination of Production and Fertility
- ▲ Combined Fat and Protein improver +81
- ▲ Daughter Fertility
- ▲ Calving Ease

G-STAR 511

**TPI +2887**

## PEAK **AltaGOPRO**-ET

011H012124 | A2A2

Helix x Montross x Epic

- ▲ Popular TPI leader
- ▲ Milk with strength
- ▲ Globally successful cow family

G-STAR 511

**JPI +122**

## CDF **VICEROY**-ET

011JE01179 | A2A2

Dominican x Q Impuls x Paramount

- ▲ Daughter proven JPI leader
- ▲ Highest proven sire – positive for JUI and DPR
- ▲ High farmer likability

511

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Alta

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# Next generation sires shine in ABV release

SEXCEL sexed genetic sires and those with top-class udders lead the pack for ABS in the latest Australian Breeding Value release.

ABS has three Holstein proven sires in the ABV list with a ranking of more than 110 for udders, putting them in the top 1 per cent of bulls for this trait. On top of this, its next generation of Sexcel bulls sits inside the top 20.

ABS Australia business operations manager Bruce Ronalds said these results showed farmers could select profitable sires while using Sexcel technology to breed heifers.

The equal number two ABV proven Holstein bull, 29HO17706 De-Su 12128 Tailor, ticks a lot of boxes.

"Tailor is a fully proven bull in Australia with 94 daughters milking in herds across the country," Mr Ronalds said. "He is a stand-out for daughter fertility, cell count and conformation and boasts scores rarely seen in Australia for such a high-ranking bull – 109 for type and 111 for udders. The fact he is available in Sexcel is a bonus."

Farmer favourite and high semen fertility bull, 29HO18073 Seagull-Bay Slvr Kimball, is number 18 in Australia at 325 Balanced Performance Index and 111 for udders.

Kimball is the sire of some of Australia's highest-scoring genomically tested heifers owned by south-west Victorian dairy farmers Jamie (Fred) and Jacinta Loveday.

"We chose Kimball because he has a red factor, he was available in Sexcel and had a high genomic test," Mr Loveday, who milks 500 cows at Laang, said.

Kimball has more than 30 milking daughters in Australia, with amazing udders and breed-leading fertility and is also available in Sexcel.

ABS has six of the top 15 genomic Jerseys in the most recent ABV release, one of its strongest Jersey teams in years.

Four of these are bulls are owned in partnership with the Australian co-operative, Central Sires.

Top of the offering is 29JE4213 Forest Glen Graze Tripp at 212 BPI, a new bull that is an outcross for the Jersey breed. It also boasts positive milk with high components and balanced type.

**Jamie (Fred) and Jacinta Loveday, Laang, Vic, used ABS red-factor Holstein and Sexcel sire Kimball and are reaping the benefits with high genomic test results.**

Mr Ronalds said Tripp would add much-needed pedigree diversity into Australia's Jersey herd.

"We anticipate strong demand because of this outcross, but there's no doubt farmers will be chasing his production traits as well," Mr Ronalds said.

"There's not a lot of Jersey bulls that rank positively for components and milk."

Other top genomic Jersey bulls include: high ranking health trait sire CSCDynamite at 251 BPI, CSCJamieo at 240 BPI, 110 type and 113 udders, CSCToyota at 230 BPI with daughter fertility of 107.

Australian farmers will soon be able to purchase semen from the first sexed Red bull. Roen, with a BPI of 260, sits at number three in the recent ABV release and will be released soon as a sexed genetics sire under the RedX brand. RedX is produced using the same advanced technology from IntelliGen Technologies as Sexcel.

With outstanding calving ease and a score of 108 for daughter fertility, farmers will soon be able to use it to breed heifers and improve their genetic base.

ABS Australia has the top four Red bulls for daughter fertility in the ABV release. These include 252NR11690 Roen, 252NR11594 Rennan, 252NR11078 Go-Pollen and 252NR10617 Skeil.

"ABS Australia focused on Norwegian Red bulls in recent years," Mr Ronalds said. "They are known as the most fertile Reds in the world and we wanted to find the best sires to suit Australian conditions.

"Having the top Red daughter fertility sires shows the strength of the Norwegian product and its ability to perform and produce fertile cows in Australia."

**Article supplied by ABS Australia, website www.absglobal.com/au.**

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# Agri-Gene sires lead the charge

NEW release United States sire Fortnite leads the charge for Agri-Gene in the April 2020 Holstein proofs released in the US.

Fortnite is an industry leader, which ticks all the boxes. On the US proof systems, it sits at +2973 Total Production Index and +835 Net Merit, and on the Australian system it sits at +349 Balanced Performance Index. It is A2/A2, with moderate stature and strength, it will slope rumps and improve udders and has a diverse pedigree (Positive X Frazzled) that is backed by one of the breed's most influential and successful cow females going back to Miss OCD Robst Delicious.

Another new release bull from the April proofs to impress on all three indexes is Torro, which is +2950 TPI, +853 NM and +340 BPI and represents great value as a sexed semen sire.

French sire NaCash remains one of the highest TPI sires to come out of Europe and will be a high use sire for 2020 after being an elite flush sire for 2019.

NaCash offers calving ease, A2/A2 and has a near faultless type linear, is more than +2800 for TPI and more than 350 for BPI in Australia.

Publican took back its title as Australia's number one BPI sire in the Jerseys.

One of NaCash's French stablemates Naruto leads the way on the BPI rankings for Agri-Gene at +371.

It will be hard to ignore on sire selections with its combination of calving ease, A2/A2, positive components and great type with moderate frame and will also both slope rumps and add teat length.

For the type enthusiasts, it was an exciting proof run for Blondin Sires with new sire Moment holding the number one conformation title in Canada at 19 and Thunderstorm coming in at number two at 17.

In addition to this, new Unstopabull son Luxor is the number one Red Holstein type bull in Canada at 16 and Unstopabull is the number four Red Holstein type bull at +14. It is also the number one mammary system Red bull available in Canada.

Agri-Gene's Jersey's are leading the way on the April ABV proof release. Publican took back its title as Australia's number one BPI sire, while new polled bull for 2020 Madill P is the number one polled BPI bull.

Another exciting new addition to Agri-Gene's Australian Jersey line-up for 2020 is Boast. It is a Publican son from Madill P's dam and sits at +288 BPI, just one point under its sire Publican.

Popular proven sire Bonio continues to add milking daughters and has moved up another 30 BPI points based on the strength of almost 250 daughters in milk now in Australia. D

**Article supplied by Agrigene, website www.agrigene.com.au.**

# GA offers solutions, not just semen

GENETICS Australia aims to provide producers with solutions, not just semen, according to its chief executive officer Anthony Shelly.

"We have just released our latest bull team and every bull provides a solution for the issues that dairy farmers face every day," he said. "Whether it's polled, A2, profit, health or type, there are bulls that deliver these solutions in the Genetics Australia line-up."

The GA Holstein team is led by some super new high-profit sires. Karat (Complete x Slam Dunk) and Sondalo (Jeronimo x Main Event) are both 400-plus Balanced Performance Index sires, which deliver solid production, high fertility and excellent udders. Karat is a young bull, so does not yet feature in the Good Bulls Guide.

These homegrown sires are joined by 07HO1396 – Lord (Scenario x Yoder) at 411 BPI and new addition 14HO14894 – Big Deal (Nigel x Frazzled) at 399 BPI.

Another young bull Kardew (Complete x Slam Dunk) is the A22 leader.

"Our polled offering has never been stronger," Mr Shelly said. "It has been a real focus for us, and our breeders are delivering us world-class polled bulls".

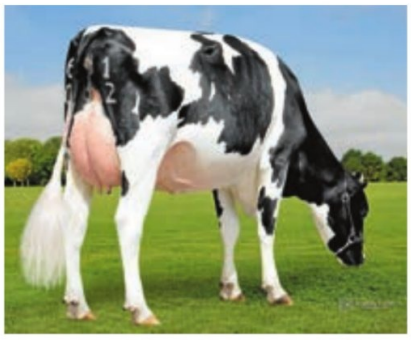
Ryobi (Powertool x Jett) is an A22 polled sire with exceptional protein and great udders. Tirano (Jeronimo x Main Event) is the polled brother to Sondalo. Domination (Jeronimo x Monterey) is an outstanding A2 high type polled option.

CFP (Drastic x Splendid) is the standout PP bull available in Australia.

The April ABV release revealed some reliable daughter proven options. JSMontana (Montross x Uno) breeds stylish daughters with fantastic udders. It is joined by newcomers Giles (Josuper x Oman) and Destination (Predestine x Snowman). Giles is something of a freak for production traits. This A22 sire is a whopping 38kg of protein and 47kg of fat with positive deviations.

GA's Jersey line-up has been reinforced with the addition of some interesting new genomic sires. Young bull Borung (Malachi x ASKN) is an A22 sire that leaves super udders and rates well for mastitis resistance.

BestYet (OliverP x Raceway) is another A22 sire, which transmits balanced production and above average



A daughter of Fala Park Giles 6012, which is the number one 1 Australian daughter-proven sire.

daughter fertility. Douggan (David x Murmur) leads the way for BPI at 272.

GA has added four new young sires to its Aussie Red program.

ARBMarnus (VikFilur x Tokyo), ARBFrizell (VikNiki x Foske) and ARBNathan (VikrFiljar x Gibson) are A22 options backed by high ABV cows and deep cow families. ARBTedebear (Onstad x Scarebear) is an exciting young polled option. D

**Article supplied by Genetics Australia, website www.genaust.com.au.**

# Auzred Xb Australian Reds
# Bred to excel in our pasture based systems

***REDGEORGE BPI 261***
HWI 183
+30 kg Pro @
+0.30, +31 kg B/Fat
Survival 106

***REDFLOKI BPI 249***
+26 kg Pro @+0.29%
Fertility 105
Survival 106
Cell Count 121

***BLACKWOOD, BPI 206***
Huge Production Sire
+36 kg Pro @+0.17%
Udders 108
Likeability 104

***REDCAPRI A2A2 BPI 213***
+20 kg Pro @+0.13%
Udders 108
Survival 106

***REDROLLO A2A2 BPI 211***
+23 kg Pro @+0.14%
Likeability 104
Fertility 105
Cell Count 131

# Crossbreed with Montbeliarde +58% more Lifetime Profit than pure Holstein*

***ELASTAR***
**ISU 152 –**
World Super Sire

***NECTAIRE***
**ISU 152 –**
Extreme Health Profile

***HELUX***
**ISU 137 –**
Health, Fertility Grazing

***ILANNE ISU 150 –***
Calving Ease, Health, Fert.

***LOTMAN***
**ISU 132 –**
Health, Temp, Udders

***JEREMIAH***
**ISU 141 –**
Temp. Udders, Calving Ease

| Auzred Xb Monty Sires | ISU | RRP | Volume | Temp | M/S | Udders | Size | Calving Ease |
|---|---|---|---|---|---|---|---|---|
| ELASTAR A2A2 | 152 | $28 | $24 | 116 | 110 | 111 | 74 | 90 Normal/Easy |
| NECTAIRE NEW! A2A2 | 152 | $26 | $22 | 126 | 115 | 114 | 94 | 93 Easy/Very Easy |
| ILANNE A2A2 | 150 | $26 | $22 | 133 | 109 | 114 | 98 | 92 Easy/Very Easy |
| NONSTOP NEW! A2A2 | 145 | $26 | $22 | 108 | 109 | 108 | 97 | 91 Easy |
| JEREMIAH A1A2 | 141 | $28 | $24 | 124 | 110 | 115 | 97 | 93 Easy/Very Easy |
| HELUX A2A2 | 137 | $28 | $24 | 127 | 108 | 106 | 90 | 91 Easy |
| LOTMAN A2A2 | 132 | $22 | $18 | 130 | 113 | 113 | 89 | 90 Normal/Easy |
| JASMINO NEW! A2A2 | 129 | $20 | $17 | 121 | 110 | 115 | 85 | 91 Easy |

* Results from Large Scale Crossbreeding Study by University of Minnesota, Montbeliarde x Holstein V's Holstein

**Auzred XB**
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Steve Snowdon Mob 0417 138 508 Email steve.auzredxb@bigpond.com
**www.auzredxb.com.au**

# Finding top Aussie Red crossbred cows

THE Australian Red Dairy Breed is a major contributor to the crossbreeding sector across the country and is also gaining popularity internationally. But it's rare for these crossbred cows to get the recognition they deserve.

In pasture-based and seasonal-calving production systems, these Aussie Red sired crossbred cows are often the most profitable in Australian herds with their proven track record for high solids production and high health, fertility and survival.

To recognise these cows, the ARDB recently ran an inaugural Aussie Red-Crossbred Cow of the Year competition on its Facebook page, asking for nominations from its members.

The entries were to be sired by a UU coded bull (this group includes cows sired by Australian Red, Viking Red, Norwegian Red or German Angler bulls) and a first-generation cross from another breed.

The eight nominations can be viewed on the ARDB Facebook page at https://www.facebook.com/ardbxx/.

One of the entries from Brett and Bronwyn Davies of Simpson in south-west Victoria was a typical example of these crossbred cows.

Barley Dew David Bree, sired by RDavid from a Holstein dam, is currently on its fifth lactation and has produced 41,841 litres, 1661 kilograms of fat and 1462kg of protein up until its latest herd test. It last completed 305-day lactation produced 734kg of milk solids.

Calving every year to the first round of artificial insemination, it has never had any health issues and is always among the first 10 cows on the platform.

"She is a classic example of the type of cow that we strive to breed every year and why we love the Aussie Reds," Mr Davies said.

The cow has a Balanced Performance Index of 267 and has two daughters in the herd. One is sired by VIKRFaber has a BPI of 200 and another sired by VIKRTokyo has a BPI of 285, the top BPI cow in the herd.

The Davies moved from northern Victoria five-and-a-half years ago with a predominately Holstein herd. They now milk 280 Aussie Red and Aussie Red crossbred cows with only a handful of Holsteins remaining.

Bronwyn and Brett Davies with their children Kaiah and Levi in front of some of their Aussie Red herd.

Barley Dew David Bree is one of the top-performing cows in the Davies herd.

They initially tried crossing their Holstein herd with Red in an attempt to improve the health and fertility of the herd, realising that one of the major keys to being profitable was having cows in calf that had few health problems.

This has proven to be a resounding success and the Davies were so impressed with their first Aussie Red crosses that they've now decided to breed their entire herd to Red.

The Davies subsequently became more involved in the Australian Red Dairy Breed, signing up as members about five years ago.

They have thoroughly enjoyed their involvement in the organisation, catching up with like-minded breeders around the country at different times.

They have been involved in industry extension since moving to Simpson, being selected as a WestVic Dairy Focus Farm from 2016 to 2018 and are also a current Ginfo herd with Datagene.

Mr Davies has become a director of the Australian Red Dairy Breed, overseeing the finance and administration of the organisation. D

**Article supplied by Australian Red Dairy Breed, website www.aussiereds.com.au.**

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CSCDYNAMITE GELBEADO PARK DYNAMITE

## CSCDYNAMITE

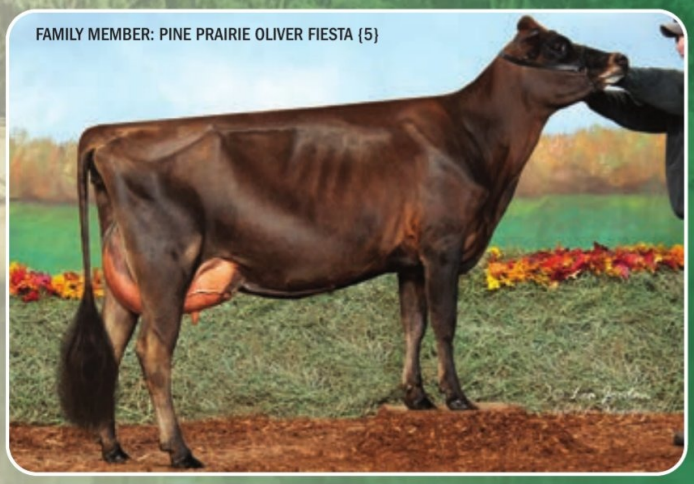
***PRICE: $22.00*** ***50 UNIT SPECIAL $16.00***

***DAZZLER x Raceway x ELTON*** *NASIS: 29JJR17*

SIRE: SUNSET CANYON DAZZLER-ET
DAM: GELBEADO PARK RACEWAY COCOA 4608 EX-90
MGD: GELBEADO PARK COCOA 121ST VG-85

- Elite gBPI$ 251
- High production ASI 165
- Improves Mastitis Resistance 104
- Daughter fertility improver

#5 Genomic


CSCJAMIEO MURRAY BROOK JAMIEO

## CSCJAMIEO

***PRICE: $22.00*** ***50 UNIT SPECIAL $16.00***

***Oliver P x CSCJED x Galaxies*** *NASIS: 29JJR13*

SIRE: DUTCH HOLLOW OLIVER P-ET
DAM: MURRAY BROOK 4058 VG-87
MGD: MURRAY BROOK 3695 VG-88

- Outstanding Type 110 and Udders 112
- Elite gBPI$ 240
- Improves Mastitis Resistance 107

#6 Genomic

CSCTOYOTA AUBURN VALE TOYOTA

## CSCTOYOTA

***PRICE: $20.00*** ***50 UNIT SPECIAL $16.00***

***Algernon x ELTON x Passive*** *NASIS: 29JJR14*

SIRE: BROADLIN HILUX-ET
DAM: AUBURN VALE LAURETTE 2696 EX-90
MGD: AUBRUN VALE LAURETTE 430 VG-87

- Elite Daughter Fertility 107
- Elite gBPI$ 230
- High production ASI 149
- Moderate type and adds teat length

#7 Genomic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Dairy Australia

**Source of Bulls**

| | |
|---|---|
| **ABS** | ABS Australia |
| **AGR** | Agri-Gene |
| **ALT** | Alta Genetics |
| **AXB** | Auzred XB |
| **CRV** | CRV Australia |
| **ECL** | Eclipse Genetics |
| **GAC** | Genetics Australia |
| **GGI** | GGI Australia |
| **IRG** | Ireland Genetics |
| **LIC** | Livestock Improvement |
| **SEM** | Semex Australia |
| **SHG** | Shamrock Genetics |
| **SXT** | ST Genetics Australia |
| **TLG** | Total Livestock Genetics |
| **VDG** | Van Diemen Genetics |
| **VIK** | Viking Genetics |
| **WWS** | World Wide Sires |
| **TBA** | To BE Advised |

## Good Bulls Guide for Holstein — Balanced Performance Index (BPI) — Australian Proven

| | | | | Indices | | | | Production Traits | | | | Survival | | Conformation Traits | | | Workability | | | | Daughter Fertility | | Cell Count | | Feed Saved | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | Bull ID | Bull Name | Source | BPI $ | BPI Rel | HWI | TWI | ASI | ASI Rel | No. Dtrs | No. Herds | Sur-vival | Rel | Over Type | Mam Syst | Type Rel | Milk Spd | Temp | Like | Rel | Dtr Fert | Rel | CC | Rel | Feed Saved | Rel |
| 1 | GILES | WILARA JOSUPER JO-ET | GAC | 341 | 77 | 233 | 293 | 257 | 86 | 44 | 21 | 107 | 66 | 101 | 96 | 76 | 103 | 104 | 106 | 75 | 106 | 63 | 140 | 80 | -125 | 40 |
| 2 | MAEBULL | CALISTER MAEBULL | GAC | 312 | 87 | 275 | 314 | 122 | 95 | 150 | 48 | 109 | 86 | 103 | 101 | 83 | 101 | 99 | 103 | 86 | 111 | 92 | 186 | 92 | 26 | 42 |
| 2 | 29HO17706 | DE SU 12128 TAILOR | ABS | 312 | 85 | 295 | 347 | 78 | 92 | 94 | 20 | 112 | 74 | 109 | 111 | 86 | 106 | 102 | 104 | 86 | 109 | 79 | 169 | 91 | 6 | 44 |
| 4 | KINGTUT | RENGAW REDMAW KB 9975-ET | GAC | 311 | 83 | 219 | 261 | 226 | 93 | 96 | 22 | 108 | 71 | 101 | 106 | 85 | 93 | 97 | 101 | 80 | 107 | 66 | 182 | 89 | -140 | 43 |
| 5 | DESTINATION | KAARMONA DESTINED-ET | GAC | 306 | 79 | 276 | 326 | 97 | 90 | 65 | 19 | 109 | 66 | 107 | 105 | 76 | 104 | 103 | 104 | 76 | 112 | 65 | 159 | 84 | 4 | 40 |
| 6 | 29HO17747 | COOCKIECUTTER HARPER | ABS | 303 | 84 | 213 | 282 | 227 | 91 | 77 | 20 | 105 | 74 | 103 | 104 | 85 | 102 | 102 | 102 | 88 | 104# | 81 | 143 | 91 | -79 | 43 |
| 7 | 29HO17919 | DE-SU 12659 TACTIC | ABS | 303 | 81 | 236 | 318 | 195 | 91 | 88 | 18 | 109 | 70 | 104 | 106 | 79 | 103 | 102 | 104 | 86 | 102 | 66 | 155 | 85 | -18 | 41 |
| 8 | 7HO11752 | ROYLANE BOOKEM BOB 5170-ET | WWS | 301 | 86 | 207 | 276 | 235 | 95 | 216 | 16 | 107 | 75 | 101 | 104 | 84 | 99 | 103 | 105 | 81 | 106# | 83 | 119 | 94 | -95 | 43 |
| 9 | 29HO16667 | DE-SU 11228 TOPSY-ET | ABS | 286 | 90 | 198 | 292 | 236 | 97 | 259 | 38 | 105 | 92 | 103 | 103 | 89 | 101 | 98 | 100 | 93 | 100 | 96 | 143 | 96 | -78 | 44 |
| 10 | ENFORCER | RED FIELD DOORMAN FROUKJE | GAC | 283 | 81 | 212 | 284 | 183 | 90 | 66 | 20 | 107 | 69 | 103 | 106 | 79 | 99 | 103 | 105 | 77 | 103 | 71 | 164 | 85 | -77 | 41 |
| 11 | JSPOWERBALL | VIEW-HOME POWERBALL P ET | GAC | 276 | 88 | 232 | 241 | 173 | 95 | 139 | 33 | 108 | 78 | 98 | 102 | 91 | 103 | 102 | 105 | 91 | 106 | 92 | 119 | 94 | 76 | 45 |
| 12 | 29HO16888 | SEAGULL-BAY MVP-ET | ABS | 273 | 93 | 187 | 306 | 199 | 99 | 1,704 | 203 | 109 | 98 | 110 | 110 | 96 | 103 | 105 | 107 | 98 | 100 | 99 | 125 | 99 | -161 | 47 |
| 13 | 29HO17607 | BRYCEHOLME SS BOASTFUL | ABS | 270 | 91 | 227 | 230 | 134 | 98 | 473 | 70 | 110 | 88 | 98 | 100 | 93 | 101 | 101 | 103 | 95 | 109 | 97 | 163 | 98 | 27 | 45 |
| 14 | CBSUPERSHOT | COGENT SUPERSHOT | SXT | 267 | 90 | 236 | 266 | 106 | 98 | 326 | 61 | 112 | 87 | 104 | 102 | 92 | 98 | 105 | 107 | 91 | 107 | 96 | 181 | 97 | 8 | 45 |
| 15 | 14HO07328 | COASTAL-VIEW MOOKIE | WWS | 262 | 90 | 190 | 286 | 189 | 99 | 481 | 57 | 108 | 93 | 104 | 104 | 89 | 101 | 100 | 104 | 88 | 102 | 97 | 133 | 98 | -58 | 44 |
| 16 | MAINSTREET | GLOMAR WALLSTREET | GAC | 262 | 88 | 230 | 257 | 135 | 96 | 205 | 58 | 104 | 76 | 105 | 109 | 85 | 103 | 98 | 100 | 89 | 105 | 88 | 151 | 94 | 56 | 43 |
| 17 | 29HO16909 | LARCREST COMMANDER-ET | ABS | 261 | 92 | 189 | 320 | 153 | 99 | 545 | 113 | 111 | 94 | 110 | 109 | 94 | 104 | 103 | 106 | 96 | 100 | 98 | 160 | 98 | -184 | 46 |
| 18 | GEEMCEE | RENGAW MANOMAN HUMMER-ET | GAC | 256 | 91 | 167 | 184 | 197 | 99 | 590 | 87 | 104 | 85 | 98 | 98 | 94 | 98 | 103 | 104 | 94 | 107 | 94 | 148 | 98 | -120 | 46 |
| 19 | 29HO16887 | DE-SU 11620 NIRVANA-ET | ABS | 252 | 88 | 206 | 277 | 136 | 95 | 141 | 41 | 110 | 84 | 106 | 109 | 89 | 102 | 104 | 105 | 90 | 100 | 92 | 154 | 95 | -46 | 44 |
| 20 | FULLTHROTTLE | CURRAJUGLE FULL THROTTLE-IMP-ET | ABS | 243 | 86 | 184 | 198 | 142 | 94 | 123 | 48 | 105 | 86 | 98 | 100 | 83 | 103 | 101 | 102 | 84 | 108 | 89 | 146 | 90 | -70 | 42 |
| 21 | 29HO16955 | VIEW-HOME MONTEREY-ET | ABS | 242 | 92 | 201 | 218 | 152 | 99 | 830 | 115 | 108 | 95 | 97 | 107 | 95 | 104 | 103 | 105 | 96 | 104 | 98 | 129 | 99 | 42 | 46 |
| 22 | WRANGLER | RENGAW MANOMAN WRANGLER-ET | GAC | 241 | 93 | 167 | 213 | 172 | 99 | 1,165 | 162 | 106 | 88 | 103 | 100 | 98 | 96 | 102 | 102 | 98 | 105 | 97 | 153 | 99 | -92 | 47 |
| 23 | CRVASTRO | DELTA ASTRO | CRV | 238 | 91 | 188 | 239 | 124 | 99 | 565 | 77 | 107 | 95 | 106 | 102 | 89 | 101 | 100 | 103 | 96 | 109 | 98 | 119 | 98 | -52 | 44 |
| 24 | CRVBOUWROCKY | BOUW ROCKY | CRV | 233 | 90 | 197 | 266 | 102 | 97 | 200 | 34 | 108 | 89 | 108 | 104 | 91 | 100 | 103 | 105 | 92 | 106 | 95 | 154 | 96 | -25 | 45 |
| 25 | MARKKU | KAARMONA MARKKU | GAC | 232 | 85 | 169 | 288 | 127 | 93 | 102 | 41 | 105 | 84 | 115 | 105 | 82 | 102 | 100 | 103 | 85 | 102 | 90 | 137 | 90 | -144 | 42 |

*Denotes an ABV that incorporates Australian data, all other traits for this bull are ABV(i)s using data from foreign daughters #Denotes an ABV(i) using data from foreign daughters

THE Good Bulls GUIDE

For more information contact
Phone: (03) 9032 7189 Email: <enquiries@datagene.com.au > Website: <www.datagene.com.au>

DataGene Solutions for Herd Development

Dairy Australia

**Source of Bulls**

| | |
|---|---|
| ABS | ABS Australia |
| AGR | Agri-Gene |
| ALT | Alta Genetics |
| AXB | Auzred XB |
| CRV | CRV Australia |
| ECL | Eclipse Genetics |
| GAC | Genetics Australia |
| GGI | GGI Australia |
| IRG | Ireland Genetics |
| LIC | Livestock Improvement |
| SEM | Semex Australia |
| SHG | Shamrock Genetics |
| SXT | ST Genetics Australia |
| TLG | Total Livestock Genetics |
| VDG | Van Diemen Genetics |
| VIK | Viking Genetics |
| WWS | World Wide Sires |
| TBA | To BE Advised |

## Good Bulls Guide for Holstein — Balanced Performance Index (BPI) — Genomic ABV(g)s

| | | | | Indices | | | | Production | | | | Survival | | Conformation Traits | | | Workability | | | | Daughter Fertility | | Cell Count | | Feed Saved | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | Bull ID | Bull Name | Source | BPI $ | BPI Rel | HWI | TWI | ASI | ASI Rel | No. Dtrs | No. Herds | Sur-vival | Rel | Over Type | Mam Syst | Type Rel | Milk Spd | Temp | Like | Rel | Dtr Fert | Rel | CC | Rel | Feed Saved | Rel |
| 1 | 0200HO11749 | PROGENESIS PROCEED | SEM | 430 | 65 | 362 | 438 | 200 | 76 | 0 | 0 | 110 | 50 | 106 | 109 | 55 | 103 | 102 | 105 | 61 | 115 | 49 | 166 | 66 | -29 | 30 |
| 2 | STGSHAYDON | VALA BANDARES SHAYDON ET | SXT | 420 | 67 | 339 | 415 | 227 | 77 | 0 | 0 | 111 | 54 | 105 | 107 | 60 | 103 | 102 | 106 | 65 | 112 | 56 | 154 | 69 | -47 | 32 |
| 3 | 011HO15023 | PEAK FSCNTR ALTAGLOW-ET | ALT | 415 | 65 | 320 | 388 | 236 | 76 | 0 | 0 | 112 | 49 | 104 | 103 | 55 | 102 | 101 | 105 | 61 | 114 | 49 | 162 | 66 | -113 | 30 |
| 4 | 0200HO11665 | WESTCOAST ALMAMATER | SEM | 415 | 65 | 357 | 386 | 203 | 77 | 0 | 0 | 114 | 52 | 100 | 105 | 57 | 103 | 104 | 106 | 62 | 112 | 52 | 166 | 67 | 58 | 31 |
| 5 | 7HO13696 | SSI SCENARIO LORD | GAC | 411 | 67 | 350 | 362 | 202 | 78 | 0 | 0 | 112 | 55 | 97 | 107 | 61 | 103 | 102 | 105 | 63 | 115 | 56 | 163 | 69 | 25 | 33 |
| 6 | 0200HO11284 | PROGENESIS POWERHOUSE | SEM | 404 | 67 | 341 | 398 | 215 | 77 | 0 | 0 | 112 | 53 | 103 | 107 | 59 | 103 | 103 | 106 | 64 | 108 | 55 | 173 | 69 | 30 | 32 |
| 7 | 0200HO11385 | WESTCOAST RIVER | SEM | 404 | 66 | 361 | 389 | 148 | 77 | 0 | 0 | 114 | 51 | 104 | 103 | 56 | 102 | 103 | 105 | 62 | 116 | 52 | 187 | 68 | 35 | 31 |
| 8 | SONDALO | CARENDA SONDALO | GAC | 402 | 66 | 349 | 384 | 183 | 77 | 0 | 0 | 111 | 52 | 104 | 106 | 57 | 103 | 100 | 104 | 62 | 115 | 51 | 167 | 68 | 39 | 31 |
| 9 | 14HO14894 | S-S-I NIGEL BIG DEAL-ET | GAC | 399 | 65 | 340 | 364 | 188 | 77 | 0 | 0 | 112 | 50 | 101 | 104 | 56 | 103 | 104 | 106 | 61 | 114 | 50 | 166 | 67 | 22 | 31 |
| 10 | TLGLARK | VALA BANDARES LARK-ET | TLG | 398 | 67 | 332 | 393 | 208 | 77 | 0 | 0 | 110 | 53 | 102 | 108 | 59 | 103 | 103 | 105 | 64 | 111 | 55 | 154 | 69 | 14 | 32 |
| 11 | 29HO17458 | BOGHILL GLAMOUR PERSUADE | ABS | 396 | 66 | 349 | 337 | 173 | 77 | 0 | 0 | 111 | 52 | 97 | 103 | 59 | 103 | 103 | 105 | 63 | 115 | 51 | 177 | 67 | 66 | 32 |
| 12 | 0200HO11353 | PROGENESIS DRACAENA | SEM | 395 | 65 | 311 | 353 | 232 | 77 | 0 | 0 | 113 | 49 | 101 | 100 | 54 | 100 | 103 | 106 | 60 | 110 | 50 | 172 | 68 | -36 | 30 |
| 13 | DELTANIPPONP | DELTA NIPPON P | CRV | 391 | 65 | 331 | 382 | 182 | 77 | 0 | 0 | 114 | 50 | 106 | 103 | 55 | 102 | 103 | 105 | 61 | 112 | 49 | 161 | 67 | 8 | 31 |
| 14 | 29HO19002 | PINE-TREE HURON-ET | ABS | 389 | 66 | 305 | 358 | 217 | 77 | 0 | 0 | 111 | 51 | 103 | 107 | 57 | 102 | 103 | 105 | 62 | 112 | 51 | 159 | 67 | -91 | 31 |
| 15 | 29HO18527 | SANDY-VALLEY RORDAN-ET | ABS | 386 | 68 | 315 | 358 | 212 | 78 | 0 | 0 | 111 | 56 | 102 | 102 | 61 | 103 | 103 | 105 | 66 | 110 | 58 | 166 | 69 | 14 | 32 |
| 16 | 29HO19378 | FB 53 KENOBI GIANNIS-ET | ABS | 385 | 65 | 313 | 360 | 214 | 77 | 0 | 0 | 111 | 48 | 101 | 106 | 54 | 103 | 102 | 105 | 59 | 111 | 48 | 156 | 67 | -9 | 30 |
| 17 | STGTACOMA | ST GEN NOBLE TACOMA | SXT | 385 | 66 | 322 | 351 | 163 | 77 | 0 | 0 | 113 | 53 | 100 | 107 | 59 | 103 | 102 | 105 | 64 | 116 | 53 | 177 | 67 | -92 | 31 |
| 18 | STGBOLD | VALA SUITS BOLD-ET-PO | SXT | 380 | 65 | 293 | 385 | 237 | 77 | 0 | 0 | 109 | 50 | 106 | 106 | 55 | 102 | 102 | 104 | 61 | 105 | 50 | 165 | 67 | -50 | 30 |
| 19 | 011HO12315 | PEAK ALTAMEDERA-ET | ALT | 380 | 66 | 320 | 375 | 201 | 77 | 0 | 0 | 111 | 52 | 104 | 107 | 58 | 102 | 100 | 103 | 63 | 109 | 54 | 165 | 69 | 26 | 31 |
| 20 | SILVERLINE | GLOMAR SILVER 1717-ET | GAC | 379 | 71 | 287 | 397 | 272 | 79 | 6 | 5 | 109 | 63 | 108 | 110 | 69 | 105 | 103 | 107 | 72 | 99 | 64 | 129 | 71 | -33 | 36 |

## Good Bulls Guide for Red Breeds — Balanced Performance Index (BPI) — Australian Proven

| | | | | Indices | | | | Production | | | | Survival | | Conformation Traits | | | Workability | | | | Daughter Fertility | | Cell Count | | Feed Saved | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | Bull ID | Bull Name | Source | BPI $ | BPI Rel | HWI | TWI | ASI | ASI Rel | No. Dtrs | No. Herds | Sur-vival | Rel | Over Type | Mam Syst | Type Rel | Milk Spd | Temp | Like | Rel | Dtr Fert | Rel | CC | Rel | Feed Saved | Rel |
| 1 | VIKRTOKYO | VR MALBACK TUOMI TOKYO | VIK | 292 | 81 | 194 | 284 | 225 | 91 | 75 | 16 | 108 | 60 | 105 | 104 | 66 | 100 | 100 | 106 | 75 | 101 | 87 | 149 | 91 | -168 | 34 |
| 2 | ARBCYGNET | BEAULANDS SWANNIES - ET | GAC | 219 | 82 | 181 | 190 | 132 | 92 | 85 | 34 | 106 | 78 | 99 | 106 | 72 | 104 | 102 | 106 | 85 | 104 | 85 | 112 | 89 | 7 | 36 |
| 3 | VFOSKE | V FOSKE | VIK | 217 | 93 | 141 | 227 | 174 | 100 | 2,547 | 173 | 107 | 98 | 104 | 106 | 96 | 102 | 102 | 105 | 99 | 100 | 99 | 113 | 99 | -144 | 44 |
| 4 | AXBBLACKWOOD | BLACKWOOD PARK BLACKWOOD | AXB | 206 | 81 | 165 | 200 | 174 | 92 | 90 | 11 | 103 | 63 | 99 | 108 | 73 | 103 | 103 | 104 | 69 | 98 | 83 | 105 | 89 | 71 | 36 |
| 5 | ARBSCAREBEAR | JOHVILLE PARK SCAREBEAR | GAC | 182 | 86 | 157 | 128 | 114 | 94 | 137 | 40 | 105 | 83 | 94 | 98 | 84 | 104 | 102 | 105 | 91 | 103 | 88 | 116 | 91 | 104 | 40 |
| 6 | ARBABBOTT | BEAULANDS ABBOTT | GAC | 156 | 83 | 93 | 121 | 217 | 92 | 92 | 28 | 103 | 79 | 95 | 97 | 72 | 101 | 101 | 104 | 85 | 96 | 86 | 69 | 88 | 99 | 36 |
| 7 | ARBARCHWAY | LODEN ARCHIE | GAC | 149 | 79 | 108 | 80 | 130 | 89 | 61 | 17 | 102 | 60 | 91 | 93 | 71 | 101 | 100 | 101 | 74 | 106 | 75 | 101 | 83 | 75 | 36 |
| 8 | ARBBONJOVI | BOSGOWAN BON JOVI | GAC | 138 | 92 | 91 | 140 | 132 | 100 | 2,472 | 265 | 103 | 98 | 101 | 106 | 93 | 101 | 100 | 102 | 99 | 103 | 99 | 81 | 99 | -26 | 43 |

THE Good Bulls GUIDE

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| GGI | GGI Australia |
| IRG | Ireland Genetics |
| LIC | Livestock Improvement |
| SEM | Semex Australia |
| SHG | Shamrock Genetics |
| SXT | ST Genetics Australia |
| TLG | Total Livestock Genetics |
| VDG | Van Diemen Genetics |
| VIK | Viking Genetics |
| WWS | World Wide Sires |
| TBA | To BE Advised |

## Good Bulls Guide for Jersey — Balanced Performance Index (BPI) — Australian Proven

| | | | | Indices | | | | Production | | | | Survival | | Conformation Traits | | | Workability | | | | Daughter Fertility | | Cell Count | | Feed Saved | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | Bull ID | Bull Name | Source | BPI $ | BPI Rel | HWI | TWI | ASI | ASI Rel | No. Dtrs | No. Herds | Sur-vival | Rel | Over Type | Mam Syst | Type Rel | Milk Spd | Temp | Like | Rel | Dtr Fert | Rel | CC | Rel | Feed Saved | Rel |
| 1 | 7JE01344 | WILSONVIEW IF MATT | WWS | 251 | 89 | 219 | 296 | 103 | 96 | 163 | 30 | 109 | 86 | 108 | 109 | 92 | 104 | 106 | 106 | 92 | 100 | 93 | 160 | 95 | -13 | 42 |
| 2 | CRVMARVARIE | WALLACEDALE MARVARIE ET | CRV | 168 | 84 | 125 | 185 | 133 | 93 | 104 | 35 | 104 | 83 | 106 | 106 | 80 | 101 | 104 | 102 | 89 | 97 | 88 | 106 | 90 | -7 | 37 |
| 3 | 7J1038 | ALL LYNNS LOUIE VALENTINO | GAC | 166 | 93 | 140 | 250 | 61 | 100 | 2,256 | 210 | 114 | 99 | 114 | 114 | 99 | 103 | 107 | 108 | 99 | 95 | 99 | 137 | 99 | -111 | 45 |
| 4 | BONTINO | CAIRNBRAE BONTINO | AGR | 162 | 88 | 107 | 209 | 119 | 97 | 247 | 53 | 111 | 76 | 111 | 109 | 89 | 103 | 101 | 103 | 90 | 98 | 90 | 108 | 95 | -129 | 41 |
| 5 | 7J1219 | DUTCH HOLLOW OLIVER P | GAC | 162 | 87 | 150 | 226 | 52 | 95 | 131 | 27 | 110 | 76 | 111 | 112 | 93 | 101 | 107 | 109 | 84 | 98 | 88 | 126 | 94 | -24 | 42 |
| 6 | CRVVOYANT | MERSEYBANK CLAIRVOYANT | CRV | 161 | 86 | 130 | 177 | 67 | 95 | 119 | 37 | 107 | 82 | 102 | 103 | 83 | 100 | 104 | 103 | 85 | 103 | 88 | 139 | 93 | -64 | 38 |
| 7 | TAHBILK | BEULAH TAHBILK | GAC | 152 | 89 | 77 | 176 | 159 | 97 | 298 | 63 | 106 | 90 | 106 | 106 | 90 | 105 | 105 | 107 | 94 | 93 | 94 | 92 | 96 | -144 | 41 |
| 8 | AUSSIEGOLD | BROADLIN AUSSIEGOLD P - ET | GAC | 149 | 92 | 94 | 187 | 98 | 99 | 821 | 139 | 106 | 97 | 107 | 104 | 96 | 102 | 104 | 104 | 97 | 98 | 98 | 135 | 98 | -155 | 44 |
| 9 | VOYAGEDALE | WALLACEDALE MELS VOYAGE | GAC | 144 | 84 | 104 | 104 | 139 | 93 | 122 | 45 | 102 | 84 | 99 | 99 | 77 | 101 | 102 | 101 | 88 | 98 | 89 | 120 | 90 | 44 | 36 |
| 10 | VALIN | KINGS VIEW VALIN 4697 | GAC | 137 | 86 | 103 | 189 | 73 | 95 | 167 | 50 | 112 | 74 | 108 | 105 | 87 | 104 | 105 | 105 | 93 | 95 | 79 | 124 | 93 | -75 | 40 |
| 11 | 011JE1118 | ALL LYNNS VALENTINO MARVEL | ALT | 132 | 88 | 133 | 168 | 39 | 97 | 211 | 52 | 108 | 91 | 104 | 105 | 85 | 101 | 105 | 104 | 93 | 98 | 95 | 148 | 96 | 73 | 39 |

## Good Bulls Guide for Jersey — Balanced Performance Index (BPI) — Genomic ABV(g)s

| | | | | Indices | | | | Production | | | | Survival | | Conformation Traits | | | Workability | | | | Daughter Fertility | | Cell Count | | Feed Saved | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | Bull ID | Bull Name | Source | BPI $ | BPI Rel | HWI | TWI | ASI | ASI Rel | No. Dtrs | No. Herds | Sur-vival | Rel | Over Type | Mam Syst | Type Rel | Milk Spd | Temp | Like | Rel | Dtr Fert | Rel | CC | Rel | Feed Saved | Rel |
| 1 | PUBLICAN | WHITE STAR PATRICK | AGR | 285 | 67 | 205 | 293 | 217 | 78 | 0 | 0 | 108 | 50 | 105 | 106 | 57 | 103 | 104 | 105 | 63 | 101 | 54 | 105 | 70 | -29 | 28 |
| 2 | VALENBLAST | WHITE STAR VALENBLAST | GAC | 278 | 69 | 210 | 299 | 194 | 80 | 9 | 1 | 109 | 59 | 106 | 111 | 61 | 103 | 105 | 106 | 66 | 98 | 59 | 125 | 71 | -53 | 29 |
| 3 | DOUGGAN | WHITE STAR DOUGLAS | GAC | 272 | 65 | 191 | 242 | 216 | 75 | 0 | 0 | 109 | 54 | 97 | 101 | 57 | 102 | 102 | 105 | 63 | 101 | 56 | 140 | 69 | -40 | 27 |
| 4 | BAZYLI | KAARMONA BAZYLI | GAC | 271 | 68 | 215 | 291 | 172 | 78 | 0 | 0 | 111 | 56 | 106 | 105 | 61 | 104 | 105 | 107 | 65 | 102 | 58 | 111 | 71 | 16 | 29 |
| 5 | CSCDYNAMITE | GELBEADO PARK DYNAMITE | ABS | 251 | 63 | 194 | 246 | 165 | 74 | 0 | 0 | 107 | 48 | 102 | 103 | 52 | 102 | 101 | 101 | 59 | 102 | 51 | 137 | 67 | 13 | 25 |
| 6 | CSCJAMIEO | MURRAY BROOK JAMIEO | ABS | 240 | 65 | 199 | 282 | 130 | 76 | 0 | 0 | 109 | 48 | 110 | 112 | 56 | 100 | 105 | 106 | 60 | 99 | 50 | 132 | 69 | -20 | 27 |
| 7 | CSCTOYOTA | AUBURN VALE TOYOTA | ABS | 230 | 64 | 186 | 217 | 149 | 76 | 0 | 0 | 104 | 50 | 103 | 104 | 52 | 101 | 101 | 102 | 60 | 107 | 50 | 98 | 68 | 37 | 25 |
| 8 | MRFERTILITY | BEULAH MR FERTILITY | GAC | 230 | 65 | 187 | 200 | 127 | 76 | 0 | 0 | 108 | 52 | 101 | 101 | 51 | 100 | 101 | 103 | 61 | 110 | 55 | 118 | 69 | 20 | 25 |
| 9 | DOBSON | WHITE STAR DOORMAN | GAC | 229 | 65 | 168 | 237 | 185 | 75 | 0 | 0 | 110 | 53 | 103 | 104 | 56 | 102 | 103 | 105 | 62 | 98 | 55 | 111 | 69 | 6 | 27 |
| 10 | TLGQANTAS | KINGS VILLE QANTAS ET | TLG | 226 | 56 | 151 | 208 | 186 | 67 | 0 | 0 | 109 | 39 | 99 | 101 | 41 | 103 | 101 | 103 | 54 | 101 | 41 | 113 | 59 | -62 | 20 |
| 11 | 29JE4009 | AHLEM CHILI CHARMER | ABS | 216 | 66 | 164 | 233 | 143 | 75 | | | 105* | 52 | 108 | 103 | 60 | 101* | 102* | 103* | 54 | 100 | 52 | 138 | 75 | -26 | 31 |
| 12 | 29JE4213 | FOREST GLEN CRAZE TRIPP-ET | ABS | 212 | 56 | 166 | 233 | 126 | 67 | 0 | 0 | 109 | 38 | 103 | 105 | 42 | 103 | 104 | 105 | 47 | 99 | 39 | 149 | 61 | -35 | 21 |
| 13 | ARDENT | BERCAR 9216 | GAC | 211 | 67 | 151 | 228 | 157 | 77 | 0 | 0 | 110 | 56 | 105 | 106 | 60 | 102 | 104 | 106 | 64 | 98 | 57 | 117 | 71 | -60 | 28 |
| 14 | INVINCIBLE | LOXLEIGH HATMAN VINCE 5963 | GAC | 211 | 68 | 150 | 264 | 142 | 79 | 0 | 0 | 108 | 58 | 111 | 114 | 60 | 104 | 104 | 106 | 66 | 97 | 59 | 112 | 70 | -129 | 29 |
| 15 | CSCVIRAT | LANGDALE VIRAT | ABS | 209 | 67 | 150 | 203 | 175 | 77 | 0 | 0 | 110 | 57 | 100 | 104 | 61 | 103 | 102 | 105 | 64 | 98 | 58 | 112 | 71 | 2 | 29 |
| 16 | LOKI | KAARMONA LOKI | GAC | 208 | 63 | 165 | 199 | 153 | 74 | 0 | 0 | 106 | 50 | 101 | 103 | 49 | 102 | 102 | 104 | 58 | 103 | 54 | 100 | 68 | 69 | 24 |
| 17 | MADILL | KINGS VILLE MADILL P | AGR | 205 | 61 | 160 | 217 | 128 | 72 | 0 | 0 | 105 | 44 | 105 | 104 | 51 | 104 | 101 | 104 | 56 | 101 | 46 | 120 | 64 | 0 | 25 |
| 18 | 29JE4193 | JX LUCKY HILL WOODSTOCK {6}-ET | ABS | 204 | 54 | 170 | 232 | 93 | 65 | 0 | 0 | 110 | 35 | 105 | 104 | 40 | 102 | 104 | 104 | 43 | 102 | 36 | 149 | 58 | -18 | 20 |
| 19 | TLGBASHFUL | KINGS VILLE BASHFUL P | TLG | 203 | 66 | 171 | 259 | 99 | 77 | 0 | 0 | 108 | 52 | 110 | 111 | 59 | 102 | 108 | 107 | 62 | 98 | 53 | 132 | 70 | -42 | 28 |
| 20 | ALGERNON | BROADLIN HILUX | GAC | 201 | 69 | 140 | 187 | 195 | 78 | 22 | 9 | 106 | 60 | 101 | 106 | 65 | 100 | 99 | 101 | 72 | 101 | 60 | 87 | 70 | 26 | 31 |

*Denotes an ABV that incorporates Australian data, all other traits for this bull are ABV(i)s using data from foreign daughters #Denotes an ABV(i) using data from foreign daughters

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*all photos by Bradley Cullen at the herds of Philip Wallace (Bellambi Jerseys) and Des & Wendy Parker*

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# Attention to detail key to calf success

**Key points**

- ✔ Automatic feeding system helps reduce physical load
- ✔ Meticulous record keeping and attention to detail
- ✔ High animal welfare standards

By **Jeanette Severs**

TRUDI Hammond is a veteran dairy farmer using automatic feeding machines in her calf-rearing system. Four years ago she changed from one automatic feeding system to another.

Investing in each automatic feeding system is an investment in the well-being of the operators as well as the animals. Mrs Hammond has noted the automatic systems alleviate back and shoulder strain, making it a more comfortable and enjoyable environment for her and others to work in.

"We used to feed calves four litres of milk once a day and it was a very manual work system," she said.

"This has made a difference to me physically. My shoulders and back can cope with doing the work this way."

It also means other people can take over the work periodically – including her father and teenage children.

But the workload has not diminished and she remains diligent about record keeping. Every day, she gathers and studies data about system performance and calf health.

As well as the automatic record system, which links from the calf-rearing shed to computers installed in an office on the dairy platform and to the principals' mobile device apps; Mrs Hammond also keeps a handwritten record for each calf.

Trudi and Darryl Hammond milk a split-calving Holstein-Friesian cross-bred herd that rotates through six robot milking machines. The farm, at Buln Buln, Vic, extends across 1.6 kilometres of undulating to steep, heavy grazing country.

The calf shed was purpose-built in 2004, with corrugated steel and polycarbonate roofing sheets used along the sides and to delineate stalls, providing additional weather protection from wind. The polycarbonate allows the calves to lay in sun-drenched positions in the shed, while benefiting from wind and rain protection.

Heifers often stick in their friendship groups, through weaning to calving.

Trudi Hammond relies on matching her manual record keeping to the computerised system records.

The calves benefit from toys such as bells, to stimulate their interactions.

The floor of the shed is packed sand and is covered with woodchips during each calving season, topped up as necessary. There is a concrete floor in the operations and feeding area.

In the calf shed are five feeders; four are automatic feeders.The feeders allow calves to drink every two hours, until they get their measured daily quota.

The kit of five feeders and supporting infrastructure cost $43,000 plus the cost of installation.

A broad-spectrum disinfectant Virkon is sprayed every day in the stalls and used to clean teats and all equipment used in the calf shed and feeders.

"I also scrub out every water trough, every day," Mrs Hammond said.

The difference between this automatic calf feeder and the previous one she used is the current model is self-cleaning. Even so, there are parts that Mrs Hammond needs to clean.

The vat has a permanent filter and Mrs Hammond manually sieves the

Trudi Hammond likes spending time with calves and checks their health status every day.

A calf using the automatic calf feeding system.

***'The computer records their drinking speeds as well as the volume of milk each calf has consumed.'***

milk several times a day to pick up milk solids and insects out of the vat.

"I change and clean the filters at various hose connection points," she said.

"Then I hose down the concrete pad with hot water every day; it just keeps everything clean."

Lines are checked to ensure no blockages and every day the filters on each line are checked and cleaned by Mrs Hammond.

Milk is automatically fed from the dairy to the vat in the calf shed, from where the system ensures milk travels along hoses to the individual feeders, in response to the calf entering the corral.

There is a strict regimen of feeding, with systematic record keeping. The calf's access is based on the automatic feeder scanning its National Livestock Identification Scheme (NLIS) eartag, before allowing or disallowing it to drink.

"The system has a timer on it so if a calf comes to drink but doesn't drink all of its milk allocation, or goes away and doesn't come back for a while; the remainder of that milk portion is dumped," Mrs Hammond said.

Calves spend their first couple of days in pens in the dairy, initially fed four litres of colostrum in the bottle.

The calves have ad lib access to hay.

By the end of the initial two days, they are sucking independently on teats attached to a green calf feeder.

"We like them to get as much colostrum as possible in their first two days," Mrs Hammond said.

They are then moved onto the automatic feeders.

Over the next five days, each calf needs to drink five litres/day. For the next 50 days up to eight litres of milk per day is available to each calf.

Mrs Hammond checks every calf every day, as well as keeping an eye on the computer records.

"I check twice each day on the computer to ensure everyone's fed," Mrs Hammond said.

"The computer records their drinking speeds as well as the volume of milk each calf has consumed.

"Sometimes I have to intervene, wake them up and shepherd them into the feeder. Some are eager to feed and easy, some calves are lazy."

The automatic feeder allows a maximum of two litres to be drunk in a two-hour period.

Calves also have ad lib access to paddock areas outside the calf-rearing shed.

## Animal welfare

With 60-70 per cent fertility in the herd, Mrs Hammond raises an average 200 heifer calves each season. The focus is on good animal welfare practices, and includes bells for calves to play with in the calf-raising stalls, eliminating draughts indoors and sunbathing.

The veterinarian is brought in to debud calves, using pain relief, and to vaccinate.

"We've noted no weight loss, since we've been using the vet," Mrs Hammond said. "The calves recover quicker and better."

Bull calves are collected at the dairy by a regular client, and heifers are moved to the calf shed, where they also have voluntary access to a surrounding paddock.

"One auto feeder is more manual, so if a calf is feeling poorly or needs medication or milk fortifier, it goes into an isolation pen and I am more hands-on with its feeding," Mrs Hammond said.

Ad lib grain is available from day three, when the heifer calves arrive in ▶

the calf shed; ad lib water is available from day one.

"Once feeding well, the calf gets daily access to an adjacent pasture paddock, in sunny weather," Mrs Hammond said.

"When they come back in from the paddock, they walk through a foot bath."

Weaning begins after 57 days for the average calf, in increments of 100 millilitres per day, and extends over 10 days. By the time they are 79 days old, the calves are eating 2kg grain/day and weigh an average 120kg.

After weaning, they are injected with Multimin before they go into the paddock, in groups of 10.

"They stick in their friendship groups from then on. We even find all the cows in a friendship group will calve within days of each other," Mrs Hammond said.

Collars go on the springers when they are brought into the calving paddocks. D

Trudi Hammond checks the calves daily to ensure their health is optimised.

Trudi Hammond uses a sieve to regularly take milk solids and insects out of the vat, so they don't block the pipes taking milk to the calves.

Trudi Hammond ensures filters and joins are taken apart daily and cleaned manually.


The automatic calf feeding system is compact.

Although the calf feeding system has an automatic cleaning mode, Trudi Hammond enhances that by checking all the connections every day.


Foot dips are used as one of the biosecurity measures in the dairy and calf-rearing areas.

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# Pain relief key for disbudding

**Key points**

- ✔ Calves sedated for disbudding
- ✔ Tri-Solfen sprayed on disbudding site after procedure
- ✔ Provides short and long-term pain relief

WHILE productivity and profitability are important drivers of the Homebush Pastoral business in South Gippsland, Victoria, good animal welfare sits above all as a critical factor.

The Hanrahans milk 900 cows on 338 hectares at Homebush Pastoral near Stony Creek, with a split calving of a third in the autumn and two thirds in spring. Pat Hanrahan said the balance between the various factors driving their business was simple to explain.

"We get paid for milk on a cents per litre basis, so happy, healthy cows are a fairly big production driver for us, because happier and healthier cows produce more milk," he said.

"Animal welfare is also a massive issue for us, we love our cows and we want to look after them and give them the best treatment in life that they can have."

Gippsland Veterinary Group veterinarian Dr Karienne Black works with Homebush Pastoral providing best practice pain relief for dairy calves during disbudding. The process is an important husbandry procedure involving removal of the horn bud.

"Disbudding is vital because as these calves grow and go into the dairy, they can harm each other and harm themselves with the horns," Dr Black said.

"When we disbud calves, we need to be conscious that as we are the custodians of these calves and their welfare, we're giving them effective pain relief. A lot of studies have also shown as we maintain effective pain relief, we maximise productivity of the calves."

The emphasis on animal welfare saw GVG be an early adopter in Australia of a multimodal disbudding protocol, already used widely in New Zealand, which includes anaesthetising calves before disbudding.

"Sedating the calves means we don't have to handle them extensively, they have no memory of the process, and it ensures effective pain relief," Dr Black said.

Vet Dr Karienne Black working with calves on the Hanrahan farm.

Pat Hanrahan says using pain relief when disbudding calves makes sense from an animal welfare and business point of view.

***'Disbudding is vital because as these calves grow and go into the dairy, they can harm each other and harm themselves with the horns.'***

"Once we've burned the buds to remove them, we give the calves a spray on the site with Tri-Solfen from Bayer to maximise pain relief."

Dr Black said once GVG started using Tri-Solfen after it was registered for use in calves for disbudding, they quickly realised how well it complemented their existing procedures.

"Tri-Solfen is a good product because it's got both short and long-acting forms of anaesthetic," she said.

"It also has adrenaline to help with the bleeding post-burning, and an antiseptic product as well, so those four elements mean we're giving calves effective pain relief. We've got haemostasis, and we're keeping the site clean so it's not getting infected after the process.

**The Hanrahans milk 900 cows on 338 hectares at Homebush Pastoral near Stony Creek, Vic.**

"Since we've been using Tri-Solfen, our farmers find their calves are a lot less head shy after disbudding, so they are obviously more comfortable and get drinking sooner, so overall Tri-Solfen helps with the recovery process."

It's an observation echoed by Mr Hanrahan at Homebush Pastoral, who has been impressed with the impact Tri-Solfen has had not just on pain relief, but on improved productivity.

"Pain relief is a big aspect for us in terms of production, if a calf is slow to eat or drink because it's feeling pain, then it doesn't grow and we don't meet the performance indicators we need," he said.

"Most importantly, from my perspective as a dairy farmer, we love our cows. They're our whole livelihood and we want them to have the best they can have.

"We still have to make business decisions for them and that's where Tri-Solfen and pain relief fits into what we do because the animals are more productive, so it helps our business as well as looks after our animals."

Mr Hanrahan said he believed the use of Tri-Solfen by the broader industry into the future was critical, given the economic and animal welfare pressure they faced.

Dr Black agreed, saying the use of pain relief in calves was a key component of the broader social licence to farm.

"When farmers talk about return on investment for Tri-Solfen, it's not just about how well those calves grow after the process, but we're also talking about how comfortable and happy those calves are, and also how society perceives that process," she said.

"If you start talking about social licence to farm, that consideration has to be included in the Tri-Solfen return on investment for farmers." D

**Article supplied by Bayer, website https://www.bayer.com.au/.**

# Feasibility of dairy cow-calf systems

**Key points**

- ✔ Study looked at feasibility of running calves with cows in grazing systems
- ✔ Cow stress levels and calf weight gain assessed
- ✔ Further research needed on milk yield loss and rumen development

By **Sarah Mac***

**Sarah Mac's research looked at how a cow-calf system could work in pasture-based dairy systems.**

THIS experiment was the first of my thesis, which is focused on optimising the rearing of young stock. This experiment investigated the feasibility of rearing the calf with the cow in a pasture-based setting, and the impact that such a system has on cow behaviour at weaning.

Learnings from this work provides options for the industry to pursue an alternative mode of rearing young stock, alongside learnings to help improve conventional practices.

We conducted two experiments. Experiment 1 determined the feasibility of rearing the calf with the cow in a pasture-based system. Experiment 2 determined these cows' response to separation, as compared with cows separated from their calf within 24 hours.

## Methods:

Experiment 1:

- Six cow-calf pairs were contained in one paddock with strip grazing as per conventional rotational grazing systems.
- Cows were temporarily separated twice a day for milking, leaving their calves in the paddock.
- Calves were weighed once a week and daily milk yields were recorded.
- Behaviour was recorded for the first seven days and then two times per week thereafter.

Experiment 2:

- At ≥100 days calves were removed from the cow and sent to the abattoir to assess rumen development and meat quality.
- The stomach was compartmentalised, emptied, cleaned and weighed.
- Another six cows were added to the study to compare the behaviour response to full separation of the experimental cows.
- Triaxial accelerometer neck collars (SCR Dairy, Netanya, Israel) were used to monitor rumination and activity of the experimental cows (≥100 days) and the control cows (~24 hours).

## Results

Experiment 1:

- The average daily weight gain of calves was 1.42 kilograms/day (+/- 0.62 kg) (see Figure 4).
- Daily milk yield harvested between 10 and 20 litres/day. At weaning, the milk yield doubled, suggesting that the calves were drinking about 20L of milk per day at the time of weaning.
- Cows vocalised between 20-30 per cent of the observed time during the first three weeks. At week six this dropped to below 10pc of the time. Average vocalisations observed for the remainder of the study was 6pc.
- Most of the cow vocalisations were observed during physical separation of the cow and calf, and during the time cows were pushed to the parlour (see Figure 5).

Experiment 2:

- For all calves, the reticulorumen accounted for over half of the total stomach weight.
- Following full separation of the calf, experimental cows ruminated for 503 minutes/day compared to the control cows that ruminated for 376 minutes/day.
- Following full separation of the calf, activity levels of experimental cows were on average 697 minutes/day compared to the control cows 544 minutes/day during the three-day observation period. Both groups increase activity on the day of separation. However, control cows decreased activity the day after full separation compared to the experimental cows that decreased activity 2 days after separation.

## Discussion and conclusions

Calf weight gain in the experiment was double the industry standard, with an average daily gain of 1.42kg/day compared with 0.7kg/day. However, this may be reflected in milk consumption/milk yield.

The financial costs and benefits of this type of rearing system has not been evaluated, but will be an important outcome of further studies.

Vocalisation can be used to determine stress levels in cattle. After six weeks, the cows vocalise less than-10pc of the time. The idea can be proposed that the cows display less stress in leaving their calf because they know their calf will be there upon return.

The industry standard for proportion of the total stomach weight contributed by the reticulorumen is 67pc in calves 12-16 weeks of age. The rumen weight of the calves in this study were smaller than industry standard, therefore future research into cow-calf rearing systems should focus on rumen development. A more objective measurement of rumen development would be useful.

Figure 1: Three of the cow-calf pairs in week four of the study.

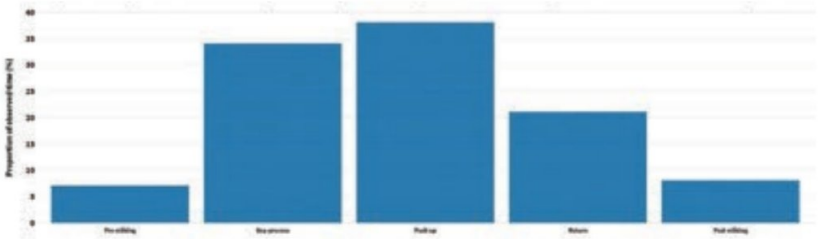


Figure 5: Proportion of cow vocalisations at each observation period. Observation periods: Pre milking - 15 minutes before milking. sep-process-physically removing the cows from the paddock. Push up - moving cows from paddock to parlour. Return - moving cows from parlour to the paddock. Post milking - 15 minutes once cows enter the paddock

Rumination is a low arousal, routine behaviour that has been used to assess stress, health and welfare of cattle. Experimental cows spent more time ruminating than the control cows, suggesting they were less affected by calf separation.

However, there was an opposite effect on activity, whereby experimental cows were more active during the observation period than the control cows. Activity is a measure of arousal, and can increase during stressful events, therefore it is possible that the control cows were less stressed than the experimental cows.

That being said, we cannot determine that more activity equates to more stress because it is unclear the types of behaviours that are monitored by the neck collar. Further detailed behavioural evaluation is necessary to gain a greater understanding of the welfare impact of these two contexts.

This study has identified four potential advantages to rearing calves on the cow:

1. Calves doubling weight gain.
2. A more gradual weaning process for calves.

***'This study has identified four potential advantages to rearing calves on the cow.'***

3. Creating new options for the dairy industry.
4. The possibility of a new revenue source from rearing bobby calves.

While we have demonstrated the feasibility of rearing calves on the cow in a pasture setting, the impact of scaling this up to larger herd sizes, loss in milk yield, time of weaning and rumen development still requires evaluation. Long-term studies can provide an understanding of suckling on immediate and future lactations. Furthermore, the impact on replacement heifer lactations is unknown.

I would like to thank my advisers Dr Cameron Clark and Dr Sabrina Lomax, from the University of Sydney, and Dr Dan Weary, Dr Nina Von Keyserlingk and Lara Sirovica, from University of British Columbia, for their support in this project. This project was the beginning of my PhD at the University of Sydney with a focus on optimising the weaning process in cattle.

Figure 2: Two of the experimental calves around 90 days old.

Figure 3. An eye muscle of one of the calf carcases (slaughtered at 104 days old) with calves removed at ≥100 days and control cows with calves removed at about 24 hours (industry standard

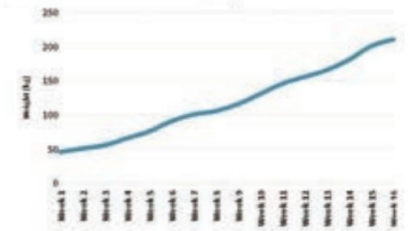


Figure 4: Average calf weight (kg) at each week for the duration of the study.

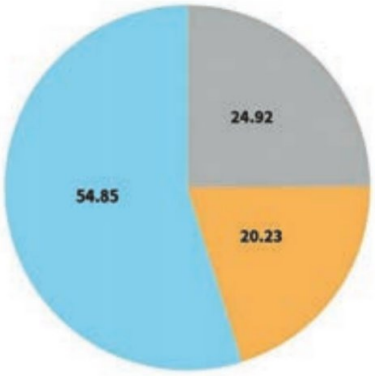



Figure 6: Proportion of reticulorumen (blue), abomasum (grey), and omasum (orange) of the total stomach weight

**Sarah Mac is a PhD student at the University of Sydney, who took part in the Australian Dairy Conference's Young Dairy Scientist Award competition. This is an edited version of the article she submitted as part of that competition.*

# Developing a market for male calves

**Key points**

- ✔ Research looking at barriers in dairy-beef market
- ✔ Overseas markets have well-established chain
- ✔ Lack of knowledge about how dairy farms fit into beef chain

DEVELOPING supply chains for male dairy calves has the potential to increase returns for farmers and meet growing consumer demand for greater animal welfare produced products.

Research by Charles Sturt University student Veronika Vicic aims to understand the current barriers for dairy beef production to provide information to develop an economically viable supply chain.

## The case for change

Demand from consumers for higher welfare and more sustainably produced food is driving agricultural industries to change their practices.

The dairy industry has seen increased scrutiny from animal welfare groups regarding the treatment of male calves.

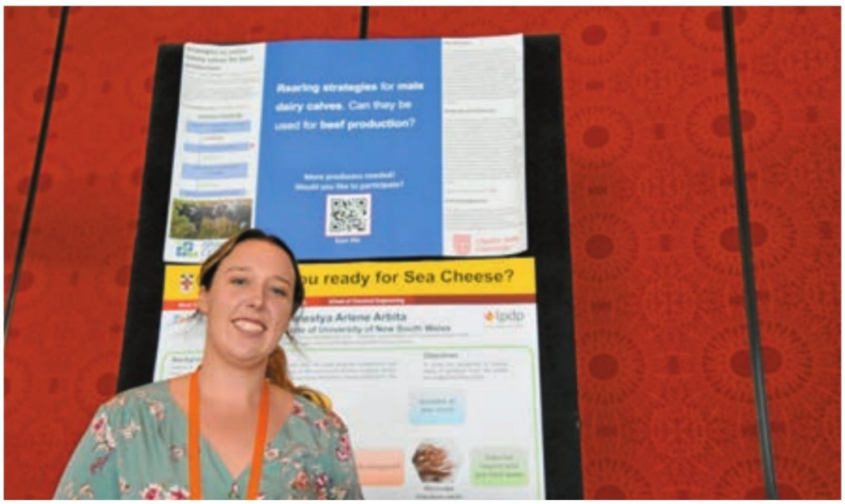
Australia is in the minority of developed countries internationally that still view the practice of slaughtering dairy bull calves as being more profitable than rearing them for meat production. For this to change, the industry needs to develop pathways to grow male calves to sizable steers suitable for quality beef production.

In Australia, dairy-influenced steers have been shown to receive discounts at abattoirs, commonly due to poor meat quality. This, in turn, reduces the economic viability of producing these animals.

The consistently low-quality result among dairy bred steers is believed to be linked to the type of growth path they have experienced throughout their lifespan. Some overseas markets boast profitable systems that are based on high energy diets.

It is estimated 40 per cent of cattle in American feedlots have Holstein influence and the meat quality from these steers has shown to perform on par, if not greater, with other beef bred animals.

Success stories overseas raises the question – why can't we achieve this in Australia, and why has this practice not already been adopted?




**Veronikia Vicic in front of her poster explaining her research into establishing a supply chain for excess male dairy calves.**

## Barriers to adoption

There is a lack of detailed knowledge about the production constraints faced by dairy farmers when rearing and/or growing out male calves for beef production in Australia.

The research involves interviewing dairy farmers to gain knowledge about current practice and potential barriers to the adoption of a system as seen overseas.

Interviews will be held across different dairy regions to determine if production challenges are the same or differ, within regions. The interviews will also be able to identify if farmers will be willing to adopt new practices into a dairy system, to help the production of dairy-beef based on economic gain.

Through the success stories of some producers the research aims to establish a platform that will give producers a better understanding of how to integrate successful production practices on dairy farms in order to rear male calves for beef production. It will provide viable strategies to assist management and develop profitable business structures surrounding male calf production.

The study is expected to be completed by December 2020.

For a dairy-beef supply chain to be established in Australia, it would need to be able to withstand the market trends surrounding supply and demand. Sensitivity to beef prices at a given time may influence viability, hence the need to investigate potential barriers.

***'It will provide viable strategies to assist management and develop profitable business structures surrounding male calf production.'***

Perceived high-cost requirements of rearing and producing male calves on high-growth diets in Australia may be offset by targeting a premium beef market. This can be achieved if Australian producers are able to follow an optimum growth path and produce a consistent high-quality product.

The study is being conducted under the supervision of Associate Professor Jane Quinn, Professor Anthony Saliba and Dr Michael Campbell at Charles Sturt University and the Graham Centre for Agricultural Innovation, an alliance between Charles Sturt and the NSW Department of Primary Industries (DPI). The research is being funded by the Australian Research Training Program Scholarship awarded to Ms Vicic. D

**Veronika Vicic was part of the Australian Dairy Conference's Young Dairy Scientist Award competition. This is an edited version of the article she submitted as part of that competition.*

# Blocks have pain relief licked

**Key points**

- ✔ Meloxicam pain relief medication added to molasses blocks
- ✔ Provided relief for longer period
- ✔ Early stage research

By **Mark Phelps**

MOLASSES lick blocks may provide an effective way of delivering pain relief to calves undergoing routine animal husbandry practices, including castration and dehorning.

The very early stage research involved medicated blocks, which contained 0.1 per cent of the non-steriodal, anti-inflammatory drug meloxicam.

The blocks were manufactured by the 4 Season Company in Brisbane and presented to a group of dairy heifers over an eight-day period.

The research is being carried out by Dr Dominique Van der Saag, a researcher at the Sydney School of Veterinary Science at the University of Sydney, who works in the area of livestock welfare, particularly pain mitigation.

"Meloxicam is currently used as pain relief for livestock but the disadvantage is that as an injectable it only lasts for up to a couple of days," Dr Van der Saag said.

"We know wounds resulting from animal husbandry procedures can take up to several weeks to heal, so it is desirable to consider how we can provide pain relief for an extended period.

"But it's not practical or desirable to bring livestock back to the yards for further handling after they have been treated.

"The molasses blocks containing meloxicam have the potential to provide effective pain relief for an extended period."

In addition to weighing the animals, blood samples were taken each day to assess the amount of analgesic being absorbed by each animal.

On average, each of the heifers ate 300-400 grams of the molasses blocks per day, consuming about 1.5mg of meloxicam for each kilogram of body weight, which is similar to the recommended dose rate.

Dr Van der Saag said that addition of meloxicam to molasses lick blocks did not appear to affect the palatability as there was no drop in consumption compared to non-medicated molasses lick blocks.

University of Sydney researcher Dr Dominique Van der Saag says molasses lick blocks may provide an effective way of delivering pain relief for livestock.

Molasses blocks containing meloxicam have the potential to provide effective pain relief for an extended period.

Pain relief practices are growing in popularity among producers, so long as they are feasible to implement.

***'I began to see how the improvement of livestock welfare through the use of pain relief was extremely important.'***

Future trials are planned to involve the assessment of pain relief for cattle undergoing castration and dehorning.

The 4 Season Company has previously supplied lick blocks containing anthelmintics, which have been used to control internal parasites including liver fluke.

## Animal well-being inspires research

Dominique Van der Saag's research into novel ways of administering long-lasting analgesia to cattle was one of three winners of Bayer's Care-4Cattle grant.

Dr Van der Saag said she had long been aware of the impact procedures such as dehorning and castration, and the administration of pain relief could have on the cattle.

"While studying animal and veterinary bioscience, my interest in livestock and animal well-being really grew," the livestock production welfare scientist said.

"I began to see how the improvement of livestock welfare through the use of pain relief was extremely important. In many countries, it is not mandatory to use anaesthesia or analgesia for painful procedures performed on cattle.

"However, there has been a shift in recent years, with producers wanting to take on pain-relief practices so long as they are feasible to implement."

Care4Cattle jury member Carmen Gallo said lick blocks with analgesics could be of great benefit to cattle well-being globally. "It would translate into less handling and stress, as well as reduced labour," Ms Gallo said.

# Understanding marginal milk

**Key points**

- ✔ Decision making on farm big challenge for dairy industry
- ✔ Vital to understand concept of marginal milk
- ✔ Ensure changes generate returns

By **Carlene Dowie**

THE quality of on-farm decision making is one of the five big challenges facing the dairy industry, the Australian Dairy Conference earlier this year was told.

Leading New Zealand based consultant and scientist Dr John Roche said this became a bigger challenge as farm size increased.

In particular, farmers needed to understand the concept of marginal milk to ensure their businesses remained robust.

Dr Roche, who is Dairy NZ's principal scientist for animal science and spent a number of years in Australia, identified five challenges that farmers had the opportunity to influence.

The other four were climate change, biosecurity, government regulation and public sentiment.

These sat within the much broader challenge facing the world: that it needed to produce more food in the next 30 years than it had within the last 2000.

## Quality of decision making

Dr Roche said on a 50-cow farm, most decisions made by the farmer were biophysical.

But as farms grew to 500 or 1000-cow farms or beyond, the biophysical decisions were made by somebody else, while the farm manager or owner was making human-resources decisions, large-scale contracting decisions or future supply decisions.

But there were too many sheep in the dairy industry globally, farmers who followed what their neighbours were doing.

Farmers needed to be more disciplined in their decision making, to think for themselves and establish their own goals.

They needed to follow a robust decision-making process:

- Define their own goals.
- Do their own research.
- Consider the consequences.


**Dr John Roche says there are too many sheep in the dairy industry globally, farmers who follow what their neighbours are doing.**

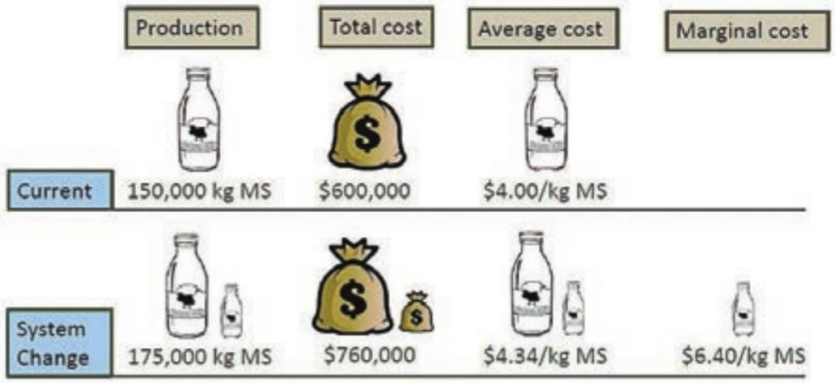



**Figure 1: Marginal milk – how much does the extra production generated from a system change cost.**

***'The first milk he pulled out of his system was costing him NZ$17/kg milk solids to produce.'***

- Make their own decision.
- Upskill for self-improvement.
- Revisit and review their decision.

Dr Roche said an example of this was in the lack of understanding of the concept of marginal milk.

The NZ industry had changed dramatically in the past 13 years. The drought of 2007-08 in NZ mimicked the drought of 1983 in Victoria, where farmers changed their entire system on the back of a 1-in-100-year drought because it might come again.

"We went from 60,000-tonne of palm kernel being fed in a 4.5 million-cow dairy industry to 1.5 million tonnes of palm kernel being fed in a 4.5 million-cow dairy industry in the space of two years," he said.

The industry now fed about 2 million tonnes of PKE with the same number of cows.

But farmers failed to understand the concept of marginal milk (see Figure 1).

"When I talk about marginal milk, I am asking, are you making money from milk or are you making milk from money," he said.

"Is the cost of the extra milk, so when you make a change to your system, you buy more machinery, ▶

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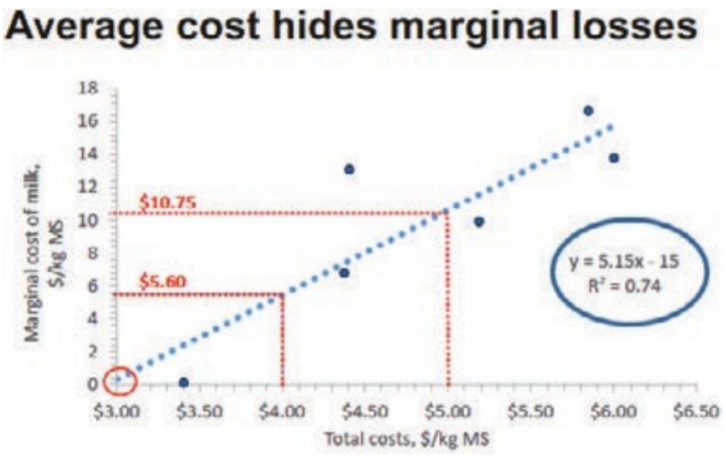



**Figure 2: Marginal costs versus total costs on a New Zealand farm.**

◀ you buy more cows, you buy in feed, you do whatever, but you produce more milk, is the cost of that milk less than the revenue generated from that extra milk?"

Lincoln University research showed as farmers moved from low inputs (about 500 kilograms of supplement a cow) to medium input (500-1200kg) to high input (4.2-4.5 tonnes), the marginal cost of producing the extra milk generated by those inputs was about NZ$7.60/kg milk solids. But there were only a couple of years where NZ farmers were paid more than that for the milk.

Dr Roche gave a specific example of a farmer in NZ who had returned his parents' farm in the south Waikato after his father became unwell. He realised the farm was not making much money, so had asked DairyNZ staff to do a whole farm assessment and Dr Roche then looked at the economics and biophysical side of the farm.

"He had six years' data there and so we were able to track the changes on the farm," he said.

"Now remember years are not independent, there are going to be differences in rainfall etc, but this part of Waikato was pretty safe countryside.

"So over the six years, his total costs of production were increasing, his marginal costs were increasing."

Figure 2 shows the marginal cost of milk compared with the total costs of milk on the farm.

"So for every $1 increase in average cost, the cost of the marginal milk had actually increased $5.15," Dr Roche said

Some farmers in NZ can produce milk for less than NZ$3/kg milk solids with no supplements going into their system.

Dr Roche said so most people would not be concerned about average costs of NZ$4/kg MS. If this farm had been operating at that level of costs, the marginal milk would have cost NZ$5.60/kg MS (see lower red dotted line on Figure 2).

But the farm's average cost was actually NZ$5/kg MS, which meant the marginal milk was actually costing him NZ$10.75/kg MS (see higher red dotted line on Figure 2).

That particular year, the farm was being paid NZ$3.90/kg MS.

"The first milk he pulled out of his system was costing him NZ$17/kg milk solids to produce," Dr Roche said.

The bigger, the more complex the businesses, the more important it was that farmers were skilled in all of these facets of decision making.

## Climate change

Dr Roche said there was no doubt climate change was occurring.

There was a high degree of confidence in the science showing average temperatures would rise, the number of hot days would increase, cool-season rainfall would decrease and there would be increased intensity of extreme rainfall events.

But he said he was tired of the hyperbole around climate change, which was scaring people into inaction.

Farmers could respond to the changes. Options included:

- Genetics – selecting animals for heat stress tolerance and increased resilience.
- Infrastructure – installing fans and misters in sheds, planting more trees or creating artificial shade.
- Nutrition – managing diet, for example, using feeds that cooled rather than heated animals.

But farmers should not stick their head in the sand and say this wasn't happening.

## Biosecurity

Dr Roche said many farmers were naive about biosecurity threats to their operations. He saw first hand the impact of this in Ireland when the foot-and-mouth outbreak occurred in 2001. That had created high awareness there but since then it had fallen away.

Dr Roche said Australian and NZ farmers believed biosecurity was something the government did at the borders.

In the past decade, the number of tourists and shipping containers coming into Australian and NZ had doubled but the number of biosecurity staff had remained the same.

This meant the risk was increasing. "This is no longer a case of if but when," he said.

It was vital farmers were vigilant and took responsibility for dealing with this issue on their farms – they needed to be governors of their own businesses.

## Government regulation

Dr Roche said increasing government regulation – across a range of areas including health and safety, human resources, environment, animal welfare, food safety, antimicrobial resistance and organics – was an increasing challenge for dairy farmers.

A united dairy industry was vital to help deal with this as it could ensure government decisions were science-based.

People within the industry needed to step up and call out bad behaviour to help reduce the regulatory burden.

Governments were regulators of last resort – they usually stepped in when people were doing something they should not be doing.

## Public sentiment

Dr Roche said all forms of agriculture were under attack from people who were no longer connected with it.

But he said educating people about agriculture was not always the answer.

It was critical to recognise we now live in a post-science world and emotion was the key to getting people to engage.

Australian dairy farmers had an emotional process to sell. D

# Record incidence of metabolic diseases

**Key points**

- ✔ Transition feeding key to preventing certain metabolic diseases
- ✔ Record incidence of these diseases
- ✔ Compare against industry standards

RECORDING disease incidence at calving is a critical step in managing metabolic diseases and establishing a successful and productive lactation.

The transition period is defined as the four weeks before and the four weeks after calving. As the cow is adapting from non-lactating to lactating a lot of changes are occurring that affect the cow's hormones and metabolism. All metabolic processes are intricately linked. A failure of one metabolic process will inevitably impact on the efficiency of others.

During the transition period, there is a greatly increased risk of disease, with 80 per cent of cow health problems happening within this period. If there is a shortage of essential nutrients, the cow may be unable to adapt resulting in a range of diseases, including:

- hypocalcaemia and downer cows;
- hypomagnesaemia;
- ketosis and fatty liver;
- udder oedema;
- abomasal displacement;
- retained foetal membrane (RFM)/ metritis; and
- poor fertility and poor production.

There is now a substantial body of evidence confirming the transition period represents a brief but critically important period of time in a cow's life

**Recording the incidence of metabolic diseases at calving can help indicate if transition feeding has been done correctly.**

when careful manipulation of diet can impact substantially on subsequent health and productivity. As a result of an increased understanding of homeostatic processes, the concept of transition feeding has evolved from one focused on only control of milk fever to an integrated nutritional approach that optimises:

- rumen function;
- calcium and bone metabolism;
- energy metabolism;
- protein metabolism; and
- immune function.

There are four aims of transition cow management. Cows should be managed so as to reduce disruption to the rumen, minimise mineral deficiencies, provide sufficient energy around calving and avoid immune suppression. If these four aims are addressed during the transition period, and a successful lactation is established, cow health targets should be achieved.

***'Producers should be aiming for <1 per cent incidence of metabolic diseases.'***

Establishing a successful lactation means much more than delivering a live calf. It also means:

- a cow with a rumen well adapted to higher energy feeds;
- almost no clinical cases of milk fever in the herd;
- very low incidence of other cow health problems common in the first two weeks after calving;
- low mortality rates in the first two weeks;
- higher herd fertility;
- more productive lactations;
- less labour and stress from time spent on sick cows; and
- enhanced animal welfare.

By measuring and recording the incidence of metabolic diseases at calving dairy farmers can compare how many cases they have and compare against industry standards. If farmers don't measure, they won't know.

Producers should be aiming for <1 per cent incidence of metabolic diseases. If the incidence is >2pc, they should contact their veterinarian or adviser for assistance. D

**For more information, visit the Dairy Australia website and www.dairyaustralia.com.au and search for 'transition cow feeding'.**

# Maize delivers feed cost control

**Key points**

- ✔ Maize grown in western Victoria to reduce bought-in feed
- ✔ Helps lift components
- ✔ Fed as part of ration on feed pad

By **Alastair Dowie**

IT'S an ancient art form, but maize continues to find a role on dairy farms in today's cost-driven industry.

The family-run operation of brothers Alex and Robert Robertson introduced maize production to their 900-cow herd to maximise production at the lowest possible cost.

The Robertsons have three properties, with the home farm at Simpson, Vic, where the milkers are run. The herd calves three times a year and runs as a 365-days-a-year operation.

Alex Robertson said it was Robert who first raised the prospect of growing maize about three years ago. The pair are now on their third crop with 90 hectares planted this year.

The aim was to reduce the use of outside grain and fodder. "To become more efficient and grow more feed ourselves," Alex Robertson said.

He said that every time a truck delivered to the farm it was a cost. The key was to work out how to get that truck in cheaper or less often or with a lower volume.

He said maize was another way they were trying to make the business more efficient, consistent and profitable.

The offshoot from using maize was that it helped increase test and components in the high producing herd.

He said cows seemed to get in calf better with the maize.

"It's an all-round things – cutting costs, feed cows better, getting more components in the milk and hopefully make more money," he said. "That's the number one name of the game."

Mr Robertson said the introduction of maize had given them control of that side of the herd ration.

All the talk had been about the future of grain prices and the prediction that prices would "go through the roof".

Rather than relying on grain markets, maize provided an option. "If you don't have control it's not a lot of fun," he said.

It was years like this that the maize gave them the opportunity to "shelter" their profit margin from that outside force.

They first started growing maize three years ago with a 50-hectare crop that produced about 500 dry tonnes, about 10 tonnes/ha.

"We didn't have a successful campaign," he said.

The first year was a learning experience with variety, season and irrigation.

In the second year they used their agronomist to assist.

They increased the area to 80ha and the crop yielded about 1500 dry tonnes or 18.75t/ha. They also switched to using a hybrid variety Pioneer P9911.

Seed supplier Driscoll Ag director and sales agronomist Troy Driscoll said P9911 was suited to that part of Victoria. The variety was a 99-day comparative relative maturity hybrid, which was reasonably fast maturing.

Mr Robertson said they hoped that this year's crop of 90ha would yield around 20t/ha.

***'The ultimate aim is to cut back to a maximum of 5kg in the bail to cut those costs and provide a more consistent ration all-year-round.'***

"It was so wet at Simpson that the crop went in late, so harvest will be late," he said. "Every year you learn something and hopefully you get better at it."

He said the 50-kilometre distance between Alvie and Simpson could add around $50/dry tonne for transport back to Simpson.

The bigger the yield the lower the cost per tonne.

"But if grain is $300 plus a tonne it was a worthwhile project," he said.

The cost of getting the maize silage grown and into the pit was around $180 to $200/t in the 2018/19 harvest (half from Alvie).

He said that if all the maize was grown at Simpson it was a cut-and-carry operation that would closer to $150 to $160 without the transport cost.

**Alex Robertson, who runs a 900-cow dairy operation in the western district with brother Rob, says the introduction of home-grown maize has given more control over feed costs as well higher test figures.**

**Maize silage in the ration helped lift the test percentage.**

The maize crop is a hybrid variety Pioneer P9911.

The introduction of maize had changed the feeding ration which was around 10 kilograms/cow/day made up of wheat, canola meal, minerals and lupins fed through the dairy.

Today the ration through the dairy was down to 7kg/cow/day without the protein component.

The balance of the ration comprised maize silage, grass silage and vetch as well canola meal. The ingredients were combined in a mixing wagon and fed on a pad after each milking.

"The ultimate aim is to cut back to a maximum of 5kg in the bail to cut those costs and provide a more consistent ration all-year-round," he said.

There had definitely been an increase in components and the cows seemed to be "happy" and put on weight.

"They seem to be more contented and they don't seem to feel the cold," he said.

Maize took out the ups and downs of production of components.

Mr Robertson said paddocks for maize were different for Alvie and Simpson. The Alvie property had a centre pivot irrigator where the maize was grown.

Initially, at Simpson they chose paddocks that could be reached by the irrigation pipes, but more recently they selected the worst paddocks for maize.

He said the harvested paddocks were spayed if necessary and irrigated with effluent before being sown to grass pastures.

Weed control was a major issue for maize production. He said they were trying to reduce the use of chemicals that were not good for the environment.

# Tips for computerised bail feeding

**Key points**

- ✔ Computerised bail feeding gives flexibility
- ✔ Can cut feed wastage
- ✔ Need to carefully manage system for it to be effective

COMPUTERISED bail-feeding technology gives farmers the flexibility to customise the amount and type of supplementary feed given to each cow.

This enables feeding to:

- prepare cows for drying-off (ramping down);
- manage cows in transition (lead feeding); and
- manage cows in early lactation (ramping up).

In 2018, 35 per cent of dairy farms in NSW had computerised bail-feeding technology. The farmers in the TechKISS project said that they benefited from this technology by reducing feed wastage (and cost of production) and allowing feed to be sourced and used more efficiently and cheaply.

The tips and traps shared for making this technology work best on farm included:

- Ensure cows are being matched with the right bail.
- Where electronic identification 9eID) readers are at the entry to the dairy, ensure cows can't back out or pass each other once they have been read.
- If there is a sensor on every bail, regularly check they recognise the cow EID.
- Put EID tags in the ear on the right so they can't be read by a sensor in the adjacent bail.
- Work with a nutritionist to ensure the feed tables are appropriate and up-to-date.
- Ensure feed is being correctly dispensed.
- Calibrate feed dispensers for every new load of feed.
- In herringbone dairies, check when feed starts and stops dispensing.
- In rotary dairies, check the position of the feed drop in relation to cups on.
- Visually check residual feed in bins.

## Electronic identification

EID enables the quick and accurate identification of animals. It is a necessary part of any technology used for individual cow management on dairy farms and makes customised management of cows possible in large herds. In 2018, 60pc of dairy farms in NSW had cow management technologies that used EID.

When EID is working well it should correctly identify 98 out of 100 cows that pass the reader.

Farms in the TechKISS project shared tips about making EID work on their farms. These included:

- Check for possible interference. For example at installation check that metal poles, fluorescent lights and electric fences are not causing electro-magnetic interference, ensure variable speed drives and motors have shielded cables, and place the antenna on wood if possible to reduce interference effects.
- Ensure that the antenna is protected from damage by cows, for example by using poly pipe (that does not block signal transmission) as a guard.
- Always put National Livestock Identification Scheme tags in the ear on the right. This helps keep the tags in the 'zone of detection' for readers.

Poly pipe protecting an EID reader in a rotary dairy.

***'In 2018, 35 per cent of dairy farms in NSW had computerised bail-feeding technology.'***

For computerised bail feeding, each cow must be identified as in its specific bail.

It also avoids the cross reading of tags from cows in adjacent feed bails.

See all their tips and traps in short videos and info sheets on the NSW Department of Primary Industries website (search for 'dairy technologies').

**Article courtesy of the TechKISS project, which was supported by the NSW Dairy Industry Fund. For more information, contact Pauline Brightling, email pauline@harrisparkgroup.com.au or phone 0418 336 211.**

# Additive reduces methane levels

**Key points**

- ✔ Supplement reduces methane production in cows
- ✔ Aim to make it available as a pellet
- ✔ Further research underway

By **Lucy Kinbacher**

A GLOBALLY tested feed additive is being labelled a "serious game-changer" in the plight of reducing livestock methane levels across the world.

Science-based company DSM have been developing Bovaer for more than 10 years, creating a powder product that suppresses the enzyme responsible for methane production.

The product, which is available for all livestock ruminants including cattle, sheep, goats and deer, is awaiting registration for use in Europe, with other global markets set to follow.

At least 35 on-farm trials have been conducted across global dairy and beef herds, including in Australia, to show that a quarter teaspoon of the feed additive per cow each day can reduce methane from cattle by 30 per cent.

Not only is the company in early discussions with a number of Australian organisations to further test the product, they are also completing ongoing final testing to create a pellet version intended for single or twice daily feeding.

DSM program director Mark van Nieuwland said the powder feed additive would be particularly suited for feedlots and more intensive dairy operations in Australia.

"With (the pellet) form all dairy operations in Australia could be reached, and an additional part of the beef market," he said.

During trials on New Zealand dairy cattle in late 2018, initial prototype testing found Bovaer reduced methane by more than 30pc for up to six hours. Mr Nieuwland said the methane level reduction rather than the duration of the product was the ultimate goal.

"Further forms and applications are under development so we can offer a broad variety of ways to farmers to reduce the enteric methane footprint," he said.

**At least 35 on-farm trials across global dairy and beef herds to show the feed additive can reduce methane by 30 per cent.**

**DSM program director Mark van Nieuwland says the methane additive would suit intensive dairy operations.**

"While we are working hard on bringing multiple forms and applications to the market, this will take time to complete (both development wise, as well as registration timelines). Initial forms would therefore be available for subsets of the market. But rest assured we are working hard to find solutions for all feeding practices."

Methane emissions are a hot topic in the current climate.

***'A quarter teaspoon of the feed additive per cow each day can reduce methane from cattle by 30 per cent.'***

Mr Nieuwland said their product could reduce the carbon footprint of farming without impacting milk or meat production.

"We believe consumers globally are increasingly asking for sustainably produced products," he said.

"Given the magnitude of Australia's agricultural exports, it will be important to provide farmers with the tools to be able to deliver on this shift in customer demand. Our feed additive is a highly effective tool to reduce methane emissions, which can be one component of a strategy for farm carbon neutrality and reducing the global warming of our planet, whilst at the same time improving food security and livelihoods of thousands of people globally."

# Silage Mycotoxins – The Hidden Risk

Dr Tim Jenkins, BIOMIN

Mycotoxins are often thought to be a grain issue but silage too is at risk. In fact with silage we need to take care of the mycotoxins that have formed in the crop in the field as well as the ones produced by moulds that can invade the silage.

Mycotoxins are produced by a wide range of fungi. Some of these fungi are plant diseases such as the Fusarium maize ear rots and cereal head blight fungi that are responsible for some of the main grain mycotoxins like deoxynivalenol (DON), zearalenone (ZEN) and fumonisins (FUM). Those same fungi are able infect more than just the grains, commonly producing mycotoxins in the stems and leaves of maize, small cereals and grasses. Other fungi within the plants such as wild endophytes in the shoots of some grass species, ergots in the seeds and Alternaria fungi on the forage also contribute to the field mycotoxin load. The mycotoxins produced in the field continue to pose a risk when a forage is made into silage. An additional risk comes from mould fungi that can grow on silage, producing some of the well-known mycotoxins like aflatoxin as well as a wide variety of other toxins. Good silage management such as correct dry matter content, fast packing, adequate compacting and timely airtight sealing is crucial to reducing the silage mould risk. A good silage inoculant, tidy silage face management and avoiding obviously mouldy parts of silage is also important to help avoid the risk. Despite good silage management, the risk of mycotoxins from the field, the ensiling and the feeding out can easily pass unnoticed. For countering diverse mycotoxins in the animal, a comprehensive approach is required. Mycofix® addresses this with three complimentary strategies of adsorption (effective on aflatoxins, ergot alkaloids, and some of the frequent silage mould mycotoxins), biotransformation (necessary for some of the most common mycotoxins that are not easily bound), and bioprotection to safeguard the vulnerable cells of the gut wall, liver and immune system.

## Testimonial

A dairy farm in Eastern Australia consisting of 350 cows recently used Mycofix® Plus to address the issue of mycotoxins in corn snaplage. The cows graze kikuyu through summer and rye grass through winter. In addition, cows were fed each day of soybean silage and cereal hay as well as corn silage and corn snaplage with an addition of canola meal in the dairy. Dry matter intake for the cows was approximately 16.5 kg per day.

By June there had been a performance drop across the herd. Non-pregnancy rates rose from 10% to 19% and peak milk yield was poor. Assessment of the corn used for the snaplage indicated visible white fusarium mould on many of the cobs and further analysis confirmed the presence of mycotoxins at dangerous levels. Due to a very dry winter it was necessary for the silage to be fed shortly after cutting and so a premix containing Mycofix® Plus was mixed with the silage on the feed pad and introduced a week prior to mating and around the peak yield of the autumn calving herd. The cows were fed approximately 16 g of Mycofix® Plus per day based on an average weight of 480 kg. Following the incorporation of Mycofix® Plus into the herd's diet, several improvements were noted. The non-pregnancy rate fell significantly from 19% to 12%. Milk yield also improved after the second week and continued to increase steadily. After eight weeks, the average yield had increased by 3.5 L per cow per day. Somatic cell counts (SCC) reduced and remained at an A grade premium after the introduction of Mycofix® Plus.

Biomin Acknowledge that this research was carried out by Dr Bruce Hamilton from Ruminant Nutrition Australia. For further enquiries on the report please contact **Dr Bruce Hamilton, Ruminant Nutrition Australia 0428 875 055**

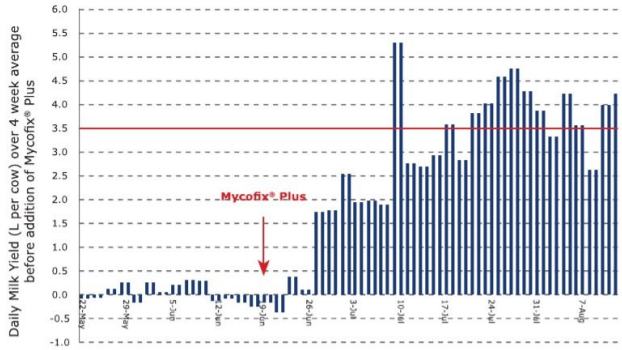



***Figure1.*** *Effects of Mycofix® Plus on milk production*

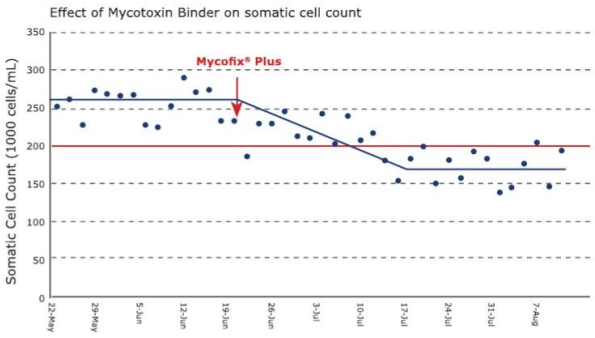



***Figure2.*** *Effects of Mycofix® Plus on Somatic Cell Count*

# Summer forage options trialled

**Key points**

- ✔ Trial looks at summer forage crop combination options
- ✔ Aim to cut feed costs and lift feed quality
- ✔ Several promising combinations discovered

THE Queensland-based C4Milk research and extension group funded by Dairy Australia and the Queensland Department of Agriculture and Fisheries delivered an industry field day focused on summer forage options and combinations in March.

C4Milk works closely with Queensland and NSW dairy farmers on implementing various management strategies aimed at reducing feed-related costs while optimising feed quality and quantity.

As an extension of the successful Winter Forage Combination trial in 2019, the summer combination trial also looked to improve the protein value of starch-based silages and to find improved sorghum varieties for silage to reduce producer reliance on purchased concentrates.

Some 45 plots were planted comprising of various summer legumes and legume/cereal combinations, forage sorghums and specific grain sorghum varieties selected as potential silage alternatives to white grain sorghum.

The trial plots were grown under both irrigated and dryland conditions to demonstrate relevant results across industry and varying seasonal conditions.

The day attracted more than 60 attendees and more than half of the farmers attending reported they learnt a lot regarding sorghum varieties and are now considering grain sorghum as an alternative option for silage.

Under irrigated conditions, the Graze-n-Sile forage sorghum and Ebony cowpea combination achieved the highest yield from a single harvest (17.8 tonnes dry matter/hectare) closely followed by white grain sorghum (Liberty)/Ebony cow pea (17t DM/ha) and the forage sorghum/lablab (16.9t DM/ha) combinations.

Although the white grain sorghum combination had a slightly lower yield, it showed improved quality and comparable cost of production, as outlined in Table 1.

**Table 1: Yield (t DM/ha) from first harvest, Crude Protein (CP; %), Starch % DM, Neutral Detergent Fibre (NDF; % DM) and cost $ (cents/ kg DM) of single harvest sorghum and combination irrigated crops.**

| Crop Varieties | Yield | CP | Starch | NDF | $ |
|---|---|---|---|---|---|
| Graze n Sile | 12.0 | 11.3 | 20 | 42 | 19.4 |
| Graze n Sile/ Ebony Cowpea | 17.8 | 10 | 22 | 44 | 16.3 |
| Graze n Sile/ Rongai Lablab | 16.9 | 12.5 | 19 | 40 | 16.9 |
| Liberty (White Grain Sorghum) | 14.4 | 10 | 24 | 45 | 16.5 |
| Pink sorghum- not released (grain) | 13.9 | 11 | 27 | 38 | - |
| Liberty/Ebony Cowpea | 17.0 | 11 | 25 | 39 | 16.2 |
| Liberty/Rongai Lablab | 13.1 | 13 | 18 | 42 | 19.3 |
| Sunbird7/Ebony/ Hayman/Liberty | 11.9 | 15 | 6 | 37 | 22.7 |

C4Milk Field Day attendees listening to discussion on grain sorghum varieties for silage.

Unfortunately, all cereal combinations containing soybeans and burgundy beans performed poorly (not reported) due to nutrient toxicity issues with the irrigation water, an outcome suggesting they are nutrient-sensitive.

Monocultures were also investigated under irrigated and dryland conditions, where numerous varieties of grain and forage sorghums were compared. Previous years of C4Milk research has found despite most red varieties containing higher overall starch concentrations, white sorghum has the highest amount of starch digested at 7 hours (20 gram/hour).

However, with high demand and variable seed production, C4Milk continues to investigate other red and pink varieties that may be just as digestible as the white varieties (results yet to be published).

Interestingly, the irrigated Liberty (white grain sorghum) out yielded the Graze-n-sile (forage sorghum) crop by 20 per cent with a second and possibly third cut still to be taken.

Further, a NuSeeds grain sorghum variety that has a pink grain was found to have significantly higher quality than Liberty and will be further investigated in relation to its digestibility factors.

A key message to farmers and industry from the irrigated results is that grain sorghum silage can be a cheaper alternative to corn silage with similar nutritive value and yields, particularly in times of reduced rainfall and irrigation supply.

Table 2: Yield (t DM/ha) from first harvest, Crude Protein (CP; %), Starch % DM, Neutral Detergent Fibre (NDF; % DM) and cost $ (cents/ kg DM) of single harvest sorghum and combination dryland crops.

| Crop Varieties | Yield | CP | Starch | NDF | $ |
|---|---|---|---|---|---|
| Megasweet | 6.1 | 14 | 3 | 47 | 21.6 |
| Megasweet/ Ebony Cowpea | 8.0 | 13 | 1.5 | 49 | 17.7 |
| Megasweet/ Rongai Lablab | 7.6 | 15 | 1.4 | 49 | 18.9 |
| Liberty (white grain sorghum) | 6.3 | 13 | 3 | 25 | 20.4 |
| Liberty/Ebony Cowpea | 7.5 | 13 | 6.2 | 47 | 18.5 |
| Liberty/Rongai Lablab | 6.4 | 14 | 2.9 | 47 | 21.2 |
| Sunbird7/Ebony/ Hayman/Liberty | 10.3 | 14.5 | 1.3 | 36 | 18.7 |

As expected, the dryland plots showed lower quality across all blocks, however, there were still some surprising findings. Table 2 outlines the yield and quality of some of the combinations, where many individual varieties showed higher yields.

Interestingly, the grain sorghum Liberty/cowpeas and the forage sorghum Megasweet/cowpeas combinations yielded 7.5-8t DM/ha, both achieving 2t DM more than the single crop of the grain or forage varieties.

The dryland combinations were also better suited to direct chopping for silage, showing higher dry matters ranging from 31.5pc to 37.3pc, than the irrigated combinations showing a lower range of 25.6pc to 35.2pc.

Table 1 and 2 also highlights the increased expense of dryland crops due to the lower yields – however reasonable yields and costs can still be achieved across multiple harvests.

Of the monoculture plots comparing grain sorghums, Pacific Seeds red grain sorghum, Sentinal, yielded well at 12.3t DM/ha with NuSeeds pink grain sorghum also yielding highly with 10.4t DM/ha from single cuts.

Not only can legume and cereal combinations as well as alternative or new monoculture varieties improve feed quality and yields reducing MOFC, there are other flow-on benefits. Homegrown legumes can be a low-cost addition of protein to all classes of stocks diets, as well as providing soil health benefits.

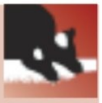
As feed-related costs remain the single largest expense for dairy farmers, C4Milk will continue to investigate and refine low cost, high-quality feeding strategies to help improve farm profitability and resilience. D

**Contact Mark Bauer, email mark.bauer@daf.qld.gov.au for any information or results from the trial.**

# Getting the most from a mixer wagon

**Key points**

- ✔ Correct operation of mixer wagon produces right ration
- ✔ Loading sequence important
- ✔ Run regular checks and services



IN any dairy operation, a lot of work goes into securing feed and formulating a ration that provides the right nutrition to the herd. A well-formulated, consistent diet is good for a cow's rumen health and intake, ultimately resulting in higher milk production.

There are several steps to get the ration from paper to the cows and one of those steps is mixing.

Operating a mixer wagon effectively ensures that the mix consumed by each cow matches the designed formula.

A good mix is well-processed, free of inconsistencies and looks the same at the start of the feeding line as it does at the end.

For the most part, getting the most from a mixer wagon is not an expensive exercise. With adjustments to processes, regular checks and servicing, and clear communication, the consistency of the ration can be improved.

A mixer wagon should mix in a lift and fall motion, with double-screws also moving contents in a figure-eight motion. Space and distribution are important to allow the mix to move freely without clogging up on the sides.

During a mix, the contents should sit at least 12-15 centimetres below the rails. Vertical mixers should be 75-95 per cent full, horizonal mixers around 70pc full, and four-auger wagons around 75pc.

The wagon should be sitting on a level surface and loaded between screws for an even distribution of feeds. Don't mix on the move, especially up hills.

The loading sequence will also impact a machine's ability to mix. This varies depending on the model, but the following general rules can be applied:

1. Start with long fibres such as squares or rounds of hay/straw. Breaking up bales or pre-processing these types of feeds improves mixability.
2. Then add any cottonseed or on-farm preblend.
3. Follow with drier ingredients and feed additives – add lower-inclusion ingredients early in the mix.
4. Follow with any wet by-products
5. Then haylage
6. Then silage, which is heavy and wet enough to move to the bottom.
7. Finish with liquids but be cautious of concentrating them in a single area. Consider adding liquids with a T-bar or at multiple points.

Consistency can be improved by using a standard mix time after the last ingredient has been added. Be mindful that mixers require more time as they wear out.

For the most effective mix, augers should be timed and running at the speed recommended by the manufacturer. Check the manual for details. Most imported machines are not calibrated so this may need to be adjusted on farm.

A consistent ration requires a consistent approach. All operators should be clear on:

- Mix sequence.
- Ingredient quantities (in measurable weights rather than "buckets" or "shovels").
- Mixing time after last ingredient.
- Feed-out times.

Run regular checks and services. Checking the machinery and feed on a regular basis is important to identify and address issues early.

The ration should look consistent from the start to the end of delivery. Generally, it should contain a balance of large particles (physical effective fibre), medium particles and smaller finely processed forage. At feed out, there should be no unprocessed feed, noticeable discolorations or impurities.

**Article courtesy of Murray Dairy**

**Table 1: Working out what's wrong with the mixer**

| What you can see | What this means |
|---|---|
| During the mix, the contents aren't fluid, are stuck on the sides, are not well mixed or seem to be weighed down in one spot | This could mean several things:<br>• over-filled or under-filled mix<br>• fodder or liquids unevenly distributed<br>• big bales need to be broken down<br>• augers not synced |
| "Front half" of the mix is different from the "back half" | This could mean several things:<br>• wagon on a lean<br>• ingredient mix sequence not right<br>• didn't mix for long enough after last ingredient<br>• mixer not able to mix properly (see above) |
| At the end of the mix, there is build-up on the screws | This could mean several things:<br>• kicker plate worn<br>• too much moisture<br>Also try giving it a good rev to fully empty |
| Blunt knives | • Knives need replacing. Change 1/4 of the knives at a time so the wagon isn't out of action for too long and there are no dramatic changes to the mix |
| At feed out, there is unprocessed feed, noticeable discolorations or impurities | • Ingredient mix sequence not right<br>• Didn't mix for long enough after last ingredient<br>• Mixer not able to mix properly (see above) |

***'At feed out, there should be no unprocessed feed, noticeable discolorations or impurities'***

# A guide to garden-variety face lumps

By **Ee Cheng Ooi***

**Key points**

- ✔ Face lumps can have range of causes
- ✔ Some can be treated easily
- ✔ Others indicate more serious problems.

**A facial lump with an ulcerated appearance.**

LOOKING back over my last few articles, I think it's time to dig back into the day-to-day cases that make up the bread and butter of clinical practice. So, what are people seeing in their animals, and why does it happen?

I've always enjoyed getting calls for lumps. When it comes to a choice between a call for 'sudden death in 14 cows' or 'lump on head', the lump always wins for a generally stress-free visit where you can provide a satisfying solution.

These calls generally go the same way if the patient is well. You get the cow into the crush, tie her head securely, and examine the offending lump. You might poke it gingerly with a finger to try and see what it feels like. There may or may not be an offensive smell.

But ultimately, what you're going to do is grab a very big needle and stick it right into the centre of the lump. There's no point in being shy about it. I usually spray the spot I intend to stick with iodine, shave the hair away and give it a bit of a clean-up first; we're university-trained professionals after all, as I'd often tell myself covered in rotten membranes and crap – sorry, faeces.

Most of the time you get pus. Sometimes it's thick white chunky pus you need to suction out with a syringe. Sometimes it's liquid and creamy, like a caramel crème egg. There might even be a strawberry tinge to it. Whatever the consistency, you'll know from the smell that it's an abscess.

But what happens if you don't get pus?

On the odd occasion, you find a clear slightly stringy liquid. Cool! These lumps are known as sialocoeles and they're a bit rarer than your garden variety abscess. They happen when the salivary gland or ducts are blocked or damaged, causing the saliva to back up. I've rummaged around the mouths of these cases attempting to find grass seeds lodged in duct openings, but I can't say convincingly that I've ever found anything. My treatment preference is to wait and see – draining them like abscesses exposes the cow to infection, and often doesn't treat the underlying problem. Patients generally don't seem too bothered, in any case.

What happens if you get blood from the lump? It's probably a hematoma – the cow has bashed herself against something, damaged the blood vessels in that area, and there's now blood pooling inside. Poor girl! Time is also the best medicine for these varieties, although maybe ketoprofen wouldn't be amiss.

A much more unpleasant finding is maybe a bit of blood, but also a feeling of thick fibrous tissue or crunchiness when you stick the needle in. Your heart generally sinks a little. I check to see if there's distortion of the surrounding bones or facial structure, because I'm thinking cancer. Has she had a third eyelid removed on the same side as the lump? It's hard to give a good prognosis for this type of patient, especially if it's getting bigger quickly. These may also have an unhappy ulcerated appearance (see photo).

Another possibility from a crunchy lump might be lumpy jaw – a very invasive bacterial infection that eats into bone. Sodide is the treatment but generally, by the time I'd see these, they were usually advanced and unlikely to go well.

Finally, what happens if you get a clear or slightly yellowish watery liquid? This type of soft swelling is oedema or 'bottle jaw', an accumulation of fluid in the tissues. These are usually caused by systemic problems like heart failure, liver fluke or – touch wood – Johne's disease. Something like this often requires a bit of extra diagnostic work, looking for additional problems like heart murmurs, low blood protein or scouring.

These are the more common varieties although I have seen a few odd cases, like one cow who was storing several kilograms of silage in one cheek like a chipmunk, and a few animals with dangly benign growths. They're certainly not all abscesses and can't be treated in the same way. If in doubt, I'd recommend calling your local vet out, or at least checking the lump with a clean needle before draining it. If the cow is unwell this is doubly true, as there are a few secret killers disguised as innocent lumps. D

*Ee Cheng Ooi is a cattle veterinarian undertaking a PhD at Agribio in dairy fertility and genetics. *All comments and information discussed in this article are intended to be of a general nature only. Please consult the farm's vet for herd health advice, protocols and/or treatments that are tailored to a herd's particular needs.*

DataGene
Solutions for Herd Development

# Data driven growth in Gippsland

**Key points**

- ✔ Herd recording data basis for decision making
- ✔ Guides culling and breeding
- ✔ Allows selective dry-cow treatment

TOM Kent is sure of a few things when it comes to dairy farming. The 24-year-old wants to milk more cows, but he does not want to milk "bad cows".

The second is the importance of data in making informed management decisions. For Tom, the two are intrinsically linked thanks to herd recording.

"It gives me something to target because I can actually see what I did last year," he said of herd recording.

"I think as far as culling and joining goes, it takes the guesswork out of it.

"We know who our best cows are. Some of those will get joined to sexed semen. Then we know which ones our bad cows are and understanding this ensures we don't keep heifers from the bottom portion of the herd."

Tom manages his family's 340-cow split-calving herd at Lang Lang East in Gippsland, Victoria.

He returned to the farm two years ago, after working as a diesel mechanic, and instigated herd recording, something his parents Stephen and Anne stopped 20 years earlier.

At the time, the cost of herd recording every second month – during a tight year – was difficult to justify.

"It took me a while to come around to it, but I'd read a few articles which stated when times were tough and you keep herd testing it is going to save you money," he said.

"I think I get that now, because every time I sell a cow, I sell the right cow. Every time I sell five chopper cows, I know they are the worst five cows, so the herd gets better every time I sell some and that's a good feeling too."

In a poor season, this makes even more financial sense, according to Tom.

"If you have to buy in feed, for example, you are going to get an economic response if you have good cows to utilise that feed," he said.

The Kents' herd – and its meticulous records – is part of DataGene's Ginfo project, the industry's national reference database of genomic information.

**Tom Kent says herd testing takes the guesswork out of decisions about mastitis treatment, culling and joining.**

For Tom, genomic (DNA) testing would provide a deeper herd dataset and a way to determine an animal's expected performance before it even enters the milking herd.

Herd recording not only plays a vital role in culling and joining selections, Tom also uses it at dry-off to selectively treat cows.

Any cow with a somatic cell count of less than 150,000 cells per millilitre at the herd recording three-to-four weeks before drying-off doesn't receive dry-cow treatment. Those with a SCC more than 150,000 cells/ml receive a dry-cow treatment.

This practice not only saves money, it has also limited antibiotic use.

The Kents' average SCC sits at about 180,000 cells/ml.

At joining, this herd-recording data also helps Tom select the top 10 per cent of the herd to breed to sexed semen. The bottom 10pc is joined to Angus semen.

Those joined to beef include carry-over cows or those with a low production index.

Herd recording has also been used to track whole-farm progress as the performance per hectare and per day gets recorded and compared with previous years.

Tom wants to grow the business to 500 cows and become a sharefarmer.

***'Every time you get another heifer in the shed it feels like another step forward.'***

Increasing cow numbers without decreasing quality will be central to achieving this goal.

He's aiming to breed a "strong" 500-kilogram Holstein with good fertility and milk solids production.

Tom uses the DataGene Good Bulls App to select sires as he said it provided a level playing field to compare local and international bulls.

The Kents' current average herd production is 475kg of milk solids from a diet including pasture plus 1 tonne/cow of pasture silage, 1.3t/cow of grain and 250-300kg/cow of summer crops – either turnips or rape.

Tom wants to lift milk solids production to a minimum of body weight. Ideally up to 120 per cent with good fertility, he said.

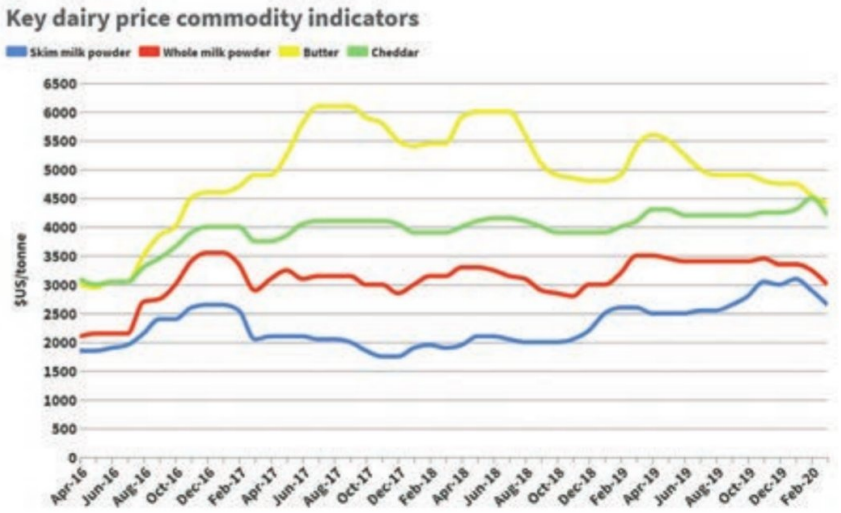
"I find it really exciting where it is all going," he said of herd improvement. "Every time a heifer comes in from a bull I chose last year, I know it's an elite bull and it is probably a good cow, it is exciting times. Every time you get another heifer in the shed it feels like another step forward." D

# COVID-19 muddies rosy outlook

By **Sofia Omstedt**
**Senior analyst**
**Dairy Australia**

**Key points**

- ✔ National milk production starts to recover, as weather conditions improve
- ✔ COVID-19 outbreak disrupts supply chains, puts pressure on dairy markets
- ✔ Dairy retail demand surges in Australia, as consumers stock-up pantries and fridges




WITH significantly improved weather conditions and a partial recovery in milk production, some things were looking up for the dairy industry heading into autumn. Recent rain across most regions dampened fodder costs and, combined with the strong farmgate milk price, saw milk production increase, year-on-year, for the third month in a row in February.

As domestic conditions grew increasingly favourable, the global outbreak of the coronavirus (COVID-19) threw a spanner in the works. Disruptions to supply chains and changes in global supply and demand fundamentals are impacting global markets, with flow-on effects for the Australian dairy industry. While it is yet too early to assess the full impact the spread of COVID-19 will have on dairy markets; some are already starting to emerge.

COVID-19 was declared a global pandemic at the start of March, and since then, dairy markets have come under pressure. Restrictions implemented, to curb the spread of the virus, have disrupted supply chains, and the economic slowdown has impacted demand for dairy.

The initial drop in Chinese demand for dairy imports saw commodity prices decrease. While Chinese buyers are back in the market, demand is lower than before the outbreak, due to an increase in powder production and a deterioration in the economic outlook.

As the pandemic spreads across the globe, continents are affected at various times, which impacts global demand for dairy commodities differently. Lower world oil price has, for example, seen demand for dairy ease in MENA (Middle East and North Africa).

In comparison, the drop in passenger planes available in south-east Asia, has limited fresh export opportunities to the region. As national and per-capita incomes decrease in many countries, demand for premium-priced dairy products is likely to remain affected.

While the virus continues to drive market sentiment lower, milk supply growth is equally weighing on global markets. The northern hemisphere is currently in the midst of its spring production peak, at a time where COVID-19 has caused widespread and particularly severe disruption to the foodservice channel.

This has led to a drop in overall demand for dairy and seen milk dumping take place in some parts of the United States and the European Union. Consequently, this has led to increased pressure to reintroduce or implement various forms of government intervention. This could include commodity price support programs, such as the EU intervention stock of skim milk powder or subsidised production limitation schemes.

While the former would most likely weigh on global markets, any reduction to overall supply of dairy would support commodity prices.

In Australia, the situation is quite different as the end of the peak production season is fast approaching. With a smaller national milk pool, the risk of factories being full (as is the case in the US) is low and thus milk dumping is unlikely.

Additionally, in Australia the retail sector tends to account for a larger share of national dairy consumption, compared with foodservice. This resulted in a temporary increase in dairy sales, as consumers stocked up pantries and fridges.

Whilst the large increase in sales through retail has counteracted the decrease in sales through foodservice, many smaller, speciality dairy companies are reporting a significant drop in sales.

Australia is not immune to the growing headwinds facing global commodity prices. The escalating economic fallout of the crisis is likely to have reverberations and reduce consumers' purchasing power in key markets.

On a brighter note, relatively strong domestic demand for dairy and a weak AUD will provide some insulation from international pressures, whilst further weather improvements remain a welcoming sign.

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