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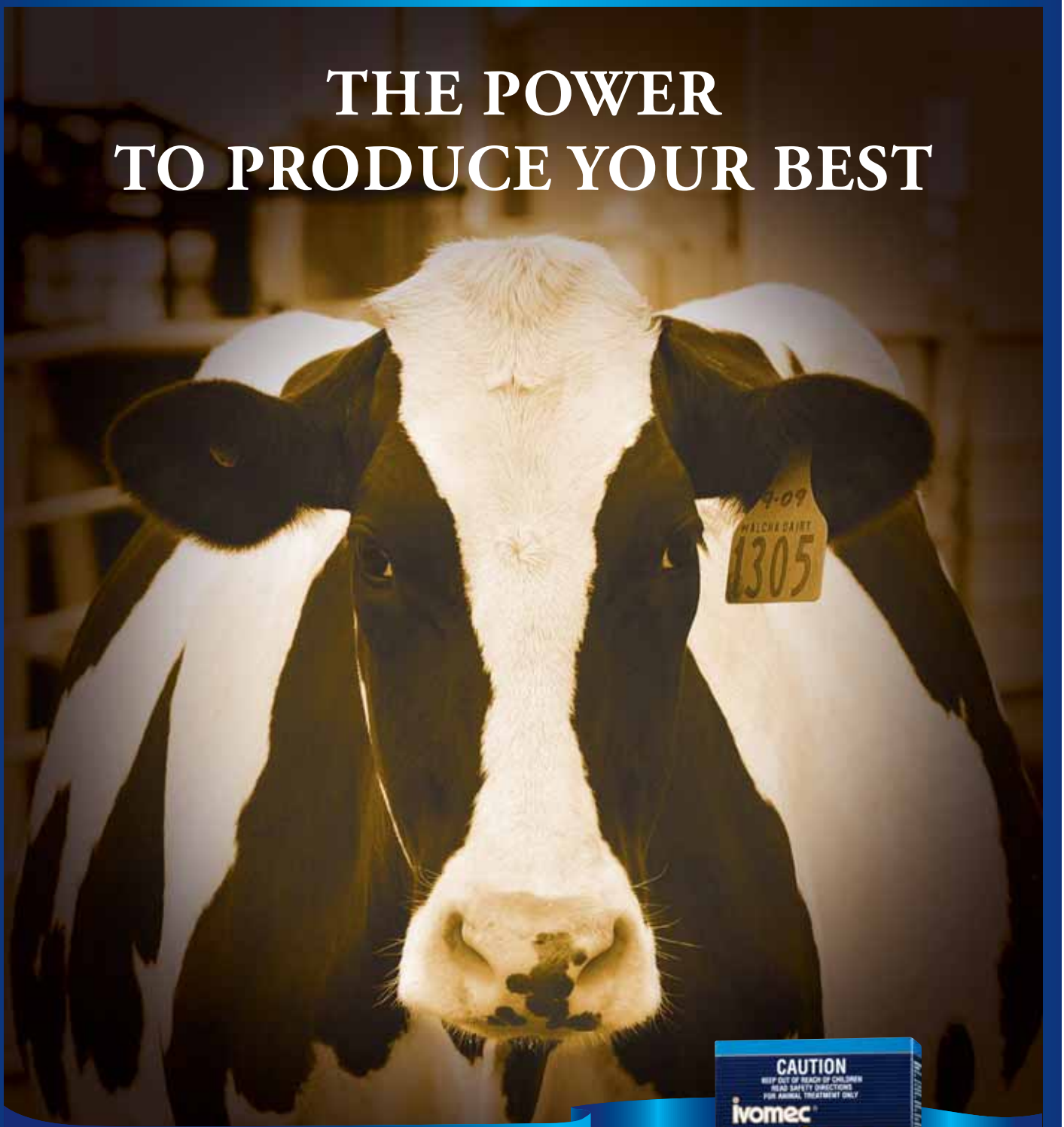

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The Australian Dairyfarmer

Vol 29, No. 4 July-August 2014

OUR COVER

Bonnie and Casey Taylor with their son Banjo. The couple said a computerised dairy had allowed the family to expand its dairy herd without additional labour. See story page 60.

NEWS

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Why the family business matters

MOST Australian dairy farms are family farms. The recent Productivity Commission into the *Relative Costs of Doing Business in Australia: Dairy Product Manufacturing* said nearly 80% of dairy farms in Australia were owner operated while only 3% of farms followed a corporate farm model.

Interestingly the report at times seemed to infer that this meant these farms were not a business in the same economic way that the dairy processors and manufacturers that the report was looking into were businesses.

In particular, the report focused on the raw milk price simply as a cost to the processors and manufacturers and not as income for the farms. This meant that although it identified a shortage of raw milk as one of the issues facing processors, it failed to identify that the milk price paid to those family dairy farm businesses was one of the reasons for the shortage.

This also meant it failed to make the connection between the lower prices paid by consumers for the final product (particularly supermarket discounted milk) and the ability of dairy processors to pay a higher price to farmers and therefore encourage increased milk production, which could make the processors and manufacturers more competitive.

Most bizarrely it claimed that increased consumption of fresh drinking milk (in response to lower retail prices) could lead to increased demand for raw milk, which would be likely to cause farmgate prices to rise.

But it then didn't explain what the higher input price would do to the manufacturer of that milk if the supermarket did not pay anymore for it.

But it was the inference that a family business (and even a farmer-owned business like a co-operative) was somehow less of a business than a corporate-owned one that rankled.

A leading Australian farm consultant David Sackett recently challenged that assumption when he labelled corporate agriculture as "hopeless".

Mr Sackett said Australian agriculture was a low-margin, long-term business, and corporate investors should be looking to copy the management practices used by Australia's best family farmers to produce profits.

He said corporate agriculture would never take over from family farming in Australia but it would make a more profitable and productive contribution if it adopted some of the key features of Australia's top family farms, including their "lean and mean" attitude to spending, their long-term view of agriculture and their flat and responsive management style.

But the Productivity Commission's attitude also reveals why it is vital for dairyfarmers to lift their business performance.

It is not just that this makes it much easier for the farming family — more money can mean more opportunities for things like family holidays and renovations and a planned business approach can be significantly less stressful — but it impacts on the perception of those farms by others.

If family farms don't appear to have a handle on their finances, if they can't put together a good business plan to back an investment or if they can't explain how their business can generate a profit, it can be difficult when dealing with corporations (like banks and processors) and governments.

I think this aspect is improving in the dairy sector. And it is great to see some of the initiatives being undertaken by organisations such as Dairy Australia and the state departments of agriculture to help farmers improve skills in this area.

Take a look at the farm business management feature in this issue for some ideas and examples of family business thinking — hopefully they provide some inspiration to lift performance in this area.

Associate editor

Carlene Dowie

Follow me on Twitter @DowieDairyEd

The Australian Dairyfarmer

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EDITORIAL

Editor: ALASTAIR DOWIE
Associate editor: CARLENE DOWIE
PO Box 59, Carisbrook, Vic, 3464
Email: <carlene.dowie@fairfaxmedia.com.au>
Phone/fax: (03) 5464 1542
Mobile: 0418 553 282

ADVERTISING

Advertising manager: PETER ROACH
GPO Box 257, Melbourne, Vic, 3001
Email: <peter.roach@fairfaxmedia.com.au>
Telephone: (03) 8667 1127
Fax: (03) 8667 1141
Mobile: 0417 371 364

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ADF Reception
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Fax: (03) 8621 4280
Email: <adfreception@australiandairyfarmers.com.au>

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MILK MATTERS

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Australian Dairy Farmers

ACCC takes on Coles

AUSTRALIAN Dairy Farmers (ADF) has welcomed the news of the Australian Competition and Consumer Commission's pending Federal Court action against Coles.

The ACCC announced in April that it would take Federal Court action against Coles for alleged unconscionable conduct towards 200 of its smaller suppliers.

The commission will allege that Coles's alleged behaviour towards suppliers included providing misleading information and taking advantage of its superior bargaining position.

The ACCC's decision to take this case to court is an important vindication of the concerns raised by the dairy industry about the excessive market power of the major retailers and the ways in which they have exercised this power.

ADF looks forward to the outcome of the court case given its strong advocacy to the ACCC on behalf of the industry since the introduction of $1 per litre milk in 2011.

ADF said then, as they do now, milk priced at $1 per litre is unsustainable and does not give a fair return to dairyfarmers and others in the supply chain.

ADF will continue to strongly lobby the Federal Government and advocate for a Mandatory Code of Conduct, including a Supermarket Ombudsman 'with teeth' to balance the extreme market power of the major retailers.

'Our Coles Brand Milk Story' — Unfair and Unsubstantiated

In another positive outcome for the industry, the ACCC has found the *Our Coles Brand Milk Story* video and cartoon is likely to have contravened Section 18 of the Australian Competition Law.

Section 18 prohibits misleading or deceptive conduct, with Coles admitting it is likely to have contravened this part of the act.

The ACCC's investigation followed complaints by ADF and the Queensland Dairyfarmers' Organisation (QDO) about *Our Coles Brand Milk Story*.

The video and cartoon, which was published on social media, sought to show that farmgate prices had increased for dairyfarmers when in reality they had decreased.

Coles also claimed that its own margins decreased on Coles-brand milk — something that the ACCC said could not be proven.

The ACCC found that Coles had, in the video and cartoon, represented the farmgate milk price increasing from 86 cents per two litre bottle of Coles-branded milk in 2010-11 to about 90 cents in 2011-12,

ADF goes west with WAFarmers

AUSTRALIAN Dairy Farmers (ADF) hit the road with the WAFarmers Dairy Section in April as part of WAFarmers' Dairy Members Day.

This initiative, being the first of its kind for Western Australia (WA), aims to educate and raise awareness of WAFarmers' advocacy efforts and promote the farming organisation as WA's peak advocacy body for dairy.

Dairy section president Phil Depiazzi, vice-president Michael Partridge and executive officer Stephanie Tarlinton hosted a series of dinners and lunches across WA's South West as part of the Dairy Members Day initiative in early April.

ADF senior policy manager Irene Clarke and policy officer Rachel Jones attended the meetings held at Albany, Cowaramup and Harvey, which were funded through the ADF Project Fund.

The WA dairy industry has faced some significant challenges in recent times, not the least of which was the introduction of $1-a-litre milk.

Mr Depiazzi spoke about advocacy work the dairy section was undertaking on behalf of WA dairyfarmers (including the retail milk price and policy development at both a State and national level) through the organisation's membership of ADF.

WAFarmers dairy section executive officer Stephanie Tarlinton, ADF policy managers Irene Clarke and Rachel Jones, and WAFarmers dairy section president Phil Depiazzi as part of the Dairy Members Day initiative in early April.

Ms Clarke and Ms Jones spoke about opportunities for farmers to get involved with ADF's policy development process through membership of its policy advisory groups.

In particular, WAFarmers members were interested in ADF's Federal Government advocacy on issues including $1/litre milk and ADF's lobbying efforts towards implementing a mandatory Code of Conduct and an ombudsman to balance the extreme market power of the major retailers.

Dairyfarmers at the Cowaramup lunch also heard from WorkSafe WA regional and primary industries inspector Elaine Hill, who spoke about employers' legal obligations to maintain a safe work environment and ensure all employees were trained according to best-practice occupational health and safety standards.

The Dairy Members Day initiative has been well-received by farmers across WA so far.

Further Dairy Members Days will take place throughout 2014 and in the next three years, with dairy council members aiming to visit every single dairy farm in WA in this time.

For more information on the benefits of ADF membership, visit the ADF website <www.australiandairyfarmers.com.au>.

when in fact this was an estimate with the final industry figures showing the 2011-12 farmgate milk price actually decreasing to 84 cents.

The ACCC's ruling is an indictment of Coles and its key claim that it had absorbed the cost of $1 per litre milk.

Pleasingly, the ACCC has recognised this and compelled Coles to take action, including via social media, to correct the record and to avoid making misleading or deceptive claims around the retail price of milk in future.

As Coles stated in its *Corrective Notice on our Milk Story — Coles video* on YouTube: "We made representations about facts that were actually only estimates or opinions".

Federal Budget 2014-15 delivers mixed results for dairy

The 2014-2015 Federal Budget, has delivered on some key election commitments for the agriculture sector, including dairy, amid numerous other cutbacks.

Among key agriculture-related election commitments the Government has honoured in the budget are:

- $100 million of additional funding across four years for Rural Research and Development Corporations (RDCs), targeted to projects that enhance agricultural profitability;
- A recommitment to the Roads to Recovery and Black Spot road infrastructure programs;
- $15 million across four years to support small exporters in sectors where there are specific export certification registration changes;
- $20 million funding across four years to strengthen Australia's biosecurity and quarantine arrangements by providing additional resources to address pest and disease incursions — a key industry priority ADF had called for; and
- $8 million funding across four years to improve access by farmers for minor use agricultural and veterinary chemicals.

Additionally, the Federal Government has formalised its commitment to implement the Murray Darling Basin Plan by investing in water savings and capping Commonwealth water buybacks — another key ADF policy priority.

However, no budget is ever perfect and on the debit side of the ledger, ADF was disappointed to see major cuts to Landcare and an end to the freeze on the fuel excise.

Landcare is a flagship environmental initiative that has delivered enormous improvements to the natural environment, including on numerous dairy farms across Australia.

It is ADF's hope that that this funding can be fully restored and built upon in future Federal budgets.

While the decision to end the freeze on fuel excise is good news for the government's coffers, it will only add to costs for dairyfarmers who often travel substantial distances on and off-farm in running their business.

Unlike a number of other sectors, ADF acknowledges that agriculture, including dairy, has emerged largely unscathed from the budget.

The challenge now for government, as well as industry, is to build on this by delivering on important industry priorities including a China Free Trade Agreement (FTA) and Mandatory Code of Conduct among other initiatives.

We look forward to keeping readers informed on progress on these and other important policy priorities in future.

Celebrating Legendairy women

WOMEN'S contribution to the dairy industry was cause for celebration at the recent Australian Dairy Industry Council (ADIC) Legendairy Women's Breakfast.

The event shone a spotlight on the many talented, passionate and dedicated women working across the industry, from the farmgate to the processing plant and beyond.

ADF CEO Natalie Collard, Carman's Fine Foods managing director Carolyn Creswell and ADIC president Noel Campbell.

Australian Dairy Farmers (ADF) chief executive officer and 2013 Telstra Victorian Business Woman of the Year Award recipient, Natalie Collard, said Australian dairy would not be the $13 billion farm, manufacturing and export success story it was today without the contribution of women over the course of its history.

"Women make up over a third of the 43,000 Australians who are directly employed in the industry, with 62% of all women working on dairy farms (being) owner-managers, 25% employees and a further 13% contributing family workers," she said.

"When we also consider how influential women are in shaping household budgets and associated purchasing decisions, their significance to the industry from the farmgate to supermarket shelf is all too clear."

Keynote speaker and Carman's Fine Foods founder and managing director Carolyn Creswell spoke about Carman's business development from its humble beginnings to its arrival as a multi-national company.

Ms Creswell also spoke on the importance of achieving work-life balance and the challenges involved in raising a family alongside owning and running a business.

A panel featuring ADF director and the first female recipient of ADIC's Outstanding Service Award (OSA) in 2010, Dr Anne Astin; United Dairyfarmers of Victoria (UDV) vice-president and dairyfarmer Roma Britnell; and ADF policy adviser Rachel Jones discussed women's involvement in the industry and how they could support each other.

Dr Astin, who is also president of the Australian Institute of Food Science and Technology, described women's involvement in dairy as an important chapter in the story of Australian agriculture.

"Whether it's on-farm, in the factory or in the complex world of agri-politics, women continue to play a leading — if sometimes unheralded role — within the industry," Dr Astin said.

Ms Britnell spoke about the importance of women within the industry offering mutual support and advice to one another.

"Too often women don't capitalise on their abilities when they are actually doing an enormous amount. We need to be able to better support one another," she said.

Through events such as the breakfast, ADIC hopes to inspire the next generation of young dairyfarmers, processors and industry representatives to help deliver Australia's world-class dairy to consumers in more than 100 countries across the globe.

For more information and to view the 'Celebrating Legendairy Women' video, visit the ADF website <www.australiandairyfarmers.com.au>.

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Investment prospects rise

IMPROVEMENT in the farmgate milk price underscored by strong overseas demand, a drop in the Australian dollar and more favourable seasonal conditions are factors behind a big boost in dairyfarmer confidence in six of the nation's eight dairy regions, according to analysis undertaken by Dairy Australia (DA) as part of the 2014 *Situation and Outlook Update Report*, released in late May.

"The National Dairy Farmer Survey shows that 75% of dairyfarmers are positive about the future of the dairy industry compared with 43% this time last year," DA managing director Ian Halliday said.

"Better farmgate milk prices in export-oriented regions and resurgent business profitability are driving this change, with 79% of farmers nationally saying they will make a profit in 2013-14 compared to 57% in 2012-13. Moreover, 58% of dairyfarmers say their profits should be higher than the average for the past five years, which is excellent news.

"The number of farmers who also say they will invest on-farm this year has increased notably, with 62% feeling confident to do so compared to 42% last year with this sentiment particularly strong in the Murray Dairy and Gippsland Dairy regions."

While the national picture is positive, Subtropical Dairy (SD) and Western Dairy report much smaller improvements. Indeed, sentiment in SD remains very low (33%) as the region copes with the aftermath of severe climatic challenges and the flow-on effects of low supermarket milk prices and high input costs.

Commercial and research analysis manager at DA Norman Repacholi said: "The domestic-focused northern regions have not seen the same farmgate benefits of high international commodity prices brought about by the Asian dairy boom."

Smart energy assessments

PAT McDonald and his daughter Jennifer milk 150 Jersey cows all year round off a 50-hectare platform situated on the fertile river flats country between the Tweed and Rous rivers at Tygalgah near Murwillumbah in northern New South Wales. Even at the age of 80, Mr McDonald is always looking at new ways to improve his practices to increase efficiency and productivity.

Through DA's national project 'Extending the message of smarter energy use on Australian dairy farms', Mr McDonald received an on-farm energy-use assessment, which took place via a Skype video call on a tablet computer. The assessment took about two-and-a-half hours, with Mr McDonald showing assessor Chris Harding all the pieces of machinery required to gather the data to complete the assessment.

Pat McDonald uses the Skype application for his on-farm energy assessment.

"It was like being on the phone but with the assessor seeing what I am looking at," he said. "I think many farmers can do the assessment this way — and that's coming from someone my age."

If the recommended changes are implemented, dairyfarmers such as Mr McDonald can save thousands of dollars a year in energy costs. Mr McDonald's Skype assessment was carried out under the guidance of DA natural resource management coordinator Steve Lacey.

Farmers interested in having an energy assessment conducted can contact their local Regional Development Program.

Dairy Farmer of Year Award

ENTRIES have flowed in for the 2014 Dairy Farmer of the Year Award, sponsored by Dairy Australia and the industry's Legendairy platform as part of the prestigious annual Australian Farmer of the Year Awards.

As one of 11 categories at the event, the Dairy Farmer of the Year Award recognises producers who demonstrate a highly professional, innovative and sustainable approach in the management of their dairy enterprise.

Judging will take into account all aspects of operating a dairy business, including animal health and nutrition practices, breeding, milking and engaging with the industry beyond the farmgate.

The winner will qualify for the overall title of 2014 Australian Farmer of the Year.

For more information visit <www.farmeroftheyear.com.au> to find out how to attend the awards ceremony to be held in Melbourne on September 10.

Farmer health pilot

TWELVE Queensland dairyfarmers and their partners will soon take part in the Sustainable Farm Families (SFF) pilot, an educational program to provide practical health and wellbeing advice.

Originally developed by the National Centre for Farmer Health, the dairy-focused pilot SFF is being funded by DA. The two-day pilot program in August will be delivered by local registered nurses with experience in rural health issues. Topics cover health checks, diet and nutrition tips, exercise, men's and women's health, farm safety and stress management.

"SFF is an important initiative to help farmers improve their health, wellbeing and overall lifestyle as well as connect them to peers and support networks in their local community," policy partnerships and engagement manager at DA Melissa Cameron said.

"The Subtropical Dairy pilot will also help us identify what features really work and can potentially be delivered in other dairy regions around the country."

Legendairy Champions

FARMERS keen to develop the communications skills they need to be great spokespeople for the industry now have the opportunity to do so through the free Developing Legendairy Champions online workshop.

The program, run through GOTAFE in partnership with DA's National Centre for Dairy Education Australia (NCDEA), helps farmers learn more about talking to the media and general public, navigating difficult conversations, making a positive first impression and presenting a positive story about the Australian dairy industry.

It's hard to find time to leave the farm, so Developing Legendairy Champions is broken into four easy-to-use online sessions that farmers can complete at home — whenever it suits.

Participants receive a nationally recognised accreditation unit by successfully completing the course. Fifteen dairyfarmers started a pilot of the program in June.

For more information and to register for the next round of enrolments, visit <legendairy.com.au>.

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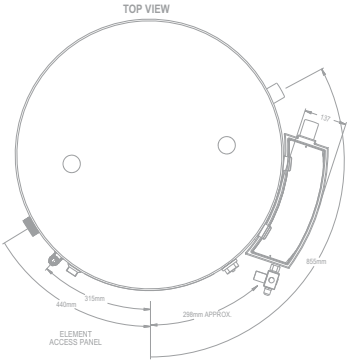

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Opening milk prices up

By CARLENE DOWIE

OPENING milk prices across Australia are up on last season. Most companies announced higher opening prices, but forecast closing prices were lower than 2013-14 closing prices.

In market milk states, such as Queensland, New South Wales and Western Australia, companies announced new higher-priced contracts.

The past few months have seen a flurry of activity around the processing sector, with several companies announcing new pricing models or supply arrangements and several announcing new market opportunities.

Murray Goulburn

Australia's largest processor Murray Goulburn (MG) announced an opening milk price of $6 a kilogram milk solids (weighted-average available) for its southern milk pool, a 7% increase on the previous year's opening price. Its end-of-season forecast is $6.15-$6.30/kg MS.

MG's 2013-14 season weighted average price was at $6.81/kg MS after a step up at the beginning of June.

Tasmanian Dairy Products (TDP), of which MG now owns 76%, announced identical opening prices and closing price forecasts to MG.

"Devondale Murray Goulburn's opening price reflects the ongoing positive impacts of our strategy focused on operational excellence and innovation," MG managing director Gary Helou said.

Mr Helou said demand for dairy foods remained relatively strong in key markets in Asia and the Middle East.

"Strong demand in the world dairy ingredients market led to high prices during the year, but these prices have now softened due to increased milk supply from New Zealand, US and Europe.

Gary Helou: demand for dairy in key markets remains strong.

"Despite this softening we have been able to deliver the highest opening milk price on record and one of the highest year-end forecasts on record.

"This is due to our balanced portfolio of ingredients and retail products and our hard work towards improving business performance and growth."

MG also announced a higher price for its NSW-Sydney Milk Region, which supplies the domestic liquid milk market. It announced an average opening price of 54.2 cents/litre based on the NSW reference composition of 4% butterfat and 3.2% protein, a 3c/L or 6% rise on last year.

MG said the NSW-Sydney market regions and the liquid milk market of south-east Queensland remain under-supplied, with milk being transported from the southern region to maintain supply. This was unlikely to abate in the near future allowing the NSW-Sydney market zone price to remain firm.

Fonterra

Fonterra announced an opening price of $5.80/kg MS for its Victorian and Tasmanian suppliers and forecast a closing price range of $6.10 to $6.30/kg MS.

Fonterra managing director Judith Swales said its announcement continued the company's price leadership from the 2013-14 season into the next.

She said market factors would continue to influence prices through the 2014-15 season. The global environment remained volatile.

"We have recently seen global commodity prices decrease due to increased global production and our currency has appreciated," she said. "But, demand from key importing countries remains strong."

Fonterra Australia announced its sixth step-up for the 2013-14 season in May, taking the average farmgate milk price to $6.80/kgMS.

Earlier in the year it also announced an overhaul of its entire pricing structure. It is a decision the company's national milk supply manager Matt Watt said would remove the risk and complexity in selecting a system.

He said the old system amplified risk, particularly when there was a poor autumn and farmers had committed to chasing incentives at that time of year, but failed to achieve that target.

The new system, which came into effect on July 1, encompasses a two-year transition period to allow sufficient time for farmers to adjust.

It was developed in partnership with Bonlac Supply Company, with the collaboration of industry consultant John Mulvany, the United Dairy Farmers of Victoria and international pricing experts.

The main change will include a simplified base price, which will see multiple seasonal tables rolled into one table for all suppliers on a five/seven, peak/off-peak split.

The seasonal ratio payment (SRP) will be removed completely and reinvested into off-peak pricing to slash the risk for farmers while keeping a price signal for the value of off-peak customers. The growth incentive will also be replaced and reinvested into the base price. Farmers looking to expand will be rewarded through other avenues outside the pricing structure. ▶

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◂Warrnambool Cheese & Butter

Warrnambool Cheese and Butter announced an opening price for the 2014-15 season of $5.86 per kilogram milk solids.

WCB chief executive David Lord said its opening price was equal to WCB's highest opening milk price. "As always we take a cautious approach in this process to ensure that our opening price reflects the most current market outlook and our best assessment of market conditions for the coming year," Mr Lord told suppliers.

"It is important that we have confidence that our opening price is deliverable should market conditions deteriorate with room to move upwards as and when expected trading conditions become more certain."

He said average closing prices in the 2014-15 season could exceed $6.20kg/MS. The closing estimate was indicative▶

Opening prices 'reasonable'

ELLINBANK, Victoria, dairyfarmer Ron Paynter, who is a Fonterra supplier, described the July price range announcements as "reasonable".

"The closing price is no surprise," he said. "We had been warned about that."

Mr Paynter said he had been listening to industry analysts, who said farmgate milk prices would be lower due to overseas dairying regions ramping up production. "It's still a healthy price — and it is good to have an opening price announced now (late June)," he said. "It will give farmers more certainty for this coming financial year."

The tendency for dairy processors to wait until the last minute before making the opening price announcement had been a frustrating trend, he said.

"Farmers need clarity before the financial year starts," he said. "They need to plan their budgets, so they really need to have that indication of what they will be paid."

Mr Paynter said the solid opening price would help him catch up on maintenance around the farm.

"The big one for us maintenance on tracks and laneways … we've put that off during a number of years and are starting to see the downside," he said.

At the moment, he is milking 290 cows, which is up on previous years.

"The saving grace for us is that we've got hectares of beautiful grass," he said. "We had a shaky start, but since then it's been a great season and we are producing more milk this time of year than before."

His split-calving herd was averaging a healthy 19-20 litres per cow. "The big issue the industry faces is that unknown," he said.

"It would be lovely to have a crystal ball now to see what prices will do in the following 12 months. I'm wary we might be seeing top of the cycle, and that prices could plunge in that next season."

He said farmers should be capitalising on the good prices while they could.

—LOUISE PREECE

Ron Paynter: farmers needed opening price announcements before end of financial year.

◀only and WCB suppliers can expect to be updated on this as part of the company's quarterly price review process in October, January, April and June.

The company's closing price for 2013-14 was at $6.85/kg MS following a step up in June.

Mr Lord said world dairy prices had softened, while the Australian dollar had also recently stabilised. However, the $A remained the major wild card with varied outlooks from foreign exchange analysts.

"While the key market indicators are positive in the longer-term, volatility of external market factors, such as international milk supply growth, market demand, world dairy prices and exchange rates are possible during the short-term." he said. "In this environment we need to be aware that this volatility can impact on milk prices paid year-to-year."

WCB had earlier announced a strong cash incentive to encourage suppliers to produce more milk. The incentive scheme will run for four years and give suppliers an additional payment for any extra milk produced.

"We want our suppliers to produce more milk," Mr Lord said. "This partnership recognises the costs involved in growing and is a way for the company to share in those costs."

The incentive will be paid on all additional milk above a supplier's average for the previous two years. It amounts to three-and-a-quarter c/L averaged across the four years, with payments of 6c/L for the first year, 4c/L for the second year, 2c/L in the third year and 1c/L in the final year.

Burra Foods

Burra Foods also announced a higher opening milk price for the 2015 season. It announced an opening price range of $5.60 to $6/kg MS, subject to the various seasonal supply curves, production profiles and milk composition.

Chief executive officer, Grant Crothers, said the new season prices represent a 40c/kg of milk solids (MS) increase on last season's opening price.

"This 3c/L increase reflects our confidence in the market's ability to absorb the increased milk production and recover from the lower commodity prices seen during the recent months," he said.

Mr Crothers said the company announced a range because "there is too much smoke and mirrors around milk pricing".

"Rather than quote a simple 'headline' opening price like other milk processors, our farm milk supply team apply the Burra Food's opening milk prices to each and every farm," he said. "Too many in the industry quote a price that is only 'available' to a select few."

The international dairy markets experienced stable prices at unprecedentedly high levels throughout 2013 and into the first quarter of calendar 2014 across most of the key dairy commodities, only to then fall by 25% during the first half of 2014.

Mr Crothers confirmed that while Burra Foods was not immune from these falls in commodity prices, the increased flexibility in product mix as a result of continued investment in technology at the Korumburra, Victoria, facility had offset falls in farmgate milk prices.

"Our ability to manage our product mix and quickly adapt to the ever-changing market conditions underpins our confidence for this coming season during which we will see increases in the supply of milk to the world market by New Zealand and some European Union member states.

Bega and Tatura

Bega Cheese announced an opening milk price of $6/kg MS for its southern suppliers. Chairman Barry Irvin said while there had been a decrease in global commodity prices and a strengthening Australian dollar impact on returns for products, the company wanted to build on the positive sentiment being expressed in the industry by delivering a strong opening milk price.

"The board remains positive about the opportunities for quality Australian dairy products," he said. "Pay-rates will always reflect the Australian and international markets with global supply and demand

Judith Swales: global dairy market environment remains volatile.

inevitably resulting in some level of price volatility."

Australian Dairy Farmers Co-operative

Australian Dairy Farmers Co-operative announced in May a fixed flat price of $6.53/kg MS for south-west Victorian suppliers for 2014-15. It was the result of a new partnership between one of Australia's best known dairy brands, Bulla, and the independent niche co-operative.

ADFC chairman, Scott Sieben, said it was an exciting time for farmers. "Our co-operative is passionate about ensuring farmers get the best-price at the farmgate," he said. "Bulla is showing its commitment to local farmers by joining forces with us to put farmers first and ensure quality milk is going into Bulla's premium brands."

Lion

Lion announced a new pricing system for its southern suppliers, including those in Victoria, NSW, South Australia and Tasmania. The first option is a variable price model, opening at $6.35 per kilogram milk solids. Option two is a fixed price 12 months (2014/15) at $6.40/kg MS.

While these two options were familiar to Lion suppliers, a third option now offers farmers the choice of supplying 50% of their milk supply at a fixed rate of $6.14/kg MS for three years.

Lion Agricultural procurement director ▶

◀Murray Jeffrey said this move reflected Lion's confidence in the dairy industry in SA, Victoria and Tasmania and the company's recently announced three-year strategy.

"Lion has a clear growth strategy focused on winning in priority segments, like milk-based beverages and specialty cheese, and this is underpinned by secure and mutually rewarding partnerships with our farmers," Mr Jeffrey said.

"Managing farmgate price volatility is a major concern for our suppliers and not knowing prices from year-to-year makes it hard to invest and secure capital in an ever-changing environment."

Lion also announced higher price contracts for its suppliers in NSW and Queensland, including the scrapping of the controversial Tier 2 milk pricing.

Lion has agreed to pay a record increase to its Far North Queensland suppliers and increases to its suppliers in South East Queensland and NSW.

In Far North Queensland, Lion's weighted price will increase to 59.3 cents/litre, the highest price seen by suppliers in the region in recent years. This change, applicable to all Dairy Farmers Milk Co-operative (DFMC) farmers supplying milk for Lion in FNQ, equates to an increase of about 5c/L on Lion's last season price.

In South East Queensland and NSW, Lion's weighted pricing will increase to 57c/L and 53.8c/L. This equates to an increase of about one cent per litre on Lion's opening price across these regions, and represents the highest pricing seen by suppliers in recent years.

Harvey Fresh

Parmalat-owned Western Australian processor Harvey Fresh moved to sure up its milk supply in June announcing a new pricing contract with growth incentives.

In addition to an average 2c/L price rise across the board for a three-year contract, Harvey Fresh also announced that it would offer a new milk incentive primarily aimed at lifting summer milk production.

The incentive will reward farmers with a bonus above the scheduled price for every additional litre of milk produced in the January-May period.

Based on growth from 2014 figures, the company would offer an extra 30c/L in 2015, 25c/L in 2016 and 20c/L in 2017 for new milk produced during that period.

Previously, growth litres from one year were counted as base litres the following year, but the new contract enables the volume growth for the three years to be measured against the 2014 volume base, providing greater returns over the life of the contract.

The new Harvey Fresh contracts will begin from October 1 this year and will conclude in December 2017.

New Harvey Fresh general manager Paul Lorimer said the changes would boost farmgate returns for suppliers while simplifying the pricing structure.

"The summer milk price incentive seeks to provide financial encouragement to our farmer suppliers to invest in herd management changes, irrigation or supplementary feed to increase milk production overall," Mr Lorimer said.

"The second part of it is from a commercial point of view, we are starting to enter into longer-term agreements so we must ensure we are able to supply that volume throughout the whole year and into future years.

"So we need to increase the overall supply curve for the whole year and an increase in January to May is a key component of that."

Mr Lorimer also said Harvey Fresh was keen to promote a more transparent and open model and the new pricing structure was a step in that direction.

Norco

Northern NSW dairy co-operative Norco lifted its base milk price to suppliers by an average of 3c/L on the back of securing a long-term supermarket contract and tapping into new export opportunities.

The increase will take Norco's average base price for a three-year contract to 55.85c/L to be paid from July 1.

Norco chief executive Brett Kelly said with the business supplying a major Coles contract from July and, to cope with the volume, it would be looking to existing members to increase their production along with welcoming new supplying farms, predominantly from south-east Queensland.

Come July, Norco will have more than 200 milk supplying farms producing more than 200 million litres annually.

The farmgate price lift was also aimed at encouraging more supply to the burgeoning fresh milk to China market. D

El Niño risk factor for 2014-15

AN emerging El Niño weather pattern, which could see a dry spring/summer in much of eastern Australia, is a major risk factor for dairyfarmers for season 2014-15. But good opening irrigation allocations in most southern regions will help mitigate that risk for farmers on irrigated farms.

The Bureau of Meteorology in its July 1 wrap up said more El Niño-like patterns continued to emerge, but no El Niño had yet formed.

While the tropical Pacific Ocean surface temperature is currently at levels typically associated with a weak El Niño, waters below the surface have cooled and atmospheric patterns continue to remain neutral.

However, changes in the atmosphere may be a response to the warm surface waters with the Southern Oscillation Index dropping by more than 10 points and weakened trade winds reappearing.

Climate models surveyed by the bureau continue to indicate that El Niño is likely to develop by spring 2014.

For Australia, El Niño is often associated with below-average rainfall across southern and eastern inland areas and above-average daytime temperatures across southern parts of the continent.

The Indian Ocean Dipole (IOD) is currently neutral. Model outlooks suggest the IOD is most likely to remain neutral through winter and spring. The likelihood of a positive IOD increases with El Niño. Positive IODs are typically associated with large parts of southern and central Australia experiencing lower rainfall than usual.

Dairy Australia is urging farmers to to prepare contingency plans for an El Niño climate event this year. Dairy Australia's issues management manager, Julie Iommi, said while El Niño could not be guaranteed, farmers should be vigilant and put some planning in place.

"Farmers need to be aware that the chances of El Niño occurring are rising," she said. "It would be advisable for farmers to start thinking about what planning they need to put in place if feed becomes less available, what alternative feed could fill a shortfall in their regions and how this might affect their operations in the longer-term."

Material is available on the Dairy Australia website <www.dairyaustralia.com.au> to help farmers start feed budgeting now so they have options for different scenarios later in the year.

Opening seasonal allocations for water licence holders for systems across New South Wales, Victoria and South Australia provided farmers with some relief with most systems receiving initial allocations.

The Victorian Murray region received an allocation of 57%, the Goulburn 74% and the Campaspe 100%. The SA Murray 3 class received 100% while the NSW Murray received 6% of general security and 97% of high security water.

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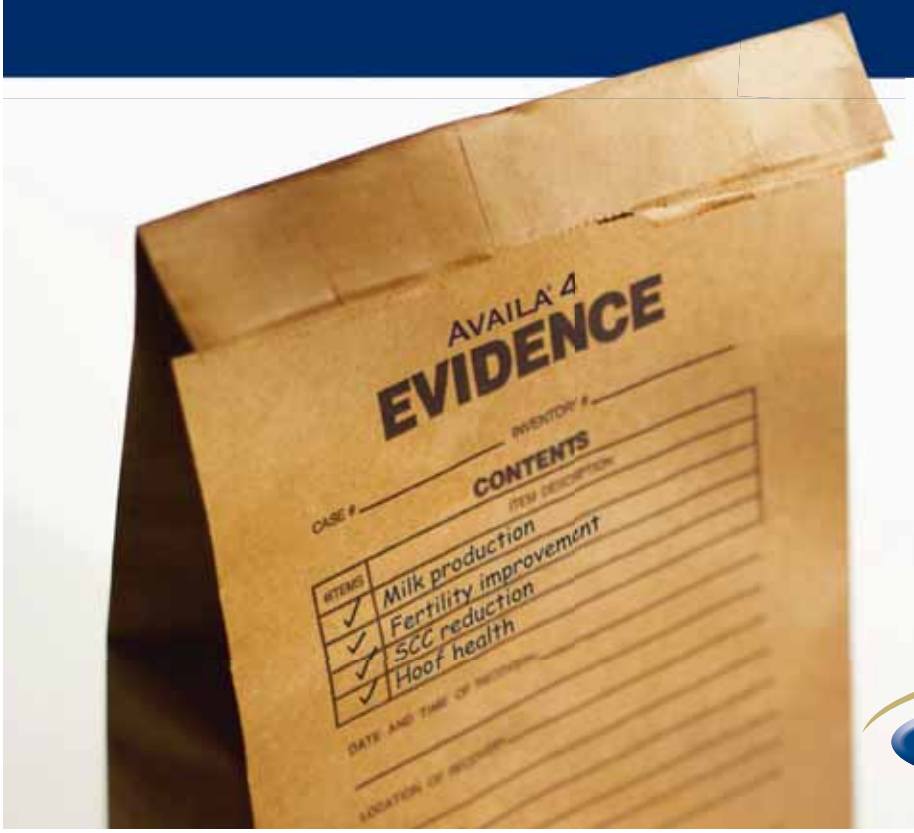

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Are you best person to AI your cows?

By CAROL MILLAR

GETTING the cows pregnant is one of the most important jobs on a dairy farm. While artificial insemination might look easy from the outside, it is a highly technical skill where experience counts for a great deal. For most farmers, the decision of who to trust to AI their cows is one of the most important they will make all year.

Here are the things that may factor into this decision.

Is the AI technician accredited?

The National Herd Improvement Association (NHIA) has a system for accrediting professional AI technicians, and there is a list of those that have successfully passed the accreditation exam at NHIA's website <www.nhia.org.au>.

Accreditation as a professional AI technician is one way to be sure that the AI technician has been checked out as a proficient inseminator. Not everyone passes this exam.

The best herd-improvement centres are committed to having the most professional inseminators on their staff. This means a commitment to high standards such as submitting staff for accreditation, to continuing education and development and finally to monitoring technician performance through non-return rates and customer feedback.

Ask the service provider if they do this.

Compare inseminators

When performance is measured, performance improves. In everything.

It is surprising in large herds where there is more than one do-it-yourself (DIY) inseminator on the farm staff that the non-return rates and conception rates for each inseminator are not monitored closely.

Ensure the AI skills of all staff are at the highest standard.

Which of the staff is doing the better job? Who might benefit from attending a refresher course?

It is not about creating a blame game when cows don't get pregnant — it is about up-skilling staff and giving them the tools to do the best job.

Heat detection is vital

The inseminator could be the best in the world but if the timing of the AI is not correct, then the chances of pregnancy are slim. This is why heat detection is so important.

It is important to use a good heat detection aid, and these days there is a wide choice between tail paints, scratchies, patches right through to sophisticated electronic aids and pedometers.

But personal observation down in the paddock is still the best guide to when a cow comes into standing heat. All farm staff need to be educated on the importance of heat detection, and there is a great video on YouTube — just type 'heat detection Australia' into the search box and the nine-minute film will tell staff everything they need to know.

Genetic gain is a farmer's friend

There used to be an advert for Landrover vehicles that had the slogan "it pays in the end to buy the best in the beginning".

So it is with genetics. Good bulls cost more. And there is a reason for this — they are better. It will always be a good strategy to buy the best semen that can be afforded. The bulls at the top of the Australian Profit Ranking (APR) lists are there for a reason, and science shows that they will be more profitable for the farm than the bulls at the bottom of the list.

The bottom line

Every aspect of a dairy farm needs to be viewed through a return on investment prism. Not every farmer is an expert on every part of the farm operation. Sometimes the best return on investment will be to get a professional to help out with the AI program.

In the end a successful AI program is about fewer breedings, less semen used, more pregnancies, fewer reproductive culls and the best use of time and services. There is too much at stake to be a jack of all trades and a master of none.

Dairyfarmers need to be totally objective about all stages from heat detection through to conception. Ask the question "who is going to do the best job in my herd?".

Contact a local service provider by checking out the NHIA website <www.nhia.org.au>. D

Improve your fertility

Professional AI technicians accredited by NHIA ensure you get quality and value in your breeding program.

Dairy cow fertility and your profitability is affected by many factors including the expertise of your AI technician.

Research shows that there can be a 37% difference in conception and non-return rates between poorer technicians and expert technicians.

Accredited Professional AI Technicians have been trained, they are experienced and have been assessed by a panel of expert AI technicians according to Herd Improvement Industry Standards managed by NHIA.

Check to see if your AI technician is accredited at **www.nhia.org.au**. Accredited AI technicians display this logo as your mark of assurance.

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Dairy Australia
Your Levy at Work

Understanding how to induct a new employee

WHEN a new employee has been appointed to a position they need to be introduced to the business and their role — this process is called an induction.

The first few days of a new job can be daunting for a new employee, however an induction program can help the employee to feel comfortable and to understand their role and responsibilities within the business.

Preparing an induction program also helps to retain staff and therefore avoids having to go through the recruitment process again.

An induction should provide a new employee with the information they need to do their job effectively, enjoyably and safely. It is an important part of farm health and safety and is easy to complete.

It is important for an employer to set aside the time to properly show a new employee around the premises and clearly demonstrate how to safely use the various equipment on farm. Employers can use an induction checklist to cover everything that needs to be explained. A copy of the checklist can be provided to the new employee so they can ask questions and tick off items as they go.

Employers should plan activities for the new employee, including:

- introducing the employee to other staff and any important clients or suppliers;
- giving a tour of the workplace, including occupational health and safety (OH&S) and emergency procedures and exits, to make sure the new employee knows where to find everything they'll need to complete their job;
- providing any formal or informal training, such as operating machinery; and
- giving the new employee time to find their way around and settle in.

Once the induction has been completed, both parties can sign the checklist to show that the induction was conducted and understood. It is important that every employee receives appropriate induction training. Inductions are also useful for existing staff that are changing roles or returning to work after a long absence, such as maternity leave.

The Negus family who milk 1300 cows and employ 15 staff on their property in Western Australia. They feature in a video about their farm that includes a section on procedures for new staff.

Information about induction

TIP: An induction checklist template is available from Dairy Australia's The People in Dairy website. The template can be downloaded as a Word document and helps with all the important things that need to be covered in an induction program.

VISIT: Website <www.thepeopleindairy.com.au/eski/employing_someone.htm>. Or refer to the *Employing Someone* tab in the ESKi folder.

WATCH: The Negus family story **<https://www.youtube.com/watch?v=pnbK7AUi_AA>.**

Employer tips for induction

NO EMPLOYEE can walk into a new job and be fully effective from the first day — effectiveness grows with understanding of the farm and its operation. Employees perform better and are more likely to stay in a job longer when they are clear about what is expected of them from the beginning.

Step 1: Arrange a time with the new employee for an induction before they start working. Use an induction checklist to ensure that all areas of induction are addressed and have everything in place before meeting with the employee. Schedule the various components, including booking time with other staff (eg the bookkeeper regarding paperwork) and subcontractors.

Step 2: Meet and show the new employee around the farm.

- explain the farm policies and systems used to manage farm safety and incidents that may occur on a farm such as accidents, injuries or emergencies;
- identify any training required;
- allow the new employee to ask questions — no question is a dumb one; and
- be supportive, rather than just 'ticking the box' on induction.

Induction continues until the probationary period is finished. The new employee can sign the checklist after completing the induction program and preferably before they start work. The employer will then have an acknowledgement that the employee has been shown the basics of the position.

Dairy Australia
Your Levy at Work

New code of practice for sharefarmers

DAIRY Australia (DA) is developing a model code of practice with guidelines and tools, including a new scoring method, for assessing sharefarmer arrangements.

In May, DA hosted a Share Farmer Workshop with 70 dairy industry advisers to address the draft code and to help build the industry's first opportunity for a comprehensive approach to the assessment and construction of a sharefarming relationship.

Sharefarming is a key part of the dairy industry and provides an important path to farm ownership. About 17% of Australia's dairy farm businesses operate under a sharfarming arrangement but to date there has been no specific industry-endorsed code in Australia regarding share dairyfarming.

A DA research program led to the development of the draft *Model Code of Practice for Share Dairy Farming*. The code provides dairyfarmers with access to tools to develop, assess or review a sharefarming arrangement.

DA industry people and capability group manager Shane Hellwege said the code helped to address a growing interest in getting share-farm agreements right.

"The new code has been developed in response to general industry interest regarding sharefarmer arrangements and, in particular, in response to a request from GippsDairy asking DA to clarify what constitutes a good sharefarming arrangement," Mr Hellwege said.

Dairy Australia Share Farmer Workshop speakers: John Mulvany, sharefarmer Kelvin Matthews, Pauline Brightling, Cameron Smith, dairy farm owners Don and Meg Stewart and Shane Hellwege.

The new code includes tools to guide dairyfarmers through the assessment and establishment of sharefarming agreements, including:

- Calculator: to check if the arrangement is fair and affordable for all parties;
- Legal Test Guide: to assess the arrangement from a legal perspective;
- Discussion Checklist: to explore the key factors in the arrangement; and
- Share Dairy Farming Agreement: to prepare a draft agreement.

For more information on share-farming arrangements, the new code and tools, visit website <http://www.thepeopleindairy.org.au/engagement-reward/share-farming.htm>. D

Career pathway resources under development

CAREER progression and pathway planning are key to reaching career goals in the dairy industry.

Dairy Australia is working with its Regional Development Programs and Workforce Planning and Action Steering Committees at WestVic Dairy and DairyTas to develop user-friendly guides to career progression and pathways for dairyfarmers at different stages of their careers.

Stepping Stones is a guide that highlights the many career pathways that are available in the Australian dairy industry and features case studies and planning tools to show how people can enter the dairy industry, build their equity and assets and progress to more senior farm positions.

The Stepping Stones program is in draft stage, and the next step is to trial the guide to gain and incorporate farmer feedback.

"Stepping Stones highlights the range of career pathways from entry level to senior farm roles," Dairy Australia workforce planning and action project manager Bill Youl said. "It also features planning tools so people can set their own career goals and plan their pathway in the dairy industry."

Dairy Australia and the steering committees are also working to develop guides for dairyfarmers at different stages of their careers. A resource for share dairyfarming and leasing — called Stepping Up — is in development. Also in draft stage is Stepping Out, a guide for farm owners who want to reduce their involvement in active farming either partially or completely.

"We look forward to working with the dairy industry to further develop and deliver these resources," Mr Youl said.

Steering committees were formed at WestVic Dairy and DairyTas to develop actions and support the dairy industry to attract the skilled people it needs. The Employment Starter Kit initiative — or ESKi — was the first action delivered by the committees, which are now focusing on delivering career resources for the dairy industry.

The initiative forms part of Dairy Australia's Workforce, Planning and Action program to grow dairy industry capability and skills.

Contact: Website <http://www.dairyaustralia.com.au/Levy-investment/Grow-capability-and-skills.aspx>.

Cows Create Careers in dairy

NINETEEN-YEAR-OLD Michaela Jeffery does not come from a dairyfarming background. The New South Wales dairyfarmer grew up in Sydney's southwest suburb of Liverpool before moving when she was 11 years old.

"We moved to a tiny town called Spring Ridge, it is an hour west of Tamworth," she said. "We lived there for about a year, before moving to Nowra on the South Coast."

While attending Shoalhaven High School, Ms Jeffery learnt about agriculture through Dairy Australia's Cows Create Careers program and that was when she fell in love with the dairy industry.

"I learnt about agriculture in Years 8 and 9 at school," she said. "Looking after a calf at school was the main reason I fell in love with dairyfarming, and I just love being outside working with animals."

Ms Jeffery's passion for the dairy industry continued to grow. While in Year 11 she began a Certificate II in Primary Industries through the National Centre for Dairy Education Australia (NCDEA), and when she left school she started working full-time on a dairy farm.

After gaining some valuable experience, Ms Jeffery is now working on a dairy farm that milks more than 600 cows in the Shoalhaven district of Pyree.

"I have been on the farm for two-and-a-half years," she said. "I was volunteering at another farm for a while just to gain some experience.

"I love the whole of dairyfarming, from milking the cows to delivering calves. I enjoy absolutely everything about this job."

While working as a dairyfarmer, Ms Jeffery has continued to develop her dairy industry skills and build her career.

"I have completed a Certificate II in Primary Industries and a Certificate III in Dairy Production. I am currently starting a Certificate IV in Agriculture/Dairy Production."

Michaela Jeffery with Dairy Australia's industry capability program manager Tracy Lloyd at the All Dairy Breeds Youth Camp.

After completing the Certificate IV through the NCDEA, Ms Jeffery aims to further progress her career by studying dairy science. "I would hopefully like to work for Semex or become a professional fitter," she said.

However, Ms Jeffery's long-term aim is to own her own Brown Swiss stud farm, and she's already working hard to reach her career goal. "I have now bought my first cow and straws to start my own stud."

Contact: website <http://www.dairyaustralia.com.au/Education-and-Careers.aspx> or NCDEA courses visit <www.ncdea.edu.au>.

Dairy Australia
Your Levy at Work

Award winner creates tool to detect BT

THE 2013 Science and Innovation Award winner, Dr Abdul Jabbar, has used his Dairy Australia award to research bovine theileriosis (BT) — a tick-borne disease that is similar to malaria in humans.

The Federal Government awards are popular among young scientists. Winners from across agriculture, fisheries and forestry are awarded a grant of up to $22,000 each to fund an innovative research project that will benefit Australia's primary industries. Dairy Australia sponsors the dairy category.

To date there have been no treatments or vaccines available for BT in Australia and no accurate diagnostic tests available for livestock producers. However, Dr Jabbar's project has improved the understanding of the disease prevalent in Australian cattle.

The University of Melbourne Senior Lecturer in Veterinary Parasitology has created a rapid, cost-effective diagnostic tool that will allow for the regular monitoring of BT in Australia.

"In 2011 we were approached by a senior veterinarian to investigate an outbreak of haemolytic anemia in beef cattle near Seymour, Victoria. In this study, we found that the outbreak was associated with pathogenic strains of *Theileria orientalis* — the causative agent of BT in Australia and first-time reported theileriosis in Victoria," Dr Jabbar said.

"Very little was known about the epidemiology, diagnosis and economic impact of theileriosis, therefore we decided to investigate."

During the past 12 months and with a team of five researchers, Dr Jabbar has used his 2013 Dairy Australia award to research diagnosing herds with the disease.

"This project will help not only to diagnose but also to regularly monitor BT in Australia," Dr Jabbar said.

"We have developed a high throughput assay — or diagnostic tool — for the rapid diagnosis of BT. Using this, we can detect two virulent and two avirulent strains of *Theileria orientalis*. This diagnostic tool will be available to cattle farmers nationally through diagnostic laboratories."

During the course of the project Dr Jabbar also assessed whether BT has an impact on milk production and the reproductive performance of dairy cows. "Results of this study revealed that clinical BT can cause significant milk production losses in dairy cattle," he said.

Dr Abdul Jabbar is a Science and Innovation Award winner.

The Federal Government awards encourage science, innovation and technology and help to advance the careers of promising young innovators and scientists through the national recognition of their research ideas.

Dr Jabbar said that the Dairy Australia award allowed young researchers to develop their career and address important industry projects. "The current project has played a pivotal role in the development of my research career," he said.

"I am planning to extend my research activities in the field of tick-borne diseases of livestock. In the next 12 months, my focus will be to publish the papers originating from this project and also write review articles on the subject."

Dairy Australia manufacturing capability and innovation program manager Dr Mani Iyer said the Dairy Australia award helped to propel innovative young people into dairy industry careers.

"The award provides a great opportunity for Dr Jabbar and the Australian dairy industry," Dr Iyer said. "Dr Jabbar's research into BT can have a real impact on the future of the dairy industry. Dairy Australia is proud to support young innovative talent."

Since 2001 more than 180 young Australians aged 18 to 35 have benefited from a Federal Government award with successful recipients using their funding for a range of activities including research projects, industry visits, study, training and development, or conferences and workshops.

The sponsored dairy award forms part of Dairy Australia's growing capability and skills program. Grant applications for the 2015 Science and Innovation Awards are expected to open in October 2014. D

Contact: website <www.daff.gov.au/scienceawards>.

Dairy Australia
Your Levy at Work

Young dairy leaders gather to exchange ideas

YOUNG Dairy Network (YDN) co-ordinators from across the nation's dairy regions connected at Dairy Australia's (DA) YDNA Retreat in May.

Network leaders learnt about DA programs and shared their ideas on building the future and capacity of young dairy networks at the two-day retreat.

There are a number of young dairy networks across Australia, and Dairy Australia's YDNA program aims to bring these together so there is a national approach towards the operation of young farmer networks.

DA program co-ordinator Di Gresham said the core purpose of YDNA was to encourage, educate and retain young people in the dairy industry.

"YDNA is working with existing regional groups to establish a national network of young farmers," Ms Gresham said.

"Through YDNA, participants are sharing information and swapping ideas. Regionally there are heaps of activities going on including seminars, leadership programs and social events. Nationally, YDNA also supports young people to attend national conferences."

YDNA leaders share ideas around the table.

Young Dairy Network Australia program co-ordinators will meet again in November.

Contact: YDNA program co-ordinator Di Gresham, email <dgresham@dairyaustralia.com.au>.

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NCDEA building industry capability

DAIRY Australia (DA) was host to the National Centre for Dairy Education (NCDEA) alliance partner conference in May. The bi-annual conference, which brings together the nation's NCDEA partners, is a platform to plan national education initiatives to support the capability and development of the Australian dairy industry.

Key outcomes of the recent conference are plans to launch a set of industry priority programs in late 2014. The industry-endorsed programs will be linked to key industry drivers and will promote best practice on-farm.

Also discussed were the opportunity to expand the number of NCDEA qualifications and increasing the NCDEA's commitment to providing courses for people at all stages of their dairy careers.

NCDEA has students enrolled in online diploma and advanced diploma programs across Australia. Using technology, training is delivered from Victoria to students across the nation, offering exciting prospects for training and up-skilling the dairy industry workforce with increased accessibility and savings in time.

DA industry, people and capability group manager Shane Hellwege said NCDEA had delivered industry-specific training and development across every Australian dairy region for the past nine years.

National Centre for Dairy Education Australia alliance partner representatives at the Dairy Australia conference: Mayo Javier, Karen Morath, David Shute, Ann Beacham, Kim Foss, Rick Whistler, Sylvia Vagg, Luke Prime, Neil Binning, Shane Hellwege and Greg Stuart.

"The commitment and collaboration of the NCDEA alliance partners has seen education and training informed by the dairy industry for the dairy industry," Mr Hellwege said. "NCDEA is a national education model that is unique to the dairy industry. We are very proud of our industry's ability to ensure our workforce is equipped not just with the skills and education they need but also with a career pathway to enable dairy people to have fulfilling working lives."

The next NCDEA conference is expected to be in October 2014.

Contact: NCDEA, website <www.ncdea.edu.au>, phone 1300 0 NCDEA (1300 0 62332).

European farmers face nitrogen restrictions

By WILFRIED WESSELINK

KEY POINTS

EUROPEAN UPDATE

- ✔ Restrictions on nitrogen
- ✔ Some exemptions but strict requirements
- ✔ Heavy fines can apply

THE quality of groundwater and surface water determines how much fertiliser European farmers can use on their farms. A standard rule for livestock manure is 170 kilograms nitrogen per hectare per year.

Some countries derogate (deviate) from this standard and have a higher fertilisation rate. Dutch dairyfarmers are allowed to fertilise at a rate of 230-250kg/ha of nitrogen from livestock manure under strict conditions.

The European Commission (EC) has stated that water pollution by nitrates has been made worse by the introduction of intensive farming methods in the EU.

Fritz Werning says without derogation he would have to dispose of an extra 600 cubic metres of manure each year.

The EC categorises water as polluted, or being at risk of pollution, when surface freshwater and groundwater contain more than 50 milligrams/litre of nitrates and/or the freshwater sources, estuaries, coastal waters and marine waters are found to be deficient in oxygen.

The *EU Nitrates Directive* aims to protect waters in Europe. It encourages good agricultural practices to prevent nitrates

from agricultural sources polluting groundwater and surface waters.

There is a provision for derogation (deviation) from the directive, whereby farmers can apply for exemption from the 170kg/ha of nitrates per year rule. This derogation amount applies only to livestock manure and can only be exceeded if it can be established that the objectives of the directive are still met.

Prerequisites for any exemption are the appropriate designation of nitrate-vulnerable zones and action programs that comply with the directive. The exemption is only valid for the duration of the action program.

Land owned abroad, nature reserves and fertiliser-free zones, ditches, hedgerows, paved paths, clamp silos, manure storage and the like do not count.

The 250kg/ha nitrogen applies to the northern and western provinces of the Netherlands only. In the eastern and southern provinces the maximum is 230kg/ha as there are higher nitrate levels in the groundwater. A new restriction is that phosphorous-containing fertiliser cannot be used and that the extra nitrogen cannot be used as a starter fertiliser for maize.

The higher fertilisation rate also applies only to manure from grazing animals. It does not matter whether the manure is produced on farm or supplied by a third party.

Manure accounting

Derogation must be registered via the internet through a department that manages regulation arrangements. To be eligible for derogation, the farmer also has to produce a fertilisation plan for all the agricultural land. This needs to show that the fertilisation with nitrogen and phosphate is in line with crop requirements, animal manure production, and that fertiliser and other additives are not applied at rates above the legal application standards. Any changes to the fertilisation plan must be noted as amendments within seven days.

Cows are on pasture during part of the day in summer.

The fertilisation plan has to include a calculation of the proposed fertiliser rate per plot, based on crop needs and soil analysis, and calculations indicating that the fertilisation is within the application standards for manure, nitrogen and phosphate, and whether sufficient manure is removed.

Soil analysis

At least once every four years an accredited laboratory must take samples and analyse all the agricultural land for the phosphate status and nitrogen-supplying capacity. The results do not have to go to the ministry's management department. The farmer must keep records of fertilisation plans, soil sample analyses and other required data for five years, similar to the manure accounting, for inspection by the General Inspectorate of the Ministry of Economic Affairs. This organisation has the same investigative powers as the police.

In June 2013, a Dutch farmer who had registered 5ha of land more than he possessed was fined EUR17,690.

Derogation costs money. Annually a tariff of three to EU6/ha, depending on the size of the farm, has to be paid to the Ministry. There are also the costs of soil analysis, advice and administration requirements.

Impact on farm

Dairyfarmer Frits Werning and his wife, Claudia Werning-Goossen, own the Uilenreef dairy farm milking 100 Red Holstein-Friesian dairy cows plus associated young stock near the city of Almelo, in the region Twente, in the eastern part of Holland.

The average milk production per cow last year was 9465 kilograms in 305 days at 4.63% fat, 3.62% protein. The farm's milk quota is 930,000kg milk. The farm comprises 45ha, of which they own 34ha, all on sandy soil. Thirty hectares is adjacent to the farm buildings; the rest is a few kilometres away. In summer, during the day, cows are on the pasture around the barn. The roughage ration is based on 50% grass or haylage and 50% maize silage.

In anticipation of the end of milk quotas, Mr Werning has expanded the barn to accommodate another 45 cows. There are 126 stalls for milking cows and 25 for dry cows. ▶

"Whether they will all be used is still the question," Mr Werning said. "We already extended the barn because soon the planning permission would have become more difficult."

If the returns per kilogram of milk are higher after 2015, Mr Werning wants to increase the number of cows. "Until four years ago, we bought extra milk quota almost every year. We don't do that anymore because the quota is being abolished," he said.

The farm has seven to eight months manure storage capacity. This and long-term agreements with arable farmers and contractors helps it avoid high transport costs for disposal of manure.

The disposal costs are three to four euros per cubic metre.

"If we had to deal with daily market prices for slurry removal it would have cost about seven euros in the spring and around 10 euros per cubic metre in the winter,"

Depending on the quality of grass, in summer during night the cows are fed in the barn only corn silage or additional grass silage.

Mr Werning said. "Without derogation we would have to dispose of an extra 600 cubic metres of manure and probably at a higher cost than now."

The exemption therefore saves him EUR5000-6000 per year.

Against this are additional costs for the purchase of maize silage, the exemption tariff, plus the extra soil sample analyses and time required to do the administration involved in derogation. "To be able to grow as much maize for silage as possible next year we will stay as close as we can to the maximum 20% maize area on the farm," he said.

Last year he bought 16ha of additional maize.

Mr Werning applies for the derogation himself, together with the combined statement (GO). It takes about four hours to fill in the GO .

"In the beginning, it took even longer but many details are already filled in on the basis of previous years," he said. The preparation of the fertilisation plan also requires an extra three to four hours."

A controller for the General Inspection Service (AID) who visited the farm found that Mr Werning had a piece of land that he registered for derogation as one plot but as a ditch ran through the middle of it, it should have been recorded as two separate plots. "Fortunately, from an area of the plot in question we had a sample from a previous analysis result, which was not yet four years old," Mr Werning said.

"Otherwise we would have been fined and possibly also penalised through the EU single payment scheme."

Table 1: Dutch legal total nitrogen application standard of some crops and soil types in kg N/ha/yr 2014/2017 (includes N from all sources — animal manure and fertiliser).

	clay	sand	loess	peat
Pasture with grazing	345	250	250	265
Pasture only harvested	385	320	320	300
Maize (with derogation*)	160	140	140	150
Maize (without derogation*)	185	140	140	150

*Derogation is an exemption from the EU limits that allows higher levels of N from manure but this cannot be applied to maize

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New feed systems aid health and environment

By ALEXANDRA DE BLAS

Dr Martin Auldist is project leader and senior research scientist with the Department of Environment and Primary Industries with cows in the flexible feeding trials.

MANUFACTURING dairy products of a high standard, day in day out, requires a consistent supply of milk of the appropriate composition. But research has shown that a cow's diet can affect the composition and quality of her milk.

Reduced rainfall and a warming climate in the past decade have led Australian producers to introduce a range of new feeding systems into dairy husbandry. Despite the lack of knowledge about the impact of these systems on the quality of manufacturing milk, they are already embedded in the industry.

The Geoffrey Gardiner Dairy Foundation funded researchers at the Department of Environment and Primary Industries (DEPI) Ellinbank Centre in Victoria to explore the effects of the new feeding systems on milk for manufacturing. It was done by testing milk composition and the quality and yield of dairy products produced.

The Gardiner project added value to existing research on feeding systems and methane mitigation supported by DEPI, Dairy Australia, Meat and Livestock Australia and the Federal Department of Agriculture.

There were two types of feeding systems under investigation: those developed to cope with reduced pasture availability and those designed to mitigate methane emissions from cows.

Senior research scientist and leader of the Feeding Systems for Higher Value Milk project Dr Martin Auldist said: "We found no detrimental effects on milk composition and/or product yield in any of the new systems we investigated."

Flexible feeding

Cows fed mixed rations containing maize grain produced milk with substantially higher concentrations of fat than those fed cereal grain in the dairy. This manifested as a substantially higher yield of cheese per kilogram of milk — greater than 10% — and the cheese was of an equally high quality.

"We have shown the elevated fat effect, time after time," Dr Auldist said. "But we would never have been able to check the downstream manufacturing effects without the Gardiner funding."

Overall it was found that milk fat concentration and composition were more easily changed via nutritional means than protein. Milk from cows fed maize grain and canola meal consistently contained higher fat concentrations than milk from cows fed cereal grain in the dairy. This was irrespective of whether the supplement was fed as a mixed ration on a feedpad or as a formulated grain mix in the dairy.

The cause

The improved digestibility of the supplements led to an improved, less acidic, environment in the rumen. The higher pH arrests the depression of milk fat often seen when cows are fed on high starch, low fibre diets. Those fed the formulated ration containing canola also tended to eat more pasture, which sometimes led to small increases in milk protein concentration.

Methane mitigation

Methane from ruminants makes up about 11% of Australia's national greenhouse gas emissions. It is a powerful greenhouse gas, 21 times more potent than carbon dioxide.

Methane is produced in large quantities during fermentation in the rumen of cattle, goats and sheep, and the gas is released to the air as they burp and breathe. The methane abatement research in this project assessed dairy cattle feed supplements that reduced methane output while supporting milk production.

Senior DEPI research scientist Dr Peter Moate found that the diets that reduced methane had no detrimental impacts on milk composition or quality. This is a positive outcome.

"A wide range of feed supplements have been evaluated, and by-products high in fat, such as brewer's grains, cold-pressed canola meal, cottonseed meal and hominy meal were all found to reduce methane emissions while improving production," he said.

Grape marc, a by-product of the wine industry, consisting of the stems, seeds and skins, was tested in the Gardiner study. High in fat and tannin, when fed as a supplement, it reduces methane emissions by about 20% and had additional health and manufacturing benefits.

Changes seen in the ratio of fatty acids in milk produced by cows eating grape marc are likely to affect the melting point of milk fat — improving manufacturing properties such as the spreadability of butter.

GARDINER FOUNDATION

Above: Research assistant, Karen Hoffman, measures grass in a feeding experiment.

Right: Cows eat a mixed ration on the feedpad at Ellinbank.

Cottonseed meal and grape marc contain high levels of linoleic acid, which promotes the production of healthy unsaturated fatty acids, while lowering the levels of saturated fats.

Overall the milk produced is healthier for people rather than saturated fats known to increase the risk of cardiovascular disease and more of the unsaturated fats purported to combat cancer, diabetes and arthritis.

"When this health finding first became public in 2011, the story shot around the world like wildfire and was viewed by more than one billion people," Dr Moate said.

The future

Supplementary feed mixes containing maize improve fat production and provide farmers with economic benefits today, while supplements that reduce methane emissions will benefit the environment.

In separate experiments, Dr Moate has found that wheat supplements have a positive affect on methane abatement. "When we fed wheat, instead of corn, in an equal amount, we reduced methane emissions by 50%. But this resulted in a reduction in milk fat percentage."

This was followed up with an experiment in the spring in which cows were fed either 0, 3, 6 or 9 kilograms of wheat per day on a basal diet of perennial ryegrass. "Milk fat percentage fell, but because milk yield increased by six litres per day, on the highest wheat ration — milk fat yield remained steady. At the same time, protein increased by almost 30% and methane emissions declined by 30%."

This research shows that there are "economic feeding systems" that could have a substantial impact on mitigating methane emissions from cows.

"There is still more work to do on emissions and wheat," Dr Moate said. "But this is an important finding because the average Australian dairy cow is fed about six kilograms of wheat per day, which means the current methane emissions from the dairy industry could be substantially less than scientists previously thought."

Research findings from the Feeding Systems for Higher Value Milk project have been published, or are in press, in three international peer-reviewed journals, included in two PhD theses and made available to industry in a number of formats. D

Contact: website <www.gardinerfoundation.com.au> or phone (03) 8621 2900.

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THE use of Gonadotropin-releasing hormone (GnRH) when used as part of a controlled program, such as Ovsynch or GPG, is proven to work. Research by Dr Richard Shephard, of Herd Health Maffra Vic., reported in the last issue found that the use of GnRH alone at artificial insemination (i.e. not as part of a program with other reproductive drugs) is only beneficial to about 10% of the herd. When administered on its own at AI it could in fact be harmful to the majority of cows.

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PFGAUSTRALIA

Dairyfarmers in three states are in areas that have become hot spots for gas exploration. **MICHAEL PORTEUS** looks in detail at the protest in Bentley on the NSW North Coast and provides an overview of moves in Victoria and South Australia, while **MATTHEW STEVENS** spoke with a farming family who were the welcoming host to the Bentley gas exploration.

Farmlands frontline in coal seam gas battle

By MICHAEL PORTEUS

AUSTRALIA is at a turning point with thousands of people now ready to put their bodies on the line to prevent farmland being used for coal seam gas, according to Lock the Gate Alliance president Drew Hutton.

He was speaking in May as the Victorian and New South Wales governments placed temporary halts on coal seam gas drilling projects, citing a need for more community consultation.

"Communities have a right to be heard on these issues," said Mr Hutton, whose alliance links anti-gas groups around Australia.

"The people and their attitude have to be taken into account when public policy is being determined. If a company does not have a social licence to operate — if they ▶

The blockade gates and protest site at Bentley.

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References: 1. O. AlZahil *et al.* 2008, *J. Dairy Sci.* 91:1166–1174. **2.** R. Martineau *et al.* 2007, *Canadian Journal of Animal Science*, 88, 335–33. Zoetis Australia Pty Ltd Level 6, 5 Rider Boulevard, Rhodes, NSW 2138. www.zoetis.com.au 04/14 AM03119 PAL1105/ADF.

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SADA worried about water

SOUTH Australian Dairy Farmers Association president David Basham said his members were concerned about unconventional gas mining proposals in the south-east of his state.

"We need to be confident that it doesn't risk the water supply," Mr Basham said. He emphasised that gas mining in limestone areas was a different process to the coal-seam-gas or tight-sands projects proposed in other states.

South Australia's Limestone Coast Protection Alliance is aligned to Lock the Gate. It is discussing the issue with dairyfarmers and planning to ramp up protest action in SA later this year.

— MICHAEL PORTEUS

◀ do not have the support of the community — then they are going to find their life very difficult indeed."

Drilling at Bentley, 60 kilometres west of Byron Bay on the NSW North Coast, was suspended after Lock the Gate had for more than three months maintained a round-the-clock blockade to prevent machinery entering a farm, owned by dairyfarmers, but used as a beef property, which was to have allowed the gas exploration.

About 200 people from Lock the Gate groups had council approval to stay on the neighbouring beef farm, which welcomed the activists.

On a morning when drilling had been due to start, Lock the Gate summoned more than 2000 people to bolster the blockade.

No machinery arrived that day, but exploration company Metgasco said drilling was still to go ahead. News emerged of plans to bring in 800 police to enable the drilling. Local farmers joined a delegation to the NSW Parliament opposing the well.

But on May 15, the NSW Energy Minister Anthony Roberts suspended the exploration citing "inadequate community consultation". Metgasco is seeking judicial review of this decision.

After the Bentley suspension, Mr Hutton said he was confident Lock the Gate blockades could also stop drilling at other NSW sites including the Pilliga Forest near Narrabri, Glenugie east of Grafton and Gloucester in the headwaters of Taree's Manning River.

Speaking to farmers a week later in Tamworth, the local National Party state parliamentarian Kevin Anderson said farms should be put before gas mining. No gas project should go ahead if there was any doubt about how it would impact water resources, he said.

Bentley blockade

The Bentley blockade and protest camp were organised by a local group called Gasfields Free Northern Rivers. It is part of the Lock the Gate Alliance, which Mr Hutton said was a historic coming together of farmers and ecologists.

GFNR organiser Ian Gaillard is a former Terrania Creek blockader who four years ago met other activists after a Lismore screening of the American film *Gaslands*.

They organised a rally in Lismore against plans to explore for gas in their region and hundreds of people joined groups to blockade gas projects.

A plebiscite conducted with 2012 council elections in Lismore found 87% opposition to gas mining. Mr Gaillard said GFNR street surveys found 192 northern NSW communities declaring themselves gasfields-free.

Mr Gaillard said GFNR discovered in NSW Government documents the plan to drill at Bentley. The group set up the blockade and camp for supporters who included farmers, retirees and professional people on holidays.

The activists developed codes of conduct for non-violent direct action and camp management. Visitors had to sign forms indemnifying the landowner and recognising rules including no drugs or alcohol.

The camp had its own parking stewards and Facebook page. Hundreds of supporters left yellow figures on its fence to maintain their symbolic presence at the site. Local farmers helped with daily sanitation services and water deliveries.

One group at the camp called themselves the "knitting nanas". They left the camp each Thursday to knit yellow triangle "lock the gate" symbols on the doorsteps of local politicians.

Kyogle's Anglican priest publicised his support for the blockade, for which he made chain-and-padlock jewellery. The camp attracted many anti-gas visitors, including star support from musicians playing at Byron Bay's Bluesfest.

However, it remains to be seen where the suspensions will lead with all parties saying they will continue the struggle.

But Lock the Gate is confident that something has changed. "It really is part of a turning point in Australian society and Australian history," Mr Hutton said.

"The Australian people have got to decide whether we just let lose the carpet baggers and the vandals, or whether we act as stewards of the land and go in sustainable directions. I have every confidence that the Australian people will choose sustainability."

Metgasco also did not respond to an invitation to contribute to this article. D

Fifty-year Jersey breeders support blockade

By MICHAEL PORTEUS

SEPTUAGENARIAN Bentley, NSW, dairyfarmers Jim and Bev Hewitt say they were too busy on their farm in the 1970s to pay too much attention to events around Nimbin, but they supported the coal-seam-gas blockade at Bentley.

"We have never protested against anything in our lives," they said.

Mr Hewitt is a third-generation Jersey breeder. The Hewitts married in 1961, three years before they moved to the farm where they raised five daughters as they built up their herd and landholdings. They now run 550 registered Jerseys on 400 hectares in six parcels of land.

The Hewitts milk 230 head producing 1.5 million litres a year at 4.1% and 4.95% butterfat. They supply the Richmond Dairies plant at Casino, NSW, which makes frozen dairy products for export.

The Hewitts competed at Brisbane's Ekka for 21 years before they brought home the champion Jersey ribbon in 2006. This year, a daughter of their Ekka winner won in Jersey Australia's national on-farm cow competition.

The dairy at their Fairbrae stud is five kilometres from the Bentley drill site. The Hewitts say no one from Metgasco or any level of government ever approached them about gas mining.

But the protesters did talk to the Hewitts, who were surprised that they included "more retirees than radicals".

The Hewitts agreed with the protesters' concerns that gas drilling might affect water resources and the value of their property. Mrs Hewitt said friends would joke with her that "your farm will only be worth half as much now".

Lock the Gate Alliance president Drew Hutton said dairying and gas mining could not co-exist. Multiple wells, gas compressor stations, waste-water ponding and access roads could tie up land for 30 years.

He said farmers near gas-mining could be worse off than the farmers who were paid for allowing drilling on their properties. They could see falls in the value of the land they had been expecting to fund their retirements.

Mr Hewitt said one of the protestors was a retired doctor who told him his cows were a credit to him. "The protestors seem like nice people," Mr Hewitt said. "We'll leave the protests to the protestors. And we just support them." ▶

Bev and Jim Hewitt with part of their herd in the Bentley area.

Victoria halts gas projects

THE Victorian Government announced on May 28, a hold on onshore gas exploration. This suspended plans to drill at sites including Seaspray and Poowong in Gippsland, where Lock the Gate said thousands of people were ready for direct action to stop gas mining.

Victorian Minister for Energy and Resources Minister Russell Northe said the government would consult the community during a moratorium on fracking and a suspension on the issue of new licences for coal seam gas exploration.

He said there was community concern around prospective onshore gas exploration under current licences. It was important that any move to develop an onshore gas industry in Victoria considered the views of the community and the industry, and information from an independent water study.

Information days were to be held in Gippsland and in Western Victoria.

— MICHAEL PORTEUS

Above: Part of the prize-winning Fairbrae Jerseys herd.

Left: Jim and Bev Hewitt with mementos of some of their awards.

Mrs Hewitt said they were well-organised, because there "doesn't seem to have been any trouble of any sort".

Mr Hewitt appeared in local and national media speaking for local farmers who supported the blockade.

Mr and Mrs Hewitt said they were "pleased and surprised" when the drilling was suspended.

Mrs Hewitt said the plan to bring in 800 police was "a stupid, stupid thing" and she praised the blockaders for a good clean up of the farmland when they left.

The Hewitts are not alone among North Coast dairyfarmers in being concerned about the proposed coal seam gas exploration.

The Far North Coast Dairy Industry Group last year asked the NSW Government to grant the area the same "critical industry cluster" status that protects Hunter Valley vineyards from gas mining.

The Lismore, NSW, based Norco dairyfarmers co-op policy is that any coal-seam-gas mining or exploration has to be proven to be environmentally safe, and that dairy and horticulture land should be protected.

"The integral beauty of our rural regions on which we rely in promoting and marketing our products in Australia and as exports overseas, and which we hold on trust for future generations, must be protected," the co-op's policy said.

Dairyfarmer disturbed by CSG protesters

By MATTHEW STEVENS

"WE got used to the abuse and that, but when they accused me and dad of betraying the Anzac spirit, well, that was a bit too hard to take," Peter Graham said. They are coal seam gas (CSG) protesters. And their abuse struck hard because Mr Graham's dad is 92 and was a World War II soldier.

Both Grahams run dairy farms in the Richmond Valley of northern NSW. The valley has been home for the Grahams for seven generations. The family also jointly owns a cattle-breeding property in nearby Bentley.

That is where the Grahams were the welcoming host to a gas exploration well called Rosella. Metgasco was prevented from drilling at the site by NSW Government intervention.

Peter Graham's embrace of gas has made him a figure of some controversy around the now divided community of Bentley. The hamlet just north of Casino is home to maybe 40 families. Not many share his view that gas extraction could be a game-changer for the valley.

But he was converted to the gas cause on a trip around the Queensland coalfields, where he was introduced to farmers who were making 8% rates of return on their property values just from gas wells.

Mr Graham is comfortable that people might disagree with him. But at no point in the two years and more of community discussion and debate over Metgasco's plans did he anticipate the ugly fury that enveloped him and his family.

The property was home to the anti-CSG protest whose semi-permanent population reached about 2000 through March and April. The protesters called it the Bentley Blockade, but Mr Graham called it a damned nuisance.

In the three months the Grahams said they were routinely prevented from getting onto their own property by strident, often abusive, people. Gates were welded shut, spikes were concreted across driveways, barricades were raised. Mr Graham was unable to sell cattle because trespassers refused them legal access.

"In the beginning we asked for the police to clear the property, maybe four times," Mr Graham said. "The local police attended. They would talk to these people who said, 'Nick off, we are not moving.' We had people camping on our property, walking over our property. We had people leaving gates open, letting the stock wander.

"One Friday we went out there and my mother got out of the truck and she was told, 'We know where you live.' That was going too far. She felt very vulnerable.

"We were told we didn't live on the property so why should they let us in. I told them they didn't live on it either, so they could nick off."

But they didn't. The mob stuck it out, all in the name of preventing the spread of CSG drilling through the valley.

But the well that was to be drilled on the old gravel quarry at the Grahams' farm was not aimed at coal seams. Its main target was a conventional gas trap. Its secondary target was something called tight gas.

Tight gas is gas trapped in less porous sandstones. To produce it, the rock needs to be fractured but the permit for this well did not allow for fracturing. It was to be an exploration well to take core samples from the tight gas zones while attempting to prove the potential of the main target.

Metgasco was stopped on May 14 from opening its 40-day drilling campaign at Rosella on the grounds it failed to meet the requirements of community consultation.

Metgasco has more than 300 voluntary agreements with the farmers around the Casino area who live and work above the coal seams that it might eventually tap at some point in the future. In a letter sent to the State Government after drilling was suspended at Bentley, Metgasco said it had been "blindsided" by the suspension and went on to detail a consultation program designed with the approving oversight of the Office of Coal Seam Gas and the State's Resources and Energy Department.

The program included direct contact with farmers within two kilometres of the well, regular meetings with local councils, ad hoc meetings with local residents, and running a dedicated website and a call centre to deal with inquiries. Its fitness for purpose was endorsed as recently as January.

Article courtesy of Australian Financial Review

Dairy Australia
Your Levy at Work

International expert: think dairy for muscle health

HEALTH experts learned about the importance of moving muscles and feeding them protein at a seminar hosted by Dairy Australia (DA) in April.

A leading international researcher into diet, exercise and muscle health, Professor Luc van Loon, spoke with more than 70 local health experts during the muscle science seminar.

"Muscle maintenance is not just for 'gym-ers'," Professor van Loon said. "It's important for anyone who is already active and absolutely critical for Australia's older population."

Professor van Loon, from Maastricht University in the Netherlands, was in Australia as part of DA's ongoing work to educate Australian health experts about the many benefits dairy foods bring to the Australian diet.

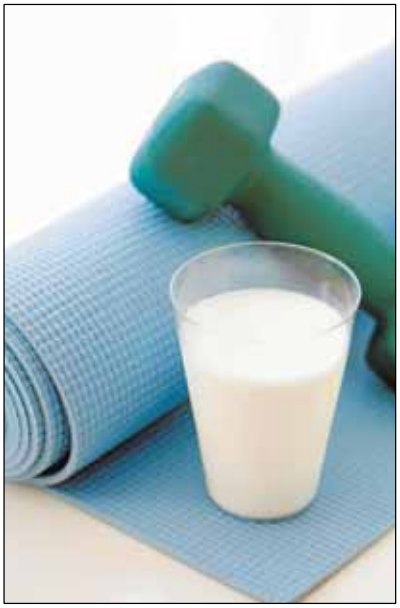
While the benefits of resistance training for muscle building and maintenance are generally well known, he stressed the importance of eating plenty of high-quality dietary protein, which is naturally found in dairy foods.

As humans age they naturally lose muscle mass, which can lead to a less active lifestyle and increase the risk of developing chronic diseases.

"These health issues make people more dependent on the healthcare system and are often accompanied by a reduced quality of life," Professor van Loon said.

His research team investigates how physical activity and protein intake can support muscle growth and maintenance in the elderly population.

Professor van Loon said being active before a meal or snack was particularly important to ensure the protein eaten was used to effectively build new muscle.



Combining exercise with protein-rich dairy foods is important in maintaining muscle health.

According to DA's nutrition science manager, Dr Roxanne Portolesi, Australians typically consumed protein-rich meals at dinner time with too little protein consumed at breakfast and lunch.

"We need to rethink our approach to protein intake and ensure that it's consumed across the day — for example, milk and cereal at breakfast, yogurt as a snack, a flavoured milk before exercise, cheese in a salad or sandwich, and dairy as a dinner ingredient or before bed," she said.

"There are many ways that Australians can boost their protein intake as well as benefit from dairy's other nine essential nutrients."

Dr Portolesi also highlighted that health experts needed to reinforce the protein message to their patients.

"There's considerable science behind why milk and dairy are great for muscle health but it's not necessarily top-of-mind with the people who are treating chronic disease," she said. "It's important that we emphasise dairy as an easy way to access high-quality proteins, especially for older Australians."

A second seminar for sports dietitians and fitness trainers focused on adding dairy to exercise recovery for physically active adults.

"Dietitians have a sphere of influence that goes beyond their immediate clients," Dr Portolesi said. "Many are vocal in the media and online and can help spread the word to other health professionals and sports dietitians about dairy's many benefits."

Gold-medal Olympian and national champion rower David Crawshay told the audience how dairy foods were important in his diet, particularly for muscle recovery and maintaining muscle mass for his rowing training.

"Dairy is probably my biggest source of protein," Mr Crawshay said. "It's probably not an exaggeration to say I drink upwards of two litres of milk a day and I'd have 500 grams of yogurt in any one sitting." D

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Dairy Australia
Your Levy at Work

New health standard a chance to promote dairy

ANYONE who has ever picked up a package of food at the supermarket has likely seen a statement on the label about how it 'lowers cholesterol', 'improves heart health' or 'reduces the risk of osteoporosis', among many others.

But what do these statements really mean? How can the dairy industry use these claims in a responsible way to communicate the health benefits of eating dairy foods, on the package, directly to the consumer?

In January 2013, Food Standards Australia New Zealand (FSANZ), the national food regulatory agency, released a new Health Claims Standard that supports the promotion of healthy food choices by allowing manufacturers to use health claims on packaging and in advertising to communicate the nutritional and health benefits of foods.

The standard is being phased in across three years to replace an existing standard with clearer preapproved claims to better inform consumers about the link between foods and health and more accurately enforce claims manufacturers use in their marketing.

"What wasn't really clear before was what can be said linking foods and the nutrients in food to health benefits," Dairy Australia manager of health and nutrition policy and regulation Helen Mair said. "It's now really clear, and it provides a more level playing field for competition."

In May, DA ran a workshop for dairy manufacturers to support them through the transition period and to help them take advantage of the new standard in promoting the health benefits of dairy foods.

Dairy manufacturers can now more clearly promote the nutritional benefits of dairy foods on the front of product packaging.

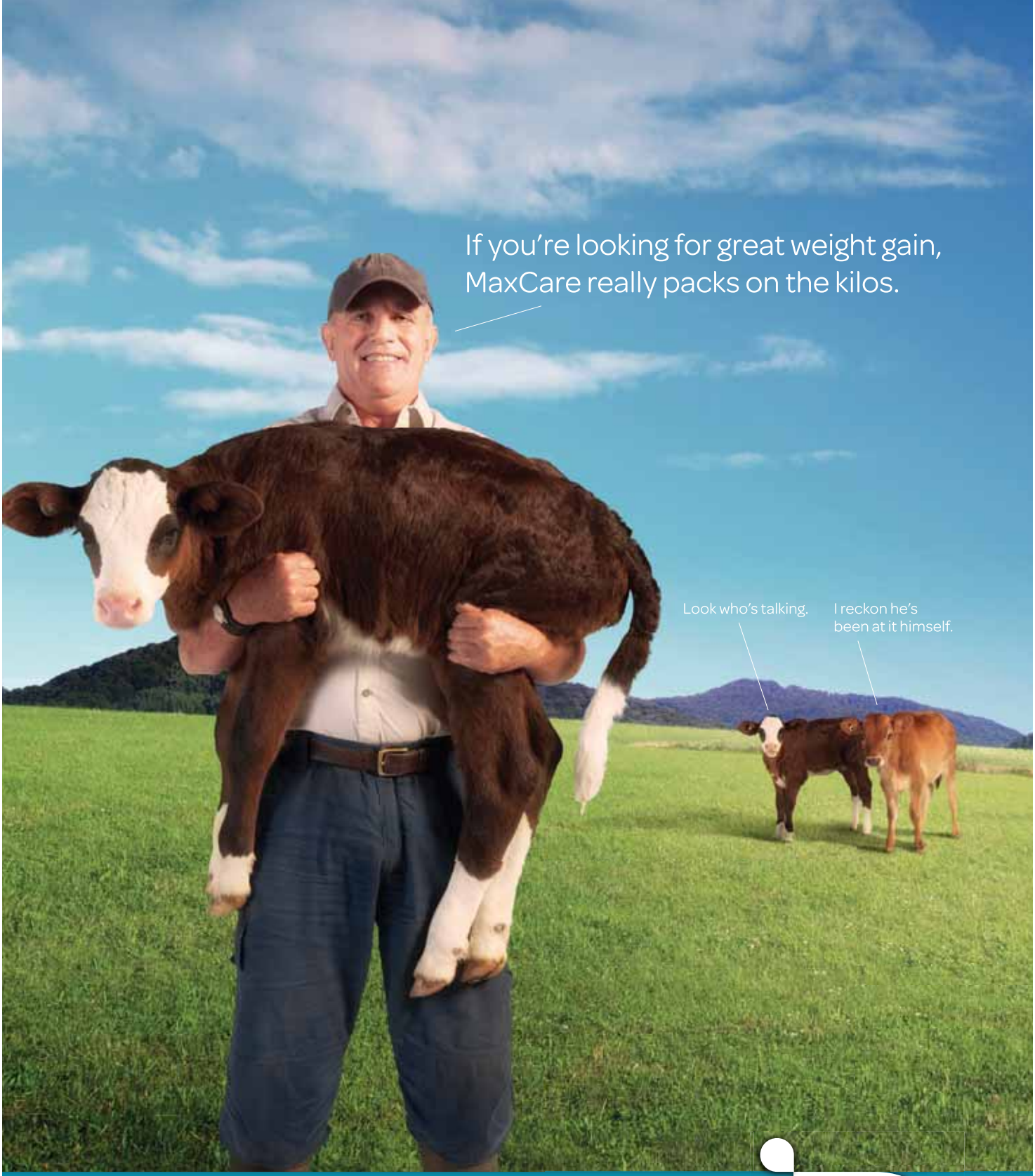
DA policy partnerships and engagement manager Melissa Cameron said: "We're halfway through the three-year transition period to the new standard, which comes into full effect in 2016.

"It's important that we actively help dairy manufacturers to understand the transition requirements now and make the necessary adjustments so they can really capitalise on promoting the many health benefits of eating dairy — and hopefully increase consumption as well. The dairy industry has been very proactive in trying to make this happen."

It's also an opportunity to capitalise on some of the dairy science research that DA is funding. Outgoing chair of the Implementation Subcommittee for Food Regulation, the government authority overseeing the implementation of the new standard, Dr Anne Astin said: "The Health Claims Standard provides many opportunities for product development and innovation and a platform for communicating evidence that supports the health benefits of our foods."

More than 200 preapproved health messages are contained in the new standard. These can be used by manufacturers if their products meet certain nutrient criteria and enable manufacturers to communicate directly to consumers on the link between a food product and health. For example, some milk products can explicitly link calcium as a key nutrient in helping to build strong bones directly on-pack.

Seminar presenter and principal of FoodLegal, a law firm specialising in food industry compliance, Charles Fisher said: "Health claims are the next area of opportunity for product innovation. Australia could lead the world in innovation in this area. The rest of the world is looking to us." D



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Analysis of new sector brings challenges

AMY Bellhouse studied Agricultural Science (Honours) and Commerce at the University of Melbourne and worked in grain trading and then as an analyst in the beef, sheep and grain sphere before joining Dairy Australia's small team of industry analysts in September 2013.

"I was looking for a new challenge in the agricultural sector and my background gave me the skills to join Dairy Australia as an analyst investigating dairy inputs such as grains, hay and fertiliser," Ms Bellhouse said.

"I joined right as a lot of change and corporate activity was going on: there are so many fascinating issues to deal with and that complexity has been really quite exciting."

Ms Bellhouse grew up in Melbourne, but her dad was raised on his family's dairy farm in the United Kingdom. Family holidays on farms in Gippsland were a frequent feature of her childhood.

Amy Bellhouse with her horses on her rural property near Ballarat, Vic.

"I have a very clear memory from one of those trips, of being taken to see the cows being milked at a local dairy farm," she said.

"I think my interest in agriculture stemmed from those holidays, so when it came to choosing a degree, a double degree in Agricultural Science and Commerce seemed a great way to learn more about how food is grown and produced, as well as giving me the background to understand the economic drivers behind food production and trade, as well as international finance and derivatives markets."

While studying at university, Ms Bellhouse did a couple of internships that gave her practical experience in agriculture, one with a farm specialising in the production of hay for the export market and the other a dairy genetics company.

"The internships were useful for getting a taste of the challenges that farmers face, for example, being in the milking shed at 5am in the middle of winter," Ms Bellhouse said.

Ms Bellhouse lives on a rural property near Ballarat, Vic, and it takes her one-and-a-half hours on the V/Line train to get to work in Melbourne. She uses the time well and it goes quickly.

"I was worried at first about the amount of travel as I wasn't sure it would be practical, but I have got used to it and pinch myself thinking how fortunate I am to have the combination of working in the middle of Melbourne and living rurally," she said. "I am very fortunate to get to do both."

What has she learned since joining Dairy Australia?

"In agricultural trade there are similarities whatever the product, but there is so much to learn and I am really enjoying finding out more about the industry," Ms Bellhouse said.

"One of my tasks is to create market briefs around Australia's top 25 dairy export destinations, which is a fascinating project and I have also been working on the Export Region Weighted Cost and Income Indices, which consider the near-term outlook for input costs and income, and highlight the net impact of market changes."

What does she do when she takes a break from the world of analysis?

"I keep two horses at my place near Ballarat, and find horse riding to be a relaxing hobby, where you never stop learning and challenging yourself," she said.

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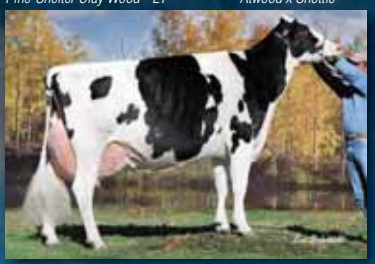

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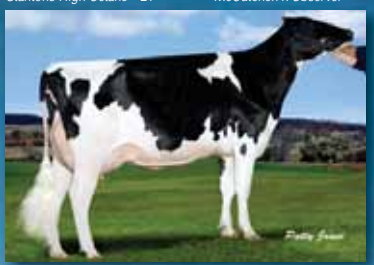

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Dairy Australia
Your Levy at Work

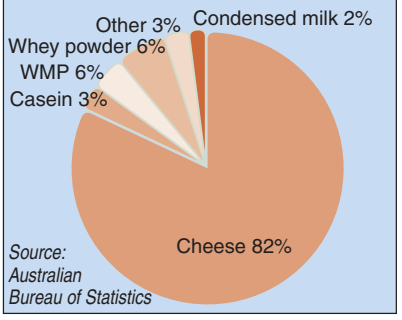
Japan among world's top dairy customers

THE world's fifth-largest importer of dairy products, Japan has as its primary dairy import industrial cheese used for further processing. Australia exported 124,000 tonnes of dairy products to Japan in the 2012-13 financial year, worth $US518 million, making Japan our largest market. Cheese represented 82% of these exports (by United States dollar value).

Market developments: Japanese consumption of dairy products is relatively high when compared with less developed Asian countries. However, Japan is viewed as a static market for dairy, with limited growth prospects. In the past decade Japan has become a more price-conscious market, with domestic economic problems reducing dairy price premiums and constraining economic growth.

Demographic changes have resulted in a fall in consumption of fluid milk of about 20% between 2000 and 2011, while skim milk powder imports have declined due to a combination of reduced demand from the stockfeed sector and tight import regulation (Australian Bureau of Agricultural and Resource Economics and Sciences 2013). Demand for natural cheese (used for pizzas and bakery products), however, grew by 7% in 2012 (United States Department of Agriculture-Foreign Agricultural Service 2-12e).

Figure 1: Top Australian dairy exports to Japan (US dollar value)



Tariff environment: The conclusion of negotiations on the Japan Australia Economic Partnership Agreement (JAEPA) was announced on April 7 and is likely to be signed in early July. The agreement will be subject to a domestic ratification process in both countries before final implementation.

The outcome for dairy under JEAPA is less comprehensive than hoped for by the Australian dairy industry. Key improvements are the provision of Country Specific Quotas (CSQs) for cheese for manufacturing into processed cheese and for cheese for shredding. However, restrictions apply that limit the value of these CSQs.

Other cheese products that will achieve marginal improvements in access under JAEPA include blue-veined cheese, grated or powdered cheese and processed cheese. Improved access has also been achieved for ice-cream, frozen yogurt, casein, milk albumens, lactose and milk protein concentrate.

Dairy Australia estimates that the first-year benefit of tariff savings for Australia under JAEPA will be in the order of $US4.7 million, and that figure will grow marginally year on year as the CSQ volumes increase. D

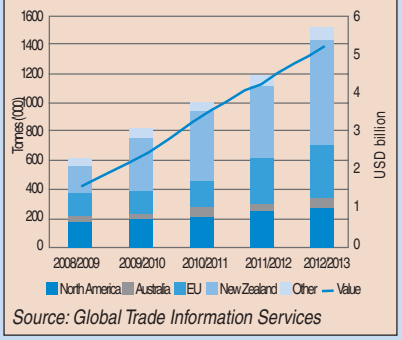
The markets briefs on these pages were compiled by Amy Bellhouse, Dairy Australia analyst, email <abellhouse@dairyaustralia.com.au>.

China snaps up Aus dairy exports

THE world's largest importer of dairy products, China snapped up 72,500 tonnes of Australian dairy products in the 2012-13 financial year, worth $US230 million, making China Australia's second-largest market. The top products exported (in United States dollar value terms) were milk powders, cheese, infant powder and liquid milk.

Market developments: China is Australia's fastest-growing dairy market (the fastest-growing categories in the past five years include ice-cream, lactose and liquid milk). Higher household incomes, increased urbanisation and changing dietary preferences have seen consumption of dairy products rise significantly in recent years. Consumption of milk and dairy products (except butter) rose from 9.5 kilograms per person in 2000 to 29.8kg in 2009 (Food and Agriculture Organisation 2013). Increased urbanisation is likely to see continued growth in Chinese dairy demand as incomes increase and distribution and sales channels for dairy products improve.

Figure 1: Chinese cheese imports



China has been buying huge quantities of dairy products from the internationally traded market in recent times, reflecting a widely reported shortfall in domestic supply. The melamine-adulteration incident in 2008 and subsequent food safety issues have seen increased government-imposed regulation and reorganisation of the dairy industry, constraining growth in domestic production. The Chinese government also has a number of dairy policies in place to increase milk production, including accelerating large-scale farming, dairy breeding, feed programs, and increased monitoring and supervision of milk safety and quality.

Tariff environment: Australia and China agreed to start negotiations on a Free Trade Agreement (FTA) in 2005. The 20th round of negotiations was held in Canberra in May this year. While an agreement has not yet been reached, leaders of both countries have stated that they want to conclude negotiations by the end of this year.

The China-New Zealand FTA came into effect in 2008, providing a commercial advantage to NZ, which has seen its market share increase considerably. For example, in 2014 Australia pays a 10% tariff on milk powders while NZ pays 4.2%, which will continue to reduce until reaching 0% in 2019.

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Favourable conditions at outset for 14/15

By GLEN FISHER*

Dairy Australia
Your Levy at Work

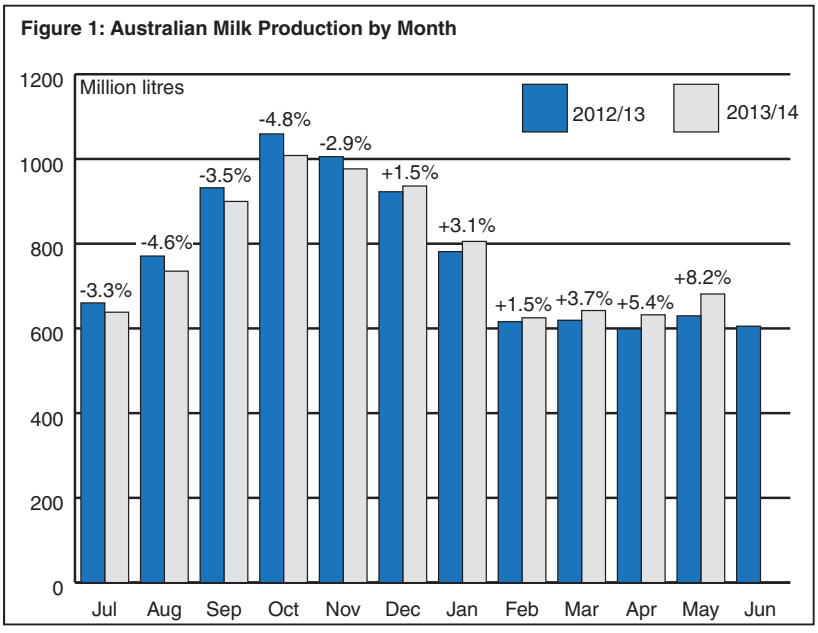
THE 2013/14 season closed with conditions broadly favourable for the current season across most of Australia's dairying regions despite lingering challenges in northern regions.

Overall, dairyfarmers are well positioned for the winter in the south-east, given advantageously timed rain supporting excellent pasture establishment and growth during autumn. Season 2013/14 average farmgate milk prices from export-focused companies approached levels not seen since the 'soft commodity boom' days around 2007/08. These near-record level prices have contributed to increased milk production and significantly improved financial performance for many, enabling some prudent debt servicing and consolidation of farm financial positions and for some the opportunity to carry out some previously delayed farm maintenance or on-farm investment.

In contrast, conditions in the northern regions and pockets of Western Australia have remained markedly less favourable. Sustained dry conditions across dairying regions in Queensland and northern New South Wales in particular have led to shortages of feed. On top of inadequate rainfall in northern regions, sourcing and costs of feed inputs remain challenges, although there has been some positive improvements in the milk price outlook brought about by increased competition for milk supply. In Western Australia, the region around Denmark and Albany experienced an unusually dry autumn with rain coming late, while other dairy regions in the state experienced generally more favourable seasonal conditions due to early rains and mild weather.

Still, the latest available monthly production figures from May highlight the strength of the recovery in the second half of the 2013/14 season across the south-eastern production regions. Same-month-prior-year volumes increased markedly in Victoria (+10.8%) and Tasmania (+17.6%); and in contrast to earlier months, volumes were also up modestly in both South Australia (+2.0%) and New South Wales (+2.2%), which also helped to offset the continued declines in Queensland (-5.2%) and Western Australia (-4.5%) and contribute to overall growth at the national level (see the Australian Milk Production by Month chart).

Figure 1: Australian Milk Production by Month



Tasmania year-to-date (Jul 2013-May 2014) production now sits +5.3% above the same period prior year; and higher farmgate milk prices, favorable rainfall and pasture growth feeding into high confidence levels continue to support the improved output and positive outlook for dairy on the island state. Victorian regions similarly continue to benefit from broadly favourable conditions, as the same trio of positive drivers, namely, higher farmgate milk price, favourable seasonal conditions and elevated confidence support production growth in the Eastern (Gippsland) region, up +2.5%, the Northern (Murray) region, up +1.2% year-on-year, and the Western Region, which is still narrowing the gap in year-to-date terms (-1.5%). South Australia is showing some signs of recovery, with a second consecutive month of positive growth (+2.0% up on the same month prior year) broadly reflecting the same combination of drivers at play as elsewhere in the south-east.

At the time of writing on the cusp of the new season, major dairy companies have just announced strong opening prices, or base farmgate price rises, and in some cases new production incentives for suppliers across the country's dairying regions. In the export-focused south-east, rendoubled competition for milk supply by dominant players Murray Goulburn and Fonterra is seeing announced average opening prices set above the prior season's level and both major exporters are forecasting full-season price ranges that should see the year-end farmgate prices remain at relatively high levels in 2014/15. In the domestic-focused supply regions of Far North Queensland, south-east Queensland and Western Australia, processors Lion and Parmalat have also announced significant increases to their suppliers' farmgate prices.

However, as many are no doubt aware, also on the radar across Australia's dairying regions is the risk of an El Niño event, estimated as 70% likely by the Bureau of Meteorology and likely to bring drier than average winter and spring conditions across southern and central regions. Farmers should in any case be prepared, given the potential impacts that an event could have on availability and costs of feed and water inputs. Meanwhile, with the positive developments announced on farmgate milk prices and broadly favourable seasonal conditions to date, putting aside the key exception in the form of that El Niño threat, the outlook for season 2014/15 is holding up well. D

Contact: Glen Fisher, Dairy Australia industry analyst, email <gfisher@dairyaustralia.com.au>.

Global market in uncertain state

By JOHN DROPPERT*

Dairy Australia
Your Levy at Work

DAIRY commodity prices have continued to ease through May and June, although the declines have been slower and less consistent. At the time of writing, GlobalDairy Trade (GDT) event 118 has just produced the first positive move in the overall GDT Price Index since early February.

This will give pause for thought to those buyers who have been 'kicking tyres' in the past few months, waiting to see how far prices will fall. Despite being a potentially important milestone, the 0.9% gain itself is not substantial, and is more likely to indicate a period of price stability than any significant recovery in the short term. Strong growth in milk output across key exporting regions is keeping pressure on prices, while the timeline of China's return to the market remains the subject of much speculation.

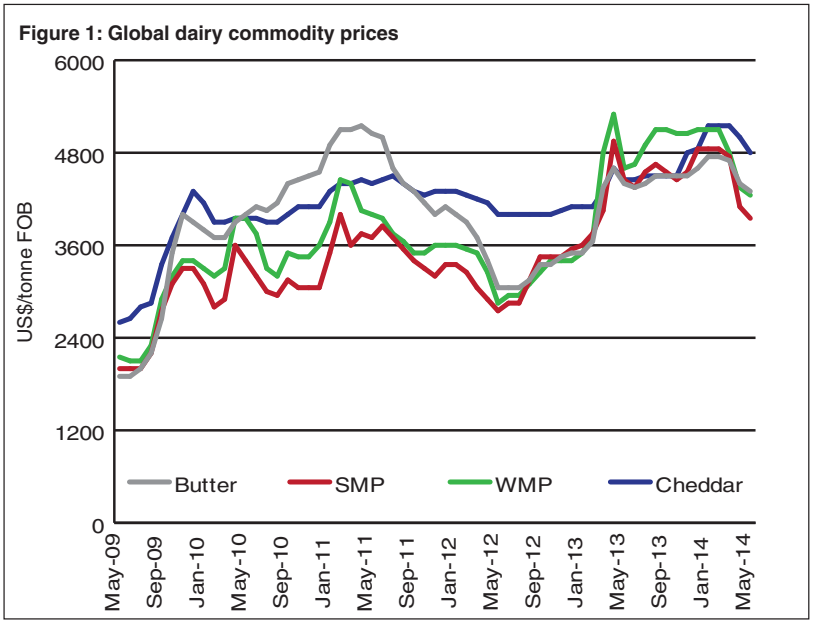
The 2013/14 milk production season wrapped up in New Zealand on May 31, with NZX Agrifax and Rabobank among those tipping growth to have exceeded 10%. Official data to April shows a vastly different second half compared with the drought-plagued 2012/13: production is almost 10% above the first 11 months of that season.

NZ manufactured product (primarily whole milk powder [WMP]) from the 2013/14 season is reportedly all but fully committed; a scenario supported by incremental increases in GDT pricing for prompt delivery. Expectations of increased production for the 2014/15 season have bought overall pricing down, however, as later (October-December) contracts lose ground.

Many European farmers have also been capitalising on the current environment of healthy margins and favourable weather. Growth has accelerated almost every month since July 2013, topping 6% in March. The first three months of 2014 saw milk production in the EU-28 exceed the same period in 2013 by 5.5%.

With much of this growth concentrated in the north-western member-states (United Kingdom, France, Netherlands, Germany) processors have been running manufacturing facilities at full capacity. Until recently, discounted sales offers were adding to the pressure on global milk powder pricing as these companies looked to move the extra product. The European spring peak has now largely passed, and these are drying up as manufacturers feel less pressure regarding their order books.

Figure 1: Global dairy commodity prices



May data from the United States Department of Agriculture (USDA) suggests the more sedate pace of US supply growth has changed little, with a 1.4% increase for that month, keeping the year-to-date increase just above 1%. Discussions with local analysts suggest that despite the slower-than-anticipated growth, much of the sector is in good shape as summer weather begins to arrive.

Slaughter rates have declined and the national dairy herd is increasing. Production is said to be surging across the 'northern tier' states from Washington across to Minnesota and through to New York in the north east. The fodder shortages of recent years are likely to be alleviated in Wisconsin and other Midwestern states, with first cuts of alfalfa (lucerne) yielding exceptionally well. Southern states such as California and Arizona are encountering hotter weather, however, and the outlook suggests drier conditions are on the way. Bushfires are also causing concern; particularly in those areas impacted by drought.

Dairy demand has been noticeably softer in recent months, as buyers have generally avoided forward commitments as prices eased. The substantial improvement in affordability has generated significant additional interest in price-sensitive markets such as the Middle East; however, until buyers perceive an imminent recovery in prices, this is unlikely to translate to firm orders.

Butterfat pricing may have already turned the corner, with some citing lower fat levels in northern hemisphere milk this year as generating a relative shortfall in dairy fats. The European 'Private Storage Aid' (PSA) subsidised storage program did not operate this year, removing one source of butter stocks data. This is causing discomfort in some areas of the market that are accustomed to having this information, and possibly adding a small risk premium to pricing.

Overall, the market remains in a phase of uncertainty, with indications suggesting that prices have bottomed out at least temporarily, but slow trade limiting the ability to test this. With milk production at seasonal lows in the southern hemisphere, and past the peak in the north, sellers are increasingly comfortable to play the long game, while buyers in major markets (especially China) remain well stocked and in no hurry to act. D

Contact: John Droppert, Dairy Australia analyst, email <jdroppert@dairyaustralia.com.au>.

Fish Creek's Paul Hannigan, Peter Young from Buffalo, Brown's Fertilizer's Sally Pate and Buffalo's Peter Collins are all part of the monthly discussion group that grew from the YDDP South Gippsland branch.

Dr Jamie McNeil from Korumburra Veterinary Clinic, with YDDP Gippsland co-ordinator Penny Cooper and YDDP South Gippsland committee member Luke Cockman at a recent YDDP heifer rearing information night in Meeniyan, which attracted about 50 people.

Long-time YDDP South Gippsland chair Wendy Whelan doing the important work with Paul Hannigan at a Christmas party event.

Planting seeds of future

KEY POINTS

DAIRY LEADERS

- ✔ South Gippsland leading the way
- ✔ Young Guns discussion group
- ✔ Connected to Young Dairy Network Australia

YOUNG farmers looking for inspiration in reaching their goals should look no further than South Gippsland. The Young Dairy Development Program's South Gippsland branch has nurtured a group of fledgling farmers to become the next generation of the region's dairy leaders.

Since its inception in the mid-2000s, the YDDP branch has used its networks and resources to provide information and career pathway advice for farm workers and young sharefarmers. Event themes are driven by the grass-root members, with surveys of attendees showing an 86% satisfaction rating with the sessions. Many of those inaugural members are now out on their own as farm owners or independent leasees.

YDDP Gippsland co-ordinator Penny Cooper, who started in the role in March this year, has already been impressed with the leadership of the South Gippsland branch. "It was obvious straight away that this was a group that was motivated and focused on what it wanted to achieve, both as individuals and as a YDDP branch," she said.

"They are hungry for knowledge that will improve their ability to be profitable farmers. Whether that's calving advice or information about farm finances, it all provides an advantage in helping them reach their goals."

Two YDDP farmers who are well on the way to reaching their goals are Buffalo's Peter Collins and Fish Creek's Paul Hannigan. The pair own and lease farms respectively, and are strong advocates of the self-help method of farmer groups like YDDP.

For 29-year-old Peter Collins, the information sessions continue to provide crucial knowledge that helps him to improve his farm business. "The last event — the heifer night — had a big impact," he said. "There's things we have changed already based on what we learnt that night."

For foundation member Paul Hannigan, YDDP has been an important building block in his development from Leongatha South sharefarmer to leasing his own dairy farm in Fish Creek with his partner, Kylie.

The 30-year-old is an ambitious farmer who wants to grow his business, but he wants to do things the right way, not the fast way. For a bloke who knew plenty about cows and pasture, but not much about business, YDDP offered a lifeline for financial decision making.

A financial forum for young farmers opened his eyes to a new way of thinking about how he approached his business practices. "That seminar was a stand out from the business side of things," he said.

"The only way to learn that sort of thing is by being taught it. It was covering business analysis and key profit drivers.

"I grew up on a farm, but I didn't know anything about the business side of things... and a lot of dairy employees are the same. They know how to milk cows but they don't know what happens on the other side of the milk shed."

The growing maturity of the YDDP branch members saw Mr Collins and Mr Hannigan form a discussion group known as the Young Guns.

Mr Hannigan said the 15-strong group held more detailed discussions, using their own experiences to help each other out.

GippsDairy executive officer Dr Danielle Auldist said the South Gippsland branch was a wonderful example of how YDDP could help foster the next generation of dairyfarmers. "Since day one, this branch has been motivated and willing to make every YDDP event a success," she said. "We can really start to see the young farmers developing their skills as herd managers, fodder growers and business people.

"The way Peter and Paul stepped up to establish the Young Guns discussion group show that these guys are serious about doing the hard yards of increasing their farming knowledge in their quest to have successful careers in the industry."

Dr Auldist said the YDDP South Gippsland example should inspire other young farmers around Australia.

For the next generation of YDDP committee members like Luke Cockman, watching the development of South Gippsland branch "veterans" offers encouragement that younger farmers can achieve whatever they set their minds to.

"It's those guys that are the foundation of YDDP and they are drawing in a lot of new farmers into the group," he said. "If you are motivated towards owning your own farm, they are brilliant examples of what is possible, that it can be done."

Mr Cockman, who has made an unusual career move from secondary school teacher in England to South Gippsland dairy employee, said he had found the YDDP experience — and the wider dairy industry — to be surprisingly open and willing to share knowledge. "I think it's important that young farmers from this region are talking to each other and sharing information and learning together because this industry is going to be relying on this current crop of young dairyfarmers," he said.

YDDP is funded by GippsDairy as well as Rural Finance and a range of commercial and government sponsors. It has been run in collaboration with WestVic Dairy for the past six years.

There are 1100 people on the combined Gippsland and WestVic YDDP database, with seven regional committees providing 35 events for young dairyfarmers each year.

YDDP is connected to the new national initiative of Dairy Australia called Young Dairy Network Australia. D

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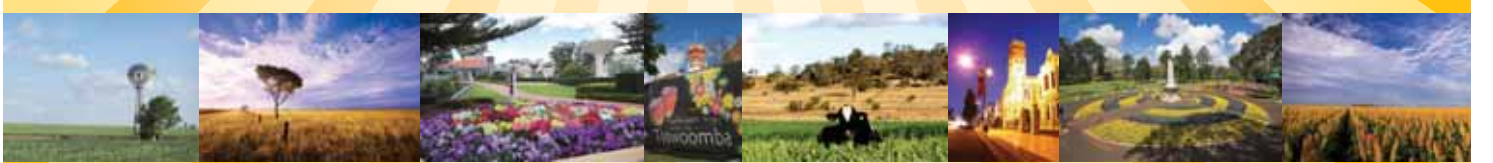

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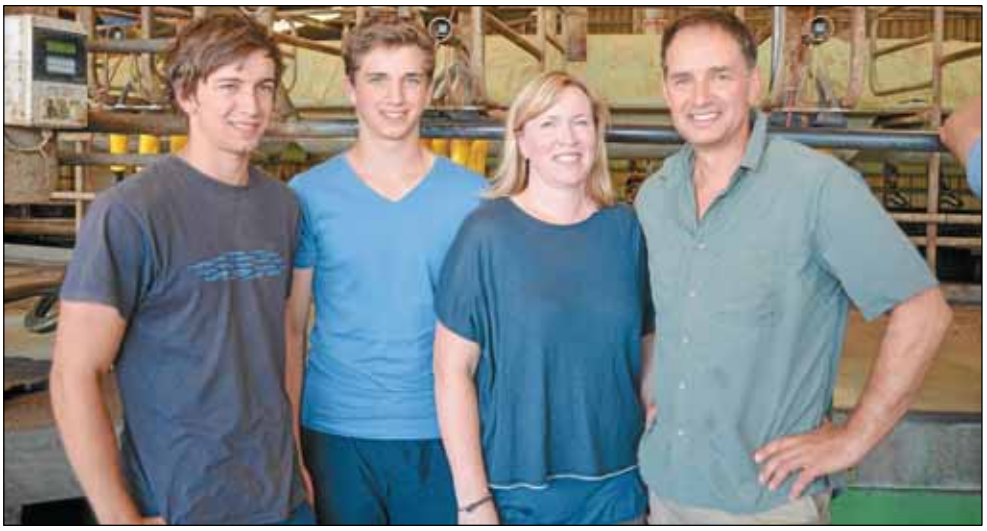

Fiona and Peter Musson with two of their children Jake and Harry. The children are encouraged to pursue something about which they are passionate.

Taking care of business

By CARLENE DOWIE

KEY POINTS

BUSINESS MANAGEMENT

- ✔ Business principles followed
- ✔ Strong people management
- ✔ All farmland initially leased

AN ABSOLUTE focus on business essentials in combination with strong technical ability has allowed Victorian dairyfarmers Peter and Fiona Musson to generate consistent high returns from their farm. The couple milks 800 cows off a 350-hectare milking platform from a total farm size of 728 hectares at Macarthur in south-western Victoria.

Good people management skills resulting in outstanding labour efficiency have also contributed to the couple's success, as has the use of a profit-calculator spreadsheet developed by Mrs Musson's father, Ian Webb.

The farm has been part of the Victorian Dairy Farm Monitor Project. In the difficult 2012-13 year it generated a 6% return on assets compared with a 0.2% average for south-west Victorian farms and a 3.7% average for the top 25% in that region.

But business success has not come at a cost to lifestyle. The couple have four children and play an active role in their lives and in the community. Mr Musson said he worked an average 60-hour week, still allowing plenty of time for other activities.

Mr Musson grew up on a mixed farm — predominantly a 130-cow dairy farm — in England, and after completing a Diploma of Agriculture, returned home to work on the family farm alongside two brothers.

Mrs Musson had no farming background, having studied psychology, drama and dance at university in Melbourne. She met Mr Musson, while visiting her father who was working in England at the time. They married and had their first child in England, and Mrs Musson worked off farm, including in banking.

Mr Webb then presented them with an opportunity that prompted the move to Australia in 1995. He offered to buy a dairy farm as part of his pension fund that they could lease from him at a commercial rate.

"The arrangement would only work if he could make as much from the land as if he had invested in shares," Mrs Musson said.

This has created an unusual business structure. The pension fund company owns most of the land and some additional land has been bought through it. The Mussons have subsequently bought some shares in that company and have also bought some land in their own right. They will continue to buy dairy blocks from the land-owning company, as Mr Webb moves to the next stage in succession planning of his assets with Mrs Musson and her two sisters.

The Mussons were able to buy their initial herd of cows by borrowing from another family member. They have since been backed by Rabobank, which has been confident to lend for their expansion as the Mussons have been able to prove their strong financial management.

The lease arrangement has been one of the keys to their success. Leasing from a family member with a long-term outlook at an acceptable rate for a pension fund has allowed them to develop the farm with confidence. It has also shaped their need to generate a good return on the business to show the investment was worthwhile.

Leasing land also allowed the Mussons to build their equity faster with the herd as their main asset.

Business focus

But the real key to their success is their focus on the business essentials.

"Many farmers don't have a handle on their finances," Mrs Musson said. "But what business would you invest in if you weren't on top of the finances and on top of the costs?"

The Mussons use a basic accounting program, Quicken, to track all expenditure and income. Data from this is then imported into an Excel spreadsheet, developed by Mr Webb, who has a background in corporate finance.

The spreadsheet has a series of worksheets. It contains budget forecasts that take into account multiple milk prices and compares actual performance against budget.

It also has a feed budget worksheet that calculates the return from the additional milk produced by different rations with feeds at certain prices.

Unlike many farmers, the Mussons refer to this budget spreadsheet frequently. Mrs Musson said reports were generated from Quicken imported into the spreadsheet and examined at least every month.

But when things were tight — for example at present they are developing a farm they bought in 2012 — they refer to the figures frequently to keep a track of expenditure so they don't "get caught unawares".

They set the annual budget conserva-

One of the low-cost simple gravel feedpads on the property.

tively. "In our budgets, we are pessimistic about the milk price," Mr Musson said. "We see step ups as a bonus."

The farm supplies Murray Goulburn on its flat milk incentive pricing, under which more than 40% of the farm's milk needs to be produced from mid-February to mid-August to receive the higher payments.

Mr Musson said the farm's autumn-calving pattern, which allows it to meet the production required under this pricing scheme, also suited the farm.

The farm is in a drier region (700 millimetre annual average rainfall) and has irrigation only from the farm's effluent system. Autumn calving means the farm is not dependent on summer rainfall; so they can let the cows dry off earlier if summer feed is tight.

Mr Musson said they would need to supplementary feed in April-May, regardless of when the cows calved, and under this system they were able to put together a ration for freshly calved cows that generated a good return.

Mr Musson is highly skilled at managing feeding. The farm has two simple low-cost gravel feedpads near the dairy. Feeds are mixed in a wagon. A nutritionist is used to help formulate the ration but Mr Musson said he "works them hard".

"I'm not concerned how many litres the cows are producing or what I am feeding," he said. "I just want to beat the financial benchmarks set from previous years."

When working out a ration, he uses the feed budget spreadsheet that calculates the return on marginal milk — the extra milk produced from the additional feed. It converts all feeds to a dollar/megajoule of metabolisable energy rate. Mr Musson also uses a benchmark for how much milk can be produced from home-grown feed at any time of the year to calculate the marginal milk being produced from the extra feed.

"If it is not going to work, we don't do it," he said. "If we've got to September, we will cull extra cows (rather than feed more) ▶

Calves on the Musson farm. Crossbreds were used up until recently but with opportunities for more excess heifers for sale on the export market the herd is switching back to purebred British Friesian.

as that makes it easier to hit the domestic payment (MG flat milk incentive payment scheme)."

They will feed to maintain cow condition, but monitor that closely to ensure it is at worst cost neutral.

First-class pasture management is a critical part of the operation. A third to half the farm is resown each year depending on the season. Summer crops are also grown annually if needed as part of the pasture-renovation program.

They also work to have a good reserve of home-grown silage to handle the climate risk of a dryland farm. Last year this feed proved critical when south-west Victoria was hit with an extremely dry summer and autumn.

The recent purchase of additional land (a 275ha farm with three houses bought in 2012) will allow the Mussons to further reduce their feed costs by allowing them to produce more home-grown silage.

Assessing investments

The Mussons also take a savvy approach to investments — they don't spend money that is not going to generate a return. Improvements to the dairy, including automatic back-up gate, cup removers and ADF teat-spraying clusters, as well as paddock gate timers, were carefully assessed for things such as improvements in labour efficiency or milk quality and what return they would generate. Every investment is expected to have a payback period of five years or less.

When they looked at buying the additional farm in 2012, they started at the feed budget — what could they do with the additional feed the farm would produce and what would be the flow on impact on cow and heifer numbers and labour requirements.

The decision to buy the farm was also influenced by the fact that it had three decent houses. The Mussons had been looking at buying houses for employees in nearby Macarthur. But houses of a lesser standard than those on the farm would have cost about $200,000 each — so the farm purchase made more sense.

People investment

People management is also an important part of the Musson operation. Mrs Musson said as the farm grew, staff became critical.

The Mussons last year won the Ambleside Wealth Advisers Employer of the Year title at the Great South West Dairy Awards in recognition of their excellence in this area of farm management.

Mrs Musson is responsible for the human resources side of the business including occupational health and safety, administration and contracts. Mr Musson is responsible for the day-to-day management of the staff.

All staff are multi-skilled and are expected to be able to manage all the basics of milking and feeding out. Once the basics were covered, staff tended to specialise in areas of interest — for example one might be more interested in machinery, so would do more of the maintenance work.

"People enjoy a varied role," Mrs Musson said. "That helps us keep them longer."

Mrs Musson said having all staff able to do all jobs provided more flexibility for the operation than having people specialise in certain roles. It enabled a roster to be set that gave everyone two days off a week, including every second weekend.

People were able to swap rostered days if they wanted, for example, to attend a particular event but they were expected to organise this between themselves.

A time clock system is used with people working an average of 43 hours week. "Long hours for employees do not necessarily mean greater productivity," Mrs Musson said.

The Mussons have not had any difficulty in recruiting staff. They placed an advertisement in one edition of the *Warrnambool Standard* two years ago and attracted more than 20 applicants from around the world. Some interviews were conducted using Skype and quality staff employed.

"That really opened my eyes to the possibilities for the farm, as staffing didn't seem to be an issue, when offering a good work package," she said.

Peter and Fiona Musson have a strong handle on the financial management of their business that has enabled it to produce consistently good returns.

Benchmarking

Mr Musson said benchmarking was also important for the business. The Dairy Farm Monitor Project data provides a useful comparison with other farms both within the region and throughout Victoria. The Mussons and Mr Webb look closely at the data generated to see where improvements could be made in the business.

Mr Musson said it also was important to have advisers — whether accountants, agronomists, the seed man or nutritionists — who understood the business and the farm.

It was also important to put that advice into the overall context of the farm. For example, it was vital to understand the costs of recommended feeds and how that would impact on the profitability.

Succession planning

The Mussons are moving to the next stage of their farm business and plan to gradually buy more of the land.

Their oldest son is studying agriculture at university and is employed in the business during holidays to help cover staff annual leave. The other children are still at school.

The Mussons are not sure if any will want to go into farming, but said the model they followed of being able to lease land at a commercial rate could be a good one for the next generation if they wanted to farm.

"The kids know it is a profitable business and built from scratch," Mrs Musson said. "They are also encouraged to follow their own passion." D


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Computerised dairy transforms business

KEY POINTS

COMPUTERISED DAIRY

- ✔ Increases labour efficiency
- ✔ Allows advance planning
- ✔ Provides info for business decisions

CASEY and Bonnie Taylor didn't set out to install a computerised dairy — the system came with the automation equipment they needed. But having a fully computerised system has transformed their dairy operation well beyond the milking system. As well as saving a labour unit and changing the way they go about their daily tasks, it has freed time and energy for the couple to focus on other aspects of the farm business.

Casey and Bonnie dairy with Casey's parents, Peter and Wendy, at Heathmere near Portland, Western Victoria. The autumn-calving herd averages about 500 kilograms milk solids a year from pasture and about 600kg of pellets per cow. In 2009 the 30-year-old dairy was replaced with a 40-unit rotary.

"We definitely wanted to have automatic cup removers and autodrafting but it was pretty much the same price to take a package that also included milk-flow meters and Alpro, DeLaval's herd management software," Casey said. "At the time we had no idea that it would have such a far-reaching impact on our operation."

Combined, the automation and herd-management software have enabled the Taylors to expand the herd from 370 to 480 cows without employing any additional labour. The two couples run the farm with help from a full-time employee, a school-based apprentice and two part-time milkers.

The feedpad on the Taylor farm. The Taylors now use herd-management software to feed different levels of concentrates in the dairy.

Casey said the idea of moving to a fully computerised system was more daunting than the reality.

"Bonnie and I were both comfortable using computers but the prospect of going fully computerised was a bit scary," he said. "It was actually much easier than we expected. DeLaval trained us on farm and help is always on hand as their helpdesk is open 24/7."

Bonnie and Casey Taylor with their son Banjo. The couple said a computerised dairy had allowed the family to expand its dairy herd without additional labour.

Casey said that the combination of automation and Alpro had changed the way he approached routine tasks of dairyfarming, freeing him from the need to be in the dairy as often.

"Alpro allows me to plan ahead and organise tasks in advance," he said. "I can set the system to draft certain cows several days in advance. This is really handy for jobs like drying off, blanket inseminations and culling. For example, if the vet is coming, I can set the computer in advance to draft the cows to be examined and then it doesn't matter if I'm milking that morning or not. I use that advance planning all the time and it has given me a lot of flexibility and reduced the daily pressure.

"Without having to give so much attention to the day's urgent tasks I have time and energy to think about the bigger picture of our dairy business and where we want to take it."

Casey schedules regular time to review Alpro reports. He also has the system set to send him an 'alert' under certain circumstances, such as a sudden drop in a cow's milk production.

"With in-line milk meters we have daily access to the sort of information we previously only got when we herd tested," he said.

"Because the information is available daily, we have a more accurate picture of our herd and we make more timely decisions and responses.

"It allows me to keep tabs on what's happening and to see the impact of various management decisions."

Casey finds the alert system particularly useful in early lactation and at joining. He has refined the settings so that he gets alerts that suit his operation.

"It's helped us pick up and treat animal health issues earlier, such as retained foetal membranes and lameness," he said. "We've also noticed that some cows will drop production when on heat and that's helped us pick up heats that we may otherwise have missed."

For culling decisions, Casey and Bonnie use a combination of reports from Alpro and the milk processor.

"With cup removers, cell count is rarely an issue so we have the luxury of being able to cull for other issues," he said.

Casey also uses Alpro to allocate concentrates according to individual milk production.

"Some cows in early lactation get 3kg a day while others get 7kg," he said. "Five years ago, we blanket fed the whole herd. But Alpro has allowed us to identify which cows will convert the extra feed into milk and which ones will not deliver a profitable return on the extra feed.

"We probably buy about the same amount of feed per year, but these days we use it more wisely, so we get a better return on our investment in concentrates."

Bonnie is also a keen user of the herd-management system, particularly for managing the breeding program and calf rearing.

"We usually rear about 50 surplus heifer calves, and Bonnie uses the herd management system to identify which ones to sell for export and which ones to keep," Casey said. "She also uses it when making breeding and culling decisions.

"Alpro works well with multiple users. Bonnie and I are both on it most days. It's easy to use and an integral tool for our dairy business."

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Milking the margins

KEY POINTS

UNDERSTAND MARGINS

Price and cost volatility
Understand expected responses and returns
Difference between profit and loss

AT recent discussion group days in south-west Victoria, consultant Janet Sloan presented information to dairyfarmers around understanding how much it costs to produce milk and how the dairy farm operator can influence their success in making a profit.

"Farmers need to know more than just what it is costing to produce their milk; they need to understand how they can influence these costs to improve their profit position despite what the milk price is doing," Ms Sloan said.

"Farmgate prices in the past seven years have varied by $3, grain by $100/tonne and fodder by $100. That's a lot of difference, coupled with variable seasonal conditions and water availability.

"To to be confident in making a profit from dairyfarming in these conditions, understanding the responses and expected returns is paramount to success."

Ms Sloan outlined a recent Tasmanian study that indicated the top 10% of farm performers increased their profits by more than 20% than average performers when the milk price improved.

The key influencing factor was the top performer's management skills in understanding the responses from increased or reduced inputs. Top-performing farmers assessed whether the changes they made were generating extra money and profit margins for their business.

"With a likely weaker farmgate milk price in the 2014/15 year, knowing how much it is costing you to produce your milk will ensure that you can respond to the change and position your business in the best place to still make a good profit," Ms Sloan said.

"If you're not sure how to work these things out, or are unconfident in your skills in this area, invest in people who can help you. Seek out training opportunities, hire a consultant or join a profit-focused discussion group. If you want to stay in the industry long term and make good returns on the time and resources you have invested, spend time and energy getting the skills you need to make a good profit.

"If you think you are doing things the best that you can, test your assumptions, because average performance costs. It's the difference between making a small profit in a bad season and making a big loss. If you have not measured your business performance, how do you know if you are doing the best you can be doing?"

Farmer participants said being able to analyse costs of production and profit margins in a practical session on a local farm with similar practices was a highly suitable way of learning and they would recommend the process to other farmers. D

Contact: for more information on how to measure a farm's performance and cost of production, phone Janet Sloan, phone 0428 520 350.

Janet Sloan presents results of farm performance and the impact on profitability.

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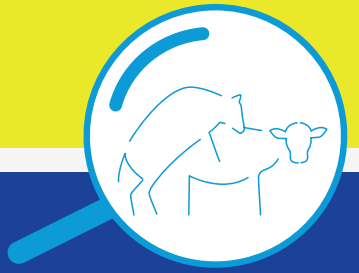

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Assessing investment in new irrigation system

By RABI MASKEY*

KEY POINTS

IRRIGATION INVESTMENT

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- ✓ 24ha laser-graded
- ✓ Upgraded outlets improved flow rates and application times
- ✓ 26 ML of water saved

THIS article is about one of a series of case studies that examine the benefits and costs of changes made to farm irrigation systems in northern Victoria as part of the On-Farm Water Use Efficiency Program (Farm Water Program). This case study focuses on the benefits and costs of investing in improving a surface irrigation system by implementing laser-graded improved border-check irrigation on a dairy farm in northern Victoria.

The property is a 107.9 hectare dairy farm in the Shepparton Irrigation Region of northern Victoria. Of the total farm area 89ha is irrigated, comprising 52ha of perennial pasture and 37ha of annual pasture. The dairy herd comprises 200 milking cows. The project area covers 24.13ha of perennial pasture.

Before the upgrade the irrigation system involved 10 90-centimetre doors and 35 clay pipes with a 15cm diameter. It took between 36 and 44 hours to irrigate the 24ha, with six clay pipes opened at a time. The irrigator applied 12.4 to 15 megalitres/ha per year.

The project involved laser grading the 24ha project area into nine irrigation bays with one outlet per bay. With the upgrade, water application is now 10ML/ha, at a 20ML/day flow rate. Irrigation is completed within 14 hours through the nine bay outlets.

The Farm Water Program assessed that the improved irrigation project would save 26 megalitres of water, of which 13 megalitres were transferred to the government.

In return the landowner received $57,452: $28,726 upon the transfer of the water to the government and the remaining $28,726 upon completion of the works.

Project benefits and costs

A partial 'financial discounted cash flow' analysis was applied to show the net increase or decrease in income resulting from the proposed changes, not profit or loss for the farm as a whole. The analysis period is 20 years, which is the estimated productive life of an irrigation infrastructure at a discount rate of 5%.

Project costs include investment cost, operation and maintenance costs, production foregone, labour cost and pasture establishment cost (see Table 1). Project benefits include the financial incentive from the Farm Water Program, water savings, productivity increase, time and labour saving and salvage value at the end of project life (see Table 2).

Table 1: Project costs

Costs	
Investment cost: installation of nine bay outlets and structures; laser grading and associated earthworks on nine bays over 24.13ha	$71,854
Labour cost: decommissioning old infrastructure; project management	$25,000
Production foregone costs: 150 tonnes dry matter at $200/t DM to replace production from 24.13ha during construction	$30,000
Pasture re-establishment: pasture re-sowing in lasered area at $250/ha	$6000
Annual costs	
Maintenance cost 2% of capital cost	$1438/year

Table 2: Project benefits

Incentive Value Farm Water incentive — 50% of the total funding is considered the incentive	$28,726
Water saving during construction stage	$17,856
Salvage value — 30% of capital cost end year 20	$21,556
Water savings 2.4 Ml/ha @ $60/ML	$3456/year
Time saving — 4 hours per irrigation @$25/hour	$2000/year
Productivity increase — 2t DM/ha	$9600/year

Table 3: Economic indicators

Economic indicators	With Farm Water incentive	Without Farm Water incentive
Net Present Value @ 5% discount rate	$90,206	$62,848
Benefit-Cost Ratio @ 5% discount rate	1.60	1.42
Internal Rate of Return	14.35%	10.50%
Years to break-even	8 years	12 years

Table 4: Single parameter benefits required to be no worse off

	Pasture Improvement (t/DM/ha)	Labour Savings (hours/ irrigation)	Retain water savings ongoing* (ML)	Water savings to be sold** (ML)
Incentive	2.3	20	165	74
Without Incentive	2.9	25	208	93

*Calculated using a temporary water price of $60 per megalitre
**Calculated using a High Reliability Water Share price of $1800 per megalitre

Findings

The irrigator reported that faster irrigation reduced water logging, which may have led to improved pasture quality and quantity by ▶

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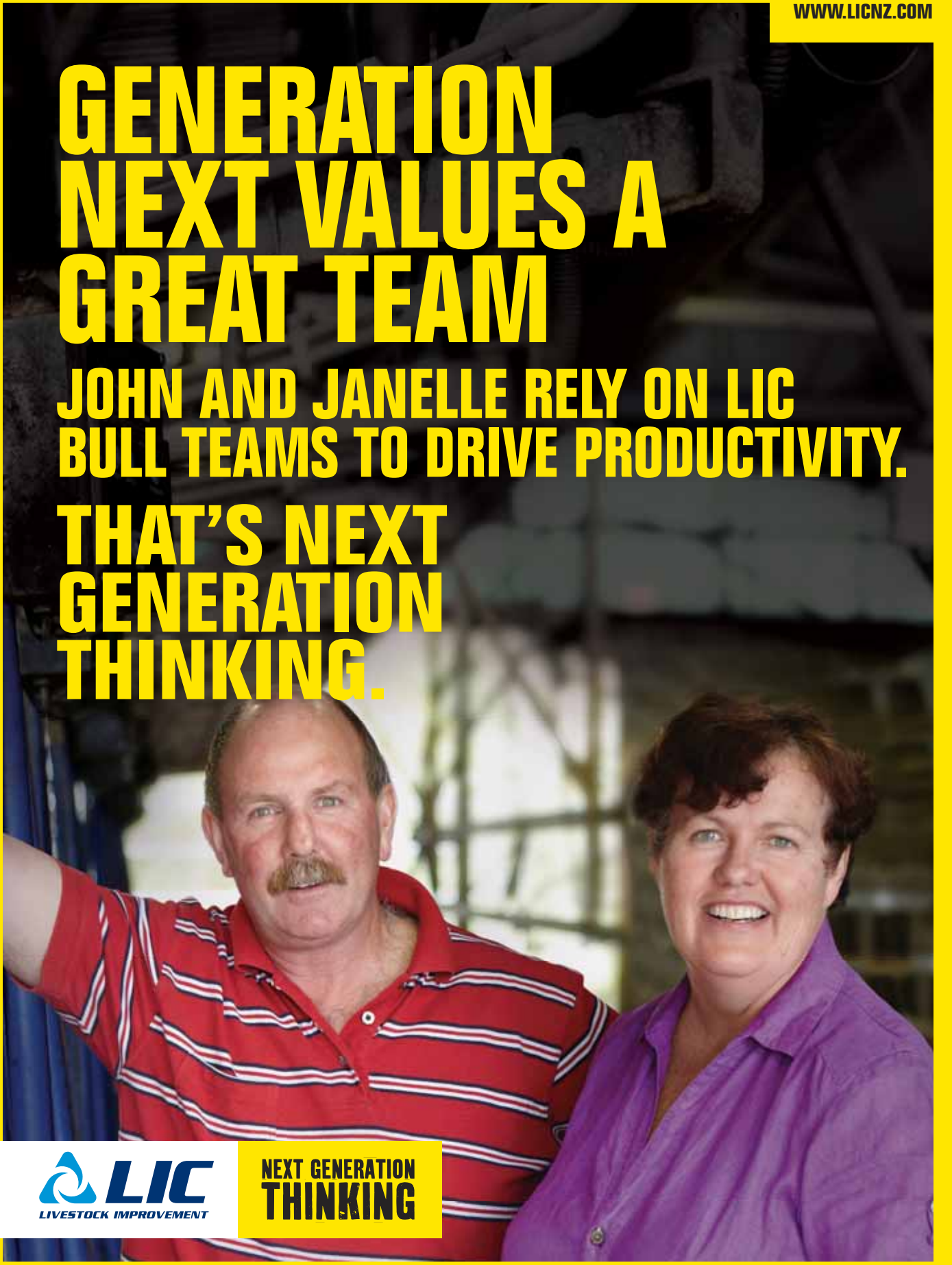

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Cows reap benefits of better irrigation systems

GETTING water on and off pasture is a huge benefit for Nathan Shannon. It's what experts say will achieve the greatest growing results for the pasture at his Naring, Vlc, dairy farm.

But, it wasn't until Mr Shannon's irrigation system was upgraded through Goulburn-Murray Water's (GMW) Connections Project that he could irrigate this way.

"The biggest benefit for us is being able to put water on and get it off in four hours," Mr Shannon said. "I can irrigate twice as much per day and with the high flow rate I can get more again."

Mr Shannon runs the 400ha fully irrigated property with his parents Bryan and Lyndy. They milk 600 cows, but aim to expand to a 700-head Holstein Friesian herd.

The family milks in a 50-stand rotary dairy and is reaping the benefits of good pasture management with the herd achieving a milk solids rate of 600 kilograms/cow/year.

When GMW connected the Shannons to the backbone, four wheels were replaced with one automated gate and two kilometres of spur channel was decommissioned.

"Since then flow rates have improved and we can irrigate more land," he said. "We were using 10ML to irrigate about 16ha/day, now we're using 20ML and we're doing 40ha/day.

A new irrigation connection has allowed Nathan Shannon to improve the productivity of his farm.

"The system gives us the ability to put water on when the plants need it."

Another section of irrigation on the Shannons' property was upgraded with the help of On Farm Efficiency grants, with a pipe-and-riser system established.

"This has turned almost dryland into highly productive land," Mr Shannon said. "Previously we had trouble getting water on because it was higher ground."

GMW's Connections Project is connecting landowners to the backbone.

The water corporation is investing more than $2 billion from the State and Federal governments to improve the delivery of water to irrigation businesses across the Goulburn-Murray irrigation district.

GMW managing director Gavin Hanlon said the project aimed to increase irrigation water use efficiency from about 70% to at least 85%. "Modern channel automation technology is sensitive enough to detect discrepancies in water delivery and to identify where maintenance is required," Mr Hanlon said.

"Critical water level and flow monitoring via automated gates ensures precise amounts of water are delivered when and where they are needed, shortening ordering times and providing more consistent and reliable delivery of water to irrigators."

Contact: Website <www.gmw-connectionsproject.com.au>.

◀ eliminating water stress. The irrigator reported that the irrigation water was "gone in four hours after irrigation" with the new system.

A productivity increase of two tonnes dry matter/ha/year was reported. In addition, the irrigator reported water savings of 2.4 megalitres/ha/year and a reduction in irrigation time.

With the upgrade, irrigation time decreased from 36-44 hours to 14 hours. But this reduction of 22 to 30 hours of time spent chasing water cannot be considered as total labour savings, as the irrigator does other farm activities during irrigation. The irrigator suggested four hours of effective labour being saved.

From the financial perspective, and given the data and assumptions used in the analysis, upgrading and improving the irrigation system was a viable option as indicated by three key economic criteria — net present value, benefit-cost ratio and internal rate of return (see Table 3).

Even without the financial incentive, the project is viable. However, it would require substantial upfront cost and would take a longer time to break-even.

All the above analyses were conducted based on the productivity information provided by the landowner. In the absence of experimental data, it is difficult to quantify the actual benefits to assume in the partial budget.

In such a situation, one of analysis methods would be to determine the level of productivity improvement, reduced water usage or labour savings required for the investment to be profitable.

Table 4 shows the single parameter benefits (considering one parameter at a time) that need to be generated to make the project viable at 5% discount rate across 20 years.

For example, considering only productivity benefits, landowners should be able to generate 2.3 tonnes dry matter/ha/year (with incentive) and 2.9 tonnes dry matter/ha/year (without incentive) to make the project viable.

The improved border check irrigation investments can be a financially viable investment, especially with the assistance from a program such as the Farm Water Program.

Less developed farms will have more to gain from irrigation infrastructure upgrades than developed farms, provided the operators have the necessary management skills to capture the potential benefits. These irrigators can achieve a higher level of water savings and productivity increase since they are starting from a base level.

The magnitude of the benefits is particularly sensitive to the productivity increase from the investment.

The sensitivity of financial desirability to the productivity increase, highlights the need for landowners to consider their own circumstances and to assess the productivity gains to be made before considering irrigation investments.

There are intangible benefits of the investment that are not included in a benefit-cost analysis that are important to consider in the decision-making process. Relevant examples of intangible benefits are the convenience, flexibility and lifestyle benefits that can be provided by new irrigation technology. D

Contact: Rabi Maskey, Department of Environment and Primary Industries, Tatura, Vic telephone (03) 5833 5378 or email <rabi.maskey@depi.vic.gov.au>.

**Rabi Maskey is with DEPI at Tatura, Vic. This article courtesy of* The Dairy Bulletin.

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Tas farmer's plan to tackle succession

By WILLIAM VALLELY

KEY POINTS

SUCCESSION PLAN

- ✔ Farm owned by community fund
- ✔ Cows bought by fund gradually sold to sharefarmer

A TASMANIAN community fund has taken dairy succession into its own hands. Led by sharefarmer Stephen Fisher, the Circular Head fund bought its first 500-cow dairy at Edith Creek for $3.5 million, with the aim of having a sharefarmer on it within months.

Mr Fisher, who used equity from his 1000-cow sharefarming operation at Togari, Tas, to buy the farm, plans to find half a dozen local investors to support the project, which will allow a farmer to build equity without the initial capital outlay of buying cows or land.

The model differs from traditional sharefarming as it allows a person with limited cashflow to progress through the industry to farm ownership. The system is designed to initially carry the debt for the farmer, which will be reduced in time as the farmer builds equity from the farming operation.

Mr Fisher owns all the financial units of the property and said when unit holders came on board he would sell some of his equity off to other investors to pay down his accrued debt.

Current rules around property trusts cap annual investment at $2 million and enforce an upper limit of 20 transactions per calendar year.

"Our goal as a fund is not necessarily to own the cows — we want to help someone eventually own some cows," said Mr Fisher, who added the model could help improve succession within the industry.

"What happens if I have a farm and I want to sell it? What have I done to bring the next person through to put them in a position where they can buy it from me?

Stephen Fisher: Supporting the sharefarmer is crucial to making the model successful.

"If I don't do anything to help that process, I'm my own worst enemy."

Mr Fisher said having motivated people working on the farm meant the model would work at no long-term cost to the investor.

The model will be used as a prototype, ▶

◀and if successful will be rolled out on a larger scale through multiple farms in the State's North West.

"We don't want to start as big as Texas; we want to start small and see if it works, which I believe it will," he said.

He said working capital would be required from local banks to buy the cows initially, which the sharefarmer would be able to buy after a period of time.

A renowned dairyfarmer in the Circular Head region, Mr Fisher said his idea originated 12 months ago when he was approached to manage a number of local farms that European investors were set to buy.

"I said if they're focused on people, yes; if they're focused on profit, no," he said. "My philosophy is if you focus on profit you waste people.

"I thought 'Why can't we do that ourselves?' There's a lot of money kicking around in self-managed super funds.

"Why can't we set up a vehicle to access these funds so we can keep our own land?"

Mr Fisher said the potential investors he was speaking to were not necessarily dairyfarmers but local people "passionate about not selling our land to the corporates".

"I looked at our dairy industry and were just sitting back waiting for foreign investment," he said. "If this country is such a wealthy country, why are we waiting on foreign investment to come and buy our own land?

"What are we going to do about it ourselves? Do we just give up and say 'It's too hard' or do we say 'What can we do?'"

Supporting the sharefarmer was crucial to making the model successful, Mr Fisher said.

He employs six people at Togari, three of whom have worked for him for 10 years or more. "I believe if you look after that person, the fund will do well," he said.

"It's more than money most of the time that keeps people with you." D

Happy investing in the herd

WHILE some people see share-farming as a stepping stone to farm ownership, Stuart and Karen Burr are happy with their lot as livestock owners. The Burrs are in a 50:50 share farming partnership with the Cox family on a 250-hectare farm at Ringarooma in north-east Tasmania.

They started five years ago with the purchase of 330 cows and have progressed to owning 400 head.

With a nearby farm coming on the market, that number could more than double in the near future but if the steady-as-it-grows policy continues, that will also be fine for the Burrs.

"We don't want to own land. We're quite happy owning stock and just progressing by growing stock numbers," Stuart Burr said.

The long-term farmer sees opportunities for growth and less financial stress from concentrating on stock.

"There is much better equity growth in stock numbers than there is in land. At our stage we don't want the big outlay of buying land and having that much debt. Having infrastructure can be good but there is a bit more risk involved."

Mr Burr said the family wanted to avoid being "trapped" later in life having land that might be difficult to sell.

After leaving school he started in the dairy industry as an apprentice, working on the farm for 10 years before spending four years in other jobs. He was lured back to dairy when he was offered a management role at a 600-cow dairy farm.

"I was doing shift work and didn't really like that and the opportunity came up to manage the farm so we went back to dairy," he said.

About five years ago the Burrs decided to take the next step and invest in the cows. It's a decision they don't regret. "We're pretty happy with the way things have gone since we've been here," Mr Burr said.

Stuart and Karen Burr with their sons Hayden and William work as a family team on their farm.

In fact, with the prospect of expansion on the horizon, he is optimistic about the future of the dairy industry.

"I think the outlook for the next 10 years is better than it has ever been as far as profitability goes.

"There will be a downturn in price sometime over the next few years, but long-term it's looking pretty good. When prices are up we are able to pay off more debt and keep that under control so when the prices are not so good, we can manage."

The Fonterra suppliers produce between 450 and 530 kilograms of milk solids per cow a year and are enjoying a strong season with improved prices. "I'm proud just to do a good job and be doing well financially out of it," he said..

They have mostly Friesians with about one-third Friesian-Jersey cross. "From a share-farmer's perspective, Friesians have more equity," he said. "They are a bigger cow and their calves are worth more. It's all economics; 400 Friesian cows are worth a lot more than 400 Jersey cows."

The Burrs aspire to produce about 85% home-grown feed but that depends on conditions and milk price.

When the milk price is high they aim to boost production by supplying above average amounts of feed.

"If the milk price is better than what we're paying for grain we're happy to put more in to boost production," Mr Burr said. "It's a yearly strategy that depends on conditions at the time."

The partnership has worked well for both parties for five years and is set to continue. "The critical thing is to have a really good farm owner who is happy to support you in what you want to do and support growth on the farm. It's important that the sharefarmer is able to grow," Mr Burr said.

The current set-up gives the Burrs the flexibility they need for family life. In fact, Mr Burr said the image of dairyfarmers being stuck on the land was outdated.

"If you want a day off you can organise it when you want it," he said. "Being your own boss gives you that flexibility.

"There are busy times of the year and work that has to be done but generally you can arrange a day off when you want it. People working nine-to-five jobs don't have that opportunity.

"I think the flexibility in the dairy industry is the best it has ever been. It used to be if someone went dairyfarming they would milk every day and every night. Cow numbers have grown and with bigger herds you have more employees and more flexibility."

That's where he sees a role for the Legendairy communication initiative to build the reputation of the industry. "Anything that lifts the profile of dairying is good for the industry," he said.

Focusing on details

By LAURA GRIFFIN

KEY POINTS

SMALL FARM

- ✔ Focus on cow health and fertility
- ✔ Pastures renovated to improve farm
- ✔ Cost control vital

BELINDA and Trent Crawford's Binginwarri, Vic, dairy farm proves bigger is not always better.

Consultant Matt Harms said being a GippsDairy Focus Farm had put the South Gippsland operation, with a milking area of 78 hectares, a milking herd of 144 cows and a seasonal calving pattern, under scrutiny and had proved a small dairy farm could be profitable as long as it was run well.

"When things, including pasture management and animal management, are done well with attention to detail, results will follow," Mr Harms said.

Mr Crawford was a vet in nearby Yarram for seven years and continues to prioritise animal health.

For example, he takes the drying off procedure seriously and said getting it right played a big role in keeping the bulk milk cell count below 150,000 all year.

"I look after my cows and they look after me by getting in calf — we have an empty rate of 4%," he told the about 35 people at the farm's final field day last month.

Being involved in the two-year Focus Farm program has emphasised to Mr Crawford the importance of doing things on time, including applying fertiliser.

Since starting a 10-year lease of Belinda's mother Margaret McDonald's 60ha farm (which had been used as a turn-out block for some 20 years) in July 2009 and buying an adjoining 18ha in July 2011, the Crawfords have renovated 45% of the pasture and have significantly improved the remaining "old grass" paddocks by applying fertiliser and managing grazing. Much of the discussions in the monthly support group meetings, attended by about 20 regulars including local farmers and service providers, were about how to renovate the pasture in the farm's wet soil type with Binginwarri receiving an average rainfall of about 788 millimetres, Mr Harms said.

The Crawfords also renovated the dairy, making it a 12-a-side swing over. The couple called on friends and neighbours to help transform the dairy and in the past month have again called in favours to help build a concrete bridge so cows can more easily cross a creek that runs through the property.

Doing as much as they can themselves helps to reduce costs.

They have debts of $230,000 on the land bought, car loan, tractor loan, remaining $50,000 on the house and its block.

With an asset base including land, house, machinery, stock and an increasing Farm Management Deposit, their total equity has increased from $572,000 in May 2012 when the Focus Farm program started to $755,000 at the end of June 2014 (total increase of $183,000) despite poor winter and springs and low milk price in 2012-13.

During the two-year Focus Farm program, the Crawfords have also achieved their goal of improving profitability from the small farm: 2011-12 earnings before interest and taxes were $91,448, in 2012-13 $42,000 and in 2013-14 $176,000 and a cash surplus of $106,000 is expected.

The money Mr Crawford makes from veterinary work is excluded from the farm finance analysis and any veterinary services he performs on the farm are costed to the budget at commercial rates.

Belinda and Trent Crawford have built equity in their farm by focusing on cost control.

The couple has also lifted production from the existing milking area and herd size (2011-12 production 71,830 kilogram of milk solids to 2012-13 production of 79,305kgMS and 2013-14 projected 78,423kgMS).

"We look after cows as individuals, make sure they are fully fed throughout the year and keep condition score between 4.5-5," Mr Crawford said. "It's one reason to keep the herd small, which also means milking doesn't become a hassle."

NZ farm's impressive turnaround

KEY POINTS

EFFECTIVE EMPLOYEES

- ✔ Managers must set out expectations and standards
- ✔ Choose staff based on skills, capability, values and behaviour
- ✔ Motivate by providing positive feedback

WHEN the owner of a 9500-cow New Zealand dairy farm was killed unexpectedly in 2009, some big changes were thrust upon the business.

Justine Kidd, who is the business manager of BEL Group at Hawke's Bay in NZ's North Island, told the Australian Dairy Conference at Geelong, Vic, recently that when owner Peter Barry died in a car-racing car accident, chaos reigned.

Before the tragedy, Mr Barry and his wife, Andrea, were employing 65 people and dairyfarming on 2800 hectares.

While they had already planned to improve their on-farm performance, Mr Barry's death accelerated the changes. "People in the business were fearful of their future," Ms Kidd said, adding the accident happened in the middle of the global financial crisis.

Mr Barry was a charismatic person who ran the farm like "clockwork", but without him around the system started to fall apart.

That was when Ms Kidd was brought in to help change the culture of the workplace.

She quickly realised there was a human resources issue within the business. "We set about letting everyone know that we were here to stay," she said.

The new culture focused on performance, teamwork and responsibility.

Justine Kidd received the Human Resources Institute of New Zealand's HR Initiative of the Year award in 2011 for her 'good, better, best' training initiative.

Many of the employees did not come up to scratch in terms of performance so Ms Kidd said they had to go.

A performance plan set the pace for the newly transitioned farm. It included targets such as working together better, days in-milk, milk production per cow and farm working expenses.

"In 2008, the retention rate was 50% and the average tenure was two years," she said. "Productivity was also below the district average and on-farm profitability was not sustainable." That was when Ms Kidd implemented the unique 'good, better, best' training initiative.

The model went on to win the Human Resources Institute of New Zealand (HRINZ) HR Initiative of the Year award in 2011.

"If your people aren't performing for you, you need to take action," she said. "Your business is your show."

She said on-farm duties and expectations were clearly set out for each on-farm employee, which were rated in the 'good, better, best' performance categories.

"It was a clear business structure and it improved profitability," she said.

Retention shot up to 80%.

Ms Kidd said the key behind the training program was to set the performance standard and then motivate people who were performing above that line.

Anyone not up to scratch needed to be told so immediately. "Have a 30-second conversation with someone if their behaviour is not right and do it early on," she said.

Rewarding employees was also vital.

"Focus on the good and recognise effort," Ms Kidd said. "About 70-80% of what you say to someone should be good."

Sending workers home happy also came into the equation.

She said BEL Group's performance reviews were detailed but standardised. "People know exactly what they have to do," she said.

Having a training and development budget was vital too. "We allocate about $1000 for general staff and $3000 for managers per annum," she said.

Together with on-farm training days where staff can improve their knowledge of effluent management or breeding, for example, BEL Group also hosts management training.

Ms Kidd said the business had a farm handbook that detailed each farm process, policy and rule. "We expect people to look at this — it's a valuable resource," she said.

Performance reviews were also ongoing to provide staff with regular feedback.

Lee Astridge, who is a NZ-based dairy consultant, said these sorts of reviews did not always need to be formal.

"I'm not an advocate for formal performance reviews unless you have a reliable system in place," she said.

She also offered some advice for dairy businesses looking to hire new staff. "Make sure you know what you don't want in your staff," she said.

"What skills don't you want to train? And what behaviour do you complain about time and time again?"

During a job interview, Ms Astridge said it was vital to get an understanding of the prospective employee's skills, capability, values and behaviour. D

Staff retention needs addressing

STAFF turnover is costing the Australian dairy industry dearly — and farm businesses need to put more emphasis on people management to address the problem.

This was the advice of Dairy Australia managing director Ian Halliday, who told the Australian Dairy Conference that research had placed a big figure on this issue, revealing each time a mid- to high-level employee left a dairy farm, it cost the business $100,000-$150,000.

Justine Kidd — who is the New Zealand Dairy Woman of the Year and the business manager at a 9500-cow dairy farm — couldn't agree more about the value of good people management.

She said the best advice she could offer to dairy businesses was to improve communication.

"Talk to your staff," she said.

"Ask your staff where they want to be in five years — and that leads to further conversation." Ms Kidd also said smaller businesses needed to strike the right balance between providing formal and informal feedback.

Synchrony programs using GnRH

by Dr Jon Kelly
Director, Warrnambool Veterinary Clinic

Synchronisation programs form an integral component of successful reproductive management in the modern dairy herd. Synchronisation involves the management of the cow oestrus cycle so that a cow may be bred in a controlled and planned manner.

Gonadotropin-releasing hormone, or GnRH, is one of the key hormones used in successful synchrony programs today.

GnRH is a hormone made in one part of the cow brain that acts to release more hormones (FSH and LH) that is vital for successful follicular development and ovulation in the ovary.

Just like other hormones we use to synchronise cows (e.g. Prostaglandin or PG), a synthetic version of GnRH is part of a hormonal program to induce the cows natural cycle and is efficient and safe to use.

GnRH based programs were developed in the mid 90s and had traditionally been used in fixed-time synchrony programs (e.g. Ovsynch). Specific use of GnRH based programs for the treatment of post-partum anoestrus (non-cycling or no visible oestrus), a common condition found in the modern dairy cow, became a valuable method of treatment by the dairy industry in Australia when oestradiol benzoate (ODB) became unavailable.

Due to the wider exposure and familiarity with GnRH based programs in non-cycling cows, a greater interest in whole herd synchrony by Australian herd owners has evolved.

Warrnambool Veterinary Clinic (WVC) have identified this trend, and since 2009 have been actively involved in many on-farm comparisons using GnRH based programs, in both cycling and non-cycling cows. Our commitment to our dairy farmers is to use evidence based research and results to guide reproductive recommendations that will result in positive benefits for their herds.

An example of the successful use of GnRH, in combination with other hormones, is in a synchrony program aimed at treating post-partum anoestrus cows. In 2011 WVC showed that an equivalent 1st insemination conception rate (CR1) and 6 week in-calf-rate (6 wk ICR) could be achieved in non-cycling cows when compared to their cycling herd mates (40% CR1 and 57% 6wk ICR). This is an outstanding result for the most difficult cows in a herd to get in calf!

Of even more significance was the finding that 1st calving non-cycling cows that undertook the

program, achieved a higher CR1 of 46% and 6 wk ICR of 68% than their naturally joined, cycling 1st calving herd mates.

However the use of GnRH, in an attempt to "enhance" fertility at the time of AI, which is referred to in a recent article "No value in blanket treatment with GnRH at AI" (The Australian Dairy farmer May-June 2014, pg33) should clearly be differentiated from synchrony programs. The article reports the results of a trial designed to investigate whether GnRH administration at the time of AI (to animals inseminated to natural heat or following a Prostaglandin injection) improved conception rates, and to assess these effects in subsets of cows where administration of GnRH at AI was potentially beneficial.

The study from Gippsland found a proven statistical benefit in 11% of the study cows which had a high milk protein concentration and were less than 40 days since calving, increasing the conception rate by over 12%.

There were no other statistically significant findings from the study, with any other increase or decrease in conception rate's found due to chance alone. These findings reinforce our current recommendation that the blanket use of GnRH at the time of AI is not an economically worthwhile practice to increase conception rates, but GnRH could be effectively used at the time of AI in high protein cows with a short calving to joining interval.

WVC is convinced that when used in conjunction with other hormones, GnRH is an essential part of a whole herd synchrony or a non-cycling cow treatment program that is successfully used to get more cows in calf.

For more information, please contact
Warrnambool Veterinary Clinic
514 Raglan Parade
Warrnambool, Victoria

1344354

Robots attract new entrants to dairying

AN automatic milking system (AMS) offered two generations of the Crosby family the opportunity to set up a dairy business while maintaining off-farm employment. For parents Doug and Lyn, it was a step towards retirement in the longer term. For son their Bill, it opened up the potential to farm full time in the future.

KEY POINTS

LABOUR USE

- ✔ Robot allows small farm operation
- ✔ Two part-time labour units
- ✔ Labour allocated to suit individuals

Bill said the flexibility that came with automation made it possible for them to consider becoming dairyfarmers.

"We wouldn't have considered going dairying if it were tied to twice-a-day milking," Bill said. "We wanted the buffer of off-farm income and automatic milking made it possible for us to do that."

The Crosbys are new to dairying but not new to farming. For the past 15 years Doug managed a mixed farm (cropping and beef) while Lyn worked fulltime from home as secretary for the South East Annual Field Days. In 2002 Bill took up an apprenticeship and since 2006 has lived and worked as an electrician at Naracoorte, SA, 50 kilometres from the AMS farm where Doug and Lyn live.

The option to dairy with robots arose when Doug and Lyn began thinking about retirement and Bill expressed an interest in farming. After 18 months research they decided to convert a property they had bought a few years earlier to a dairy farm with robotic milking.

"The conversion to dairying had the appeal of a farm business with regular cash flow while the robots gave us the flexibility to continue in our existing jobs," Bill said.

In May 2009 they began milking 150 cows with two robots. As it turned out their off-farm incomes provided a vital buffer when milk prices were low.

Fast forward to 2014. Doug and Bill work a roster that fits around their off-farm roles and gives them each every second weekend off. Lyn has continued her secretarial work and also does the dairy business book work.

FutureDairy calculated the farm operates with 0.75 full-time equivalent staff, or 173 cows per full-time equivalent. The year round calving herd averages 7500 litres/cow from pasture and 1.8 tonne concentrates.

During the week, Doug runs the AMS farm as well as continuing to manage the mixed farm. The amount of time Bill spends at the AMS varies according to the demands of his electrical business — sometimes he spends a day a week at the farm and other times he may work there for two weeks in a row. "We both spent more time at the dairy farm in the first 12 months while we were finishing the set up and learning how to manage the system," Bill said.

Once the AMS was running smoothly, Bill and Doug adapted the timing of activities to suit their individual preferences. Although the daily routine is fairly consistent, Doug prefers to rise at dawn and spend a couple of hours on the AMS farm. During the middle of the day he works at the mixed farm and comes back to AMS

Bill Crosby checks one of the robots on his family's SA farm.

jobs in the late afternoon, finishing up at sunset; about 8pm in the summer and earlier in the winter.

With a 45-minute drive to and from the AMS farm, Bill prefers to concentrate his AMS tasks into the main part of the day, between about 8am and 4.30. If he has urgent electrical work to do, he might attend to that first and arrive at the farm a bit later. Milking-related tasks take about three hours a day.

The Crosbys recognise their non-dairy jobs are a double-edged sword. "It does involve a bit of a juggling act at times," Bill said. "But the flexibility of automatic milking has allowed us to develop our dairy business at our own pace. We've been able to establish a dairy farm with less than a full-time labour unit, and that's spread across a couple of people in part-time roles."

FutureDairy project leader, Associate Professor Kendra Kerrisk said that while automatic milking offered flexibility for sharing the workload and daily routines to suit individuals, an AMS required an on-going commitment of time to run the farm and the business.

"Even with automatic milking, a dairy farm is not a part-time job," she said. "The Crosbys have been very successful in managing their AMS farm with two part-time roles. But the critical thing is that they are committed to putting in the time needed each day. In particular, the first year of automatic milking requires intense, focused attention."

The Crosbys' short-term focus is on continuing to develop the farm for dairying. A high priority is to progressively renovate the pastures to maximise the amount and quality of home-grown feed.

A bigger calf shed is also on the agenda as the existing one is becoming too small. Further down the track, the Crosbys are considering moving to seasonal calving as this could offer gains in both dairy efficiency and lifestyle (for example, an annual holiday). D

The Crosbys were one of five automatic milking farms to participate in FutureDairy's AMS labour study. Visit website <www.futuredairy.com.au> to see all five case studies.

Contact: Associate Professor Kendra Kerrisk, mobile 0428 101 372, email <kendra.kerrisk@sydney.edu.au>.

Lyn and Bill Crosby in the heart of the robotic dairy.

Troubleshooting problems

By FRANK MICKAN*

PROBLEM SILAGE

KEY POINTS

- Guard against 'problem' silage
- Ensile and remove air as quickly as possible
- Keep silage airtight to prevent spoilage

MANY farmers will have made a "problem" silage or purchased "problem" bales of silage at some stage in their farming career.

What is a problem silage?

For bales, these silages may have some or a lot of mould in the outer layers of the bale or throughout much of the bale. In pits, bunkers or stacks on the ground surface, they may have varying amounts of mould in certain locations on the stack surface or edges or deeper into the stack itself.

Other problem silages are ones that cattle refuse or are reluctant to eat, as would be expected of silages with unpleasant odours, but this can sometimes also occur with so-called reasonably "sweet-smelling" silages.

Problem silages can also cause several animal health issues and sometimes death.

Most problem silages can be avoided by harvesting forage quickly at the recommended dry matter (DM) content and getting the air out and keeping it out.

This is achieved by rolling or baling the forage tightly, sealing it airtight quickly after completion and repairing holes immediately when they are noticed.

The recommended DM contents of a range of crops, ensiled with long- and short-chop forage harvesters, or baled and storage types, is summarised in Table 1, while silage problems, probable causes and possible solutions are covered in Table 2.

Table 1: Recommended DM contents (%) for various crop, harvesting methods and storage types

Crop type (stage to cut)	Pit/stack (DM%)[3]	Bale[2] (DM %)[3]
Pastures (Vegetative — very early heading)		
Long chopped	30-35	40-50
Precision chopped	30-40	
Lucerne (Bud — <10% flowering)		
Long chopped	33-35	40-50
Precision chopped	33-45	
Other pasture legumes (Early/mid-flowering)		
Long chopped	33-35	40-50
Precision chopped	35-45	
Whole-crop cereals (Vegetative — must be wilted) (Oats[1], ryecorn[1], barley, wheat, triticale)		
Flag leaf - Boot stage	33-40	38-50
Whole-crop cereals (Direct harvest standing crop) (Barley, wheat, triticale)		
Soft dough stage	36-42	38-45
Whole-crop cereals as Alkalage (Direct Harvest + "Home'n'Dry ") (Barley wheat, triticale)		
Early - late hard dough stage	65-85	
Maize		
Precision chopped	33-36	
Summer forages (Sweet sorghums, millets)		
Long chopped	30-35	35-45
Precision chopped	30-40	
Brassicas/Chicory	33-38	35-45

[1] Oats and rye corn not recommended to be baled at soft dough stage: quality is low, exclusion of air is difficult often resulting in poor fermentation and decrease in quality and increased risk of mould growth.
[2] Large rectangular baled silage could be 5-10% DM higher at the high end of each range but, if too dry, fermentation will be restricted and losses due to yeasts, moulds and aerobic bacteria activity will be substantial if plastic is holed. Stretch wrap these.
[3] DM contents could be up to 3-7% units lower if suitable silage additive is used but silage will be wetter and heavier/unit volume.

Frank Mickan is a pasture and fodder conservation specialist with the Victorian Department of Environment and Primary Industries, Ellinbank Centre.

Table 2: Problems, causes and possible solutions for problem silages

Problem	Probable causes	*Possible indicators* and potential solutions
General		
Animals reluctant or refuse to eat silage	Poor fermentation leading to low palatability of silage. Ensiled too wet.	*Unpleasant smell indicates poor fermentation. Moisture oozing from hand-squeezed silage sample indicates too wet at harvest.* Ensile within recommended dry matter (DM) ranges (see Table 1). Use reputable fermentation-enhancing silage additives, rates based on fresh forage weight so apply more. Send sample for fermentation tests (ammonia-nitrate, pH). Feed out a day ahead to allow volatile, pungent odours to escape.
	Dirt or dead leaves from a previous crop included.	Avoid mowing too low in rough ground. Set tynes (tedder, rake or baler) high enough to avoid picking up soil or dead litter. Avoid ensiling crops with decaying plant parts (dead leaves, old or diseased cereal or lucerne stubble etc) in the swath.
	Animals prefer pasture, concentrate or other fodder on offer to silage offered.	Send representative (cored) sample for feed analyses for full quality and fermentation (ammonia-nitrate, pH) tests. Silage may be poor in quality compared with other feeds on offer.
Animal production lower than expected	Nutritive value of silage lower than expected.	*Silage may smell unpleasant but sometimes not too bad.* Send representative (cored) sample to Feedtest for full quality and fermentation (ammonia-nitrate, pH) tests. Harvest at correct DM contents. Harvest at earlier growth stage for most pastures and crops, greater leaf, better quality. Need more than 10.5MJ ME and 14% crude protein.
	Intakes lower than expected.	*Milk production or liveweight gain disappointing.* Incorrect estimation of silage quantity offered. "Wet" bales weigh more than bales at recommended DM content but contain less DM. Weigh bale(s) to get accurate weight, estimate DM percentage by microwave oven sample test. Cut known volume from bulk chopped stacks and estimate DM percentage as above or by feed analysis. Intakes reduced by wastage.

Mouldy silage	Air has entered stack or bale. Specific causes discussed below under stack or baled silage.	*White or grey mould will grow where air has entered.* Compact tightly. Seal airtight. Patch holes immediately. Ideally, always discard mouldy silage. Definitely do not feed mouldy silage to sheep, horses or pregnant cattle. Feeding mouldy silage leads to reduced intake and production. Avoid breathing in mould dust (spores). Most coloured moulds don't seem to be too serious when fed to cattle (although not recommended) but avoid feeding silage containing red moulds. Consider using reputable products that can reduce the potential deleterious effects of mould mycotoxins in total mixed rations (TMRs).
	Growth of different-coloured moulds and yeasts types are influenced by level of acidity (pH), oxygen availabilty and temperature.	*White mould or yeast* is very common — not a dangerous problem, although intakes may decrease and silage quality be reduced. Orange hue to silage indicates bacterial growth. *Aspergillus mould is grey/blue* — may aggravate allergies or cause abortions in cattle. *Fusarium mould is green but can be red or pink* — can produce vomitoxin, T2 and other mycotoxins that cause feed refusal, vomiting and estrogen production in livestock. Mould growth does not mean mycotoxins are present but, conversely, mycotoxin problems may be present in the absence of obvious mould growth.
Plastic is flaky or easily ripped	Plastic is deteriorating under sunlight or heat degradation. Storage period is over manufacturer's guaranteed UV stability period (12 months for stretchwrap and many sheet plastics). Occasionally poor-quality film is imported into Australia. Occasionally a reputable manufacturer has problem batch.	*White or grey mould will grow as plastic breaks down.* Use stretchwrap film from reputable manufacturers. Store in cool dark area. Regularly check film for deterioration by pulling across film. If film rips apart more easily than normal start feeding out as soon as possible. If excess feed is available rewrap bales if shape has been retained by storing on their base.
Animal health problems		
Listeriosis	*Listeria monocytogenes* bacteria. Proliferates in soil, manure and rotting vegetation.	*Encephalitis (inflammation of brain tissue), nervous disorder ("circling disease"), abortion and death. Most common where air leaks slowly into silage, mainly baled silage. Needs oxygen and pH over 5.5 but can survive in poorly compacted silage as low as pH3.8. Not common in poorly fermented silages.* Encourage good fermentation by harvesting at recommended DM contents (see Table 1), harvesting within 1-2 days, maintaining anaerobic conditions via tight compaction and air-tight sealing. Repair holes immediately.
Animal abortions	Deadly bacteria such as some *Brucella, Leptospira* and *Bacillus* species, bovine viral diarrhoea.	*Animals abort. Most common in poorly fermented silages after exposure to air. Retained afterbirth. If calves born alive, usually die within 24 hours.* Solution as for Listeriosis.
Animals very sick and/or die	Mycotoxins produced by fungi or moulds (*Fusarium, Aspergillus, Penicillin* species).	*Animals become sick and ocassionally die. Signs of mycotoxicosisare decreased animal performance, reduced feed consumption, poor fertility, abortion, neurodegeneration and increased frequency and severity of disease. Usually become a problem above pH6.* Solution as for Listeriosis. *Lactobacillus* species inoculation may reduce mould growth.

Animals die	Botulism caused by *Clostridium botulinum* (from soil or dead animal or bird carcases, especially poultry waste).	*Animals become paralysed at rear end initially, progressing to entire body, and usually die within 24 hours. Have dilated pupils and dry mucous membranes. Not very common in silages of under pH4.5 but can be if silage is well below recommended DM contents.* Set equipment tynes to avoid picking up soil. Avoid areas where animals are known to be dead or could be killed during mowing. Ensure poultry manure is spread soon after grazing to allow sunlight to kill "bad" bugs and for organic matter to be minimised on the ground and plant surfaces.
Stack silage		
Silage is mouldy at edges of stack and along shoulders	Air entering stack under plastic sheet around perimeter and/or poorly sealed along bunker walls. Shoulders of above ground stack not compacted enough.	*White or grey mould will grow along stack edges and shoulders. May be deteriorated so much as to be starting to decompose. Compact edges as tightly as possible at filling.* Fill and roll along walls to form concave stack until above wall tops. Puts weight along walls and wheel tops facing into bunker centre. Temporarily cover stack overnight during harvest. Seal same day as harvesting ends. Seal stack edges airtight (1-2 tyre widths is NOT airtight). Lay twin rows of gravel bags around stack perimeter, overlapping at the joins, or cover edges with small amount of soil. Use single-width sheet over entire stack or overlap by about 1m or roll edges of overlapping sheets 0.3m and place weights on rolled edge. Place weight (such as tyres) over entire stack surface or gravel bags in about 4m grids.
Silage stack is mouldy at edges, along shoulders and across top of stack	As above plus plastic sheet holed during storage period from many causes.	*White or grey mould at edges, shoulders and top. Decomposing silage under holed plastic if air and water continue ingress.* At ensiling, spread forage evenly in layers (about 15cm thickness). Roll slowly. Use very heavy equipment. Consider using 1-2-step systems incorporating oxygen barrier films. Spread salt immediately under the plastic seal. Check and patch holes regularly. Patch with specific silage tape of similar colour after cleaning and drying sheet, apply when cool.
Silage stack is mouldy through much of the stack or a section of stack	Forage too dry at ensiling. Sealing of over-dry stack delayed several days. Poorly compacted. Lot or air entering for long period at affected section of the stack.	*Steam seen rising from delayed sealing. White or grey mould grows throughout much of the stack.* Harvest at recommended DM percentage. Stack will be spongy under rolling tractor wheels or feet. Shorter chop, better compaction. Over-dry material needs to be chopped very short. Inter-mingle dry and wetter loads over the stack. Harvest with dew on crop. If extremely dry, spray water lightly on stack surface between loads. As a rule of thumb, add 20 litres of water/tonne of silage for each 1% desired rise in moisture content. If possible, apply aerobic spoilage inhibitor silage additives. Roll slowly with very heavy equipment.
Silage stack heating at feed out	Air entering stack due to poor initial compaction. Silage removal from face allowing too much air too far back into stack. Unstable silage. Silage too long and/or too dry at harvesting. Too much plastic removed ahead of feeding out.	*Steam rises from stack face, exposed stack top and loose material at base.* Remove only enough plastic sheet for 2-3 days' feeding. Remove more silage off the face each day. No more than two days to feed out whole face to depth of at least 20-30cm, 30-50cm over 3-4 days. Use shear grab/block cutter to leave tight face. If using bucket or grab, remove silage by crowding down the face. Remove loose silage from floor and sides daily. Use specific silage aerobic spoilage inhibitor additives for whole crop cereal and maize silages and if stack feedout rate results in heating silage or mix left in TMR overnight.
Baled silage		
Bales are mouldy throughout much of bale	Too much air in bales. Material too dry at harvest. Poorly compacted. Wrapping delayed too long in loose bales (several hours to overnight). Not enough layers of wrap. Too much underlapping of stretchwrap on bale. Plastic over-stretched at wrapping. Plastic holed during transport or storage not repaired.	White or grey mould grows where excess air is entrapped at baling or wrapping or enters over time. Underlapping seen as "windows" on lighter films. Increase bale density by altering settings. Use slower forward speed or use a chopper baler. Bale at recommended DM percentage (see Table 1). Bale over-dry material with incoming night or lifting morning dew. Wrap within 0-2 hours of baling. Overlap plastic by at least 50%. Need minimum four layers on rounds over entire bale, six layers on tubeline or big squares. Consider six layers if bales left on stubble or material is over-dry. Stand wrapped bales on end if not wrapped soon after baling to hold shape. Remove bales from paddock within one day of wrapping. Regularly inspect and patch holes immediately with specific plastic tape — ensure plastic is clean, dry, cool and of similar colour.
Bales mouldy around outer layer of bale only	Plastic underlapped or less than four layers applied. Pretensioner unit set for 70% instead of 55% stretch. Poor-quality plastic (for example, low UV inhibitor or "tack" in film). Rough and/or soft finish to bales trapping lot of air in outer section.	*White or grey mould grows in outer layers only, good silage underneath.* As above plus use netwrap instead of string, if possible. Square or slightly convex shape to bale, not concave. Use reputable plastic supplier and contact them if issue arises. Cheap isn't always cheapest in long-run. Aerobic spoilage inhibitors not effective in this situation. Before feeding discard mouldy silage in outer layers and a fraction more as deterioration can be deeper than the obvious mouldy silage.
	Plastic holed by stemmy crop (for example, lucerne, whole crop cereal cut at soft dough stage).	Use netwrap. Apply six layers of film. Bale at the wetter end of recommended baling DM contents (see Table 1). Use mower-conditioner in stemmy crops.
Bales wet or water sitting at base of bale	Poor fermentation due to forage too wet at baling. Wetter the forage at baling, poorer the fermentation. Baled below about 38% DM or less.	*Wetter the bale, more it will slump. Silage extremely wet, may be slimey. May have very unpleasant smell. Mushrooms grow out of holes. Silage may be decomposing.* Bale at correct DM content (see Table 1). Use tedder or leave swaths wide if using a mower-conditioner to increase rate of wilting. Use fermentation-enhancing silage additive allowing for increased rate for wetter material. Holes in plastic seal leading to silage break down (carbon dioxide plus water plus heat). Do fermentation test (ammonia-nitrate, pH).
	Wilted material may have been rained upon and baled with little plant sugar left to encourage a good sweet-smelling fermentation.	*Silage may smell from unpleasant to horrible, depending on quality of fermentation based on how wet and sugar content at baling.* Ensure material wilted to 45-50%, if possible. Bale tight and wrap ASAP after baling. Applying fermentation-enhancing additive may/may not work.
Patches come off plastic sheets or wrap	Wrong tape for silage plastic sheet or stretch-wrap film. Wrong colour tape. Surface not suitably prepared before patching tape applied.	Use tape specifically manufactured for silage plastics. Use similar-coloured tape on holed plastic (for example, not green tape on black plastic). Don't use duct tape. Plastic surface to be clean, dry and cool and tape cut to length and allowed to shrink before applying.
Holes in plastic wrap on tops of bales	Caused by birds	Move bales out of harvested paddock within one day, as birds seek freshly exposed worms, slugs then attack bales. Stretch bale netwrap along tops of bales or tubeline, preferably on tyres or wood. Sit old tyres on top of bales — birds worry about snakes inside. Place net sheets over tyres/drums on tops of bales. String plastic humming wire diagonally across stacks through handles of half-filled 20-litre plastic drums to catch wind. String fishing line about 20-30 cm above bales to prevent birds landing.

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Chris Nixon makes maize silage to feed out throughout the year. It is stored in three silage pits across the farm.

Silage helps farm make most of land

By JEANETTE SEVERS

KEY POINTS

SILAGE PRODUCTION

- Genuine spring pasture surplus harvested
- Maize from outblock and renovated paddocks
- Helps build herd numbers

WHILE some farmers make hay while the sun shines, for Chris Nixon at Bete Bolong, Victoria, it's a case of making silage. And the reason is the weather.

"Every time I make silage it rains, so planning to cut hay is hopeless," Mr Nixon said on his dryland dairy farm in the Orbost district. "It's too humid and the ground's too moist around here to grow good quality hay. We produce better silage and can achieve better feed-out rates without hay."

Orbost is in coastal south-east Victoria, 41 metres above sea level, with an average mean year-round temperature of 22 degrees Celsius, average annual rainfall of 846 millimetres, falling on an average 94 days per year.

Chris and Helen Nixon farm on 1012 hectares, of which 324ha is used for the dairy operation with the remainder used to breed beef.

The dairy country utilises 142ha of creek flats with a peat crust and a high water table — this can often be a problem, denying the use of heavy machinery in these paddocks. The remaining hill country is sand-over-clay profile.

The 450-cow predominantly Friesian herd is milked twice daily, drying off from June 10 with heifers calving from July 7 and cows from July 25. Average per cow production is 7000-7500 litres of milk per year, with 520-540 kilograms milk solids. The cows are fed about 2.2 tonnes per cow per annum of grain.

However, while the grain portion is high in comparison to his neighbours (who average 1.7 tonne/cow/year), it is truly supplementary feeding as Mr Nixon's focus is on pasture and silage to deliver good animal health outcomes and milk production. He aims to keep his cows in condition score 4.5-5.

Mr Nixon is also planning to bolster silage production to allow him to grow the milking herd to more than 500 cows next year.

Part of his learning included three years as a Focus Farm, some years ago now, that alerted him to the need to renovate his pastures to get the most out of his production system and to look at his grazing regime.

"We were a host farm for three years for 'Walking Through the Seasons' and they helped me learn about three-leaf growth," Mr Nixon said.

"We used to roar around the farm in 17 days and never have any feed. In a good season, like autumn this year, we work on a 34-day rotation. Spring is normally 17 days and in a dry season we get out to 60 days."

They have now been using the three-leaf grazing principle for eight years. Paddock size was reduced to 2.5-4ha with a base pasture of perennial ryegrass and red clover. In the hills native white clover and sub-clover dominate.

Maize is used to renovate the creek flats to get rid of kikuyu, which comes up every seven years or so. The maize — a summer crop harvested in March — is followed by ▶

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Closeup of hay and maize silage.

Chris Nixon milks a 450-cow predominantly Friesian herd and utilising silage is aiming to push that up to more than 500 milkers.

The two effluent ponds are pumped onto the farm around Christmas time.

◀ oats in the winter, which are also cut for silage.

Titilla ryegrass, a traditional pasture species in Gippsland that is not widely used now, is then direct drilled to crowd out the kikuyu.

Mr Nixon focuses on renovating one-eighth of the creek flat country each year and oversows where necessary.

With very fertile creek flats — an Olson phosphorus score of 40 — this country is not fertilised. However, nitrogen is applied across the whole farm four times a year in May, June, July and September to maximise grass growth. The two effluent ponds are pumped out across the farm once a year, around Christmas time.

Mr Nixon makes silage each year. This includes grass silage from ryegrass paddocks, maize silage from a fodder block and the paddocks slated for renovation and the oaten silage.

The ryegrass is top-dressed annually in autumn, with 3-in-1 or 5-in-1 and harvested usually once a year, in early October — however, in a good year, it can be cut again in mid November. "It's normal surplus growth based on the normal grazing rotation, when pasture growth gets well ahead of the cattle," Mr Nixon said.

Contractors are used to harvest silage.

Chris Nixon of Bete Bolong, Victoria, relies on pasture grazing and maize and grass silage to maintain animal health and annual milk production of 7000-7500 litres per cow; and each cow receives grain at 3kg/milking, or 2.1 tonnes annually.

"I'll ring up the contractor and say: 'I've got a paddock that'll be ready in two weeks'; and it's up to him to organise himself and his machinery to be available when the crop is ready. I leave it all up to him to check the crop and pick the time to do it," Mr Nixon said.

He sows the maize by mid-October, relying on time of sowing and time of rainfall to kickstart germination and growth. The maize is sown at 85,000-90,000 plants/ha, with 400kg Pivot 800 fertiliser at time of sowing and 300kg potash-nitrogen mix one month later.

The pasture silage tests at 15.6% crude protein and 10.4 megajoules of metabolisable energy (ME) per kilogram of dry matter (DM). The maize silage tests at 10.6 MJ ME/kg DM.

"The maize produces 20 tonnes/ha of silage in a good year and 15 tonnes/ha in a poor year," Mr Nixon said.

"So we are investigating whether to put in an irrigator on the fodder block, so we can plant a bit earlier in October to take advantage of spring rains, harvest in March still and produce enough to increase the herd size to more than 500 cows.

"The maize should also be testing up around 10.9 MJ ME/kg DM so maybe extra irrigation could provide this boost and add to consistency."

The fodder block has a currently-unused 120-megalitre irrigation licence attached. Mr Nixon expects a lateral irrigator would cover 90% of the block, given its shape.

However, purchase of an irrigator is still in the thinking stage. "It's easier to feed an extra kilogram of grain than knocking the peak growth period out," Mr Nixon said.

All silage is stored in pits and tested.

They feed out the silage using a front-end loader, bucketed into a silage cart. The cart capacity is 16 cubic metres, equalling five tonnes of silage. They feed daily straight out onto the ground in the night-time paddock, after the evening milking; Mr Nixon estimates each cow gets 10kg.

"We live with a 20% wastage doing it this way but that's how we've always done it," he said. "But we are looking at alternatives and hope this year to being constructing a concrete feedpad for the silage."

They manage the pit face to maintain the quality when feeding out, by building the silage pit as a long oblong. The face is left open. "We always do it this way so we don't make the pit face too big," he said.

The Nixons built a 50-stand rotary dairy 11 years ago, replacing a herringbone. They use bore water for wash-down.

Artificial insemination is used for two cycles and then mop-up bulls are used. Proven Holstein Friesian semen is used over cows and progeny-test Jersey semen over heifers.

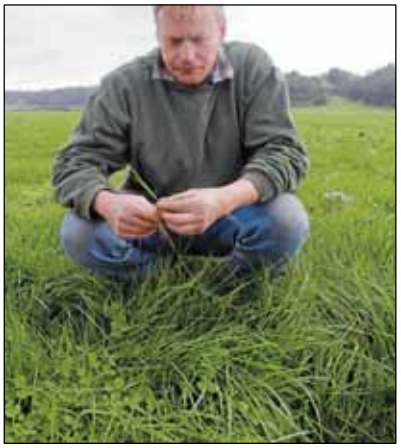
The herd is mainly spring calving, although empty heifers will be rejoined as autumn calvers, and then milked through 15-17 months until the next spring joining.

All heifer calves are kept and steers are sold as poddies.

The additional workforce includes two full-time and two casual employees, contractors and Mrs Nixon, who is responsible for calf rearing.

Calves are raised on colostrum milk. "I frown on people using 'blue milk'," Mr Nixon, an ex Victorian Farmers Federation livestock president, said.

"People don't understand it is not a food safe issue, it's a market access issue. Feeding 'blue milk' to calves threatens the industry." D



Chris Nixon takes advantage of 142 hectares of creek flats to rely on year-round rotational grazing and to cut grass silage in spring.

Improving silage additive coverage

By FRANK MICKAN*

KEY POINTS

ADDITIVES

- Additive application research
- For wagons apply above and below
- For harvesters apply before chop cylinder

SILAGE additives, if applied at the appropriate rates and in the right conditions, will generally result in silages with more nutritive value and dry matter than untreated silages. Even when ensiled under good silage-making conditions, research has shown applying silage additives is an advantage.

However, to be most effective, additives must be distributed as evenly as possible throughout as much of the fresh forage as possible, at the correct rate of application and with minimal additive loss. Additives can be lost by evaporation, wind drift of liquid droplets and possibly some of the sprayed additive not even being applied to the material at all such as in narrow windrows being fed into the pickup.

Recent research (three trials) conducted by Matts Nysand and Antti Suokannas, of MTT Agrifood Research in Finland, examined some new ways to improve the effectiveness of additive application in loader wagons and tractor-drawn and self-propelled precision forage harvesters.

The self-loading wagon had a rotor that pushed the forage through stationary knives rather than one with an integrated precision chopper fitted with rotating knives.

The additives used were a mix of mainly formic acid and some ammonium formate with a target application rate of five litres per tonne of fresh crop. The results for the tractor-rawn choppers are not discussed here.

Wind speed ranged from 0 to 9.3 kilometres per hour and temperatures ranged from 15-25 degrees Celsius during the trial periods. Bear in mind Australia can have much higher temperatures during harvest with implications on liquid evaporation.

What was trialled?

Loader wagons: Traditionally for loader wagons, additives are sprayed onto the windrow before the pickup or on the pickup as the material flows over it. This results in much of the additive remaining towards the top of the material as it enters the loader wagon choppers. With this chopping system (fixed knives), the material containing additive is unlikely to be thoroughly mixed with untreated material and will result in an uneven fermentation in the stack.

The new technique involved spraying half the additive from above on the pickup and half from underneath the forage flow using a plastic pipe of 20 millimetres outside diameter and 1.1mm holes drilled at 100mm spacing (see Figure 1 next page).

This pipe was fastened towards the back ▶

Figure 1: Traditional fan nozzles above and new jets from below pickup.

Figure 2: Jets of additive at 33 millimetres spacing placed at inlet channel opening.

◀ of the pickup in such a way as not to restrict material flow. Figure 1 shows the traditional fan nozzles at top of the pickup and experimental jets from below, set into a small gap to the rear of the pickup, which is available on most machines.

Self-propelled precision choppers: Additive was applied as solid jets via a plastic pipe with 1.5mm holes spaced at 33mm intervals and positioned above the front opening of the inlet channel (see Figure 2), injected in the curved chute on either the outer side (where centrifugal force sends the grass) or the inner side (air) or on the top chute deflector, using two jets at each site.

What was found?

Loader wagons: The researchers used a coefficient of variation (CV) as the means of determining the results, where the smaller the CV the better the distribution and therefore the better the fermentation over more of the forage. They found that the new technique of jetting additive from below plus fan spraying over the pickup distributed the additive significantly more evenly (CV 50%) compared with the traditional methods (CV 79-84%, see Table 1) of fan spraying on top of the forage, either before it entered the pickup or over the pickup.

However, with ideally wilted material of 30-35% dry matter (DM), a good fermentation will still occur, but slight losses of DM and quality might occur due to the lack of additive on some of the forage. However, in over-wet material ie under 30% DM, or if over-dry, ie more than 40% DM, the fermentation losses will be higher in the material not covered by additive.

Although not statistically different, the loss of additive due to evaporation and/

Table 1: Evenness and loss of additive on loader wagons

Application method	Evenness of application CV (%)	Loss (%)
From above, in front of pickup	79.3[a]	48.3
From above, at pickup	83.6[a]	33.9
From above + jets under at pickup	49.7[b]	33.9

CV = coefficient of variation. The smaller the CV, the better the distribution.
In terms of research results with "a" are statistically different from those with "b".

or wind drift appeared to be higher (48%) when applied in front of the pickup compared with when application occurred either at the pickup or at pickup plus under the pickup (34%). This makes sense as wind may blow away some of the additive droplet and some evaporation may occur before entering the wagon chamber.

Self-propelled precision choppers: These harvesters achieve a more even coverage than loader wagons due to their fast rotating knife cylinder and short cutting of material, both attributes encourage thorough mixing of forage and additive, However, this research has shown how to further improve the evenness and thoroughness of additive mixing in precision choppers.

It found that closely spaced jets (1.5mm holes at 33mm spacing) positioned at the front of the inlet channel resulted in very even distribution (CV 20%) of the additive and the correct application rate (five litres per tonne) was applied to all the forage (see Table 2).

Conversely when applied on either side (see Figure 3) or top of the chute only, the CV ranged from 49-64%, having missed out on the mixing effect of the cutting rotor and accelerator.

Also one fifth to a little more than one third of the material received under three litres/tonne of additive, well under the five litres/tonne stipulated by the additive supplier to reap the full benefits of the additive and to help offset its cost due to a quicker and more efficient fermentation.

Some caveats to this research: This research was carried out with acid and at five litres/tonne. Australians tend to largely use water and this is less sensitive to evaporation than acid so losses are likely to be smaller with biological additives mixed in water.

However, under the higher temperature conditions that much silage is made in many areas of Australia and the increasing use of ultra low volume (ULV) applicators, what are our losses and how evenly distributed is the additive?

Perhaps Australian silages could also benefit by applying half of the additive from below the material as it passes over the pickup.

Summary

Forage wagons and balers: Apply additives at the pickup with half the additive dosed from above and have from below. Solid jets should also be used instead of fans for better distribution and to reduce additive losses.

Self-propelled forage harvesters: Apply additives either just before the chopping cylinder or just before the accelerator. D

**Frank Mickan is fodder conservation and pasture specialist with the Victorian Department of Environment and Primary Industries, Ellinbank centre.*

Figure 3: Precision chopper with jets in front of chute.

Table 2: Additive evenness and amount of grass receiving too little additive on self-propelled choppers

Position of application	Evenness of application	% of grass receiving less additive than		Applied dose
	CV, (%)	1.5 l/t	3.0 l/t	l/t
Front of inlet channel	20[a]	0	0	5.1
Chute base, outer (grass) side	61	2	22	5.8
Chute base, inner (air) side	49	10	24	4.4
Chute, top deflector	64	14	36	4.9

Late cut drops profits

By FRANK MICKAN*

KEY POINTS

LATE SILAGE

- Lower nutrition value
- Little seed head best
- Mow forage early

IF A paddock looks yellow after the forage has been ensiled, the farm's profitability may be substantially reduced during the next year.

Why? The paddock was cut too late and it's likely the pasture was too long. The pasture will be slower to recover, produce less regrowth and will be less dense for several months, or weeds will fill the bare patches.

Silage will also be lower in nutritive value resulting in lower milk production unless fed to late lactation cows or dries.

Many paddocks are set aside for silage by farmers several weeks later than is optimum. Many farmers still chase bulk instead of quality. Yes, the yield will be lower, but either more area can be cut to help offset this and still maintain spring pasture quality or, more importantly, less silage needs to be made to produce a given production level of higher quality. Total spring pasture quality and dry matter production will be higher, as will animal production.

Figure 1: High-quality pasture cut for silage.

Let's look at some of the pros and cons behind this thinking.

If a farmer wants high quality pasture silage, the pasture should be vegetative at the stage of grazing and before canopy closure (see Figure 1) and with little seed head showing, if at all. This silage will test near 11 megajoules of metabolisable energy per kilogram of dry matter (MJ ME/kg DM or ME) and more than 14% crude protein (% CP).

If wilted and harvested quickly and sealed airtight soon after harvest is completed, the final product will test just slightly below that of the parent pasture.

When fed out, this silage will result in animal production just below that of the parent material.

Many farmers have experienced this after making early-cut high quality silage. To make high quality pasture silage, the forage has to be mown early in the season, about four to six weeks before hay would normally be made.

Stack silage must be wilted to 30-35% dry matter (DM) and baled silage 40-50% DM and harvested within 24-48 hours of mowing.

Precision chopped forage and large square bales may be about 10% DM higher respectively. Using tedders (see Figure 2) and/or mower-conditioners (leaving wide swathes) is essential when ensiling this early in the season, but well worth the expense.

Aim for these targets and even if the rain arrives before harvest, as it will sometimes,

with the aid of additives, often reasonable quality silage can still be salvaged since the process started with a high quality pasture. If the rain is heavy and falling across a few days, the silage may be lost, but the silver lining here is that the paddock has been "topped" and will have the a lot of high quality, dense regrowth.

If the early cut and light yielding crop can be achieved, the harvested paddock will look a similar colour to one being grazed. That is, green, or possibly only a slighter lighter green colour but not light green and definitely not yellow, which is the result of cutting a heavy silage crop.

These latter pastures would have been past canopy closure, probably with many seed heads in the sward and apart from the silage being much lower in nutritive value, regrowth will take longer and will be thinner. This produces a lot of silage under about 9.5MJ ME/kg DM and less than 10-12% CP. Pasture will be much thinner and weaker and a target for weeds to fill in the bare gaps.

How are the economics looking now? Let's look at an example.

Table 1 shows the potential impact of increasing the ME and reducing losses at harvest and during storage of silage on the extra milk income in terms of a marginal response. The example used is a stack of 300 tonnes dry matter (t DM) DM silage, milk is valued at $0.38/litres, quality is improved from 9.5 to 10.5MJ ME/kg DM, losses reduced from 25% to 15% (realistic figures) and the conversion of energy in silage to milk is 8MJ ME/L milk. Eight ME is a conservative conversion rate to allow for some substitution and some energy being used for walking and condition gain.

If the quality of the 300 tonne DM silage is improved by 1MJ ME/kg DM, the increased value of milk production is about $10,600, if losses were left at 25%. If the quality of the silage made was left at 9.5 ME but total harvesting and storage losses are reduced from 25% to 15%, income from milk is increased by more than $30,000.

However, increasing ME and reducing losses will result in a gain of more than $40,000. How much extra cost and effort is needed to achieve this? Possibly a new tedder paid for in the first year of savings?

Figure 2: High-quality pasture being tedded to hasten wilting.

Come spring and many farmers do not set aside paddocks for silage until too late. When they do "close" paddocks for silage, the cows may have been leaving higher residuals (six to eight centimetres) for many days to a week or so, which means the clumps will have been expanding in size and pastures will be lower in quality next rotation. Often farmers will then "shut" the next few ungrazed paddocks for silage and cut them another few weeks later. Many farmers also close the last few paddocks that were recently grazed, a better option, but don't forget these usually now contain larger clumps.

In both cases, imagine the cows being forced to eat all the feed in these two scenarios when the paddocks are due to be cut. By the time cutting occurs, the nutritive value of the silage will be substantially lower than "ready-to-graze" pasture. Yes, yield will be well up, but so will be the cost per unit weight of silage ensiled and nutritive value and regrowth will be much less equating to less profit.

Aim high (high quality) and if it rains before the forage is harvested, bulk may still be achieved (from being forced to cut other paddocks later that now probably contain more mature pastures), but at least some of the farm will have been kept in good dense growing state and potentially may have harvested milk-producing silage. D

**Frank Mickan is a pasture and fodder conservation specialist with the Victorian Department of Environment and Primary Industries, Ellinbank Centre.*

Table 1. Impact of improving quality and reducing losses on additional milk value.

Loss range	Quality range MJ ME/kg DM	
	9.5	10.5
25% 0%	$0 $33,844	$10,688 $48,094

Cleaning inoculant applicators vital

By FRANK MICKAN*

KEY POINTS

EFFECTIVE ADDITIVES

- Store inoculants as directed
- Mix to correct solution strength
- Keep applicators clean and free of build-up

THE use of silage additives has increased rapidly in recent years and research backs up their use in most situations. However, they occasionally don't seem to have worked.

Firstly, it is quite often difficult to pick whether an additive has actually worked or not by just looking at the silage, and even basic feed-testing analyses may not show that they have worked. However, in most cases they will have done their job.

If the additive hasn't worked or did so well below expectations, there could be many reasons for this, such as the use of water high in chlorine, the wrong application rate, poor incorporation into the forage at harvest, the wrong storage method of the inoculant pre-application, the wrong product for that particular purpose, it was heat-affected, it dropped out of the suspension, the length of period before being used after mixing etc. Each product will have its own specific instructions on how to store the unopened package, how to mix it correctly, how long the mixed product will survive and how to store the unused product.

Maybe not so well known is that the failure may have been due to how the additive was mixed when added to the applicator tank, or perhaps it could be due to an incorrect application rate caused by clogged lines and especially clogged jets affected by slime-causing organisms referred to as biofilm. This article will address these two issues (mixing and equipment cleanliness).

Mixing additives in water

Unless directed otherwise, premix the additive (in most cases a freeze-dried inoculant powder) by adding it slowly to about five to 10 litres of water as this will reduce the tendency of some additives to form lumps. Continuously agitate by stirring or preferably shaking for at least one minute to ensure the additive totally disperses. Using lukewarm water, if available, will enable the additive powder to disperse more easily, but it is important to never use hot water. This premix should be added slowly to the larger tank of water, maintaining continuous agitation. It is not correct to throw the concentrated additive powder into the tank and then add the water.

The original silage additives were designed to be applied at rates of 0.5 to more than 2.5 litres per tonne of forage, requiring more than 100 litres of water per hour — an impost when harvesting flat-out. As a result, ultra-low-volume (ULV) applicators were developed and are continuing to be refined to apply 10 to 50 millilitres/tonne fresh weight and others now apply only one gram/tonne. Some products have been difficult to dissolve and prone to sedimentation.

With very low volume applications, a blocked jet or narrowed supply lines can dramatically affect application rates and may even block one or two jets on a three-jet or four-jet bar. To make problems worse, recent research has shown that some products will settle out within hours so unless the tank is agitated regularly, the actual application rate of effective inoculant bacteria will be well below required levels.

Cleaning applicators

In time inoculants can result in the build-up of a biofilm, which is actually organisms producing a slime.

Inoculant mixes are sometimes held in applicators (tank, lines, jets) much longer than recommended, especially when weather causes a delay or when carried over between jobs. These biofilm organisms are frequently found in spray lines, strainer canisters and jets. If a mix of new inoculant is applied through an applicator that already has an established biofilm population, the applicator will clog more quickly (sometimes within hours) than in a properly sanitised one. However, slime-forming biofilms can be controlled with proper application sanitation.

Applicators should always be thoroughly rinsed and flushed with clean water between batches of additive mixes. It is best to sanitise applicators between cuttings or

Morning vs afternoon cutting for forage

IS the quality fodder better if cut in the afternoon rather than in the morning? As with many answers, it depends. In recent years there has been some research (mainly in the United States, Canada and the United Kingdom) investigating not only the quality of "am" versus "pm" cutting but also grazed fodder and the effect on quality and animal production. Research with grazing cows has shown increased milk production from lucerne cut in the afternoon but not always with pasture. Animals have also often been shown to usually prefer afternoon-cut forages to those cut in the morning, but not always.

Pros for pm cutting — photosynthesis: Once the sun comes up plants start to photosynthesise its heat (solar radiation) using carbon dioxide and water to produce sugars and starch. These are produced faster than they can be translocated to root, lower stem and crown reserves in lucerne and some pasture plants, resulting in the sugar content of plants — especially the leaves — being at maximum by the end of a sunny day.

However, during the night the plant continues to translocate sugars from the leaves to the roots and crown reserves but also uses up some of the stored sugars for respiration. The end result is that the sugars contained in the harvestable forage (leaves and stems) will be at their lowest content in the morning, before the process begins again. This is why many farmers and contractors think that cutting late in the day should maximise the highly digestible sugars, starches and pectins — referred to as non-structural carbohydrates (NSC) — of fodder and the palatability of the hay. This is backed up by some research, but it depends.

Cons against pm cutting — plant respiration: When a forage plant is cut, it will keep "living" (that is, respiring), using its soluble sugars until limited by a lack of moisture so that its plant metabolism slows and eventually stops. Often respiration overnight can lead to greater losses of NSC than is gained by delaying cutting until the afternoon. The longer the period of wilting for silage or hay curing, especially the initial drying phase down to about 60-65% moisture (35-40% DM), the greater the respiration losses, which actually are DM and quality losses. Research has shown this to be true in some cases in the US. This is contrary to the statements above. Confused?

Silage needs sugars to ferment well, and the higher the amount of sugar in the final products of both silage and hay, the higher the nutritive value of each. So, in theory, pm mowing is the go. But, again, it depends.

There is a caveat for this article. There has been little research carried out in Australia to compare the effect of am versus pm cutting of any forage species on fodder quality, much less any animal production work from these conserved fodders. Hence the majority of this article is based on US and Canadian research but the principles should still apply.

KEY POINTS

CUTTING TIME

- OS research compares AM and PM cuts
- Sugar levels vary throughout the day
- Timing often determined by weather conditions

when an applicator will be stored for more than two days.

Most companies have their own recommendations for cleaning applicators and delivery lines. For example, Dohrmann Enterprises, a builder of applicators, recommends using household chlorine bleach at a rate of 1-2 tablespoons (15-30 grams) per 4-5 litres of water to effectively sanitise applicators. Applicators should be thoroughly rinsed to prevent a reaction of bleach with trace remnants of the applicator's contents.

To be effective this solution should ideally have at least 20 minutes of contact time and will work best in equipment that is already relatively clean.

Stronger solutions, up to four tablespoons (60g) of bleach per litre of water or longer contact times will remove heavier build-up of problems such as algae or mould.

Applicators must not be stored for long periods with bleach solutions in them because doing so may weaken some plastics or corrode metals. The sanitising solution should be circulated through the applicator spray lines, screens and nozzles. When flushing is complete, it is crucial that all traces of the bleach are removed by double rinsing.

**Frank Mickan is a pasture and fodder conservation specialist with the Victorian Department of Environment and Primary Industries, Ellinbank Centre.*

Shelterbelts lift farm productivity

A NEW report shows how native shelterbelts can improve agricultural productivity by up to 30%.

The report compiled by the Basalt to Bay Landcare Network in southwest Victoria demonstrates potential improvements in crop yields of 25%, pasture yields by 20-30% and dairy milk production by 10-20%.

It also showcases a consortium of industry and government stakeholders who are committed to ensuring land managers understand the facts of the economics of native shelterbelts._The report was launched at Koroit, Vic, in May and brought together more than 30 years of local, national and international research into the benefits of native shelterbelts.

It is hoped the documented proof of the productivity and biodiversity benefits will prompt more farmers to plant native shelterbelts to change the landscape and agriculture for the better.

Basalt to Bay Landcare Network Facilitator Lisette Mill said native shelter belts assisted landholders to alleviate the impacts of climate and adapt to a changing global sales environment.

"This report provides proof which should convince landholders of the economic benefits of implementing shelterbelts," she said.

Mrs Mill said all evidence in the 10-page E-report was backed up by references, including electronic links. Many of the links connected to industry research and case studies located on other Australian websites.

The report was initiated after Mrs Mill started work with the network two-and-a-half years ago and found that farmers wanted proven "facts and figures" about why they should do revegetation and Landcare works.

Consultation with local farmers found they were keen to consider native shelter belts but needed more information about what and where to plant, costs, and how it would financially benefit their businesses.

"There was a very clear directive — we need to provide the proof and the game-changing information that would convince farmers and industry of the commercial advantage of planting shelter belts, just like inoculating your animals and purchasing proven semen/seed is an investment for the future of the farm," she said.

The report describes how shelterbelts work; the benefits for different agricultural industries including dairy, biodiversity benefits, and shelterbelt design and maintenance.

Mrs Mill also hopes the report will prompt an increase in the investment by industry in programs to encourage farmers to plant more shelterbelts.

"If there was a program for landholders to receive rebate support and information about what to plant and how to plan belts the uptake of such a program would be high," she said.

The report is available online at <www.basalttobay.org.au> and will be updated with new research and links to stakeholders every six months.

People wishing to obtain a copy of the report can visit the website au or contact Mrs Mill, phone 0408 712 713 or email <basalttobay@gmail.com>. D

UDV works to simplify NZ visa process

By CARLENE DOWIE

KEY POINTS

IMMIGRATION AID

- ✔ UDV working to pave way for NZ dairyfarmers
- ✔ Lobbying for simpler visa process
- ✔ Providing information on how to apply

NEW Zealanders who have moved to Australia to dairy farm may be able to gain permanent residency and then citizenship following efforts by United Dairyfarmers of Victoria (UDV). The UDV has worked with the Department of Immigration and Border Protection (DIBP) to clarify how dairyfarmers can qualify for a Business Innovation and Investment (Permanent) 888 Visa. It presented information about the process at a seminar in Melbourne last month.

UDV manager Vin Delahunty said the organisation was confident the process ▶

United Dairyfarmers of Victoria policy officer Adele Beasley has prepared an information kit for New Zealand farmers on the process of applying for an 888 visa.

◀would work and had put together enough information to help farmers applying for the process to clear any roadblocks or hurdles they hit in the process.

The difficulty former New Zealanders face in gaining Australian permanent residency and then citizenship has been an issue in the dairy industry for about 10 years. UDV estimates 200-300 dairy farm owners in Victoria are former New Zealanders, and it has 37 on its books who want to apply for permanent residency.

The farmers have been affected by changes made to immigration laws in 2001 to prevent people using NZ as a back door through which to enter Australia.

New Zealanders who arrive in Australia without a visa are granted a 444 Special Category Visa upon meeting basic requirements. This temporary visa allows them to stay and work in Australia as long as they remain a NZ citizen. But it does not give them the same rights as a permanent resident, including being able to:

- vote in Australian elections;
- access some special circumstances assistance (such as some drought relief payments);
- access student loans;
- join the Australian defence forces; or
- obtain ongoing work for the Australian Government.

The 888 visa, created in 2012, allows 444 visa holders to apply directly with fewer requirements.

UDV policy officer Adele Beasley, who has been working on the issue, said there were few other options available to NZ dairyfarmers to become permanent residents in Australia.

The 888 visa "targets migrants (who) have a demonstrated history of success in innovation and business and are able to make a significant contribution to the national innovation system and to the Australian economy".

Ms Beasley said UDV believed this was an appropriate path for New Zealanders who had bought dairy farms here.

UDV had been liaising with DIBP since 2012 to make the requirements easier and to clarify eligibility. It had raised awareness of the difficulties facing applicants under

Keen to make Australia home

FORMER New Zealanders Rachael and Craig Dettling milk 260 cows on a 172-hectare dairy farm they bought at Macarthur in western Victoria in 2006.

The couple have three young children: Clara, 8, Tabitha, 6, and Hayden, 4.

Mrs Dettling said they were here to stay and wanted to become dual citizens of Australia and New Zealand to make the most of living in Australia. The children's long-term education needs were particularly important.

The Dettlings looked at applying for permanent residency under the skilled migration program in 2007 but could not qualify because agriculture was not on the skilled migration list. "So we put it on the back-burner," she said.

Mrs Dettling attended the United Dairyfarmers of Victoria seminar in Melbourne last month on the subject of the 888 visa but said she was not sure if the business would qualify in meeting two of the three criteria as it did not employ staff so would have to satisfy both the net assets tests.

The couple have invested heavily in the business, growing the farm from 80 cows to their current 260.

The farm also injects considerable funds into the local economy through a range of businesses, extending from grain companies to dairy support businesses.

Rachael Dettling with son Hayden.

previous immigration requirements and negotiated to have the key assessment criteria changed, Ms Beasley said.

UDV has gained the support of the Victorian Government for the alternate pathway. It has also prepared a kit for farmers who are interested in undertaking the process.

Ms Beasley said it was vital to recognise that this visa granted the applicant permanent residency, not citizenship.

But any New Zealander who has arrived in Australia on or after February 27, 2001, can only apply for citizenship after they have been granted a permanent visa.

Mr Delahunty said UDV was unaware of any dairyfarmers who had yet applied for an 888 visa.

"This is a new set of arrangements that are in place," he said. "This pathway should be clear for you to put in applications."

He said Ms Beasley would not provide help with individual applications but UDV was keen to hear from those applying about the things that worked or areas where they struck difficulties. UDV was also keen to hear from anyone who was successful in obtaining a visa, he said.

"We believe we have a process that now allows applications from dairyfarmers to get through," Mr Delahunty said.

How NZ farmers can apply for an 888 visa

THE application for an 888 visa is a two-phase process.

Phase 1: State nomination

Cost: Nil. Should take about four weeks. Online application. Provide three photos of the business.

Provide financials report, including balance sheet and profit-and-loss statements signed by an accountant.

If applicable, apply for waiver if business has annual turnover of less than $300,000 and is in specified regional area.

No need to appoint migration agent (although website incorrectly states this form should be completed).

Complete Nomination Conditions form.

Complete 888A sponsorship statement (State Nomination Statement) signed by applicant and accountant.

Contact: website <www.liveinvictoria.vic.gov.au> or phone (03) 9651 9743.

Phase 2: Department of Immigration and Border Protection nomination

Cost: $2255 for single person plus $1130 for additional family members 18 years or older and $565 for additional family member under 18 (children must still be dependents). Fee is non-refundable.

Takes at least nine months if application done correctly.

Lodge application online, provide supporting documents by mail.

Documents include:

- State sponsorship form;
- one-page summary of proposed business;
- personal documents such as passports, marriage certificate, children's birth certificates; and
- police certificates and police checks, health certificates.

Business innovation criteria (must meet all criteria):

- evidence of business ownership for previous two years;
- evidence of management control (for example, business contracts, statements from contractors or suppliers or employees); and
- evidence of Australian Business Number, Business Activity Statements and personal taxation returns.

Other criteria (must meet two of three of these):

- net business assets of at least $200,000 (net, not gross, so excludes liabilities);
- net business and personal assets of at least $600,000; and
- employed equivalent of two full-time employees who were Australian permanent residents or holders of NZ passports but not family members.

Contact: Website <http://www.immi.gov.au/Visas/Pages/888.aspx> or email business.innovation@immi.gov.au>.

Kiwis caught in 'no man's land'

Kim and John Buchanan moved from New Zealand to Cobram in northern Victoria eight years ago. They milk 600 cows on their 315-hectare farm and additional 60ha of leased land. The business employs three permanent full-time staff and one casual staff member.

During the drought they first became aware of the issue their status as non-permanent residents created, when they were unable to access some of the support payments their neighbours were receiving.

Although it was not a big issue and they had not been looking for support despite moving to Australia during the drought, it seemed odd that two farms side by side didn't receive the same support, Mrs Buchanan said.

The issue really struck home when they discovered their oldest child, now aged 23, was ineligible to receive a student loan for a university course and would have to pay his fees upfront.

He had also been interested in doing an Australian army 'gap year' program but was unable to as he was not an Australian permanent resident.

The Buchanans initially looked at trying to qualify for the Regional Skilled Migration visa but found the whole process too daunting — particularly as they needed to be both the employee and the employer in the process.

Mrs Buchanan said the 888 visa process seemed simpler and more streamlined, although the costs would be about the same. They are hopeful of meeting those criteria.

The Buchanans have invested heavily in their business, growing it threefold in the time they have been here. They have invested in technology, including upgrading the irrigation system with two centre-pivot irrigators.

They are keen to eventually apply for dual citizenship. "We have no rights or responsibilities in either country now," Mrs Buchanan said.

With their youngest child due to finish school at the end of this year, they also hope to have the process completed in time for her to be eligible for the Higher Education Loan Program (HELP) when she undertakes university study after taking a year off.

John and Kim Buchanan say they are hopeful a new visa process will allow them to become permanent Australian residents and then citizens.

Both are also keen to be able to vote.

"We're stuck in 'no man's land' at the moment," Mr Buchanan said.

Entries open for 2014 Royal

THE Royal Agricultural Society of Victoria (RASV) has opened entries to the prestigious 2014 Royal Melbourne Dairy Show, to be held across three days from Sunday, September 14, to Tuesday, September 16, at Melbourne Showgrounds.

Showcasing more than 400 of Australia's finest dairy cattle, the Royal Melbourne Dairy Show provides breeders with a valuable and timely springtime focus and continues to grow in stature and reach with the ongoing support of the Australian dairy industry.

"The Royal Melbourne Dairy Show is a key event on the industry calendar and is dedicated to recognising and celebrating the Australia dairy industry and its contribution to the wider agricultural sector," RASV chief executive officer Mark O'Sullivan said.

"The RASV is committed to enhancing the exhibitor experience at the Royal Melbourne Dairy Show and has improved the entry process and enhanced facilities, hospitality and services based on valuable exhibitor feedback."

The highlight of the 2014 competition schedule is the prestigious Interbreed, to be held on Tuesday, September 16.

The 2014 Royal Melbourne Dairy Show will again be at the forefront of technology and display live scoring throughout judging in the Livestock Pavilion, which will also be available on the RASV website.

Entries to the 2014 Royal Melbourne Dairy Show close on Friday, July 25. Exhibitors who enter online at <www.rasv.com.au/dairy> can receive a 10% discount on entry fees.

Contact: Jessica Skilbeck, phone (03) 9281 7416 or email <jessica.skilbeck@rasv.com.au>.

YouTube stars to speak at dairy event

A NIGHT out with Kansas' agricultural version of Katy Perry. That is what is on offer when the Peterson Farm Brothers come to Victorian in August.

In 2012, Greg, Nathan and Kendal Peterson decided to create a parody music video about farming entitled 'I'm Farming and I Grow It'. The song went viral on YouTube receiving more than six million views in two weeks taking their agriculture-focused message all over the world.

The trio will perform and speak at Warrnambool, Vic, on August 8 and Traralgon, Vic, on August 9.

The Peterson Farm Brothers have created many more videos about their farm and the integral role agriculture plays in everyday lives. They have travelled to more than 30 states in the US and three countries to perform and speak on what makes agriculture important.

The Young Dairy Network of Australia invites everyone to see the brothers in Victoria. The events promise to educate, entertain and inspire the 'ag'vocate in everyone.

Greg, Nathan and Kendal Peterson.

The Peterson Farm Brothers will perform at the City Memorial Bowls Club at Warrnambool at 7pm on August 8. Cost is $45/head, including dinner. RSVP essential at email <yddp@westvic.com.au> or text 0408 141 820.

They will also perform at the Premiere Function Centre, 29 Grey St, Traralgon, Vic, at 7pm on Saturday, August 9. Cost is $45/head, including two-course dinner. RSVP to Penny, mobile 0428 889 337.

July 24:
Bussellton, WA
Contact:
WA Farmers dairy section conference
Range of issues to be discussed
WA Farmers, phone (08) 9486 2100

August 4-6:
Adelaide, SA
Contact:
Australian National Fodder Conference (ANFIC 20143)
Latest information and networking for Australian fodder industry.
Phone (03) 9530 2199, email <darren@afia.org.au>

August 8-17:
Bowen Hills, Brisbane
Contact:
Ekka, RNA Showgrounds, Gregory Terrace
Queensland's main showing event
Phone (07) 3852 3900, fax (07) 3257 1428, email <enquiries@ekka.com.au>, website <www.ekka.com.au>

August 8:
Warrnambool, Vic
Contact:
Young Dairy Network Peterson Farm Brothers event
Agovcate stars of YouTube
WestVic Dairy, phone 0408 141 820

August 9:
Traralgon, Vic
Contact:
Young Dairy Network Peterson Farm Brothers event
Agovcate stars of YouTube
GippsDairy, phone 0428 889 337.

September 4:
Bunbury, WA
Contact:
Farmwest Dairy Discovery 2014
Biggest gathering of dairy and beef experts in WA
Phone (08) 9726 2626, email <office@farmwest.com.au>

September 14-16:
Melbourne, Vic
Contact:
Royal Melbourne Dairy Show
Victoria's supreme dairy show
Phone (03) 9281 7416 , fax (03) 9281 7592,
website <www.rasv.com.au/dairy>

September 16:
Toowoomba, Qld
Contact:
Queensland Dairyfarmers' Organisation mini-conference and AGM
Queensland industry premier event
Kylie Dennis, phone (07) 3236 2955, email <kylie@dairypage.com.au>

October 27-31:
Yokohama, Japan
Contact:
International Dairy Federation World Dairy Summit
One of the premier events on the international dairy calendar.
Website < www.idfwds2014.com/ >

Diary dates

To have dates for a major event included in the diary, send information to Carlene and Alastair Dowie. Phone/fax (03) 5464 1542, email <carlene.dowie@fairfaxmedia.com.au>.

Self-directing and self-correcting

By KERRY RYAN*

think again!

A NUMBER of my recent assignments have involved helping teams to develop values and culture so they can be more self-directing and — as a result — self-correcting.

Focusing on this is particularly relevant as the new dairy season starts and induction of new personnel occurs. It requires effort and patience but will be well rewarded compared with the negatives of a "wait-and-see" leadership approach that usually means problems peak when workloads put stress on people and systems.

Justifying the time involved is part of the time-management dilemma for employers and team leaders. Commitment to this process is fundamental to allow leader to free themselves from having to hold operations together thus creating capacity for them to focus on management or entrepreneurial projects that deliver greater returns from their energies and expertise.

Leaders who constantly need to cover for or remedy inferior performance are less motivated and effective. Ensuring a team is committed to agreed values increases the ability for staff to self-manage any drift away from excellence. This translates to greater job satisfaction and reward at all levels. There are three key areas on which to focus.

The first is to ensure that those joining the business in management or supervisory roles "win" their authority rather than having it extended to them automatically. There is a balance required here. I have seen more problems come from misplaced belief in the capabilities of senior staff than I have those who prove abilities before responsibilities are given.

Some employers overestimate the capabilities of those who have joined the team. Investigation of the expertise and experience of those applying for a role at interview must be followed up with confirmation of their skills and understanding once they join the business.

This is especially important with more mature applicants who are making a career change to farming. Failure to ensure they understand the basics can result in limitations as they take on more responsibility.

New appointees also need to learn the systems that best work for the business. While senior personnel need autonomy that should not extend to them "reinventing" the system.

Staff whose abilities have been validated can build on their expertise to enhance career prospects as they are part of continuous improvement of the system.

The second contributor of effective leadership is to ensure staff are engaged with the values and culture of the business.

This is all about converting values to behaviours. It's one thing to aspire to values such as reliability, accuracy or co-operation. It's another to see these come alive in behaviours such as punctuality, "measuring twice and cutting once" or communicating to put colleagues in a position of advantage.

These behaviours will impact on profitability, sustainability and job satisfaction.

Finally, leaders need to accept that they don't get just what they pay for — they get what they ask for. I've seen far more problems arise in teams because of lack of clarity and assertiveness from leaders than I have from clear and direct communication about expectations and how people will know when they have performed.

A focus on proof of capabilities, clarity of expectations and behaviours aligned with agreed team and business values has the potential to turbo-charge a team. People will never be totally self managing, but driving for standards that enable all involved to be "self-directing and self correcting" can deliver significant payback. D

**Kerry Ryan is a New Zealand based agribusiness consultant available for face-to-face or online for advice and ideas. Contact him at website <www.kerryryan.co.nz>.*

Managing transition to prevent milk fever

By DR SHERRI JAQUES*

AS winter sets in, most dairyfarmers will have finished one round of drying-off and will be concentrating on dry cow management and the transition into the next lactation.

Dry-cow nutrition is important as it sets the herd up for the massive changes within cows that occur during this move from pregnancy to lactation.

Good transition cow management aids in reducing milk fever. Calcium stored in bones can be quickly and efficiently used by the cow to raise its blood calcium levels if everything is working as it should. Milk fever occurs only when a drop in calcium in the bloodstream is combined with a failure in the cow's ability to mobilise calcium from its 'bone store'.

It is important that the duration of transition is three weeks for each cow; this relies on a good knowledge of expected calving dates.

There are many ways to achieve good transition nutrition but the general goals remain the same.

The first goal of the dry period is to maintain body condition within the correct range. Cows should calve down in a body condition score range of 4.5-5.0 (on a 1-8 dairy scale).

Small decreases or increases in body score will be noted only if the dry cow herd is being assessed regularly and the average noted. This method allows farmers to pick up small changes more easily, and for energy requirements to be rechecked or adjusted. The minimum recommendation is to body score at drying-off, as cows enter the transition period and before mating. There is a free app to help farmers body score their herd, and a booklet and scribe sheet for those not so technologically minded, on the Dairy Australia website in the fertility section under animal management.

The next goal is milk fever prevention. It's important that calcium and phosphorus are not too high and that adequate magnesium is available. It is essential that calcium in the dry-cow diet is kept to 20 grams per day (or less). This allows the cow's internal control mechanisms to react quickly to drops in its blood calcium by mobilising calcium stored in the bones, thus maintaining levels before calving.

During the dry period, the cow has fewer demands on its calcium stores. In a way the body is kept actively using these control mechanisms because of the low levels of calcium. At 20g/day (or less), blood calcium moves gently up and down and the body is constantly turning these control mechanisms on and off.

However, if farmers provide large amounts of calcium during this time, these background mechanisms switch off as they are no longer needed. This decreases (or down-regulates) the triggers needed for this control. Then, suddenly, the large calcium drain of milk production finds the cow unable to quickly 'turn on' these control mechanisms. In a way it has to 'use it or lose it'. The mechanisms do readjust but while this happens cases of milk fever can occur.

The second part of the milk fever prevention is the pH or acidity adjacent to the cow's bones. This acid-base balance is important in maintaining the cow's ability to quickly alter calcium levels as it allows it to remove calcium from its bones.

Restricting green pasture to two kilograms of dry matter per day and supplementing the cow's diet with hay encourages acidity. Green pasture is an alkalotic (a high pH) diet whereas hay is an acidic (low pH) diet. Diets that achieve shift in acidity do not actually alter the blood pH (as the kidneys adjust to compensate for it) but, critically, calcium is drawn more easily out of the cow's bones because of them.

Many farmers will be familiar with the term "DCAD". This simply measures the acidifying or alkalising ability of diets such as those mentioned above. DCAD stands for dietary cation-anion difference. Cations are minerals with a positive charge (sodium, potassium, calcium and magnesium) while anions have a negative charge (chloride, sulphur and phosphorus).

The strongest of these cations and anions are the ones used to calculate the DCAD of a diet. DCAD is essentially the cations sodium and potassium minus the anions chloride and sulphur. Low-DCAD diets have an acidifying affect on the cow.

Dry-cow DCAD should be less than 80 — the lower the better — so low-DCAD buffers should be used in the dry cow rations, not sodium bicarbonate. There is a nifty milk fever risk calculator that estimates diet DCAD available on the Dairy Australia website in the feed tools section under animal management.

Once calving occurs and lactation begins, calcium requirements increase to about 80g/day.

It's no surprise that without good background control and acid balance mechanisms in place to allow the cow to self-correct its blood calcium levels, calcium levels drop and clinical and subclinical milk fever cases can result.

Until next time, good milking.

*Dr Sherri Jaques is a practising veterinarian and reproduction adviser in the West Gippsland region of Victoria.

All comments and information discussed in this article are intended to be of a general nature only. Farmers should consult their veterinarian for herd health advice, protocols and/or treatments that are tailored to their individual herd's particular needs.

Welcome to our new columnist

AFTER 15 years of writing about the ins and outs of herd health for *The Australian Dairyfarmer*, Dr Rod Irwin has decided to adopt some succession planning in his work and hand over his regular column to another vet.

So we welcome aboard Dr Sherri Jaques, BVSC MVSc.

Dr Jacques has been a dairy veterinarian in the United Kingdom and Australia (Tasmania and Victoria) for the past 19 years. While in the UK she helped with both bovine spongiform encephalopathy and one of the foot-and-mouth disease outbreaks.

Dr Jacques collected data from Tasmanian herds for the InCalf Project in 1996 and used the InCalf data as part of her masters study into the effect of calving induction on milk production and composition. The rest of her dairy reproduction masters was concerned with non-cycling cows, investigating those cows that failed to respond to a common treatment (2003-05).

She is also a mother of three and continues to practise as both a veterinarian and a reproductive consultant in the West Gippsland region of Victoria.

Our new columnist Dr Sherri Jaques at work in Gippsland.

New insights into breeding priorities

AN innovative survey conducted as part of the National Breeding Objective review has confirmed that the traits farmers most want to improve in their herds are mastitis resistance, survival and fertility, followed by udders, lameness and protein. But it has also provided new insights into the different ways farmers approach breeding decisions.

Michelle Axford from the Australian Dairy Herd Improvement Scheme (ADHIS) said the unique design of survey allowed a depth of understanding about breeding priorities that had previously not been available.

"The survey identified a significant degree of similarity in the top seven traits listed by farmers, however, some variations in trait importance were seen, which could be grouped as production-focused, functionality-focused and type-focused," she said.

Farmers expressed an interest in seeing a breeding value developed for calf vitality.

Although not radically different in the top traits of interest, there was some variation in the emphasis that farmers placed on the traits of survival, protein, type and udders.

There were no significant differences in trait preferences based on feeding system. But there were differences based on calving pattern, herd size, breed and breed society involvement.

"Farmers with a seasonal calving herd ranked fertility and lighter cows more highly than farmers with split-calving or year-round calving herds," she said.

"Farmers with larger herds ranked feed efficiency more highly and type as less important than farmers with smaller herds.

"Farmers with predominantly Jerseys ranked type, late lactation yield and milking speed more highly with less emphasis on fertility, mastitis and calving difficulty when compared to farmers with predominantly Holstein herds.

"Farmers who registered at least two thirds of their cows ranked type and survival more highly and temperament lower than farmers who had no registered cows."

Mrs Axford said the review team was assessing options for refining the national breeding objective, which is currently expressed as the Australian Profit Ranking (APR). The refinements will be informed by insights and data from the farm walks, survey, economic analysis and a scientific review.

"While the review process to date has provided new insights into the priorities dairyfarmers place on various traits, it has also confirmed that the current system has the basics right.

"On average, farmers in the survey agreed that Australian Breeding Values — ABVs — are more useful in picking bulls compared to other ways. The review process will allow us to build on those foundations to refine the system to better meet the needs of Australian dairyfarmers."

The survey's impact will extend beyond the current National Breeding Objective Review. The survey results provide some pointers towards future development work — particularly around new traits such as feed saved and the interest of farmers in seeking future traits such as lameness and calf vitality.

"We don't expect everyone's breeding objective to be the same," Mrs Axford said. "What is important about the review of the national breeding objective is to get the big priorities right. It needs to reflect the overall breeding direction for the country, from which individuals can select bulls that meet their own individual breeding objective."

In the coming months, ADHIS will discuss with industry the outcomes of the review, the options to arise from the review and any associated revisions to the national breeding objective, with the view to having any changes implemented in the April 2015 release of Australian Breeding Values. D

Contact: Michelle Axford, ADHIS extension and education manager, phone 0427 573 330, email <maxford@adhis.com.au> or website <www.adhis.com.au>.

Dairy Australia
Your Levy at Work

Lifting farm profitability

By NEIL LANE

AS the 2013/14 season draws to a conclusion, the influences of higher milk prices for the past 12 months has started to be reflected in better positive cashflows. It has been no real surprise that it has taken a 6-9 months of better milk prices for many farms to recover from the particularly tough trading conditions of the 2012-13 season (and for some regions the 2011-12 season).

With volatility in milk price appearing to be here to stay, farmers need to make careful choices when deciding where to direct the cash surpluses that may be starting to appear. These may include:

- debt reduction or farm management deposits (FMDs);
- investments leading to improvement in farm productivity, that is removing bottlenecks or limitations to profitability;
- upgrades to plant and equipment; and
- rewarding themselves for their efforts, eg relief milker, holidays, renovations.

While investment is required and welcomed by the industry and necessary to grow milk production, farmers should remain prudent with their spending and borrowing practices. The questions I always get farmers to ask themselves is "What is the breakeven milk price for your business when we take into consideration operating costs plus debt servicing?" and "how will you reflect on this spending and/or borrowing decision next time there is a downturn in farm profitability?"

Q. If farmers are looking to invest this year what are the top three things that they should be looking for?

Ideally things that allow for profitability to increase but don't embed costs in the business that can't be unwound (if necessary) when we next enter a period of low profitability. In particular look for investments that reduce the costs of production, remove the obvious limitations to profitability and improve the consumption of homegrown feed.

These are all decisions for individual farms but you must ask if you decide to make a substantial investment in growing more grass, through investing in irrigation for example, do you have the necessary infrastructure on the rest of the farm to make it work?

Is upgrading to a new tractor essential or would servicing debt and building some more financial stability help the operation in the long term? At the end of the day it's about knowing the business and making the best of the finite funds available.

Q. What planning should dairyfarmers be looking at in terms of the coming season with the talk of downward pressure on milk prices?

As we approach the coming season, two topics that are dominating discussions are the downward pressure in farmgate milk prices as a result of the softening in world prices and the possibility that we could be entering an El Niño weather pattern.

In thinking about strategic decisions, farmers should start to consider the impact these two 'macro' drivers are likely to have on farming operations for the next 12-18 months. If this means taking a more 'defensive' position is sensible, then it's time to consider whether the business has sufficient reserves in:

- fodder or other feed options;
- water — for both irrigation and, more importantly, stock water;
- financial — in the form of debt reduction, FMDs or some tax-effective form of prepayment (if the accountant is advising to prepurchase for next year, discuss with them the option of prepaying some of next year's bank interest as an option).

Now is the perfect time to start reviewing the whole farm (milking and non-milk stock) feed budget and income and expenditure cashflow budget for next year.

With well-constructed feed and cashflow budgets, farmers and their service providers/advisers are able to able to start and look at the impact of 'what-if' scenarios including:

- changes to milk price;
- changes to the amount and price per tonne of supplements; and
- impact of culling decisions both in terms of income and expenditure.

Q. What are the differences between farms of similar-sized operations in the same regions that are able to make good profit compared to those that don't and what can Dairy Australia offer those farmers who are looking to raise the bar this season and become more profitable?

Higher-performing businesses generally know and understand their business and have a good understanding of their SWOT (strengths, weaknesses, outcomes, threats).

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They complete well-constructed cashflow and feed budgets that are tracked against actual results and updated/reviewed at least 1-2 times key times through the season.

Pasture harvest is key for these businesses. In particular directly grazed pastures are strongly linked in lowering the cost of production (reducing risk) while increasing profit.

Cost control is top of mind — while top quartile type farms generally have higher output systems they tend to do so on a lower cost base ($ per kilograms of milk solids) particularly for non-feed costs.

Labour efficiency is another key feature of top-performing businesses — the more profitable farms tend to have better labour efficiency when measured as cows milked per 50-hour week.

Benchmarking, which can take several different forms, is also an important aspect of understanding the farming business. Benchmarking may be:

- tracking the farm performance over time;
- comparing cost structures against similar businesses with access to similar resources; or
- can be formal through a discussion group or broader industry activity or an informal sharing of data between trusted farming colleagues.

Some form of benchmarking is a useful addition to well-constructed budgeting.

Farmers should be grabbing any opportunity they can that comes their way in assistance. For example:

- discussion groups;
- Focus Farms;
- Dairy Farm Monitor Project; or
- Taking Stock tool.

Contact: Dairy Australia website <www.dairyaustralia.com.au> or contact the relevant Regional Development Program (see contact details page 106) for further information.

Lane to help drive profitability

EXPERIENCED dairy consultant Neil Lane (pictured) has joined Dairy Australia as farm business management (FBM) program manager and will work with farmers to help them achieve their business goals.

Mr Lane's appointment by Dairy Australia is part of the organisation's strategy to increase focus on FBM and farm business profit performance across the dairy regions.

"I am very excited to be working for Dairy Australia as my goal is to help dairyfarmers achieve better business outcomes and higher profits," Mr Lane said.

"To do this I will use my experience to help develop farmers understanding of how to make their business more effective."

Mr Lane has a life-long association with the dairy industry, which began while growing up on his parents' Gippsland dairy farm.

He has worked across the industry, both within Australia and internationally, most recently as a consultant with the Intelact Group.

In the past 15 years Mr Lane has developed a reputation for his whole-farm-systems and profit-focused approach to farm consultancy.

"Farm business management is a key factor in all decisions made on our farms, whether that be feedbase, animals or education, and I'm really looking forward to being involved in all of those discussions," he said.

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Solar option cuts costs

KING Island dairyfarmers are saving money and doing their bit for the environment through the use of new solar hot water systems for their dairy sheds. The systems are expected to reduce hot water costs, the largest part of any dairy shed energy bill for the island's farmers, by up to 50%.

Nine dairy farms will have the commercial solar hot water systems installed in an initiative funded by the Tasmanian Government's Bass Strait Renewable Energy Program and co-ordinated by Dairy Australia's Regional Development Program, DairyTas.

The farmers were jointly provided with $202,000 to install the evacuated tubes and energy-storage systems.

King Island Dairy Farmer Supply Group leader and dairyfarmer, Troy Smith, said the project was a great opportunity for farmers to make power savings. Farmers faced flat-rate electricity prices and relied on diesel power generation despite wind and solar energy prevalent on the island.

"If we can be energy efficient and use renewable energy, it saves us money, there is even less diesel coming onto the island and the environment is also better off," Mr Smith said.

The project is part of a nationwide move by Dairy Australia and the Australian Government to help dairyfarmers be smarter with their energy use.

This includes the delivery of 900 free energy efficiency assessments for farmers nationally through to June, in which most of King Island's 12 dairy farm operations participated. A second round of free assessments will also occur through to June 2015.

Dairy Australia's natural resource management technical specialist, Dr Rachel Brown, said the King Island initiative was one way to help the Australian dairy industry achieve its commitment to reduce carbon emission intensity by 30% by 2020 as part of the industry's sustainability framework.

"Renewable energy is not for every shed and each site has to be specifically considered but there are circumstances, like these solar hot water systems on King Island, where it is the obvious solution," Dr Brown said.

Reducing energy consumption for milk cooling, milk harvesting and hot water production had provided the greatest gain for improving energy efficiency on Australian dairy farms in the assessment process, she said. By looking at these areas in the dairy, farmers could make useful energy savings without the outlay of significant funds.

An industry booklet has also been created to complement the on-farm energy assessments and more broadly communicate where energy is used in dairies and where efficiencies can be found.

Dairy Australia has created a pamphlet to guide farmers investigating a hot solar water system for their farm through the decision-making process. It can be viewed at website <http://frds.dairyaustralia.com.au/events/smarter-energy-use/>.

Power contract key to payback

INSTALLATION manager for the King Island project, Darren Cooper, said solar hot water systems were not the solution for every farm in Australia.

Farmers investigating an installation needed to look at their usage patterns for water, the capacity to hold water in their main cylinder, whether there was a need for the farm to boost on-peak power or if they could they could heat water at off-peak times, he said.

Sisters Donna Millwood and Kelly Lancaster with the new solar hot water system array installed at the Millwoods' dairy.

"It's reliant on the tariff you pay for your energy," Mr Cooper said. "On King Island there is no off-peak power with a 27 to 28 cent kilowatt/hour flat rate so creating hot water is premium all the time and it's easier to get a payback.

"If a farm, for example, had a 1000-litre a day usage and a 1200 to 1300 litre cylinder they might be better off exploiting their contract and doing all of their water in off-peak because the payback on a solar system could be up to 20 years."

Mr Cooper said the units at King Island suited farms with less than 250 cows or use about 500 litres of hot water per day.

"Data from one of the units showed that for the first 24 days of use there was a 36% offset of power for hot water," he said. "This will fluctuate with the seasons but I think a 50% reduction over 12 months is achievable but we will analyse over the next year."

To assist with the delivery time all manifolds, cylinder connections and fittings pre manufactured into kits in Tasmania. The control units were also wired and pump units set up so they can be serviced or changed out by the farmer without the need for an electrician or plumber.

Factbox: solar hot water

- The new systems are made by Australian owned Apricus.
- Consists of 90 evacuated tubes made up of three 30-tube manifolds connected in common line.
- The cylinders are three 315-litre units connected with even flow manifolds and use a hot water pump to move water from the cylinders to the manifolds and return.The pump is controlled by a solar control.
- The tubes are frost and hail protected.
- Warranty on the cylinders is 10 years and the manifold array 15 years including the tubes.
- Additional roof manifolds/arrays can be added to the existing array without the need for upgrade of the solar pump, control or cylinder.

Dairy Australia
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Start early, finish well for high-quality silage

By FRANK MICKAN*

MAKING silage depends on science and good planning — and having a crystal ball to predict the weather doesn't hurt. Farmers should always aim to produce high-quality silage, because many things may and often do occur, meaning quality can be lower than targeted. It is important to remember the last two to three springs with wet winters or long wet spells in mid-spring that occurred just when quality pastures were ready to be harvested for high-quality silage.

Before making any silage two things should be considered:

- cows should never be underfed just to ensure the pit is full or a certain number of bales of silage is made; and
- it costs nearly twice as much per tonne of dry matter (DM) to produce and feed back silage compared with direct grazing of that same pasture.

Many farmers, having attended a Dairy Australia/Department of Environment and Primary Industries (DEPI)-funded Feeding Pastures for Profit program, can now identify when surplus pasture starts to occur much earlier than in the past and have seen the importance of high-quality silage to produce milk. They are now achieving this by cutting early, notwithstanding the poor harvesting conditions mentioned above.

It is recommended to aim for the best possible scenario, acknowledging that pugged paddocks, inclement weather, machinery breakdowns, the late arrival of contractors, poor planning etc will occur, resulting in poorer quality silage to varying degrees, some of which can be avoided/minimised and some of which cannot.

The keys to getting and keeping high-quality silage include:

1. Cut early in the season when pastures are at or near canopy closure, which is the optimum stage of growth for grazing in spring. If conditions do suit — and this will depend on soil type — and if the entire harvesting job is done well, a pasture ensiled at or slightly past grazing height will produce only marginally less milk than if that same pasture had been grazed by the cows.

Yes, yields will be low and more paddocks may need to be harvested, but this is maintaining pasture quality in these cut areas and remaining areas of the farm. Yes, the contractors will squeal because crops will be much lighter than most contractors (and many farmers) will be used to, but the contractors will be in their rights to charge a bit more money to harvest light crops to cover their costs. However, farmers will win out because the high-quality silage will produce more milk than before and, if cut early enough when the surplus is being recognised, these paddocks should not miss a rotation and regrowth will be faster, thicker and of better quality.

2. Wilt and harvest as quickly as possible and have the forage in the pit or bale within 24-48 hours, if possible, though it isn't always possible. The longer a mown crop takes to reach its target dry matter content to ensure it undergoes the most efficient fermentation, the higher the quality and DM losses. Also, an extended wilting period increases the risk of the next rainfall occurring, resulting in even higher losses.

So, early in the season, when the ground is damp, there's little heat in the sun and it's necessary to reach the target DM content as quickly as possible, how can farmers do this? Often, this is not easily achieved, but with a few management tips and appropriate equipment it is worth the punt and can be achieved by:

- allowing the dew to lift before mowing;
- tedding (see Figure 1) — that is, spreading the mown crop as soon as possible after mowing, probably re-tedding at least the next morning once the dew has lifted, and sometimes carrying out a third tedding for baling; or
- mowing pastures, clovers and young lucerne stands with a flail or tyned-type mower-conditioner (see Figure 2) and cutting crops such as cereals cut at soft-dough stage, summer forages and mature lucerne with a roller-type mower-conditioner and leaving the swath as wide as possible (75-90% of the mower width); and
- applying a fermentation-enhancing silage additive to encourage a desirable fermentation, as the forage will most likely be slightly wetter than ideal. Each dollar spent on additive should ensure at least a $3-$4 benefit — often more, occasionally less.

3. Compact stacks and bales as densely as possible. The poorer the compaction, the greater the amount of air trapped in the stack or bale and the greater the DM and quality losses. For bulk stacks, chop material short and spread it in layers no thicker than about 150 millimetres. Roll slowly to allow the tractor weight to compact the forage. Baling slightly slower will increase bale density so set bale density as dense as

Figure 1: A tedder spreads mown windrows.

Figure 2: A tyned mower-conditioner can be used on mown pastures, clovers and young lucerne to increase the rate of wilting.

possible on the baler. Chopping balers will increase density by 8-15%.

4. Seal airtight as soon as possible after harvesting. Seal stacks, don't just cover them. Try to complete rolling immediately after harvest is finished. Avoid rolling the next morning as this just "pumps" more oxygen into the stack. Rolling should keep up with forage delivery from the paddock. The plastic sheets along the stack edges must be sealed airtight; not even a double row of tyres around the perimeter achieves this. Gravel bags filled with pea gravel or washed sand are ideal for this job along bunker walls and the stack surface (see Figure 3).

Another recent innovation for sealing stacks is the use of a see-through 45-micron-thick oxygen barrier (OB) film. It is not UV-heat-stabilised and is more than 20 times less susceptible to oxygen permeation than normal 125-micron black/white (B/W) plastic sheets. It can be incorporated (co-extruded) between the black and white layers of the B/W sheets (one-step system) or placed on the stack and covered by either a heavy UV-stabilised woven net or normal B/W film (two-step). Research has shown a saving of silage of at least 10% on the tops and shoulders of stacks compared with the normal B/W sheets, if sealed well. It does cost extra but after experiencing its benefits many farmers are swinging to the two-step system.

Figure 3: Gravel socks sealing stack front, edges and surface.

Individually stretch-wrapped bales must have at least four layers of film applied over all the bale and six layers if the forage or stubble on which it is sitting is stalky. Experience by many operators using most continuous in-line and large square bale wrappers has resulted in them now applying six layers to ensure a reliable and robust seal. If a white/grey mould is present in the silage, air has been or is present; this must be prevented in future.

5. Repair holes immediately using specific silage patching tape. Ensure the area to be patched is clean and dry and that repair tape of a similar colour to the holed plastic is used to minimise the difference in contracting and expanding in hot/cool conditions, resulting in the seal leaking. D

**Frank Mickan is a pasture and fodder conservation specialist with the DEPI, Ellinbank Centre, Vic.*

Dairy Australia
Your Levy at Work

Medicated milk risk

Key tips when using antibiotics

- If calves are feverish or depressed and require antibiotics, they should be individually dosed with a syringe or injected with antibiotic.
- Mass medication with antibiotics should never be used as a routine calf-rearing practice. It should only be considered in the face of a major disease outbreak, undertaken under the guidance of a vet. It tends to be less effective than individual treatment, as the sickest calves will drink little milk, so they are often underdosed.
- When using antibiotics to treat sick calves, all staff should stick to the label directions, know how to record treatments, mark and separate the affected animals, observe meat withholding periods and abide by animal health protocols. If any equipment comes in contact with antibiotics it should be considered to be contaminated and never used for sale calves.
- If there is a sudden flare up in calf disease, every attempt should be made to address the underlying cause of the problem, seeking veterinary help where necessary. Good calf health can normally be maintained through attention to colostrum management, hygiene, feeding, housing and other rearing practices. See the free Dairy Australia publication *Rearing Healthy Calves — how to rear calves that thrive*.
- It should never be assumed that antibiotics mixed in with calf milk feeds are quarantined from the calves destined for sale. Investigations have shown lapses of protocols, staff changes, shared equipment and poor attention to detail can lead to sale calf contamination and place the farm at risk of a serious calf residue violation.
- If tempted to mix some antibiotics with milk to mass medicate calves, keep in mind that there are more effective options available.

ANTIBIOTIC residues in young dairy calves sent for slaughter are a major risk for the Australian dairy industry. With hundreds of thousands of calves sent for slaughter annually, the loss of this critical outlet for non-replacement calves would be a significant blow to the industry.

Dairy Australia has investigated more than 90 calf residue incidents in the past three years and discovered that the leading risk factor found on these farms is the common practice of feeding milk containing antibiotics to young calves.

The high risk milk has usually had antibiotics added deliberately to treat sick heifer replacement calves or occasionally results from the practice of feeding waste milk from the hospital herd to calves.

Dairy Australia has since undertaken a media campaign to raise awareness of the residue risk associated with feeding calves with milk laced with liquid scour treatments (such as Scourban) that contain sulphur-based antibiotics. Instead, farmers have been urged to use oral electrolyte solutions as a first line treatment for scouring calves in preference to antibiotics. This campaign has resulted in fewer residues of the sulphur-based antibiotics being detected in bobby calves in the past two years.

Dairy Australia's animal health and fertility program manager, Kathryn Davis, said the mass medication of numbers of calves by adding powders of the tetracycline class of antibiotics to milk was another common practice that required extreme care.

In some cases the same feeders or bottles used to treat the heifer replacement calves with antibiotics are subsequently used to give calves destined for sale a feed or oral electrolytes. It is difficult to remove all antibiotic residues from calf feeders, teats, plastic containers and tubing, even with careful washing. This means that is it easy to contaminate the next liquid in contact with the equipment.

Dr Davis said disease outbreaks occurred for a number of reasons, so increasing reliance on mass medication of calves with antibiotics might indicate a failure to address the core issues.

"The cost of ongoing use of antibiotics will quickly outweigh the cost of rectifying the fundamental causes of the health problems," she said. "In addition, the lifetime production of calves that become sick early in life is never as good as their healthy cohorts, as they are not able to compensate for the check to their growth or produce to their full potential later in life." D

Dairy Australia
Your Levy at Work

Handle colostrum with care

AS farmers prepare for the upcoming calving season, it is a good time to consider how they will handle the colostrum fed to newborn calves. Although colostrum is nature's ultimate health food, being a rich source of essential nutrients, essential immunity and growth factors, poorly handled it can also pose one of the greatest risks to the health of newborn calves.

All calves need to receive at least four litres of good quality colostrum within their first 12 hours of life. This ensures adequate transfer of immunity from the cow to the newborn calf.

Problems arise when colostrum becomes heavily contaminated with bacteria. When fed to newborn calves, this contaminated colostrum can damage calf health by two different means.

Firstly it prevents the uptake of the essential colostrum antibodies from the calf's gut in the critical window of the first 24 hours of life. Additionally the farmer may also be inoculating the newborn calf with a cocktail of disease-causing organisms. Colostrum is commonly found to contain the bacteria that cause serious diseases such as calf scours, salmonellosis and bovine Johne's disease.

The major source of these organisms in fresh colostrum is accidental contamination with faecal material from cows. This may occur directly from faeces falling into the colostrum or through using unhygienic techniques for collecting or storing colostrum.

The other major risk factor for colostrum quality is time. Bacteria love colostrum and have the ability to multiply at a great rate in colostrum that is left to sit at room temperature. Ideally colostrum should be fed immediately after it is collected to reduce this risk.

If colostrum has to be stored, then it must be considered as a highly perishable substance and treated in a manner that effectively limits bacterial growth. Consider using the following best practices on farm:

1. Limiting contamination during collection, storage and feeding of colostrum.

There should be an emphasis on collecting colostrum in a manner that prevents faecal contamination. Colostrum should only be collected from "clean" udders into even "cleaner" containers with "clean" hands (preferably gloved) and feed with "very clean" feeding utensils. Take care to avoid any accidental contamination.

Equipment used in the process must be thoroughly washed with large volumes of hot water and detergent between each use, disinfected and given the opportunity to dry. Remember plastic ages and wears over time making it harder to clean so consider regularly replacing these items.

Lifetime milk production may be directly linked to the level of nutrition from birth to weaning.

2. Limiting bacterial growth during storage of colostrum.

Under the ideal conditions, bacterial numbers can double every 20 minutes. Therefore the most effective way to limit bacterial contamination of colostrum is to feed it to calves as soon as it is collected. If longer term storage is required then cool the colostrum rapidly.

Refrigeration works effectively with small volumes of colostrum, but for a bucket of warm colostrum, place some ice packs (water frozen in clean plastic containers) in the colostrum to help speed the cooling process. Place a lid on the bucket to reduce the risk of accidental contamination.

Colostrum should be kept in the refrigerator for only 1-2 days.

The keeping quality of refrigerated colostrum can be extended by adding a preservative that is safe for calves. Potassium sorbate is a white salt used as a preservative in food manufacturing. It can be added to cooled colostrum to increase its useful life to up to seven days. Potassium sorbate solution can be made up by veterinary practices for use during the calving period. Contact a vet for further more information on the correct use of this preservative.

Colostrum can also be stored frozen for up to 12 months. It is best frozen in single-calf doses in flat plastic containers that are easy to take out and thaw before use. Take care when thawing the packs that the water is not too hot (less than 60 degrees Celsius) or else the precious munoglobulin G (IgG) in the colostrum will be damaged.

3. Pasteurising colostrum. This is the process where fresh colostrum is treated with heat or UV radiation to kill bacteria present. Pasteurising whole milk has reduced the risk of infection in people and, doubtless, saved millions of lives all over the world. However, the normal heat pasteurisation process used for milk is not suitable for use in colostrum as the heat damages the delicate proteins and IgG antibodies.

Heating at lower temperatures for longer periods has been found to achieve pasteurisation without reducing the antibody levels and is being done on many Australian dairy farms. Heat pasteurisation of colostrum generally requires that the colostrum is heated to 60 degrees C for 60 minutes. Although still an expensive technology to implement, it is now quite feasible to undertake the colostrum heat-treatment process on farm with compact pasteurisation units now readily available.

Pasteurisation using UV light is another innovation that some farms have adopted in an attempt to improve calf health and control infectious disease. This technology is still evolving and has yet to be thoroughly tested under Australian conditions.

Remember, pasteurisation is not sterilisation. Pasteurising colostrum will certainly reduce total bacterial counts, but it doesn't eliminate bacteria completely. Colostrum highly contaminated with bacteria will be improved, but if it's already been poorly handled (with loss of quality due to bacterial fermentation, lower pH) it will still be poor quality (albeit with fewer bacteria) after pasteurisation. D

Contact: For more information about calf rearing or Dairy Australia's Healthy Calves program, email Kathryn Davis on <kdavis@dairyaustralia.com.au>.

Regional Development Programs and Extension Coordinators

WestVic Dairy
Ph: 03 55571000
www.westvicdairy.com.au

Ian Linley
ilinley@dairyaustralia.com.au
M: 0422 814 579

Murray Dairy
Ph: 03 5833 5312
www.murraydairy.com.au

GippsDairy
Ph: 03 5624 3900
www.gippsdairy.com.au

Tony Platt
tplatt@dairyaustralia.com.au
M: 0477 440 339

Dairy NSW
Ph: 0412 825 466
www.dairynsw.com.au

South Coast region
Greg Duncan
gduncan@dairyaustralia.com.au
M: 0477 044 047

Hunter region
Sheena Carter
scarter@dairyaustralia.com.au
M: 0427 434 412

DairySA
Ph: 08 8766 0127
www.dairysa.com.au

Mount Gambier
Liz Rymill
erymill@dairyaustralia.com.au
M: 0409 919 564

Central
Nerida Ewart
newart@dairyaustralia.com.au
M: 0409 825 938

Subtropical Dairy
Ph: 07 3396 6229
www.dairyinfo.biz

Jo Gorman
jgorman@dairyaustralia.com.au
M: 0439 555 322

Western Dairy
Ph: 08 9525 9222
www.westerndairy.com.au

Rob La Grange
rob@westerndairy.com.au
M: 0448 939 344

DairyTas
Ph: 03 6432 2233
www.dairytas.com.au

Liz Mann
lmann@dairytas.com.au
M: 0428 121 655

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