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dairyfarmer

Pasture technology game changers

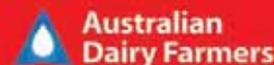
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OUR COVER

A partnership with an established producer has helped one of South Australia's newest dairyfarmers, Perrin Hicks, weather his first year.

Read story on page 42.



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Confessions of a dairy nerd

I HAVE a confession to make — I really am a bit of a dairy nerd. I love to hear about the innovations and technology available to dairyfarmers and am constantly amazed at the new things science is coming up with to improve farming.

So this issue each year is always a bit of a favourite with me because it contains our innovation and technology feature.

And what's really exciting this time around is the innovation in the pasture management sphere.

There has been a lot of development in this space in the past decade or so, but it seems to have been spurred on in more recent years by the understanding that profitability in Australian dairy farm businesses is so closely tied to the amount of home-grown feed.

This issue we take a look at a new project in northern Victoria where some of the precision technology for measuring water use and plant growth is being applied on two farms. Automated Pasture Readers (APR) are being used to collect data about the average pasture height, uniformity and estimated mass (kilograms of dry matter a hectare) across selected paddocks. Moisture probes are also being used to allow farmers to refine their irrigation schedules.

Each partner farm has a performance innovation team (PIT) comprising 15 farms that discusses and provides feedback on how the partner farms are utilising the research and technology.

Then all this information is being made available through newsletters and field days to farmers throughout the region — and indeed the country.

We also look at some Tassie research that is using sensors and autonomous technology to develop a system that not only tells farmers when to irrigate their pasture, but then goes ahead and does it for them.

And the final one in the pasture theme looks at how drones could be used to monitor pasture growth. Interestingly in that one, the technology wasn't necessarily that good at estimating how much dry matter there was in a paddock but it did generate images that could be useful in helping farmers sort out the rotation on their farm.

Being a dairy nerd also means that

'There has been a lot of development in this space in the past decade or so, but it seems to have been spurred on in more recent years by the understanding that profitability in Australian dairy farm businesses is so closely tied to the amount of home-grown feed.'

I am looking forward to the Australian Dairy Conference to be held at Shepparton in February. There are a couple of great sessions about technology, including an update from the Dairy Futures CRC about some developments in plant breeding that promise to return big dollars to farmers.

The program also incorporates a pre-farm tour, as well as farm visits as part of the main conference. Check out pages 36-41 for more details.

Finally as we head into another year, I would like to wish all our readers a Happy New Year. May your season be perfect and your milk prices high. 



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Changing times, strong leadership

Key points

- ✓ Trade liberalisation provides opportunity
- ✓ Environmental challenges continue
- ✓ Need to be recognised as essential and trusted

By Simone Jolliffe
ADF president

WELCOME to the New Year. As we start 2016, it's opportune to take stock on what we've achieved in the past year and outline what we hope to achieve in the year ahead. For many of us, 2015 proved to be a year of contrasts and our industry continues to operate in a climate that presents some complex challenges.

Significant trade liberalisation in 2015 including the China-Australia Free Trade Agreement and the Trans-Pacific Partnership are key to expanding markets for our high quality, safe products. New investments in the industry reflect growing confidence about future prospects.

Ongoing consolidation is changing on-farm operations and drawing questions from the broader community about what the future industry will look like. Environmental challenges continue with uncertainty over water

'We need to continue to take control of our own story — why we exist, how we contribute to society, our industry practices.'

allocations and the need to adapt to climatic variability. Our animal welfare practices continue to come under scrutiny.

Five years on and many of our farmers are still reeling from the impact of the \$1 per litre milk campaign. Positive progress has been made toward strengthening competition policy, with dairy industry advocacy instrumental in key outcomes including the development of a Prescribed Code of Conduct. However, without an Effects Test or a Supermarket Ombudsman "with teeth" to regulate retailer and supplier relations, farmers remain at risk from unequal negotiating power across the supply chain.

Australian dairy producers are faced with the opportunity to nourish more people than ever before — with the world's population expected

to reach 9.2 billion by 2050. Even as concerns around food security grow, attitudes toward food producers, including dairy, are increasingly being shaped by what impact they have on animals, the environment and the community.

These perceptions matter. They are not shaped by facts, but rather by stories that help people frame their opinions with meaning. We need to continue to take control of our own story — why we exist, how we contribute to society, our industry practices — to promote and protect the future of our industry, ensuring it's our story people hear.

Being recognised as an essential and trusted part of people's lives and the life of the nation will make dairy more attractive to consumers, customers, investors and potential entrants into the industry. It will also establish a more understanding setting in which to respond to critics and shape political debate.

In the face of these challenges and opportunities, it is the role of Australian Dairy Farmers (ADF) to provide strong leadership and collective representation. I am dedicated to continuing ADF's strong history of delivering positive outcomes to the benefit of the whole value chain. I am also committed to engaging the whole value chain to ensure ADF continues to reflect the perspectives of those we represent — you, the grassroots farmer and backbone of our industry.

On behalf of ADF I would like to thank outgoing president Noel Campbell, who stepped down in November. Mr Campbell worked tirelessly on behalf of ADF as well as the industry more broadly across the years, and his robust commitment to dairy is inspirational. ADF and the dairy industry is stronger for his involvement.

I am so proud to be a dairyfarmer and to have been given the opportunity to help advance our industry and strengthen dairy for the long-term benefit of all in our supply chain. I look forward to meeting many of you and to working with you all in 2016 to progress our united vision. 



New Australian Dairy Farmers president Simone Jolliffe on her Wagga Wagga, NSW, farm with husband Neil.



Dr Sinead De Goyer (far left) discusses farmer health with the ADIC leaders' breakfast panel.

Showing dairy's contribution essential

Key points

- ✓ Developing attractive towns vital to retain skilled workers
- ✓ Need to demonstrate value to wider community
- ✓ Farmer health essential element of sustainability

TWO hundred and fifty of Australia's leading dairy representatives from across the whole value chain, gathered in Melbourne on November 27 for the annual Australian Dairy Industry Council (ADIC) Leaders' Breakfast.

Centred on the theme 'The Dairy Domino Effect: Leading Healthy, Sustainable, Profitable Communities', the event explored the interdependent nature of dairy's future success and building recognition for the industry's social and economic value.

Guest speaker and rural sociologist Dr Neil Barr told industry leaders that the decline in farmer populations in the past decade posed no threat to the future of Australian dairy. "Dairying is the future for young farmers in Australia," he said. "The demand for opportunities is there, the industry just needs to work on developing the pathways to get them involved."

Dr Barr also said developing the amenities of dairying towns and encouraging investment in recreational facilities would be key to retaining skilled workers.

Outgoing ADIC chair Noel Campbell said new opportunities for growth and prosperity brought with them

'Dairying is the future for young farmers in Australia. The demand for opportunities is there, the industry just needs to work on developing the pathways to get them involved.'

the responsibility to demonstrate dairy's value to people, the land, livestock and the global community.

"The extent to which the Australian community understands the story behind the tubs of yoghurt and flavoured milk in their fridges will directly impact their trust and investment in our industry's future," he said. "We need to share our industry's story with our communities, our consumers and our customers if we are to achieve our 2025 Dairy Vision: prosperous, trusted and world renowned for nutrition."

"Collectively, dairy demonstrates its value through initiatives such as the Dairy Industry Sustainability Framework, as well as the search for the Legendairy Capital. It is essential that our industry continues to build on such initiatives."

Guests also heard from a panel

including Senator Richard Colbeck, Corangamite councillor Chris O'Connor, Bega Cheese executive chairman Barry Irvin, co-owner of the Myrtleford Butter Factory Naomi Ingleton and GippsDairy director Dr Sinead De Gooyer. The panel considered Australia's dairy commitment to sustainable practices and ensuring it remains a productive partner with the Australian community.

A key focus of the panel discussion was the high quality brand that dairy has established in Australia and how this could be built on through innovative concepts such as agritourism.

Dr De Goyer said the industry discussion of sustainability continued to leave out one integral element — farmer health. "We need to help farmers recognise that their physical and mental wellbeing is intrinsically linked to their farms' success," Dr De Goyer said.

"We can talk about the financial and environmental sustainability of our industry until the cows come home, but if we don't help farmers prioritise their health then there will not be an Australian dairy industry."

The ADIC Leaders' Breakfast is an opportunity for key leaders of the dairy industry to discuss the challenges and opportunities facing the whole supply chain and celebrates the industry's contribution to the economic and social wellbeing of Australia. 



Australian Dairy Industry Council deputy chair Robert Poole, John and Shirley Harlock, and ADIC outgoing chair Noel Campbell at the industry breakfast after Mrs Harlock was presented with the Outstanding Service Award.

Shirley Harlock contribution celebrated

Key points

- ✓ Outstanding Service Award presented to Shirley Harlock
- ✓ Key player in shaping dairy policy
- ✓ Committed to advancing industry through science and innovation

VICTORIAN dairyfarmer and advocate Shirley Harlock has been recognised for her contribution to the Australian dairy industry, as the 2015 recipient of the Australian Dairy Industry Council's (ADIC) Outstanding Service Award (OSA).

A prominent figure of the West Victorian dairy industry, in partnership with her husband John and son, Scott, Mrs Harlock continues to actively operate dairy farm at Warrnambool in conjunction with a beef and sheep enterprise in South Australia.

The OSA celebrates the lives and careers of industry participants whose contribution has significantly shaped the dairy community and beyond for the benefit of the whole value chain.

The award was presented to Mrs Harlock at the ADIC's annual Leaders Breakfast on November 27.

Outgoing ADIC chair Noel Campbell said Mrs Harlock had been key player in shaping the policy landscape for Australian dairy since joining the industry more than four decades ago.

'I live by the philosophy that, if you're not involved, you're part of the problem.'

"Shirley has consistently endeavoured to grow and promote dairy's valuable contribution to Australian communities," Mr Campbell said. "She is a valuable leader in the industry, whose enthusiasm, expertise and professionalism are exemplary.

"Shirley has a strong belief in advancing industry change through science and innovation. This has seen her advocate for the continued investment in research and development to industry, government and the broader community.

"For over four decades, Shirley has been extensively involved with industry representation, helping to find practical, effective solutions to its challenges."

Mrs Harlock has held local and executive positions with United Dairyfarmers of Victoria and was a director of Australian Dairy Farmers (ADF). She also served as chair of Dairy Food Safety Victoria for 10 years, during which she devoted her time to dem-

onstrating dairy's commitment to high quality, safe products.

In 2005, Mrs Harlock was appointed chair of the Dairy Australia Future Dairy project, charged with research, development and adoption of robotic technology for Australian dairy farms.

Addressing a room filled with dairy leaders from across the whole value chain, Mrs Harlock said she was honoured to receive recognition and praise from her peers in a "truly great" industry. Mrs Harlock took the opportunity to remind guests to ensure to be involved in finding shared solutions to the industry's challenges.

"I live by the philosophy that, if you're not involved, you're part of the problem," Mrs Harlock said.

"I get very disappointed when people sit back and complain without taking the time to understand the issue or be involved in creating a solution. You can't improve a situation by just sitting on the fence and criticising.

"I'm extremely proud to be a dairyfarmer. No industry could offer such reward, opportunity, support and encouragement — you just have to be prepared to avail yourself of it and be involved."

Mrs Harlock's industry involvement continues as chair of the Sustainable Agricultural Fund. 

Voters back levy poll changes

Key points

- ✓ Levy poll review supported
- ✓ Poll to be held only if change recommended
- ✓ Failsafe mechanism in place

THE results of voting on the Dairy Levy Poll Process Review were delivered on December 2, with the majority of voters in favour of the recommended changes. The levy payer vote drew 24.70 per cent of votes, with 89.95 per cent voting in support of the recommended changes.

Australian Dairy Farmers president Simone Jolliffe said the Federal Government had now been advised of the outcomes of the three-month consultation process.

“The essential question for levy

‘Every Australian dairy levy payer has been contacted through this consultation.’

payers was whether they believed we should opt for a levy poll only when a change in the levy was being sought,” Mrs Jolliffe said.

“Every Australian dairy levy payer has been contacted through this consultation. Levy payers have been provided opportunity to comment and to vote for or against the recommendations of the review. The most significant recommendation is that a levy poll should only be held if a

change to the levy is proposed. The response from dairy levy payers including through the vote, which closed on Friday, November 27, provides a strong signal that dairyfarmers believe the industry should make the changes to the levy poll process.”

Once the changes are made, if farmers believe a poll is necessary, there is a failsafe mechanism for a group of levy payers representing at least 15 per cent of levy votes to call a Dairy Australia general meeting and propose a resolution that a poll be held.

“Against the benchmark of a shareholder vote, the consultation and voter turnout for this review demonstrates significant engagement and support by levy payers,” Mrs Jolliffe said. D

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Australian Dairy Industry Council outgoing chair Noel Campbell, incoming chair Simone Jolliffe, Prime Super representatives David Luker and Nicole Ladds, Prime Super chairman Alan Bowman and ADIC deputy chair Robert Poole.

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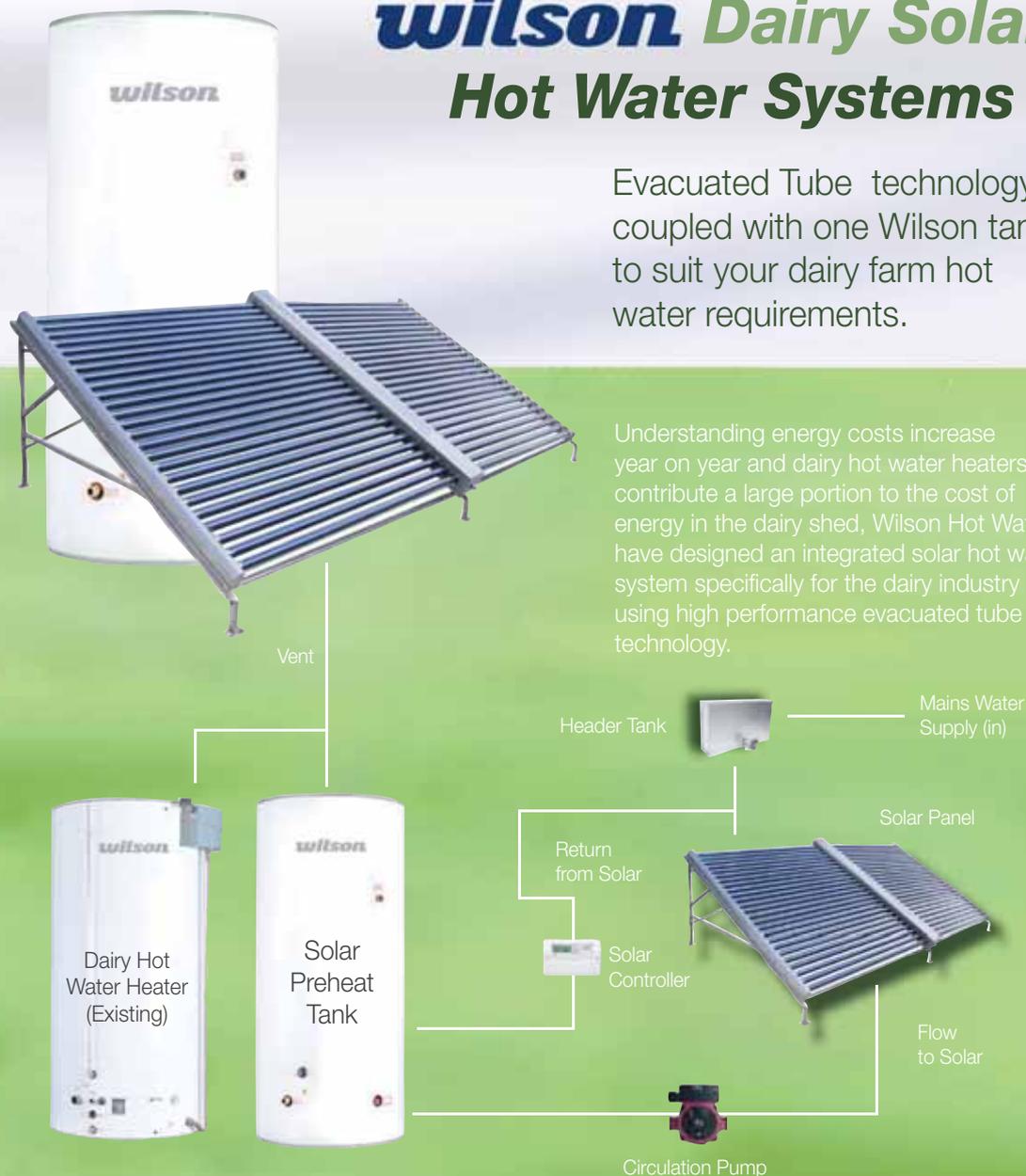


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Dairy industry recognised with Banksia

THE Australian dairy industry has been recognised for its ongoing commitment to sustainability winning the Food for Sustainable Thought Award at the prestigious Banksia awards night in November. The industry was also a finalist for the Natural Capital Award for work achieved under its Sustainability Framework.

The Sustainability Framework is an initiative of the Australian Dairy Industry Council, the dairy industry's peak policy organisation that represents all sectors of the industry through its two constituent bodies, Australian Dairy Farmers (ADF) and the Australian Dairy Products Federation (ADPF). The ADIC is supported by Dairy Australia (DA), the national services body for the Australian dairy industry.

Sustainability Framework steering committee chairman Chris Griffin accepted the award on behalf of the industry. "The Australian dairy industry is committed to achieving ongoing improvement to ensure a sustainable future for the next generation of farmers and dairy consumers," Mr Griffin said. "We welcome the opportunity to share the evidence of our progress against key targets on our farms and in the manufacturing sector."

Dairy Australia managing director Ian Halliday said the Sustainability Framework made the industry's performance more transparent and ensured there was genuine evidence to support all claims of improvement.



Representatives of the Australian Dairy Industry Sustainability Framework at the Banksia Award presentation: Sustainability framework steering committee chair Chris Griffin, steering committee member and South Australian Dairyfarmers Association president David Basham and Dairy Australia manager sustainability Helen Dornom.



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"We continue to look for improvements and welcome feedback from the community at all times," he said.

New directors appointed to board

Dairy Australia members voted at the company's annual general meeting (AGM) on November 27 to elect candidates to the board of the organisation.

Dairyfarmer and former chairperson of DairySA James Mann and Murray Goulburn executive general manager

— business operations David Mallinson were elected for the first time.

John McKillop, who was first appointed to the Dairy Australia board in 2012, was re-elected as a director to fill the agribusiness and strategy vacancy.

Mr Mann is the owner of Donovan's Dairying at Wye, South Australia, which is one of the nation's leading dairy businesses, developed by him, his wife, Robyn, and his team from a greenfield site in 1998. The business has pioneered innovative grazing and production systems for dairy in southern Australia and continues to explore opportunities to leverage technology to maximise farm profitability and optimise business sustainability. ▶



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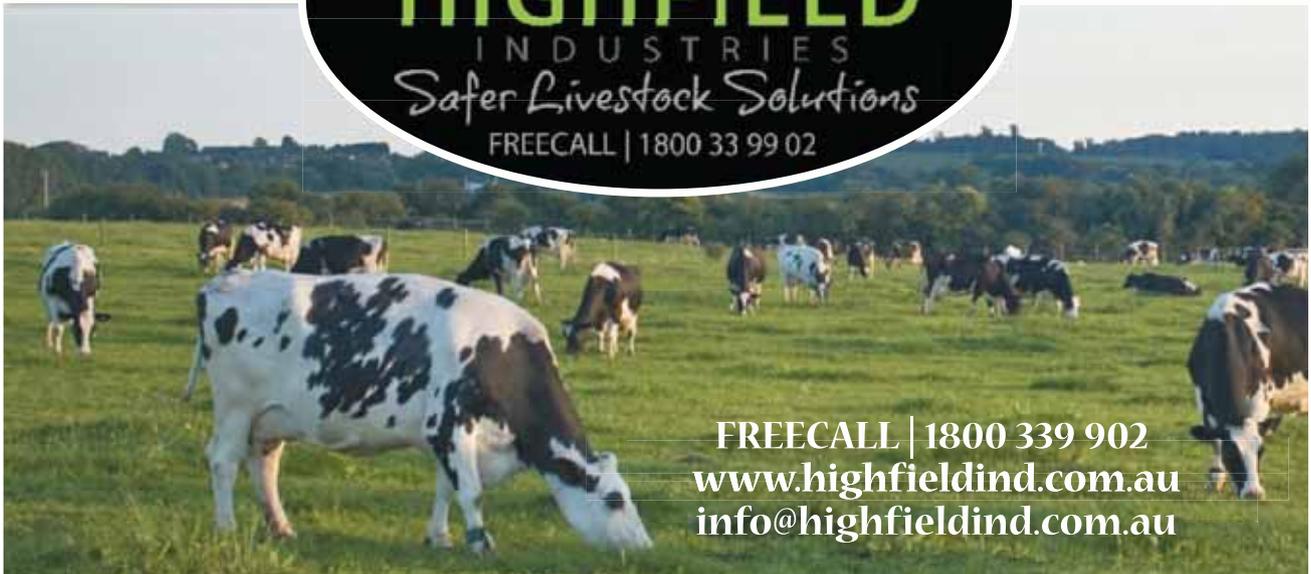
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Dairy Australia Round Up



◀ Mr Mann became chairperson of the DairySA Regional Development Program in 2002 and recently resigned from that position. He has also performed other dairy industry leadership roles.

Mr Mallinson has held a range of roles across both Murray Goulburn and other processors (Fonterra, Bonlac Foods, Cadbury Schweppes) and has extensive operational line experience (including his current responsibility for MGC's manufacturing sites [including China] with more than 1600 employees). He is also a non-executive director on the board of Snapsil Corporation.

"It is my pleasure to welcome James and David — two excellent candidates — as new directors to the board and I congratulate John on his reappointment," Dairy Australia chair Geoff Akers said. "I would also like to sincerely thank the many levy payers who voted in the election and attended the AGM today."

For more information on the 2015 AGM visit the webpage <<http://www.dairyaustralia.com.au/Industry-information/About-Dairy-Australia/Who-we-are/Corporate-Governance.aspx>> where the proceedings via the on-demand video stream can also be viewed.

Put the power of herd improvement in palm of hand

A world-leading smart phone app developed by the Australian Dairy Herd Improvement Scheme (ADHIS) and Dairy Australia to help farmers choose bulls to meet their breeding objectives will be available in January, free for dairy farmers and advisers.

The Good Bulls app has been designed in consultation with dairyfarm-

'... the app gives users on-the-go access to more than 20,000 bulls.'

ers and advisers and builds on the *Good Bulls Guide*. The app, which can search from more than 20,000 bulls, allows farmers and advisers to search, filter, short list and export bulls based on Australian Breeding Values and Australia's three indices.

ADHIS extension officer Sarah Saxton has led the team that helped create the Good Bulls app. She said the app would be an invaluable tool to access bull information anywhere at any time, so farmers could take charge of their herd.

"The Good Bulls App really puts the power of herd improvement in the palm of your hand by giving users on-the-go access to more than 20,000 bulls and the ability to inquire about prices with their supplier at the click of a button," Ms Saxton said.

The Good Bulls app answers a strong desire by farmers and advisers to be able to filter and sort bulls based on their preferences and to improve profit in a fun easy way.

"We conducted more than 20 hours of one-on-one interviews with a range of farmers and advisers in the design of the app so we are confident this is going to be an essential tool for the industry," Ms Saxton said.

The Good Bulls app is available for both iPhone and Android phones. For details on how to download the app visit website <www.adhis.com.au/goodbulls>.

Advanced dairy knowledge portal

Dairy Australia's recently upgraded knowledge portal gives all levy payers and farmers access to a unique range of resources that can contribute to farm, business and research success.

Dairy Australia library manager Vesna Vukasin said the knowledge portal was one of the most comprehensive dairy business resources and that dairy levy payers and the wider dairy industry had a powerful tool at their fingertips.

"Farmers who use our services get unparalleled access not only to the latest Australian dairy statistics but industry data from all over the world plus research reports and publications on farm business performance, animal health, natural resource management and nutrition," she said.

"We also have specialist international and business journals such as the *Harvard Business Review*, plus training resources and tips to assist farmers achieve business success in areas such as management, human resources and marketing."

Learning to use the Dairy Australia knowledge portal has been made simple with two short videos giving and overview of the resources and instructions. "The videos are a simple explanation of all a farmer needs to know about using the portal for their business, but if they have a specific question that can't be answered just send an email or simply call us," Ms Vukasin said.

Access the dairy knowledge portal at website <<https://dairyaustralia.softlinkhosting.com.au/liberty3/libraryHome.do>>. 

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Advocate puts theory into practice

Key points

- ✓ Produces 3 million litres each year
- ✓ Successful succession planning process
- ✓ Strong business structure provides agripolitical opportunity

By Jeanette Severs

In an industry where many dairy-farmers struggle to find and retain well-skilled, committed staff, Noel and Ann Campbell, Yannathan, Victoria, have several long-term employees.

The couple began dairyfarming in 1984 with 90 cows, after they bought a beef farm in 1983 and Mr Campbell spent a year of weekends building a dairy. They milked the herd on their own for a few years, before employing an apprentice in 1988.

“That’s when I started getting involved with post-farmgate stuff,” Mr Campbell said.

In a career representing farmers, he started on the local Gippsland area Bonlac board, known as farmer representative groups, in dairy extension work. In 1993, he also joined the board of the Victorian Artificial Breeders, which became Genetics Australia.

He was chairman of Bonlac Foods in 2002 when the New Zealand Dairy Board bought their first 25 per cent share of the organisation. As chairman, Mr Campbell oversaw the eventual sale of all of Bonlac Foods to Fonterra. “It gave me an understanding of how the industry marketing



Noel and Ann Campbell excel at hiring long-term employees, something that allowed Mr Campbell to have a long career in agripolitics.

chain worked post farm gate,” he said.

He continued on as chairperson of Bonlac Supply Co — a separate entity — for another three years, until 2008; and oversaw the Fonterra supplier forum in 2007-08.

They were roles where he relished the opportunity to exercise fiscal and governance responsibility while representing the interests of dairyfarmers as suppliers and shareholders.

In the meantime, the dairy farm was growing — in territory, herd size and infrastructure.

By 2006, the Campbells had bought

the neighbouring dairy, the herd had expanded to 400 cows and another apprentice, Dean Turner, was by now ready to step up to the farm manager’s role.

Mr Turner said he was responsible for herd, pasture and staff management. “There was a lot of autonomy and, while we had regular meetings, Noel let me get on with the day-to-day work of managing the farm,” he said.

The Campbells now own 470 cows — a three-way composite split-calving herd of Friesians, Holsteins and Aussie Reds — milking three million li-

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Kellie Price, Bec and Dean Turner, and Noel and Ann Campbell, Yannathan, Vic, have established successful work relationships that have helped develop the business.

Building successful relationships

COMMUNICATION, respect and autonomy are at the heart of the successful working relationship between Noel and Ann Campbell, sharefarmer Dean Turner and long-term employee Kelly Price.

"Your own initiative is encouraged," said Ms Price, who has worked on the property for 10 years. "There needs to be more farmers like Noel, who allow us to use our knowledge.

"Dean and I work closely and we talk daily. Staff meetings are usually weekly and that's when we work out any problems, organise training and make sure everyone's on the same path. We make an effort to communicate fully."

Responsibilities are allocated according to expertise.

Ms Price started working for the Campbells as an apprentice in 2003 and undertook additional training in artificial insemination (AI), including working with Genetics Australia for 18 months.

She is responsible for the AI program on the farm.

"My passion is the breeding of the herd," she said. "I organise what needs to be done when, and then I phone Noel and talk to him.

"I treat this place as my own farm, you have a fair bit of autonomy."

Dean Turner started as an apprentice in October 1998, coming into the role after some relief milking, bobcat driving and farmhand work.

On top of his initial apprenticeship, Mr Turner completed a Diploma of Agriculture and undertook numerous courses.

"I've done an endless amount of training courses, including Pastures for Profit, animal nutrition, business planning, Target 10 and am involved in discussion groups," Mr Turner said.

"That's been encouraged and supported by Noel and Ann from the beginning.

"You never stop learning. When there's something different going on, I like to go along and find out what it is."

He has applied that same philosophy to staff management.

"I encourage them to go to field days, discussion days and take up training," Mr Turner said.

"I also encourage them to move forward, if an opportunity is there for you, you have my support 110 per cent.

"The young people working for me are the farmers of the future, so I'm happy to be their mentor if they have ambi-

tion, just as Noel has been for me. Under Noel's guidance, I stepped up to the assistant manager's role then became farm manager. In 2009, Noel and Ann sat down with Rebecca and I and we planned how we would come on as sharefarmers in 2012."

That communication extends into monthly finance meetings and regular management meetings where staff, feed, the herd and planning are discussed.

"We also get together occasionally with staff over a counter meal or barbecue, just to discuss what's going on," Mr Turner said.

A farm consultant, Matt Harms, meets irregularly with the Turners and Campbells to facilitate open discussions.

"He's there in the event there's any discomfort between us," Mr Campbell said.

Respect was at the heart of his and Ann's relationship with staff.

"We treat them with respect, like they're part of the family and invest in their personal and professional development," Mr Campbell said.

"We have always wanted them to share in decision making as we've grown our business."

tres, or 275,000 kilograms milk solids. With a 185ha milking area, the dry-land farm includes two dairies as one farm, but one shed operates for eight months and the other is year-round.

Both are herringbone dairies — one 24 swingover and the other 20 swingover — with automatic cup removers and stall gates.

Mr Turner is still with them and in 2012 became their sharefarmer, after a succession plan set in place three years earlier.

That conversation in 2009 was side-by-side with Mr Campbell stepping onto the board of Australian Dairy Farmers (ADF), representing United Dairyfarmers of Victoria. He was elevated to the role of president in 2012, also becoming chair of the Australian Dairy Industry Council.

The successful working relationship with Mr Turner enabled Mr Campbell to be heavily involved in agripolitics.

As ADF president, he often spent four days a week off-farm, until he retired on November 27 last year.



Dean Turner started as an apprentice, became farm manager and three years ago stepped up to the share farmer role.

When Mr Turner stepped into the sharefarmer role, it enabled the Campbells to step out of the dairy and for the past three years they have concentrated on raising the heifer calves to point-of-calving.

Mr Turner began building equity in the herd in 2013, with his first heifers calving in July this year.

“The opportunities Noel and Ann



Kellie Price has worked on the dairy farm for 10 years and specialises in herd reproduction.

have given me as a young farmer are second to none,” Mr Turner said. “We have a really good relationship that was built from day one.”

Mr Campbell said: “If you’re going to have an ongoing relationship with someone, it’s no good making it untenable. My involvement in agripolitics has taught me to invest in the ongoing relationships I have.”



Letter to editor: Don't become slave to robotics

Dear Editor,

I have written before re this magazine, the *Australian Dairyfarmer*. I love reading it and almost read the cover off it. I have been retired from actually milking cows for some time now and run some cows and calves, so there are pertinent matters in the magazine I still try to adhere to.

I was very impressed with the eloquence of Aubrey Pellett in the article ‘Searching for Efficiencies’ in the November-December 2015 edition and the quotes attributed to him by Jeanette Severs. This young man and his partner already have a strong performance history behind them and look like gaining more ground in the coming years.

I did worry about the quote re robots for bringing the cows in, spot spraying

weeds, assessing pasture and checking the electric fence. No doubt Aubrey has other uses in mind for future robotic activities.

I would like to mention though that those elementary tasks were important to me when I milked cows and many of the farmers I still know.

They were not and still are not “time wasting from a human perspective” as far as I am concerned. The late Jack Green and many other extension officers used to urge us to do these tasks and observe all aspects of the herd and the farm while doing those.

We work with live animals that respond to good treatment and care and reward us all in a most satisfying manner. Why we would wish to bring in robots for

every menial task associated with dairying?

Yes, I agree with Aubrey, his statistics are excellent and his advancement through our great industry is beyond question.

But let’s not sacrifice the entire lifestyle part of dairying in the advancements with technology.

After all, Aubrey started the article by stating “we could effectively be our own bosses and build equity”, however being a slave to robotics may well be a detriment to being your own boss.

That to me is the bottom line of the advantages of dairying, being your own boss.

Keith den Houting
Kerang, Vic

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ADF



Inbreeding: identifying herds at risk

Key points

- ✓ Inbreeding increasing and can be costly
- ✓ Keep accurate breeding records
- ✓ Run inbreeding report on semen choices

By Carol Millar

DAIRY genetics is a global industry. Australia imports and exports semen to and from many different countries. But generally, the breeding goals of dairyfarmers all over the world are similar — more profitable, long-lived cows that produce lots of milk.

Across time, those cow families or bloodlines that are not capable of achieving these goals have been removed from the population, and this has created a more condensed, less diverse gene pool. In all countries and in all dairy breeds, scientists have found that inbreeding coefficients have been consistently rising since the 1960s when the trade in dairy genetics became globalised.

Inbreeding is defined as the mating of related individuals. It is common these days for cows and bulls to have common ancestors such as the same grand-sire or granddam. It is not unusual for a farmer to suddenly discover they have mistakenly used a bull who is a half brother to many females in the herd.

There is a tool that can help to work out the inbreeding coefficients for cows. This number is easily worked out in common computer programs such as Mistro, which do a calculation based on the number of common ancestors in a pedigree and is expressed as a percentage. Generally, if the inbreeding coefficient is less than 6.25 per cent there will be no issues.

An Irish research study (McParland

S, 2007; 90) in 2007 found that a first-lactation Holstein heifer with an inbreeding coefficient of 12.5 per cent:

- produced 61.8 kilograms less milk, 5.3kg less fat and 1.2kg less protein;
- had a 0.03 increase in somatic cell score;
- experienced 2.0 per cent greater incidence of calving difficulty and 1.0 per cent greater incidence of stillbirths;
- had an 8.8-day longer calving interval and increased age at first calving by 2.5 days; and
- reduced survival to second lactation by 4.0 per cent.

While an inbreeding coefficient of 12.5 per cent would be much higher than normally seen in Australian dairy herds, this level of inbreeding may not be far away for dairyfarmers who do not closely monitor this issue. The arrival of genomics means that generation intervals are being shortened and more bulls are being used, so it is becoming harder for dairyfarmers to remember pedigrees and sire stacks. The risk that this brings is ever-increasing inbreeding coefficients and the consequent decline in both production and health traits.

Addressing inbreeding

First, be aware of the issue. Knowing and understanding the potential negative effects of inbreeding is important.

Second, keep good records. All cows should be individually identified. All artificial insemination and mating records should be noted. All calves should have a record of their parents.

These simple records are the foundation stone of profitability. If these data are not known, the herd cannot be managed properly. Farmers who herd test have a big advantage because they will

already be recording this information automatically.

Invest in a good computer program such as Mistro Farm 5. This is one of the best programs available with linkages to herd-test centres and factory quality-assurance programs.

This will help farmers keep these essential records. Ask a local herd test centre how to get started or visit website <www.mistro.ag> for more details.

Lastly, before finalising the semen order, ask a service provider to run an inbreeding report to make sure that the bulls being bought do not increase the inbreeding coefficients. This is really easy to do, especially for herd-test customers. Work with service providers who have taken the time to know the bloodlines in the herd and who are trusted to get the best results.

Another excellent way to cover the bases with regard to inbreeding is to enrol on a mating program where cows are individually matched with the AI bull that will be most likely to produce top quality offspring. Most mating programs incorporate an inbreeding component to ensure that the matings do not overstep a maximum inbreeding coefficient. Again, ask the service provider for details.

By being aware of inbreeding and making sure semen choices are sound in this area, farmers can ensure that profitability and productivity in their herd will be maximised. **D**

References

McParland S, K. J. (2007; 90). Inbreeding Effects on Milk Production, Calving Performance, Fertility and Conformation in Irish Holstein-Friesians. *J Dairy Sci*, 4411-4419.

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Young Dairy Network annual forum participants during a tour of the Dairy Australia offices.

Young farmers share knowledge

Key points

- ✓ Young network co-ordinators meet
- ✓ Update on industry issues and available resources
- ✓ Develop wider networks

THE Young Dairy Network of Australia (YDNA) hosted its annual forum at the end of November. Young farmers and network co-ordinators met in Melbourne for two days of information sharing and presentations about regional issues, industry initiatives and relevant industry news.

While the forum provided countless networking opportunities, it gave participants a platform to ask questions and discuss innovative ideas about how to further develop their own regional networks and programs.

The forum's program was well received with updates about the industry's progress, including Australia's free trade agreements and the positive outcomes anticipated for industry, being of particular interest. Participants also learned about the future skills and resourcing requirements of the industry as well as the anticipated changes in farm numbers and milk production in 10 years' time.

"Delegates at this year's forum were amazing," YDNA national co-ordinator Di Gresham said.

'It was great to hear a group of confident and motivated young farmers confront the big issues and ask forum guest presenters and DA staff some tough questions.'

"It was great to hear a group of confident and motivated young farmers confront the big issues and ask forum guest presenters and DA staff some tough questions."

While in Melbourne, forum participants were offered a tour through Dairy Australia's offices where they met with local Dairy Australia and regional staff.

The feedback from participants has been overwhelming with co-ordinators and dairyfarmers from around the country returning to their regions with new ideas and a better understanding of how to work with and inspire their regions' Young Dairy Networks.

Paramount to the forum is the chance for participants, farmers and industry personnel to develop useful connections and to reach one another

knowing that one day they might represent the dairy industry in ways that are big or small, at a local or national level, but in ways that are nonetheless significant.

Regional YDNA networks operate in each of Australia's dairy regions, and local networks provide support for young people as they develop their career in the industry.

The networks have a high level of member input including steering committees and local area committees who work closely on what they consider to be key issues.

Dairy Australia's ongoing support for YDNA networks is vital as it conducts technical workshops and networking events that are relevant to each region. Other events directly supported by DA and the YDNA include leadership programs and regional tours.

Membership is open to all young dairy farmers, share farmers, farm employees and industry service providers.

To find out more about how to connect to a local network, complete a YDNA Membership Form at <www.dairyaustralia.com.au/People-and-skills/Young-Dairy-Farmers-Network.aspx> or visit the network's Facebook page at <www.facebook.com/dairynetwork>.



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	<input type="checkbox"/> No clear understanding of safety responsibilities	<input type="checkbox"/> Safety responsibilities identified but not understood or operating effectively	<input type="checkbox"/> Manager and worker safety responsibilities clearly understood and acted upon
	<input type="checkbox"/> No time or money allocated to meet safety responsibilities	<input type="checkbox"/> Insufficient time and money allocated to meet safety responsibilities	<input type="checkbox"/> Sufficient time and money allocated to meet safety responsibilities
	<input type="checkbox"/> Safety not a priority	<input type="checkbox"/> Safety not always a priority	<input type="checkbox"/> Manager/s promote safety as a high priority
	<input type="checkbox"/> No safety initiatives	<input type="checkbox"/> Limited involvement by Manager/s in safety initiatives	<input type="checkbox"/> Manager/s involved in all safety initiatives
	<input type="checkbox"/> Manager/s set a poor safety example	<input type="checkbox"/> Manager does not always lead by example	<input type="checkbox"/> Manager leads by example

Ensure safety meets legal requirements

THE Work Health and Safety (WHS) legislation applies to every workplace across Australia including every dairy farm. Different states have variations within the legislation but generally they are similar in the requirements they have for the workplace. The second hot topic for Safety on Farm is 'How well does your Farm Safety System comply with the WHS legislation?'

To help get started in this rather complicated area, Dairy Australia has modified Safe Work South Australia's

WHS Snapshot into a Safety on Farm Snapshot.

To get a copy of the complete document, simply type the link <http://bit.ly/safetysnapshot> into an internet web browser, such as Chrome or Internet Explorer. Then print out a copy to use on the farm. Step one of the Safety on Farm Snapshot is shown in the figure.

The best way to use the Safety on Farm Snapshot is to sit down with the farm team and work through the sheet line by line. Put a tick in either a Red, Orange or Green box for each line.

The six key steps are:

1. Setting Up a Safe Workplace (as shown in figure above);
2. Consulting (Employee Engagement);
3. Managing Hazards;
4. Informing, Training and Supervising;
5. Maintaining a Safe Workplace; and
6. Keeping Records.

These are the key elements of the legislation.

The completed snapshot for the farm will help identify the current strengths and where some more work is needed to be compliant with the legislation. 

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The farmer of the future

By Lynne Strong
 Founder
 Picture You in Agriculture

I MUST admit I always struggled with the image of the profession 'farmer'. I was always proud to be a pharmacist — people appreciate pharmacists, they value them. In the 21st century whilst people want to appreciate and value farmers, we are finding that more and more people are questioning whether our modern farming practices align with their values.

I always felt and still do like I was potentially walking into a war zone when I talked about farming in a public forum. I always felt agricultural practices were under the microscope and in some cases quite rightly so.

So my wish for farmers of the future is to be viewed as an integral part of a farming community that is perceived as, and is delivering safe, affordable, healthy food and quality fibre and leaving a positive footprint on the planet.

My wish is that farmers of the future will feel proud to say that I am both a farmer and an environmentalist. Many, many now do already

To help facilitate this transition I am part of a team who has worked behind the scenes and sent Young Farming Champions Josh Gilbert and Anika Molesworth to the 2015 Paris Climate Conference (COP21).

I say fervently that Josh and Anika are the image to which future farmers will all aspire. They are the gutsy young people learning the corporate mindset during the week and spending every spare minute they have working side by side with their parents on the farm

They have gone to Paris on a fact-finding mission with the aim to back what they found to share with young farmers like themselves and anyone else who cares to listen. What is so exciting here is that they care enough, and others care enough to support them, to go and learn whatever COP21 had to offer.

The support from government and the community was phenomenal.

Before their trip Josh and Anika had an audience with both the NSW Minister for the Environment, Mark Speakman, and the Minister for Primary Industries, Niall Blair, who reiterated the important role agriculture plays in NSW.

Mr Blair also recently met with Josh and Anika and 15 of their peers. He feels strongly that investment in the new gen-



Farmers of the future will say I am proud to be both an environmentalist and a farmer.

'They want the best outcomes for both farmers and the planet.'

eration of agricultural leaders can do so much more than securing the production of food. It can provide jobs, grow wealth and create vibrant and resilient rural and regional communities. And the perfect way to create world-class leaders is to create the right environment and give them the skills to thrive. And what a great opportunity Paris was to help them develop those skills and knowledge.

And excitingly bring that knowledge back and help Australian farmers drive the transition to clean energy technologies. Farming communities have a great opportunity to champion renewable energy. As Anika said: "We are blessed with open skies and vast horizons, we have boundless solar and wind resources. Importantly farm-supplied green energy has the potential to provide Australian farmers with a new and steady income stream. This will help reduce the physical, emotional and financial stress on our farmers and help ensure we have resilient and prosperous rural and remote communities."

There is no denying that a positive future for agriculture will require change. The journey will see them find themselves in a difficult space. They will be challenged by the conservatives. Some

will feel threatened and try to bring these new-age farmers down. These young people are the influencers of the future, they are brave, they have a strong support network and that network will grow.

They want the best outcomes for both farmers and the planet. To achieve this they are out talking to everyone. They are finding many other groups share their values. They are very excited we now have a Prime Minister who also shares their values and wants to leave the same legacy they aspire too.

They went to Paris to learn and to seek out the solutions that they can bring to the table. They see themselves as part of the rational group in the middle who know it's smart to talk to both sides and that win:wins are possible. By this I mean the group that sits between farmers embedded in the old ways and extreme green groups. The rational group who view partnerships as the key to success, and the group farmers can turn to drive the change we must have.

They and many farmers like them are committed to Australians having the bright future that we all deserve. **D**

Josh and Anika's ParisCOP21 blog is at website <<https://pariscop21blog.wordpress.com>>. Gabrielle Chan's story on their crowd funding campaign that saw 65 Australians fund their trip to Paris is at website <<http://www.theguardian.com/environment/bush-mail/2015/nov/06/australia-dependson-it-say-two-young-farmers-calling-for-action-at-un-climate-talks-in-paris>>.

Developing drought-resistant pastures

Key points

- ✓ Three-leaf grazing protects pastures
- ✓ Avoid soil compaction and pugging
- ✓ Ensure optimal levels of trace elements



By Jeanette Severs

PASTURE recovery, root density, soil calcium levels and biological health were key components for producing drought-resistant pastures. That was the message at a field day held late last year, hosted by South Gippsland Shire Council, where New Zealand soil scientist Graeme Shepherd talked about how pasture-based dairyfarmers in Australia could improve their drought and climate resilience.

'We want to avoid any impact that influences decline in the physical condition of the soil.'

The basis of the workshop, which preceded a farm walk, was identifying soil nutrient deficiencies and underperforming paddocks, increasing pasture diversity and managing grazing pressure to develop deep roots and help the plants 'bounce back'.

"Present the stock with a salad, oversowing pastures with a two kilograms per hectare seed mix and maintain good residual pasture — avoid overgrazing," Mr Shepherd said.

He recommended applying the three-leaf model to time of grazing. "The protein:sugar content ratio is optimum and good for rumen at that three-leaf stage," Mr Shepherd said.

"Three-leaf also impacts on root depth — roots produce hormones called strigolactones, which help control root extension, branching and production of root hairs; and promote symbiotic relationships between roots and soil microbes to improve soil health. Overgrazing will not encourage root depth growth. The root system is instrumental in helping to mitigate droughtiness."

Mr Shepherd said a dense fibrous network of roots, extending well into the soil, could only develop if overgrazing was reversed. Dense fibrous roots were instrumental in promoting ▶



Graham Shepherd: improving soil health key to drought-resistant pastures.

PASTURE PROPHET

DRY SEASON PASTURE MANAGEMENT

Good pasture management delivers faster recovery after drought, greatly reducing the need for total renovation and supplementary costs providing a major cost saving.

Nursing pastures through summer and autumn will likely mean that your system is close to getting back to normal by late autumn, making for a much better winter. There are implications for the following spring too, as a weak pasture going into winter will still be relatively feeble early next spring. If you don't carry good pastures into winter, it is unlikely you will have good ones coming out of it.

Drought management strategies

Decrease feed demand. There are a range of options including selling stock, getting rid of culls, through to once-a-day milking or drying some cows off based on condition. It can be useful to set key indicators that are monitored and trigger different options.

Look after the best pastures. The critical point of managing grass-based pastures through the dry is that they have their energy reserves above the ground (not in the roots). So look after the best pastures by:

- Leaving some cover on them - this does not mean rank growth, around 3-4cm length is about the target for cattle pastures. Don't bare the pastures out.
- Destock them for the duration of the dry.
- Feed out supplement in sacrifice paddocks.
- Develop an on-going strategy to maximize other feed options (see *ides* further on)

Sacrifice poor paddocks. Keep stock on the poor producing paddocks, that may be old species, or those you already plan to renew. Feed out supplement to stock on these.

Once the drought breaks

Allow pastures to recover and build up their carbohydrate reserves before restocking. Ryegrass tillers need 2-3 leaves before grazing so plant reserves will be replenished and they will regrow well, as shown in Figure 1. Grazing the first 'green pick' can potentially kill a pasture, or markedly reduce feed available at the next grazing.

Advice given here is meant purely as a general guide and may not be suitable for all situations and locations.

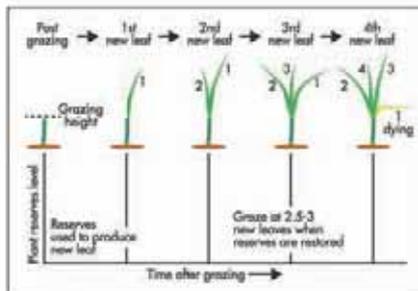


Figure 1

Grazing before the second new leaf appears, does not allow plant reserves to be fully restored. Repetitive early grazing decreases pasture yield and persistence. The optimal time to graze pastures is when tillers show an average of 2½-3 leaves. You will need to check a good number of grass tillers, as plants will vary. By this stage plant reserves will have restored for plants to recover quickly from defoliation. Ignore older leaves left over from the last grazing (e.g. in dung patches) or that have been partly grazed.

Reducing the effects of dry springs in future seasons

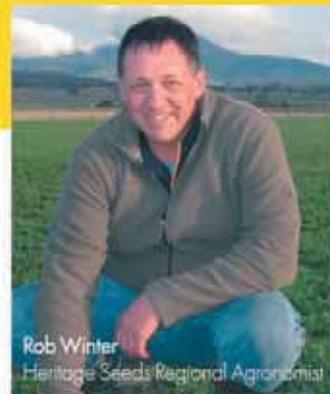
Hindsight is only useful if we learn from it and act appropriately. Unfortunately, we tend to rely on an average or good spring to achieve production targets.

Maximise the potential from existing pastures. If we consider the value of one tonne of dry matter at \$300, and your potential 3000kg DM pasture cover has been affected in a single grazing of 20% through weed content or pest pressure, then around \$180 per hectare worth of dry matter potential is probably being lost in that grazing. Timely weed and pest action will help preserve feed quantity, quality and income from your paddocks. Conduct paddock inspections and seek good agronomic advice.

Maintain fertility: adequate fertility will keep pastures growing longer and stronger into a dry period, and create the best opportunity for them to bounce back. Soil test and do a fertiliser nutrient budget to match farm output targets, not just a dollar budget.

Weed control: maintain a high proportion of useful species. Weedy annual grasses offer poor feed value and many broad-leaved weeds take up space, nutrients and moisture.

Pest control: address pests such as armyworm, cutworm, cockchafers, corbies, earth mites, slugs, snails. These have the ability to reduce the feed on offer on the next round and reduce the plant density and feed for future rotations. Pests such as argentine stem weevil, black beetle and root aphid are best addressed by planting grasses with the correct endophyte and seed treatment.



Rob Winter
Heritage Seeds Regional Agronomist

Plan to take pressure off your good pastures.

Aside from reducing feed demand through methods such as de-stocking, there are a number of tactics to help preserve good pastures and simultaneously potentially increase feed available:

- Develop an on-farm reserve of feed, for example pit silage from good seasons that can keep for a number of years. Silage maize and high-yield grass silage are obvious choices, as well as cereal silage.
- Plan to include summer and autumn/winter forage crops such as brassicas, millet, sorghum, or beets. Embrace preparation needed for success with these crops and do not cut corners, as good results require commitment, timeliness and attention to detail.
- Consider specialty forage cereals from early autumn, as these can offer reasonable quality and high yield feed through autumn and winter, and may be used for silage the following spring. Specialty forage barley and cereal rye usually offer the most feed going into winter. New varieties of annual and Italian ryegrasses from good breeding programs will have improved rate of establishment and higher cool-season yield potential. The increased seed price is recouped many fold from the improved yield. There are a number of excellent short-term ryegrasses available that have a proportion of perennial ryegrass in their breeding. Such hybrids have increased capacity to come through a dry year, and help to restore the feed base more quickly. Keep the kg/ha sowing rates up to maximize feed over the first 2-3 grazings.
- Winter feed can be increased further by including 1-2 kg/ha of forage rape in with an annual, Italian or hybrid ryegrass. This tactic may be useful for a small proportion of the farm for the short-term, but can reduce ryegrass plant numbers in the pasture later on, so don't commit too much area.
- Increase the rate of new pasture renewal on the milking area. New pastures, well looked after, will grow more than older ones, with the opportunity to address possible weed, pest or fertility issues, releasing some fertility through cultivation and mineralization, and by adopting newer, higher performing varieties. Reliable, well-managed perennial pasture is still the least expensive source of feed.

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GROWING BETTER PASTURES

◀ water-holding capacity. “In addition, the leaf is a solar panel, maximising photosynthetic uptake, which results in good soil aeration, good soil fertility and good microbiological biomass,” he said.

Other issues discussed were controlled traffic management to reduce soil compaction and pasture management to reduce pugging.

“We want to avoid any impact that influences decline in the physical con-

dition of the soil,” he said.

Techniques for measuring soil health included the ‘worm test’ — adding water to a soil sample and rolling it to achieve a sausage shape 40 millimetres by 10mm.



Workshop participants inspect the predominantly clover and ryegrass pasture on the Vagg farm.



Under Mr Shephard’s system, the starting point for understanding soil is to dig a sample.



Mr Shephard explains to workshop participants what he is looking for in a soil sample.



Visual scoring of soil structure under pasture. Visual scoring of root length and root density of pasture.



“A fractured worm means the pasture is suitable for grazing,” Mr Shepherd said. “An unbroken worm means the soil is too wet for grazing.”

Artificially aerating the soil and applying biological activators, such as compost, could resolve this issue, he said.

He estimated artificially aerating the soil in autumn to maximise the root-development phase of the plant could increase plant-available nitrogen by 122 per cent, soil carbon 3.6-4.3 per cent, phosphorous 34 per cent, sulphur 51 per cent and dry matter 30 per cent.

Getting the soil chemistry right, especially for pH and the calcium levels relative to magnesium and sodium readings, led to improved uptake of water by the plant cells. It also meant the plant required less nitrogen.

Mr Shepherd strongly recommended ensuring adequate levels of trace elements existed in the soil profile:

- magnesium 2.5-3 milligrams/100 grams;
- potassium 0.4-0.6mg/100g;
- sodium 0.2-0.3mg/100g;
- iron 150-250mg/kg measured in the herbage;
- zinc 40-50mg/kg in herbage; and
- boron 15-25mg/kg in herbage.

Increasing sugar levels in the plant, building microbial biomass, diversity and activity, and measuring activity of the fungi in the soil were also part of the mix.

When discussing soil carbon levels, Mr Shepherd said a one per cent increase of humus in the soil resulted in an increase of 170,000 litres of plant-available water.

“Dicalcic phosphate can grow 10-20 per cent more dry matter than superphosphate,” he said.

In New Zealand, dicalcic phosphates are superphosphates slurried with lime, cured, then powdered and applied to pastures.

Mr Shepherd said a 10 per cent increase in dry matter pasture production equated to \$84,950 increase in net income for dairyfarmers.

Ultimately, farmers needed to develop a short-term management plan to increase drought resistance, by identifying limiting factors — for example, the budget — and working out what they could afford to do now, he said.

“Soil moisture content is crucial to applying these ideas and generating success,” Mr Shepherd said.

See next page for story about the farm where the field day was conducted.



Visual scoring of potential rooting depth under pasture.

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Open mind key to farm improvement

THE on-farm component of the producing drought-resistant pastures workshop was held just down the road at the dairy farm of Gordon and Sylvia Vagg, Leongatha South.

This farm is a traditional grass-production system and supports four families. The split-calving herd of 330 predominantly Jersey cows, with some Aussie Reds, Friesian and crossbreds, produces 500 kilograms of milk solids per hectare of effective milking area, stocked at 2.8 cows/ha.

The focus of farm manager Paul Cocksedge "is to supply as much quality feed that the cows can consume".

To this end, pastures have been progressively renovated with a clover ryegrass mix.

Urea is spread strategically after the milking herd has passed through and potash is applied a couple of times during spring to maximise surplus pasture.

The Vaggs address dry seasons by having a year's supply of fodder, growing turnip fodder crops and doing a bulk cut of silage to meet their milking herd's feed budget.

"I'd sooner have too much hay and silage than not enough," Mr Cocksedge said. "I apply a feed budget when I start taking hay out of the shed."

This drought bank of feed can also be used to enable opportunistic trading — either of feed or cattle.

The original part of the farm has black



Farm manager Paul Cocksedge with farm owners Gordon and Sylvia Vagg, Leongatha South, Vic, who run a split-calving herd of 330 predominantly Jersey cows.

silt loam soils. Significant drainage works have improved access to the pastures.

Mrs Vagg said the farm was traditionally waterlogged because it had a natural swamp through it. Implementing the drainage works had vastly reduced pugging and contributed to improved pasture growth.

The second, more recently purchased farm next door has red soils with significantly better drainage and it is where the

first silage and hay is harvested. "We're able to cut early silage on this farm," Mr Cocksedge said.

At the field day, pushing a shovel into the pasture in the black silt loam paddock revealed roots well down the soil profile and worms were easily seen. The Brix meter showed sugars at eight in a diffused line.

The owners were still waiting for results from the recent soil tests on this paddock.

Graeme Shephard was not complimentary of some aspects of the soil health in the paddock. He said it lacked calcium, and the soil profile indicated a serious lack of oxygen. Applying the 'worm test', the soil held together rather than crumbled, which was preferable, he said.

Mr Vagg chose this paddock for the field day. He said he was aware that some soil health metrics might be suboptimal, as it had not been renovated for nine years, even though it was still one of the more highly productive paddocks with great pasture cover on the day.

But Sylvia and Gordon Vagg, were not deterred, as they believe that it is important to be always listening and learning.

"It's important to support field days and listen, reflect and critically analyse your own decisions, and then see how it applies to you, your business and its vision," Mrs Vagg said. "Openness is the key."

—Jeanette Severs



The Vagg herd produces 500 kilograms of milk solids per effective milking area hectare.

Building leadership from the ground up

Key points

- ✓ Building regional leadership
- ✓ Creating vibrant communities
- ✓ 10 dairy scholarships

By Alexandra de Blas

WHEN major floods hit her district in the summer of 2010/11, Cohuna, Victoria, dairyfarmer Dianne Bowles stepped up to the plate in support of flood victims. Others noticed her contribution and encouraged her to apply for a local community leadership program in 2012.

It was a step that propelled her on a journey of learning and dairy advocacy, which included attending a Free Trade Agreement dinner in Canberra last year, with Agricultural Minister Barnaby Joyce and Shadow Minister for Agriculture Joel Fitzgibbon.

The Loddon Murray Community Leadership Program Ms Bowles undertook is one of 10 member programs of the Victorian Regional Community Leadership Program (VRCLP). A not-for-profit organisation, its members deliver leadership development opportunities across rural and regional Victoria, providing a supportive environment in which participants can

'You'll be out of your comfort zone and you'll be a different person to when you started.'

explore their own learning and leadership styles.

In Ms Bowles's experience, the program was life changing.

"You'll be challenged," she said. "You'll be out of your comfort zone and you'll be a different person to when you started ... I am even on their board now, that's how much I love it."

The Gardiner Dairy Foundation funds two scholarships annually in the five Victorian regions associated with dairy. Involved in the program since 2004, Gardiner's scholarships support at least one dairyfarmer and one dairy industry agri-professional in each region.

Gardiner's chief executive Mary Harney said: "People and strong leadership underpin the future and vibrancy of the dairy industry. So investing in people development is a significant

legacy that the Gardiner Dairy Foundation can leave."

It is well understood that strong resilient communities are characterised by high levels of social and economic participation. They have good leadership, effective decision-making and strong networks. Such communities are also attractive to business and people seeking new locations to live and work.

Veterinarian, dairyfarmer and mother Lauren Finger graduated from the Gippsland Community Leadership Program in 2014. "It was a fantastic program," she said. "It certainly made me more focused and aware of the community around me and the need to make an effort to maintain connections. We are at real risk of losing our communities — with 'digital everything' and all of us so busy doing our own things."

How the programs work

The schedule begins in February and concludes with graduations in November, with the exception of Alpine Valleys Community Leadership Program and Leaders for Geelong. Each program is tailored to its particular region but all share a similar structure based on experiential learning, theory and workshops — including overnight residencies and about 20 program days. The multiple site visits can be powerful and illuminating as participants traverse their regions meeting local leaders, gleaning insights into a range of new organisations and environments.

Chief executive officer of VRCLP Katrina Baddeley said: "The programs raise people's awareness and knowledge of regional issues".

These span homelessness, youth unemployment, industry, the food chain, art and mental health, correctional centres, and the workings of government. Programs include visits to either Parliament House in Canberra or the Victorian Parliament in Melbourne.

"Another great strength of the program is the diversity of the participants," Ms Bowles said. "It helps you to understand a broader cross section of belief systems and become more accepting of difference."



Dianne Bowles is a 2012 Gardiner Scholar and board director of the Loddon Murray Community Leadership Program.



Lauren and Simon Finger on their Yannathan, Vic, dairy farm.

Stepping up

Ms Finger now sits on the board of GippsDairy and is president of her children's Kindergarten Committee. "One of the biggest gifts the program gives you is an understanding of yourself, how you operate and how your actions impact on other people," Ms Finger said. "That helps you to become a better person and a better leader as a result."

Ms Bowles has a passion for the dairy industry having come to it just eight years ago when she married her husband, Gary. She is now a director of Murray Dairy, on the board of the North Central Catchment Management Authority and a member of the basin community committee of the Murray Darling Basin Authority.

Barry Rogers retired in November after co-founding Victoria's longest running community leadership program in Gippsland 20 years ago. He sees VRCLP's 11-year relationship with Gardiner as "a fantastic partnership" that brings dairy scholars on board who might otherwise have been excluded.

For Lauren Finger, while it can be hard to justify making the time for

professional development she believes it's worth it. "As a dairyfarmer it is always easy to say we are too busy, but it is really worthwhile to invest time in yourself," she said. "The rewards flow onto your business and the rest of your community."

Benefits for dairy

The benefits for the dairy industry are numerous. At the grassroots level, the dairy scholars learn about leadership in the context of their community while emerging leaders in their community learn about the dairy industry first hand.

Gardiner Dairy Foundation has a suite of people development programs and a remit to invest in the dairy industry across the supply chain — including dairy communities. "The goal is to foster leadership capability across the spectrum," Ms Harney said. "I'd like to think that Gardiner can offer development opportunities for primary producers or dairy agri-professionals at every stage of their career — whether it be early, mid-stage or advanced."

Someone may start with a United Dairyfarmers of Victoria (UDV) study tour when they are quite young, and

then five to 10 years later may take up one of the VRCLPs and ultimately be eligible for an executive development program, which might include a Nuffield Australia farming scholarship, an Australian Rural Leadership Program or a Rabobank executive development program.

Ms Bowles completed the Dairy Australia Developing Dairy Leaders course after graduating from the Loddon Murray Community Leadership Program. "And thanks to Gardiner, I am now doing the Rabobank executive development course," she said. "I have done them in the perfect order. I could not have gone straight in and done Rabobank if I hadn't done the other training courses first."

Anyone who aspires to lead in the Victorian dairy industry, should consider the VRCLP in their region. Applications for the 2016/17 Alpine Valleys Community Leadership Program open in May 2016, while applications for remaining 2017 programs open from September 2016. More information is available on website <www.vrclp.com.au>. 

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

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Conference tackles big issues

By Carlene Dowie

THIS year's Australian Dairy Conference aims to tackle some of the big issues confronting the dairy industry and looks at how the industry can create the step change needed to take it to the next level.

The program is a mix a big-picture issues as well as developments that will make a difference at farm level.

This year's conference heads back to Shepparton, in northern Victoria, where the Australian Dairy Conference first began more than 10 years ago.

It kicks off with a look at where the Australian industry fits in the global market — specifically whether a move to being an exporter of boutique high-quality products will provide a better future than being in the bulk commodity market. The world's biggest exporter, Fonterra, and an Australian company that has made big inroads into becoming a speciality supplier, Bega, will set the scene, before a panel session looks at the strengths and weaknesses of this approach.

Another big-picture session will look at what consumers want and how farmers can talk to them. World-leading research from the CSIRO will be presented, looking at the mega-

Conference program at a glance

Monday, February 15

Pre conference tour - Shepparton and surrounds. Departs from Shepparton with overnight stay in Echuca

Tuesday, February 16

Pre Conference tour day 2 with return to Shepparton

Evening Welcome Function — Queens Gardens, Shepparton
Sponsored by Devondale Murray Goulburn

Wednesday, February 17

Conference Day 1 — 8.30 to 5.30
ADC Industry Dinner — Eastbank Centre, Shepparton
Sponsored by Rabobank

Thursday, February 18

Conference Day 2 — 8.30 to 5.00
Conference close and farewell drinks

trends likely to hit agriculture in the next 20 years. The conference will also hear from producers selling directly to consumers and a movement encouraging young people to learn more about food.

One of the driving forces behind the formation of Fonterra, Sir Henry van der Heyden will discuss the issue of

leadership and its importance in creating change.

Water is also on the agenda. The Murray region has been at the forefront of changes in the way water is managed and traded and there are lessons for farmers from other regions where water markets are starting to develop. Investment banker David Williams will explain the influence of water ownership, investment and trading and how that's created a water market with prices that can be challenging for the dairy industry.

The conference also tackles key on-farm issues: feedbase and business management.

The feedbase session has a technology focus — looking at innovations that are going to drive increases in feed production in the next decade. Dr David Nation, from the Dairy Futures CRC, will outline some of the breakthroughs in conventional plant breeding research that could deliver \$500-\$1000 a hectare to farmers, while Dr Cameron Clark will outline how technology that monitors cow behaviour can be used to increase pasture production and feed intake.

The business management session delves into three issues. The first is how farm businesses could establish boards that could help drive development. In the second, south-west Victorian farmers Mark and Sam Billing will talk about their keys to a motivated and efficient workplace, while the final session will look at how monitoring the farm business regularly can deliver big returns.

The conference will also give participants an opportunity to get out on farm — with a choice of visits to see either a farm utilising the latest irrigation technology or one that has adopted a hybrid feeding system with good results. For those that would rather not go on farm, a session at conference headquarters will allow participants to delve more deeply into a couple of the earlier presentations. **D**

Carlene Dowie is a member of the 2016 conference programming committee.



Water is on the agenda at the conference.

Registrations and bookings online at www.australiandairyconference.com.au
Contact: event manager Bradley Hayden email bradley@ccem.com.au or call 0412 461 392



FEBRUARY 16-18, 2016, SHEPPARTON, VICTORIA

Pre-conference farm tour

Monday February 15

8:30am Depart	The bus will depart the car park of the Sherbourne Terrace Motel, Wyndham Street, Shepparton.
Rob and Gai Singleton Finley, NSW	The Singletons are running a family operation, calving all year round. They are running a mixed herd of Holsteins and Jerseys, in three separate management groups. They rely on a total mixed ration in summer. Consultant: Brian Crockhart — CRC Agrisolutions.
Lunch	On farm at the Singletons
Neville and Ruth Kydd Finley, NSW	Neville and Ruth Kydd and their sons, Daniel and Steven, and their wives, Vanessa and Kerryanne, milk 1260 cows at Blighty, NSW. Their crossbred cows average about 500 kilograms solids/cow in a pasture-based system. This focus on profitability has a strong influence on the Kydds' farming system, particularly breeding and feeding. The Kydds have bred for high fertility, easy-calving, low cell counts, easy milking and good temperament. Consultant: Phil Shannon, Shannon Consulting.
Mecure Port of Echuca Motel	We arrive in the historic port town of Echuca and will have time to settle in at the Mecure Port of Echuca or take a stroll down the picturesque streets of Echuca. Dinner Cruise Pride of the Murray Paddlewheeler. Rick Cross, chairman of Murray Dairy, to share some insight and commentary on Northern Victorian farming.

Tuesday, February 16

8:30 am Depart	Mecure Port of Echuca
Don & Meg Stewart, Yarawalla, Vic	Don and Meg Stewart operate three properties and along with sharefarmers Kelvin and Shelley Matthews are participating in Accelerating Change primarily on their Yarawalla property, which totals 242 hectares and milks 600 cows. Consultant – Cameron Smith, Farmanco.
Lunch	Shamrock Hotel, Rochester, Vic
Tom Acocks, Rochester, Vic	Riversdale is a family run business close to Rochester, milking 800 cows year round. They have a mixture of PMR with some grazing and full TMR with the use of a recently constructed loafing barn. Riversdale has extensive use of overhead irrigation (220ha) while also utilising 1000ha of dry land area to conserve fodder. Consultants – Tom Farran, Farmanco and Christophe Joulit – Rumenace
Approximately 5pm	Arrive Sherbourne Terrace

The conference program

Tuesday, February 16, Queens Gardens, Shepparton

6.30pm	Welcome Function	Delegates are invited to an informal dinner in the beautiful Queens Gardens at Shepparton. Meet new faces in the industry or re-join with old friends.
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Wednesday, February 17, Eastbank Centre, Shepparton

8.30am	Tom Acocks <i>Chair 2016</i> <i>Programming Committee</i>	Northern Victorian dairy farmer Tom Acocks provides the opening address to welcome delegates from all over Australia and the world to the 14th Australian Dairy Conference.
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FEBRUARY 16-18, 2016, SHEPPARTON, VICTORIA

Bulk to boutique: is this the step change for the future?		
8.45am	Barry Irvin <i>Executive chairman</i> <i>Bega Cheese</i>	Extracting high-value micro nutrients from milk Bega Cheese has launched a new business division focused on dairy and non-dairy bio-nutrient products. Bega's business balance spanning cheddar, cream cheese, bulk cream, milk powder, and protein concentrates has optimised value-added opportunities available from its milk pool.
9.05am	Fonterra Presentation	A view from the world's biggest dairy exporter Fonterra's ridden the commodity rollercoaster for years but is now looking to a strategy to create "multi-hubs" that connect growing milk pools in New Zealand, Australia, South America, and Europe with their highest-value uses.
9.25am	Global analyst	It's a big wide world The global dairy market is large and complex with emerging and changing markets in many parts of the world. Exporting countries are all looking for opportunities. How realistic is it for the Australian dairy industry to move into boutique markets and away from bulk commodities? What are the advantages and disadvantages of this approach?
10.05am	On the Couch moderated by Charlie McElhone <i>Group Manager</i> <i>Trade and Industry Strategy</i> <i>Dairy Australia</i>	SWOT analysis We welcome Charlie McElhone and our three processors to look at the strengths, weaknesses, opportunities, and threats of the Australian dairy industry positioning itself as a boutique exporter.
10.40am	Morning tea - Sponsored by Daviesway Dairy Products	
Brave new world: innovations driving feed production		
11.10am	Dr David Nation <i>Chief executive</i> <i>Dairy Futures CRC</i>	Australian plant research breakthroughs Breakthroughs in conventional plant breeding research at the Dairy Futures CRC could deliver \$500-\$1000 a hectare to Australian dairy farmers in the next 10 years. Ryegrass hybrid breeding, the use of genomics and the identification new endophytes are just some of the developments.
11.40am	Dr Cameron Clark <i>Faculty of veterinary science</i> <i>University of Sydney</i>	Is that a sensor in my paddock? New research is using sensor data and measurements of cow behaviour to increase pasture intake, improve ration management, and lift feed use efficiency. It's also detecting cow health issues faster than conventional methods.
12.10pm		Seizing the opportunities Emerging technology and big data analysis can provide agricultural industries with valuable strategic advice. Speed in decision making can be a key factor to success, allowing companies to seize opportunities as they arise.
12.40pm	Lunch - Sponsored by Fonterra	
Developing leadership: meeting the challenge in a modern world		
1.40pm	Sir Henry van der Heyden <i>Former chair</i> <i>Fonterra NZ</i>	Creating a culture of leadership Sir Henry has been awarded the prestigious 2015 Rabobank Leadership Award in recognition of his exceptional contribution to the food, beverage, and agribusiness sectors. He speaks to us on leadership and its importance in creating change.

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FEBRUARY 16-18, 2016, SHEPPARTON, VICTORIA

3.10pm	Afternoon Tea sponsored by Bega Cheese and Tatura Milk Industries	
	Water: the lifeblood of the dairy industry - Sponsored by Murray Dairy Introduction by Rick Cross – chair of Murray Dairy	
3.40pm	Chris Norman <i>Chief executive officer Goulburn Broken Catchment Management Authority</i>	Sustainable water use in northern Victoria What are the key issues that have shaped water policy in northern Victoria and how have these led to changes in infrastructure, research, investment, the environment, and regional planning and development.
4.10pm	David Williams <i>Managing director Kidder Williams</i>	Putting a price on water: the impact of investors The influence of water ownership, investment and trading. Water is a valuable commodity for the region making it attractive to both established and new enterprises. Access to water comes at a price that is challenging for the dairy industry.
4.40pm	Panel session	Water from the farmers' perspective A panel of farmers from northern Victoria, including dairy and horticultural producers, explains the impact of water policy.
5.30pm	Close Day 1	
6.30pm	Gala Industry Dinner sponsored by Rabobank	Reconvene at Eastbank Centre for our gala dinner to celebrate the dairy industry and all those in it.

Thursday, February 18, Eastbank Centre, Shepparton		
8.30am	Tom Acocks	Welcome back.
	Lifting the bar: why business management matters	
8.35am	Janet Moxey <i>Moxey Farms</i>	From family farm to international consortium Women play a crucial role in the management and growth of many dairy farm businesses. Janet Moxey shares her story, from a family farm on the outskirts of Sydney to being part of an international consortium planning to develop large-scale dairies in NSW.
8.55am	Richard Westlake <i>Westlake Governance Limited</i>	From the kitchen table to the boardroom As farm businesses grow, they face increasing complexity and demands for specialist knowledge. An advisory board can help bring an outside perspective to drive a business forward.
9.25am	Mark and Sam Billing <i>Great South West Dairy Awards Legendairy Farmers and Employer of the Year</i>	Managing the biggest asset in the business – your staff Like many farm businesses, the Billing farm initially relied on only family labour. But growth has meant bringing in staff to help. We hear from Mark and Sam on their keys to a motivated and efficient workplace.
9.55am	Neil Lane <i>Farm business capability program manager Dairy Australia</i>	Changing the culture around business management Monitoring the farm business regularly can deliver big returns, as every-day decisions flow straight through to the bottom line. Neil provides an update on some of the latest management tools that can help farmers do this more readily.
	Australian Dairy Conference update	
10.25am	ADC 2016 AGM	All farmer delegates automatically become members of ADC and are invited to attend and participate in the 14th annual general meeting.
10.40am	EDF delegate The European View	Our exchange visitor from the European Dairy Farmers' Congress provides farmer insights into the impact of removal of European milk quotas.

Registrations and bookings online at <www.australiandairyconference.com.au>
Contact: event manager Bradley Hayden email <bradley@ccem.com.au> or call 0412 461 392



FEBRUARY 16-18, 2016, SHEPPARTON, VICTORIA

10.55am	Morning Tea Break - Sponsored by Cowbank		
Connecting with consumers: Bridging the gap from farm gate to plate			
11.25am	Dr Sandra Eady <i>Principal research scientist</i> <i>CSIRO Animal, Food and Health Sciences</i>	Ag megatrends: global challenges in the next 20 years A new big-picture report looks at the five megatrends that will be the key drivers for agriculture in the next 20 years. Dr Eady outlines the challenges and opportunities for farmers in these trends.	
11.50am	Alexandra Iljadica <i>Youth Food Movement</i> <i>Australia</i>	Connecting young people with food The Youth Food Movement believes that by helping young people know and share more about where our food comes from (how it was grown, who grew it, what can be done with it), they become armed with the skills, knowledge and experience to build us a sweet food future.	
12.15pm	Wayne Somerville <i>Jonesy's Fresh</i> Anna Kelly <i>Plains Paddock</i>	Selling directly to consumers Wayne and Anna explain tell the story of selling straight from the farm to consumers and the vital role technology plays in helping them do this.	
12.45pm	On the Couch	What do consumers want and how do with connect with them A conversation about what consumers want and how farmers can engage and connect with them.	
1.00pm	Lunch break sponsored by Swan Hill Engineering		
1.45pm Choose one concurrent Either a Farm Visit or Cool Insights session at Eastbank Centre			
2.00pm	Concurrent 1 - Farm visit at the pivot, Peter Quinn, Undera Cameron Smith Farmanco Peter Moller, Rubicon A look at the latest in water innovation at Peter Quinn's centre pivot irrigating maize and lucerne. The moisture monitoring equipment being used at the farm will also be demonstrated.	Concurrent 2 - Cool insights, Eastbank Auditorium Setting up a board Janet Moxey Neil Lane Nuts and bolts on how to set up a board or management committee for your farm to lift monitoring and analysis of the farm business.	Concurrent 3 - O'Sullivan Farms, Mooroopna A visit to the feed pad Consultant: Darryl Poole, RMCG Practical session around feed base decision making in a hybrid system, using total mixed rations and a feedpad for part of the year. Jarrod O'Sullivan tells his story how after only taking up dairy farming four years ago, they are achieving impressive results using a hybrid system while still having time to manage a large fodder-growing and contracting operation across two states.
3.00pm		Afternoon tea	
3.30pm		Foodie Session Alexandra Iljadica Get a taste of how the Youth Food Movement is getting young people interested in food.	
4.00pm		Good bulls on your phone Australian Dairy Herd Improvement Scheme ADHIS explains how to use its newly released Good Bulls app.	
5.00pm to 7.00pm	Official close and farewell drinks at Eastbank		

Registrations and bookings online at <www.australiandairyconference.com.au>
Contact: event manager Bradley Hayden email <bradley@ccem.com.au> or call 0412 461 392

Partnership provides pathways

Key points

- ✓ Former manager and farm owner in partnership
- ✓ Shared responsibilities, increased bargaining power
- ✓ Provides exit for older farmer, entry for new farmer



‘When I told him I wanted to run my own farm he was really support ve.’

By Elizabeth Anderson

A PARTNERSHIP with an established producer has helped one of South Australia’s newest dairyfarmers weather his first year. In July last year, Perrin Hicks and his wife, Kelly, re-established his family’s dairy farm, Misty Downs, which had been out of operation for five years.

Mr Hicks’s first real introduction to the dairy industry was 20 years ago when his parents bought the dairy at Mount Compass. “I cut my teeth in the industry on this farm, and I learnt how productive this farm can be,” he said.

After gaining experience and building up confidence, he decided the time was right. “I’ve always said it was about time to make my own mistakes,” Mr Hicks said.

“I wanted to be in charge of the decisions and getting the rewards or suffering the consequences.”

At the time Mr Hicks had been man-

aging the dairy herd of Warren Jacobs at Whispering Pines, Mount Compass, SA. “When I told him I wanted to run my own farm he was really supportive,” he said.

Mr Jacobs offered a partnership, about which Mr Hicks said he was initially wary. “At first I thought it meant I was going to have to work twice as hard,” he said.

“After about six months deliberation we came up with a plan to operate the farms in conjunction with each other.”

Mr Hicks said there were benefits in sharing responsibilities, as well as greater bargaining power when buying hay and fodder in bulk.

It also allowed them to share staff, including a maintenance person.

“Ultimately it meant instead of 14 milkings a week, I was down to seven,” he said.

“I’d already warned my wife the first

12 months might be tough. This gives us the opportunity to go on holidays each year.”

Within the first 12 months Mr Hicks said they had already realised most of the benefits.

“Part of the plan is to get me into the industry and later help Warren retire,” he said.

He said having an established dairy farm to help support the partnership had helped financially.

While the duo have been conservative in their spending, there were still set-up costs. These included upgrading the effluent system and yards, buying a larger secondhand vat and converting the existing six-a-side dairy to a 10-a-side operation.

The partnership is based on finances and management, with the two herds kept separate for biosecurity reasons.

Mr Hicks already owned 60 cows, which were milked on a neighbouring farm, while his father had invested in 100 cows, which are being bought-out by the partnership.

“That, with the lease of the farm, allowed us to be up and running on July 1,” he said.

The Misty Downs herd has since expanded to more than 200 cows. ▶



Sharing responsibilities, as well as greater bargaining power when buying hay and fodder in bulk, are benefits in running two farms in partnership, according to Perrin Hicks.

2016 Short term ryegrass EBV guide

Annual ryegrass Forage EBVs based on replicated trials 2006-2014

Variety MATURITY	ploidy	Variety or brand	Mean			Flowering Days from Tetila		ME MJ/kg DM	CP %	NDF %	Extra meat value \$/ha	Extra milk value \$/ha	no. of trials
			winter	spring	total	NSW	WA						
LATE FLOWERING (> +8 days)													
SF Speedyl	tetraploid	variety	109	131	118	+12	+18	11.08	26.31	46.27	+\$623	+\$1036	35
SF Adrenalin	tetraploid	variety	109	126	116	+9	+16	11.08	23.95	45.88	+\$601	+\$1015	34
SF Pinnacle	tetraploid	variety	110	142	122	+10	+18	10.87	26.78	48.05	+\$523	+\$889	11
SF Sultan	diploid	variety	107	132	117	+10	+11	10.94	25.17	47.91	+\$488	+\$784	41
Zoom	tetraploid	variety	95	126	107	+14		10.84	23.57	46.64	+\$327	+\$577	8
Amie	diploid	variety	108	119	114	+7	+16	10.68	23.10	48.45	+\$322	+\$505	7
Winter Star II	tetraploid	variety	103	124	112	+8		10.74	23.14	48.47	+\$296	+\$477	41
Jivet	tetraploid	variety	96	120	106								4
MID FLOWERING (+5 days to +8 days)													
SF Catalyst	tetraploid	variety	103	107	107	+5	+7	10.66	21.47	45.24	+\$339	+\$596	12
SF Catapult	tetraploid	variety	106	113	110	+6	+7	10.70	22.79	46.91	+\$330	+\$550	29
Tama	tetraploid	brand	104	117	110	+7		10.83	23.82	48.13	+\$314	+\$523	4
Abundant	tetraploid	variety	108	109	108	+6	+11						12
Mach 1	tetraploid	variety	99	122	108								7
Aristocrat 2	tetraploid	variety	104	103	106								4
T Rex	tetraploid	brand	103	110	105	+8							12
Burst	tetraploid	variety	102	84	98								2
Progrow	diploid	variety	93	102	94								2
EARLY FLOWERING (-2 days to +4 days)													
Winter Hawk	diploid	variety	114	112	114			10.86	23.16	47.45	+\$458	+\$731	3
SF Flyer	diploid	variety	108	109	108	+1	0	10.84	23.57	46.64	+\$365	+\$619	38
SF Sprinter	tetraploid	variety	109	112	111	+4		10.66	23.66	48.32	+\$269	+\$433	40
OreTet	tetraploid	brand	104	104	104	0	0	10.73	22.32	47.85	+\$228	+\$382	2
Sungrazer T	tetraploid	brand	103	105	103			10.64	25.17	49.46	+\$94	+\$151	17
Maximus	tetraploid	variety	102	107	105	0		10.45	22.86	49.70	+\$48	+\$69	20
Atomic	tetraploid	brand	105	101	102		+2						5
Surrey 2	diploid	variety	102	105	103								8
Grassmax	diploid	brand	104	109	102	-1	+9						6
Tetila	tetraploid	brand	100	100	100	0	0	10.40	22.40	49.23	\$0	\$0	35
Rocket	tetraploid	brand	101	106	99								4
Tetrone	tetraploid	brand	107	102	97								3
R2	tetraploid	brand	118	97	96	0	0						2
Double Crop (Dargo)	tetraploid	variety	104	95	92								2

Relative ratings have been undertaken by comparing all yields as a percentage of control cultivar Tetila. Based on seed prices and ASF seeds database at 1/12/15.

Notes:

Feed quality data undertaken prior to each of 6 grazings July-December 2006 at Seed Force's Gundagai research site.

Feed quality analysis undertaken by NSW DPT Feed Quality Service at Wagga Wagga. Meat and milk values estimated using Seed Force's Animal Performance Calculator™ based on the following assumptions:

- Meat at 65% feed utilisation, based on 300kg steer with 44MJ/kg maintenance and 45MJ/kg liveweight at \$2.50/kg
- Milk at 75% feed utilisation, based on 100kg cow with 100MJ/kg maintenance/maintenance pregnancy and 3.5MJ/litre at \$0.45 per litre.

Flowering dates measured at Gundagai, (see Crofton NSW and Manjup WA, where no measurement taken, varieties have been categorised by visual assessment).

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◀ Mr Hicks said he had broken even during the first year of operation.

Rather than a large financial outlay in buying the dairy, he was able to lease from his parents Bruce and Melitta, as well as leasing two neighbouring properties.

“There is no way I would have been able to afford the farm,” he said.

“But in the future I hope to be in a position to do so.”

Figures for the first 12 months of Misty Downs show a production of 1.2 million litres and 84,000 kilograms of milk solids.

By the end of this financial year, he hopes to increase this to 1.6 million litres and 113,000kg of solids.

The two farms operate on a split-season, calving in February to April and July to September.

For the past 12 months they have also used East Total Reproduction to synchronise the herds with a more than 50 per cent conception rate on first mating.

With many years working together, the duo have many of the same drivers, including a preference for pasture.

“We try to get the most grass as ef-



Warren Jacobs and Perrin Hicks, Mount Compass, SA, are running two farms in partnership.

ficiently as possible,” Mr Hicks said.

“We’re not about compromising cow health or production.”

Their agronomist Greg Mitchell often doubles up as mediator, but Mr Hicks said they had a simple solution.

“Warren ultimately makes the deci-

sions at Whispering Pines and I make the decisions at Misty Downs,” he said.

After 30-plus years in the dairy industry Mr Jacobs said he was looking to wind down his involvement.

It was part of the reason he entered a partnership with his former manager Mr Hicks.

“Perrin is a good worker and I wanted to keep him around,” he said.

Another encouraging aspect was the chance to help a newer farmer get established.

“I thought going into partnership we’d be able to help each other out and this farm could mentor that one a bit,” he said.

Mr Jacobs said he was looking to take on new opportunities outside the dairy industry within the next three years, and Mr Hicks would help ease the transition. “There is flexibility with what can happen in the future,” he said.

Mr Jacobs said his son was also working on the farm, and having a second person involved in management could reduce tension that could arise with fathers and sons working together. D

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Finetuning businesses for investors

Key points

- ✓ Workshop helps large farms look at investor options
- ✓ Explains how to structure business
- ✓ Improves day-to-day management

A NUMBER of the country's largest dairy suppliers have taken a step closer towards preparing their businesses for potential outside investment. More than 20 large herd suppliers across Australia recently attended a Dairy Australia pilot workshop for an insight into the various investor options available and the plans and measures needed to take their operations to a new level.

'Are you investor ready?' was developed out of Dairy Australia's 2014 Australian Dairy Farm Investment Forum, where it was identified as one of a number of opportunities. The pilot workshop covered several topics including:

'So it is important farmers ensure they have best practice management in operation across all facets of the farm.'

- benefits of being investor ready;
- understanding the investment-readiness process;
- corporate governance;
- culture, values and strategy — how these three components interact to improve success;
- strategic planning — strategic versus operational thinking and intuitive versus formalised management;
- policy development;

- risk management; and
- how advisory boards can assist with managing the business and enable strong governance.

Dairy Australia manager strategic initiatives Paula Fitzgerald said the investment work program was covering both ends of the spectrum — from providing tools to ensure potential investors were informed about the Australian dairy industry, through to assisting farmers in their preparedness for investors, specifically understanding for what investors were looking.

"Over the past couple of years, the industry has received an increasing number of inquiries seeking information regarding potential investment in Australian dairy," Ms Fitzgerald said.

"So it is important farmers ensure they have best practice management in operation across all facets of the farm. It's also about showing them ▶



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◀ what to look for and how to find outside capital and introduce them to the range of investors from banks to capital funds.

“We are finding many of the larger farms are keen to ensure they have practices and processes in place that ensure they are more prepared for potential investors, should they decide to explore that option.”

The workshop, developed in partnership with David Heinjus from Rural Directions, identified a number of benefits for farmers if they were investor ready. These include:

- access to new expertise and capital;
- increasing economies of scale;
- assisting with the management of growth;
- development and adoption of policy; and
- separation of personal and business.

Farmers at the workshop were also informed if they adopted a more corporate approach to management they were more likely to be able to increase their scale, management capacity and negotiation skills.

Ruth Kydd milks about 1200 cows with her husband, Neville, on their Finley dairy farm in southern NSW. Mrs Kydd said investment was an area most farmers thought about and the workshop helped prepare for the possibility. “I think it’s good to be prepared for the future, whatever it may hold, and it’s also good to have these tips and mechanisms to pass on and help other farmers,” she said.

“While we aren’t looking at investment or selling right now, it’s definitely good to know what your options are and keep an open mind. It gave us food



Some of Australia’s largest suppliers making sure their business ticks all the right boxes for best practice management. Dairy Australia managing director Ian Halliday, Jenny Wheeler, Malcolm Holm, Neville Kydd, Rob Cooper, Ruth Kydd, consultant David Heinjus from Rural Directions and Graham Forbes.

for thought to look at things differently instead of doing the same thing on a day-to-day basis.”

Mrs Kydd said it reinforced how important it was to have the right structures in place whether looking for outside investment or for day-to-day running of the operation.

“It is good to have the structures in place,” she said. “Most of the structures are in place on the farm but I need to review and improve them and have been working on them since the workshop. It’s important to have the discussion to see what does need attention in the business.

“It was also a really good opportunity to talk to other farmers and learn about the types of practices they are using which gave us some ideas for our farm.”

Rob Cooper, who milks 1300 cows near Tamworth, NSW, said the workshop was excellent and he believed it should be offered again for more farmers. “It provided the opportunity to

discuss a subject we don’t get to cover often through other workshops or forums,” Mr Cooper said.

“It has opened my eyes to areas we can improve upon. In particular, the structure of the business and developing on-farm policies so everyone knows where they stand.

“Getting a farm system in place is important, but it has to be the right one to suit you and one that’s robust to ensure you can either borrow from the bank or find alternative investment.”

Mr Cooper, who operates his dairy farm with three other parties, said the business was planning for the future and looking at a long-term succession plan.

Ms Fitzgerald said feedback from the workshop was positive and Dairy Australia was exploring options for whether further workshops would be run and in what format. **D**

Contact: Paula Fitzgerald, phone (03) 9694 3775 or email <pfzgerald@dairyaustralia.com.au>.

Creating more value from milk

Key points

- ✓ Dairy processors look to reduce waste
- ✓ Aims to find ways to add value
- ✓ Risk mitigation for wider industry

SINCE March 2007, the Dairy Manufacturers Sustainability Council (DMSC) has been working to advance state-of-the-art practices developed to help maximise the business and environmental performance of the dairy manufacturing industry.

Its member companies comprise dairy manufacturers and processors,

who represent about 95 per cent of Australia’s milk supply.

“The DMSC connects its members with innovative technologies and practices that assist them to improve their sustainability and profitability,” Dairy Australia’s (DA) program manager manufacturing innovation and sustainability, Ian Olmstead, said. “It helps them meet their targets under the industry’s Sustainability Framework, bringing them together to share ideas and learn from others within the industry as well as external specialists.”

While the DSMC has a strong focus on promoting sustainable production techniques, other important goals include leading the effective transfer of knowledge, practices and technology and providing strategic support for key initiatives undertaken by member companies.

“The DSMC offers support to its members linking them into DA initiatives such as the Dairy Australia Technology Transfer Scheme currently run out of Dairy Innovation Australia Limited (DIAL), which helps companies ▶



2016 Short term ryegrass EBV guide

Italian ryegrass Forage EBVs based on replicated trials 2006-2014

Cultivar	ploidy	Variety or brand	Mean				Flowering Days from Tetila		ME M/kg DM	CP %	NDF %	Extra meat value \$/ha	Extra milk value \$/ha	no. of trials
			winter	spring	summer	total	NSW	WA						
LATE MATURITY (> +11 days)														
SF Indulgence	diploid	variety	98	106	103	102	+14	+21	11.35	21.87	43.45	+\$246	+\$446	41
Momentum	diploid	variety	96	104	107	101	+14		11.39	22.82	43.70	+\$235	+\$424	24
Asset AR37	diploid	pending	106	107	102	106			11.32	24.67	45.34	+\$211	+\$362	7
SF Emmerson	tetraploid	variety	97	104	98	100	+13	+18	11.33	22.50	44.00	+\$159	+\$308	38
Feast II	tetraploid	variety	101	103	104	102	+12		11.20	22.51	44.44	+\$112	+\$229	37
SF Accelerate	diploid	variety	104	107	113	105	+12	+21	11.07	21.65	45.39	+\$136	+\$215	42
Tonuss	diploid	variety	99	104	109	101	+15		11.22	23.85	45.77	+\$75	+\$130	24
Maverick Gil	diploid	variety	95	103	106	100	+14		11.14	22.05	44.95	+\$49	+\$107	27
Nourish	tetraploid	variety	95	99	105	97	+14		11.23	20.55	44.23	+\$25	+\$106	24
Concord 2	diploid	variety	113	108	88	110			10.91	20.11	46.91	+\$69	+\$70	4
Hulk	diploid	variety	99	98	100	99	+12		11.09	21.49	45.15	+\$25	+\$52	36
Crusader	diploid	variety	100	100	100	100	+12	+18	11.10	22.29	46.08	\$0	\$0	42
Jeanne	tetraploid	variety	90	97	81	94	+14		11.26	20.65	44.12	-\$9	+\$52	15
Aston	tetraploid	variety	99	93		96		+18	11.22	22.74	45.14	-\$29	-\$2	7
Icon	diploid	variety	82	105	93	97	+11		11.02	21.31	45.44	-\$68	-\$90	2
Knight	diploid	variety	106	104	98	105			10.83	20.94	47.64	-\$76	-\$164	7
Emmerson/Indulgence	4n/2n	blend	103	112		107	+13							5
Thumpa	tetraploid	variety	99	111		103								2
Turbo	diploid	variety	97	94	104	95								3
Awesome	diploid	pending	99	88		93								2
Denver	tetraploid	brand	88	81		84								2
MID MATURITY (< +11 days)														
Sonik	diploid	variety	101	100	90	100	+10		11.03	23.45	45.98	-\$29	-\$43	20
Diplex	diploid	brand	107	98	85	101	+7		10.85	24.65	46.50	-\$55	-\$111	11
Charger LM	diploid	variety	106	96	70	97	+7		10.78	21.00	47.28	-\$274	-\$449	8

Relative ratings have been undertaken by comparing all yields as a percentage of control cultivar Crusader. Based on seed prices and ASF seeds database at 1/12/15.

Notes:

Feed quality data undertaken prior to each of 6 grazings July - December 2006 at Seed Force's Genetical research base.

Feed quality analysis undertaken by NSW DPI Feed Quality Service at Wagga Wagga.

Meat and milk values estimated using Seed Force's Animal Performance Calculator™

based on the following assumptions:

- Meat at 65% feed utilisation, based on 70kg steer with 4441 for maintenance and 45MJ/kg livewt at \$2.50/kg
- Milk at 25% feed utilisation, based on 60kg cow with 100MJ for maintenance/ewe livewt pregnancy and 5.5MJ/litre at \$0.45 per litre.

Flowering dates measured at Gungahlin, Taree, Grafton NSW and Mandurah WA, where no measurement taken, varieties have been categorised by visual assessment.

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◀ identify where there are risks as well as potential returns,” Mr Olmstead said.

Maximising the value and minimising waste in dairy production processes is an overarching goal.

“Our role is to help provide member companies, and therefore the wider industry, with answers to the larger and more complex questions around waste management, and we bring to the table our expertise to analyse data,” Mr Olmstead said. “We want the companies we work with us to succeed and be profitable, but this work is also a risk-

mitigation exercise.”

Last year DA and DIAL funded a project of interest to the DMSC that looked at the options for dealing with whey from small cheese makers, many of whom are based on vertically integrated dairy farms.

The result was the development of a whey app for mobile applications that enables a comparison of the economics for dealing with whey — from using it to feed livestock through to processing it into high-value nutritional products. Through this project it became

clear that for most small cheesemakers, in both city and rural areas, the most sustainable and economic option is to feed waste whey to pigs.

Another project that Dairy Australia has supported is a water treatment project at the Bega Strathmerton, Vic, site, looking at improving saline wastewater quality and beneficial reuse options. (See box story.) **D**

For more information about the Dairy Sustainability Manufacturing Council go to website <<http://www.dmsc.com.au/dmsc/mission>>.

New technology improves wastewater treatment

AN Australian start-up company (Aquamill Five Star Pty Ltd) has developed a new treatment technology for industrial wastewater that is set to dramatically improve wastewater reuse potential and management of any contaminants present. The technology separates the wastewater into clean water and concentrated waste, in an 80:20 split.

As a result, up to 80 per cent of the waste water can now be recovered as

clean water that can be reused or safely returned to the environment. The remaining 20 per cent presents a far smaller volume of waste and can be more readily removed to a safe disposal facility.

Aquamill’s innovative wastewater technology was first presented to the dairy industry at a seminar hosted by the Dairy Manufacturers Sustainability Council (DMSC) in 2014. Bega Cheese Limited is a long-standing member of the DMSC

and is continuously in search of ways to improve its environmental performance.

Bega Cheese and Aquamill are collaborating to test the new technology at Bega’s Strathmerton, Vic, site.

The site trial, sponsored by a grant from Dairy Australia, and facilitated through Dairy Innovation Australia Ltd, is specifically designed to allow transfer of new technologies such as Aquamill’s into the industry.



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SF Indulgence The highest milk value Italian ryegrass.

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Promoting Gippsland's dairy industry

Key points

- ✓ Networking event with key regional decision makers
- ✓ Part of new project to promote dairy to non-dairy decision makers
- ✓ Helps counter uninformed perceptions of industry

GIPPSLAND'S \$3 billion dairy industry and its growth opportunities were highlighted at a recent networking event involving key regional decision-makers. 'Gippsland Dairy — Leveraging the Opportunities' was a pilot under Dairy Australia's Societal Shapers project, hosted by GippsDairy in partnership with United Dairyfarmers of Victoria (UDV). Societal Shapers is part of the Legendairy program and is expected to be rolled out across all dairying regions.

The Societal Shapers project aims to promote a positive understanding of the Australian dairy industry among key non-dairy decision-makers and influencers. These include councillors, members of parliament, business people, retailers, financiers, community representatives, and edu-

'It's vital that decision-makers in a position to influence our operating environment understand what dairying contributes to regional economies.'

cation, training and research institutes.

The forum highlighted that Gippsland dairy is a \$3 billion farming, manufacturing and export dairy industry, with more than 1400 dairy farms producing about two billion litres of milk a year — 20 per cent of Australia's total. It is a significant regional employer, with about 6800 people working directly on farms and in milk-processing factories.

Gippsland makes up a substantial proportion of the national \$13 billion dairy farming, manufacturing and ex-

port industry. Across Australia, more than 6000 dairyfarmers produce more than 9.5 billion litres of milk a year, while 40,000 Australians are directly employed on farms and in processing.

Dairy Australia's manager, policy and strategy, Claire Miller, said it was decided to undertake the regional pilot after similar, successful national events for federal politicians at Parliament House in Canberra.

"We felt it was important to capture the attention of regional decision makers, with local dairy representatives promoting the industry, its value and the potential it offers to the wider community," Ms Miller said.

"It's vital that decision-makers in a position to influence our operating environment understand what dairying contributes to regional economies and the Australian economy as a whole, to national good health, and a sustainable environment.

"Gathering people together to discuss our opportunities and concerns is the best way to promote understanding of how we can all help each other build a better dairy industry and a more prosperous Gippsland."

Ms Miller said it was imperative to reinforce the industry's positive story, to counter uninformed perceptions about dairy and to influence political and community attitudes towards the industry and its products.

Speakers at the event included GippsDairy chairman Graeme Nicoll, United Dairyfarmers of Victoria (UDV) president Adam Jenkins and keynote speaker David Williams, an investment adviser with agri-finance firm Kidder Williams.

In his speech Mr Nicoll, who farms at Fish Creek, highlighted the potential for growth and importance of dairy industry profitability — and the spin-off benefits in investment, jobs and stronger communities.

"Dairy across Victoria has the potential to grow substantially to take advantage of the burgeoning demand for safe, high quality dairy products overseas," Mr Nicoll said.

"This means more jobs and more economic activity which, in turn, helps maintain the towns and serv-

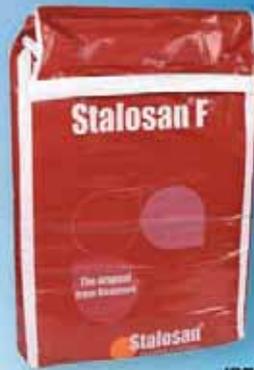


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ices that make this and other dairy regions attractive as investment and tourist destinations.

“But we have to work hard to attract the investment to deliver this prosperity to the regions.

Investors — new and existing — have many choices about where they put their dollars. It is not inevitable they will choose Gippsland or any other dairy region in Victoria.”

Mr Jenkins focused on roads and transport, social licence to operate farms, water availability and communications as the key factors in ensuring dairy’s ongoing success.

“We have the soils, climate and proximity to markets in Gippsland to grow profitably and sustainably, and take advantage of the burgeoning

global demand for safe, high quality dairy products,” Mr Jenkins said.

“This means more jobs locally in a highly skilled industry, more economic activity, vibrant towns and more of the services that underpin the region’s liveability. But we can’t do it alone.

“We need to work in partnership with local, state and federal governments, with other agricultural commodity groups, utilities and the community to leverage the opportunities before us.”

David Williams, who has been an investment adviser for more than 20 years, delved into the various investment opportunities dairy and agriculture offered, encouraging the audience to think outside the box when it

came to investing in the industry. He also spoke about the bright future of the industry and what it could offer Gippsland in particular.

Ms Miller said ‘Gippsland Dairy — Leveraging the Opportunities’ had proven successful, attracting a number of key influencers across Gippsland involved in local and State government, banking and water supply. The event also showcased some of Gippsland’s finest dairy produce for sampling.

“We learned a lot from this pilot on how to do this type of event even better, and we are looking to work with regional dairy program and state dairy organisations to roll out similar forums across all the dairy regions in the future,” she said. 

Legendairy Capital celebrates success

Key points

- ✓ Stanhope celebrates Legendairy Capital win
- ✓ Dairy vital part of community
- ✓ Competition brought town together

AUSTRALIA’S Legendairy Capital for 2015, Stanhope, hosted an event of Legendairy proportions in November with more than 200 community members gathering to celebrate the town’s success in being awarded the coveted title.

In a tremendous display of community spirit, the Stanhope Recreation Reserve came alive with a range of activities — from student performances to sporting games — while local community groups cooked a barbecue lunch, celebrating the spirit of the town and the contribution dairy makes locally.

Dairy Australia’s managing director, Ian Halliday, said he was delighted to see the Stanhope community come together to celebrate its Legendairy Capital title win.

“Today marks the end of a long search for this year’s Australian Legendairy Capital, and what better way to mark the occasion than to see approximately half of the town’s 490 residents join in the celebrations,” he said.

“We’ve been amazed by the people of Stanhope and how they’ve

‘Stanhope is one of many Australian regional towns with a strong vision, and incredible determination and resilience.’

embraced their new title and we’re thrilled to be able to showcase the integral role dairyfarmers play in communities like these.

“Stanhope is one of many Australian regional towns with a strong vision, and incredible determination and resilience, where the community and dairy industry continue to work together to enable the town to grow and prosper.”

Dairyfarmer Andrew Hipwell, who milks 285 cows at Stanhope and helped write the town’s application, was delighted with the award.

“You just have to look at the scene here today with all the community groups present,” he said. “Dairy is a vital part of our community as it keeps our small businesses going, the school moving and our sporting clubs growing.

“Dairy makes the town tick and I just hope that we have a few good years, so that farmers don’t sell.



Retired Stanhope factory worker Noel Gray and dairy farmer John Cockcroft man the Stanhope footy club’s barbecue, which they estimate has done one cook up a week at least, since it was made in 1967.

“The Legendairy Capital program is just magnificent. It’s brought this town together and it’s not only the older generations, the newer people in the town have come together too. I encourage others to have a crack at the title when it comes up again in two years.”

As the Legendairy Capital of Australia for 2015, Stanhope received a \$10,000 community grant to build a playground at the Stanhope Recreation Reserve.

Dairy Australia will start the search for Australia’s next Legendairy Capital again in 2017 and will be encouraging towns in dairy regions across the country to nominate. 

Awards promote best dairy products

Key points

- ✓ 300 dairy products entered for awards
- ✓ 24 expert judges assess entries
- ✓ Winners to be announced in February

THE votes are in and Australia's finest dairy producers are celebrating the news that they are in the running to win the country's premier dairy accolade, the Australian Grand Dairy Awards Grand Champion title.

Now in its 17th year, the prestigious Australian Grand Dairy Awards, convened by Dairy Australia, is the grand final of dairy competitions nationally, recognising and rewarding excellence and quality in Australian dairy produce.

More than 300 of Australia's top dairy products were put through a rigorous judging process, assessed by 24 expert judges on flavour, aroma, texture, body and appearance to reveal 56 finalists from around the country.

Renowned dairy educators Neil Willman and Russell Smith led a panel of esteemed judges, including technical experts, flavour specialists, chefs and cheesemongers for two days of judging in October.

They were joined by ex-chef, food writer and founder of Melbourne Farmers' Markets Miranda Sharp, award-winning author and food writer Dani Valent, and ex-Masterchef contestant, author and food personality Alice Zaslavsky, who all donned

'The awards are a celebration of Australian dairy foods and their producers, they are the crème de la crème of dairy.'

the white judging coats to sample and judge the broad field of entries.

"The awards are a celebration of Australian dairy foods and their producers, they are the crème de la crème of dairy," Dairy Australia's food communications manager Amanda Menegazzo said.

"We're thrilled with the diversity of finalists this year, from unique Middle Eastern and Indian style entries like Milk Badam — a refreshing cardamom-and-almond-flavoured milk drink — to well-loved brands of quality butter and cream you'll find on your supermarket shelf, our finalists are an excellent representation of what Australian dairy has to offer."

The finalists have an anxious wait until the exclusive awards ceremony in February 2016. Champions for all dairy categories will be announced at the event, with the highest scoring product across the dairy categories and highest scoring cheese, ultimately being crowned Grand Champions, earmarking them as the very best



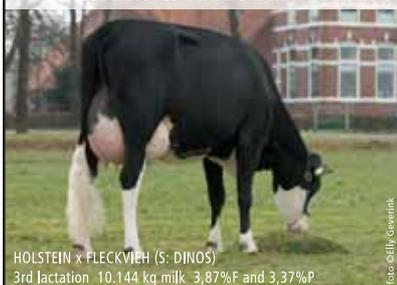
Cheese tasting is in full swing for the Australian Grand Dairy Awards.

two products Australian dairy has to offer.

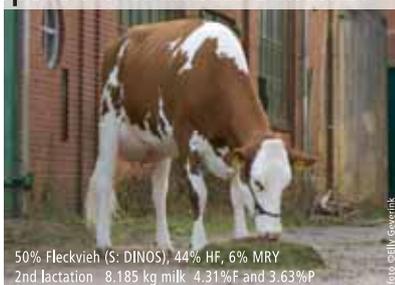
To view the full list of 2016 Australian Grand Dairy Awards finalists visit [website <legendairy.com.au/dairy-foods/agda/2016-finalists>](http://www.legendairy.com.au/dairy-foods/agda/2016-finalists).

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Promoting and protecting dairy

Art sparks student interest in dairy

Key points

- ✓ Picasso Cows program run in 133 schools
- ✓ Creates wide media exposure
- ✓ Key dairy messages reach participants

PICASSO Cows, now in its seventh year, has inspired a new generation of primary school children in colourful and creative ways this year, teaching thousands of students about the dairy industry.

In addition, the Picasso Cows Make Over Program has enabled previous Picasso Cows participants to reprise the impact of the original program, with a new cohort of students in dozens of schools redesigning their much-loved, life-sized, fibreglass bovines.

In 2015, 83 schools participated in Picasso Cows and 50 schools took part in Picasso Cows Make Over, ensuring the competition was extremely tough when it came to selecting category winners at the end of the year.

In a nail-biting final, Kangarilla Primary School in South Australia, was announced as the National Champion of the 2015 Picasso Cows Make-Over with their cow, *Cheese Louise! You've been Udder-ly Re-Moo-dled*. It received the highest aggregate scores for both their artistic efforts in making-over their Picasso Cow and the quality of their learning journal. The school received \$2500 for its amazing work.

For Picasso Cows, 83 schools across Australia competed for a \$250 cash prize, with eight regional winners being announced. This year, the program engaged a total of 16,499 primary school students.

"For many students, their Picasso Cows experience and



Kangarilla School's Cheese Louise struts her stuff as the winning entry.

‘For many students, their Picasso Cows experience and learning about dairy doesn’t stop in the classroom as the program connects students directly with the dairy industry.’

learning about dairy doesn’t stop in the classroom as the program connects students directly with the dairy industry,” program manager Emily Barnes said. “This year, nearly a third of students visited a dairy farm and many had a dairyfarmer visit their school.”

While encouraging curiosity, interest and learning around the dairy industry is the program’s overall priority, the creative designs and artwork have their own educational benefits.

“The curriculum assessor who judges the final cow designs and learning journals created by each school said that the standard of work was extremely high this year, with some of the best designs he has seen in the program’s seven-year history,” Ms Barnes said.

The unique designs also attract recognition of the dairy industry in the wider community.

“More than 100 media stories appeared about the programs, and we even saw major papers such as the *Herald Sun* cover the Melbourne presentation day,” Ms Barnes said.

Importantly, as well as the creative fun, the key dairy messages also seem to be getting through, as evidenced by the end-of-year participant survey to assess the impact of the program on students and teachers’ knowledge and attitudes towards dairy.

The results showed increased knowledge of what dairy foods are and where they come from; an increased understanding of the health benefits of dairy; increased consumption; and, higher awareness and better usage of the Discover Dairy curriculum resources.

Picasso Cows has been developed in accordance with the Australian Curriculum and is supported by a range of free hard copy and online teaching resources available at Dairy Australia’s Discover Dairy website <www.dairy.edu/discoverdairy>. 

Winning Picasso Cows

THE 2015 Picasso Cows winning schools and cow names were:

- Childside School, Western Australia: ‘Malaga’.
- Kilkenny Primary School, South Australia: ‘Jane Doe’.
- St Jude the Apostle Primary School, Victoria: ‘Buttercup’.
- Timboon P-12 School, Victoria: ‘TAP’ (Timboon’s Awesome Picasso).
- Emu Heights Public School, New South Wales: ‘Daisy Buttercup’.
- Christi an Outreach College, Queensland: ‘Miss Moo-ving Mary Von Dairy’.
- Exeter Primary School, Tasmania: ‘Moo-dini’.
- Canberra Grammar School, ACT: ‘Milky Way’.



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Prices to hold at current levels

Key points

- ✓ Supply continues to outpace demand in global dairy markets
- ✓ NZ production falling, EU and US continue to grow
- ✓ Australian milk production up 2.0 per cent for season to October

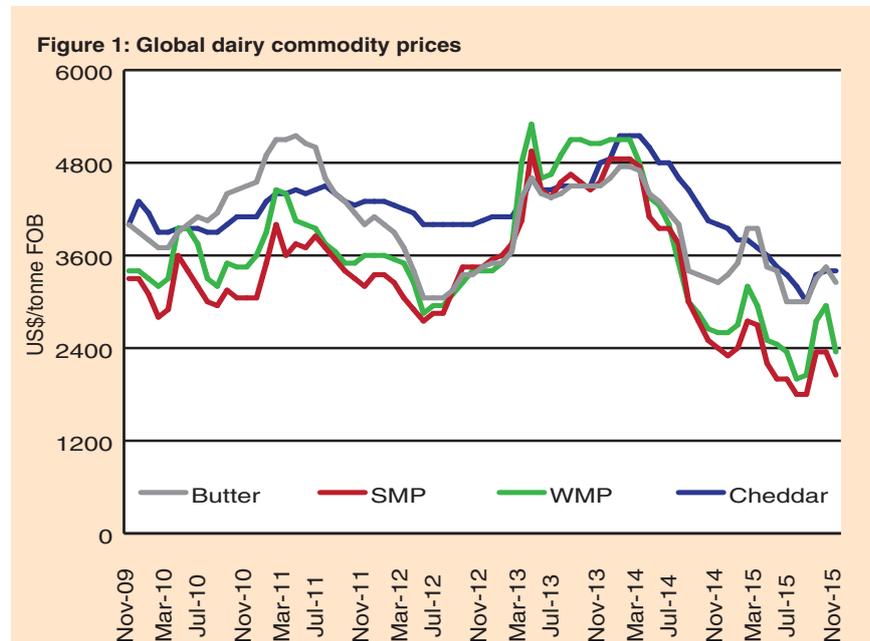
By John Droppert and Amy Bellhouse
Analysts
Dairy Australia

PRICING indicators on global dairy markets continue to ebb and flow, reflecting the lack of firm direction provided by supply and demand fundamentals. The overall tone of the market is dominated by the bearish influences of a robust European production outlook and weak international demand, but deteriorating milk production expectations from Oceania (particularly New Zealand) are providing some support — especially to whole milk powder (WMP) pricing. Despite the lack of upward pressure, there is a widely held belief that prices are at something of a floor and will find support around current levels, even if the long-awaited recovery is some way off.

October data from the Dairy Companies Association of New Zealand (DCANZ) shows that NZ milk production was down about three per cent in October (the season peak), recovering some ground after an eight per cent year-on-year fall in September. Pasture production is below average for the time of year in some regions, but overall is not considered to be a severe limitation at present.

The biggest constraint is reportedly herd numbers, with NZ-based analysts AgriHQ estimating that five per cent fewer cows were in milk through the spring peak, due to several months of elevated culling, the pace of which is expected to strengthen as pasture growth slows in summer. Coupled with a likely reduction in supplementary feeding due to low farmgate milk prices, this will see full 2015/16 season milk intakes fall about four per cent compared with 2014/15, according to AgriHQ.

Europe continues to be regarded as the main source of the milk supply 'problem' for sellers in international markets, with production expanding by nearly two per cent (to 11.8 billion litres) across the 28-member Europe-



an Union (EU-28) in September. With low milk prices and the closure of the Russian market hitting the Baltic states and eastern Europe hard, the largest increases continue to come from the north west — Ireland, Belgium and the Netherlands in particular. As winter approaches, production is nearing its seasonal low point, but stocks remain plentiful.

European exporters are offering the cheapest prices across a range of commodities, with skim milk powder (SMP) prices now at or slightly below the trigger for public intervention. While this is likely to see sales into intervention ramp up again, exacerbating the stock overhang, it does provide something of a price 'floor'.

In the United States, milk production is also growing, but at a slowing rate (0.1 per cent in October). Overall, margins are still conducive to expansion, but they are much tighter in California (the biggest producer), and the worsening year-on-year declines in that state are weighing down the national total. California's milk production ended October down 5.5 per cent (compared with the same month in 2014) while the second largest milk producing state, Wisconsin, grew output by 4.5 per cent thanks to low feed costs offsetting falling milk prices.

Local sources are reporting that cheese production is being maintained for now, but production of milk

powders is falling. This is good news for other exporters, as competitive US SMP pricing has been an increasing headache of late. Big volumes are still being sold (mainly in central and South America) to clear inventories, so the relief might take a few months to flow through.

Meanwhile, in Australia, milk production has grown 2.0 per cent for the season to the end of October, reflecting slowing production (-0.4 per cent for the month of October compared with a year earlier) after strong growth early in the season. Queensland production continues to shrink, down -1.8 per cent year to date (YTD), and although production growth season to date remains in positive territory for New South Wales (+3.9 per cent), Victoria (+1.3 per cent) and South Australia (+4.4 per cent), it is slowing as the season really starts to bite. While Tasmania is also experiencing dry conditions, production growth continues to accelerate (+3.5 per cent YTD). Western Australia is demonstrating the strongest growth YTD of any region, at +6.8 per cent.

Amidst a combination of limited short-term upside and a reasonable set of price supports (intervention buying and climatic influences), our expectation of a period of prices remaining around the current level is still the most reasonable short-term prospect.

What's next on the trade agenda?

Key points

- ✓ New trade agreements on agenda
- ✓ India, Indonesia and Middle East offer big opportunities
- ✓ Looking to reduce non-tariff, technical barriers

AFTER what was an eventful year on the international dairy trade front in 2015, with the implementation of the China Free Trade Agreement (FTA) and the conclusion of the Trans-Pacific Partnership (TPP) negotiations, 2016 is promising to be another busy 12 months.

A number of negotiations are set to ramp up this year. These include:

- the Australia India Comprehensive Economic Co-operation Agreement (CECA);
- a free trade agreement (FTA) with the Gulf Co-operation Council (GCC);
- a bilateral agreement with Indonesia; and
- investigating solutions to non-tariff, technical barriers to trade with various countries.

India and Australia are working together to negotiate the CECA. Recent years have seen remarkable growth in the trading relationship between India and Australia. Two-way trade in goods and services has grown in value from about \$7 billion to about \$15 billion in the past decade. India is the world's largest producer of milk (cow and buffalo) with an estimated output of 140 million tonnes in 2015. This is equivalent to about 17 per cent of world milk production, and is more than 14 times Australia's total production of about 9.8 million tonnes each year.

According to the Indian Dairy Association, demand is currently growing at six per cent per annum, which is faster than production growth at four per cent per annum. Indian dairy consumption is expected to continue outpacing domestic supply, reaching 200 million tonnes by 2022.

Strong economic growth, ongoing urbanisation, an emphasis on healthy lifestyle, growing population and a long tradition of dairy consumption are all contributing to the increase in demand for dairy.

Dairy Australia group manager trade and industry strategy Charles McElhone said Australian dairy prod-

ucts and ingredients were currently facing high tariff and non-tariff barriers to enter the Indian market.

"CECA offers the opportunity for Australian-based manufacturers to work in co-operation with the Indian food-processing and retail industries to meet the increasingly sophisticated demand in the Indian market," Mr McElhone said.

"Australian dairy products can play a small yet complementary role in satisfying growing Indian consumer demand."

Australian dairy ingredients can help Indian food manufacturers move up the value chain by supporting a consistent supply of high quality inputs, even when domestic Indian milk production is constrained by seasonal variations.

"There is a major incentive for Australia to be the first established dairy-exporting nation to secure an agreement involving commercially meaningful access from entry-into-force," Mr McElhone said.

"It would provide an important competitive advantage for Australia against other supplier countries. The European Union and New Zealand are also currently negotiating bilateral trade agreements with India."

Indonesian negotiations

Australia and Indonesia are set to restart negotiations this year on a bilateral trade agreement, which ends a freeze of more than a year due to bilateral tensions. A one-year target for an agreement has been set by the Australian Government.

The Indonesia Australia Closer Economic Partnership Agreement (IACE-PA) talks began in 2012, with the aim of targeting not just the traditional tariff barriers but also exploring ways to overcome less transparent obstacles to trade.

After a five-year pause in negotiations with the Gulf Cooperation Council (GCC) (comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates), efforts have escalated to reignite the negotiations in 2016. Australia is one of several countries negotiating an FTA with the GCC.

Mr McElhone said an FTA would have an enormous influence in trade and investment relationships in a price-sensitive region such as the Middle East.

It won't just be ongoing negotiations to secure further trade agreements on the table this year. Technical barriers to trade (TBTs) will be put under the spotlight as it has been identified they could hinder the extent to which the Australian dairy industry, as well as other Australian food exporters, is able to capitalise on recent FTAs with China, Japan and South Korea.

TBTs are not just border-entry issues. They come in many forms, including market access restrictions, production costs, product registration requirements, shipment costs and unnecessary compliance levels such as non-standard packaging demands. An independent report commissioned by Dairy Australia demonstrates that minimising technical barriers would deliver meaningful economic benefits to the entire dairy value chain.

"In particular the report suggests that if all TBTs imposed by countries importing Australian products were reduced it could benefit our industry to an aggregated sum of up to \$1.57 billion," Mr McElhone said.

"This aggregate amount includes the opportunity costs resulting from having TBTs in place as well as the potential gains from their removal.

"Australian dairy recognises that there are legitimate measures designed to protect consumers and producers alike, including quarantine inspection, sensible product testing and other such regulation.

"Many of the barriers which our exporters have to contend with are unjustifiable and superfluous given Australia's already strong food safety regime, credible domestic regulators and reliable cold storage chains."

With the support of both Federal and State governments and the Department of Agriculture's network of Agriculture Counsellors, Mr McElhone said there was an excellent opportunity to gradually reduce such barriers by focusing on these export impediments in various country-to-country discussions. 



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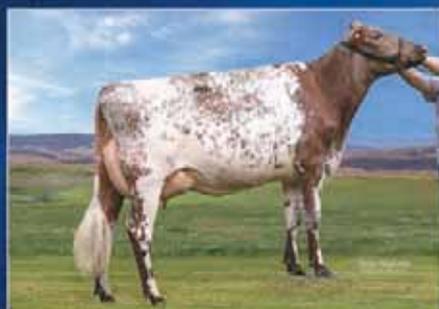
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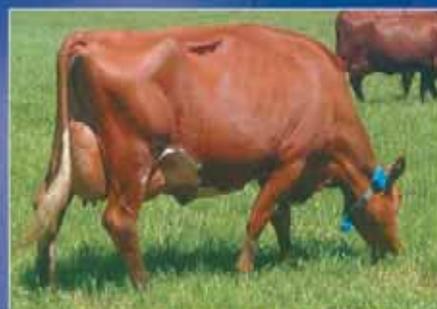


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From the same family as new bull
Storman Royal Standard
Adelaide Illawarra Feature Show 2015
Intermediate Champion
Tim & Natalie Cochrane, NSW
(AGRIGENE)

PIMP



Kangawarra Gabbie 3693
NSW Red OFC—1st Class 4 born 2010
2015 Illawarra & Southern Spring Fair
Bellringer
J3 8126L 3.2%P 4.3%F
Tom & Kyleigh Cochrane, NSW
(SEMEX)

LANDMINE



Viewmount Landmine Patch 14
NSW Red OFC—1st Class 3 born 2011
Paul Ringland, NSW
(AGRIGENE)



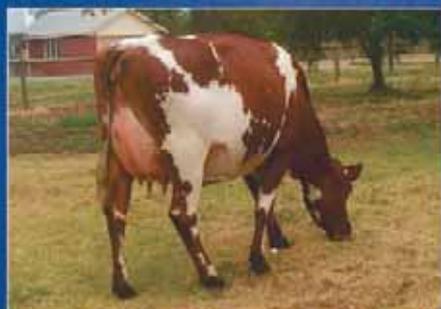
Three Creeks Blossom 18 VG85
Vic Red OFC 2014 – 1st 2yrs in milk
J & B Evans, Vic
(AGRIGENE)

MITCHPRESS

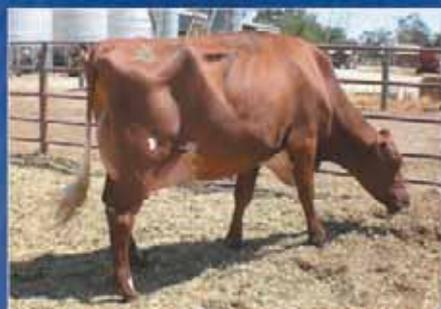


Ovensdale Scarlet 284
PI 111
R & M Newton, Vic
(AGRIGENE)

WBLUSH



Llandoverly Blush's Jinny
Vic Red OFC 2015 (33 entries)
7th 3yrs in milk
James Breen, Vic
(GENETICS AUST)



Llandoverly Blush's Queenette
Vic Red OFC 2015 (33 entries)
6th 3yrs in milk
Hayes Family, Vic
(GENETICS AUST)

BELAGIO



Kangawarra Malda 4061
DIM 51 1530L 3.99%F 3.14%P
Tom & Kyleigh Cochrane, NSW
(SEMEX)

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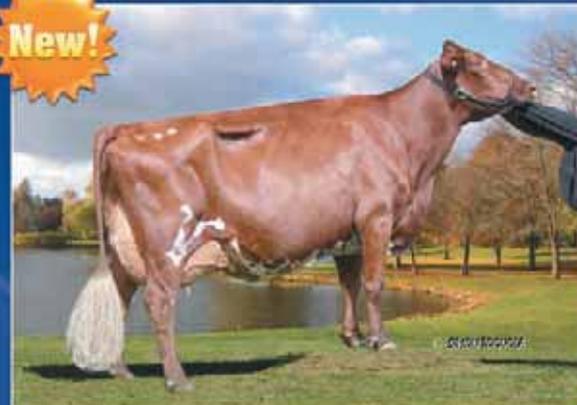
At ABS – **OVENSDALE PIXIE'S TREBLE**
x Royaltreble
DAM — Ovensdale Pixie 95 EX90 2E
(R & M Newton, Vic)



At ABS – **EAGLE PARK MANU**
x Silverleigh Maxima
DAM — Kangawarra Malda 3075 VG88
(Tim & Nat Cochrane, NSW)



At SEMEX – **GLENCLIFFE JP JEDI**
x Pingerly
DAM — Glencliffe Joyce 468 EX
(R & S Parker, Vic)



At AGRI-GENE – **MYRTLEHOLME HUNT**
x Thorpe
DAM — Myrtleholme Ailsa 14 EX
(JP Bourke & Co, Qld)



At ABS – **STORMAN ROYAL STANDARD**
x Pingerly
DAM — Storman Buttler Jean EX
(James Norman, NSW)

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Australia's largest show gets better

Key points

- ✓ New awards for interbreed champions
- ✓ High quality genetics offered at sales
- ✓ Dairy women group to be launched

By Carlene Dowie

INTERNATIONAL Dairy Week promises to be bigger and better this year with new features planned to build on the event's reputation as one of the world's leading dairy shows.

A top line up of cattle will be offered at sales, with event director Brian Leslie describing them as featuring "all-time high catalogues".

Event manager Robyn Barber said a real highlight of the shows this year would be the awarding of the prestigious Royal Agricultural Society of Victoria's (RASV) dairy interbreed champions for the first time.

The awards of junior interbreed champion, intermediate interbreed champion and Australia's grand champion will be made during the Holstein judging on the Thursday of the event.

Ms Barber said the number of cattle to be shown was on a par with

'It is not until you go out in and amongst where all the cows are kept and you see how much enjoyment people get while they are there.'

previous years with about 880 head entered. The number of exhibitors was also similar with 188 vying for honours this year.

However, due to a change in the way the event was being organised, the number of entries on paper would appear lower than previous years. Ms Barber said for the first time this year exhibitors could buy clipping frame space in the sheds; in the past exhibitors had put in additional entries that they never intended to show to give them more space in the sheds.

Another new feature this year would be the Victorian show societies junior judging and junior handler state finals, to be held on the Sunday. This features finalists from events held at smaller shows around

the state with the winners going on to represent Victoria in the national competitions.

Power of Women in Dairying

A new group for dairy women will be launched during IDW.

The Power of Women in Dairying group is the brainchild of Jade Sieben. It aims to create opportunities for networking, learning and inspiration for women who work within the dairy industry.

It also aims to celebrate the strong, passionate and successful women in dairy, rewarding excellence and offering a scholarship scheme to support younger women making their way within the industry.

The Bette Hall Power of Women in Dairy Award for Excellence will be recognised on an annual basis by the group and a scholarship will be created to support younger women making their way in the industry.

The group will hold its first function at IDW 2016 in the form of a dinner on Tuesday, January 19.

Sales

Mr Leslie said four sales would again be held during IDW. The Elite Ayr-

IDW 2016 program of events

Sunday, January 17

9.30am Non-denominational Church Service Blackmore & Leslie Complex

1.00pm Youth Clinic Blackmore & Leslie Complex

2.30pm VASL State Junior Judging & Parading Final Blackmore & Leslie Complex

Monday, January 18

8.00am ABS Australia/Ridley All Breeds National Youth Show Blackmore & Leslie Complex

2.30pm The IDW Youth Showmanship Classes Blackmore & Leslie Complex

4.00pm Holstein Australia Victoria Youth Challenge Trials Blackmore & Leslie Complex

6.30pm Holstein Youth BBQ and Presentation of Awards Blackmore & Leslie Complex

Tuesday, January 19

8.00am Australia's National Illawarra Show Blackmore & Leslie Complex

8.00am Australia's National Ayrshire Show Blackmore & Leslie Complex

9.00am Dairy Farm & Machinery Field Days Main Oval

10.00am IDW Seminars Begin Tennis Club Rooms

11.30am IDW Elite Ayrshire Sale Blackmore & Leslie Complex

12.00pm IDW Elite Guernsey Sale Blackmore & Leslie Complex

1.30pm Australia's National Guernsey Show Blackmore & Leslie Complex

1.30pm Australia's National Brown Swiss Show Blackmore & Leslie Complex

7.00pm NHIA 2016 International Dairy Dinner Cellar 47 Restaurant, Shepparton

8.00pm Virtual Farm Tours Wilson Hall

Wednesday, January 20

8.00am Australia's National Jersey Show Blackmore & Leslie Complex

8.00am RASV Dairy Leaders' Breakfast Ballantyne Centre

8.30am Semex Holstein Daughter Inspection Tour

9.00am Dairy Farm & Machinery Field Days Main Oval

10.00am IDW Seminars Begin Tennis Club Rooms

11.30am IDW Jersey Showcase Sale Blackmore & Leslie Complex

12.30pm Jersey Australia Futurity Blackmore & Leslie Complex

1.30pm National Jersey Show Continues Blackmore & Leslie Complex

7.30pm IDW World Wide Sires Evolution Sale Blackmore & Leslie Complex Thursday, January 21

8.00am Australia's National Holstein Show Blackmore & Leslie Complex

9.00am Dairy Farm & Machinery Field Days Main Oval

10.00am IDW Seminars Begin Tennis Club Rooms

11.30am RASV Interbreed Junior Champion Blackmore & Leslie Complex

12.30pm MaxCare Challenge Blackmore & Leslie Complex

3.00pm RASV Interbreed Intermediate Champion Blackmore & Leslie Complex

4.00pm Grand Champion Parade & Presentations Blackmore & Leslie Complex

4.30pm Presentation of Lex Bunn Memorial Award Blackmore & Leslie Complex

5.30pm Presentation of Australia's Grand Champion Blackmore & Leslie Complex



International Dairy Week is a great opportunity for dairy families to get together.

shire and Elite Guernsey sales will be held at lunchtime on Tuesday, the Jersey Showcase sale will be held at lunchtime on Wednesday and the World Wide Sires Evolution Sale for Holsteins will be held on Wednesday evening.

Mr Leslie said the sales had attracted outstanding entries from all across country. "We've got them out of cows that have won at the big shows," he said. "For example in the Guernseys, we have embryo packages out of the four-time champion cow from IDW."

A heifer from one of Australia's highest classified Jersey cows and the heifer with the highest genomic Balanced Performance Index value will also be offered.

Several heifers from imported embryos with deep pedigrees and high genomics would also be offered.

"I try to make it as diverse as I can; we've got real range of bloodlines that, for my mind, suit all tastes," Mr Leslie said.

He said they did not set out to try to break records at IDW and animals were sold unreserved, but there was always great cattle on offer.

"This year could be the very year to buy them," he said. "The pedigrees are at the top end, the cattle are at the top end. I think it is a good time to take advantage of the tremendous cull cow prices."

Other highlights

Other highlights include the seminars to be held across three days of the event (see story page 77).

Virtual farm tours have also again been included on the program on the

Tuesday night. This year people will get a chance to hear about the farms of Holstein judge Pierre Boulet, from Canada, and Quentin Moxey, whose family runs one of Australia's largest dairy farms and which is now part of a consortium planning to build more farms.

The Dairy Farm and Machinery

Field Days to be held on the IDW site from January 19-21 allow anyone with an interest in dairy to browse through a showcase of the best equipment, technology, advancements and dairy management solutions. The event will feature more than 80 exhibitors.

Family event

Ms Barber said IDW was a great opportunity for families in the dairy industry to get together.

"It is not until you go out in and amongst where all the cows are kept and you see how much enjoyment people get while they are there and they have in seeing each other again," she said.

"A lot of people often don't get off their farms and IDW is their holiday event."

The event was also a boon for the local area. A recent City of Greater Shepparton study estimated the event tipped \$2.2 million into the local community. "That's fantastic, particularly for the local businesses," Mr Barber.

It also supports a chosen charity each year with a donation to be made this year to the Prostate Cancer Foundation of Australia. 

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TransitionRight™ Launch

A genetic solution for healthier transition cows
 Mitch Amundson, ABS Global Dairy Brand Manager, will launch **TransitionRight™** Genetics with a presentation in the ABS Australia stand at **International Dairy Week** at 5.30pm on **Wednesday, 20 January**. Paul Trapp, ABS Global Regional Sire Analyst who is a judge at IDW, will also give a short talk on future trends in genomics and breeding. *Find out more about TransitionRight™ on page 85.*



Mitch Amundson



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IDW SUMMER SPECIALS

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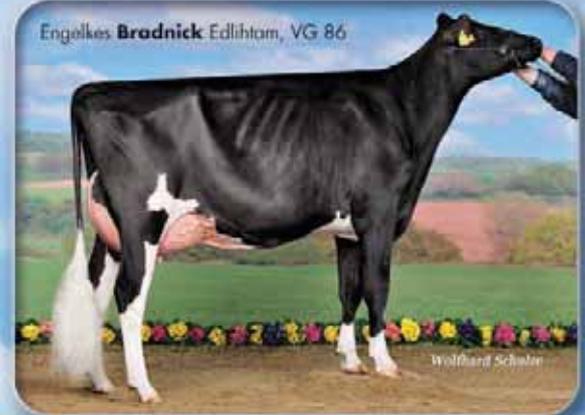
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FERTILITY +
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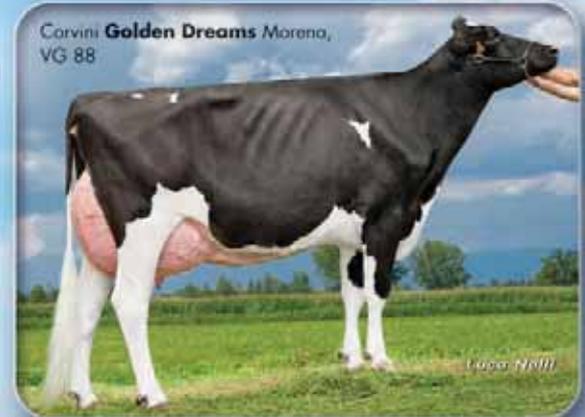
Heavenly Golden Dreams
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Dairy interbreed champion to be crowned at IDW

THE prestigious Royal Agricultural Society of Victoria's (RASV) dairy interbreed champion will for the first time be awarded at the 2016 International Dairy Week.

The prestigious awards of junior interbreed champion, intermediate interbreed champion and Australia's grand champion will be awarded by an esteemed panel of six judges, including local and international experts from Australia, Canada and the United States, on the final day of competition.

The champions and reserve champions of the Illawarra, Ayrshire, Guernsey, Brown Swiss, Jersey and Holstein Breeds will be eligible for the sought-after prizes that carry with them significant cash prizes, recognised as the highest on offer in the country.

Australia's grand champion will be awarded a cash prize of \$2000, with Reserve receiving \$1000, while junior and intermediate champions will be awarded \$1000 each, with each reserve taking home \$500.

RASV chief executive Mark O'Sullivan said the awarding of the interbreed champion as part of the IDW schedule



The best of all breeds at a junior, intermediate and senior champion level will battle it out for interbreed honours at this year's International Dairy Week.

would provide greater opportunity for participants of the event, the largest expo in the Australian dairy industry.

"RASV is delighted to continue as a partner of IDW, which is highly regarded as Australia's premier dairy event, and to offer participants the chance to be named RASV Interbreed Champion," Mr O'Sullivan said.

"Our partnership with IDW is underpinned by our commitment to promote and celebrate excellence in agriculture, provide value for industry participants and support regional and community events."

The decision to award the interbreed during IDW is part of RASV's revised dairy program, which has seen a youth-focused heifer competition take place at the Royal Melbourne Show in September and increased support of the IDW event.

IDW director Brian Leslie said he was extremely proud to be able to host the RASV Interbreed as part of the event.

"These competitions have and will continue to reward excellence in showing," Mr Leslie said.

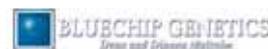
"We look forward to seeing some outstanding cattle compete for these prestigious titles."



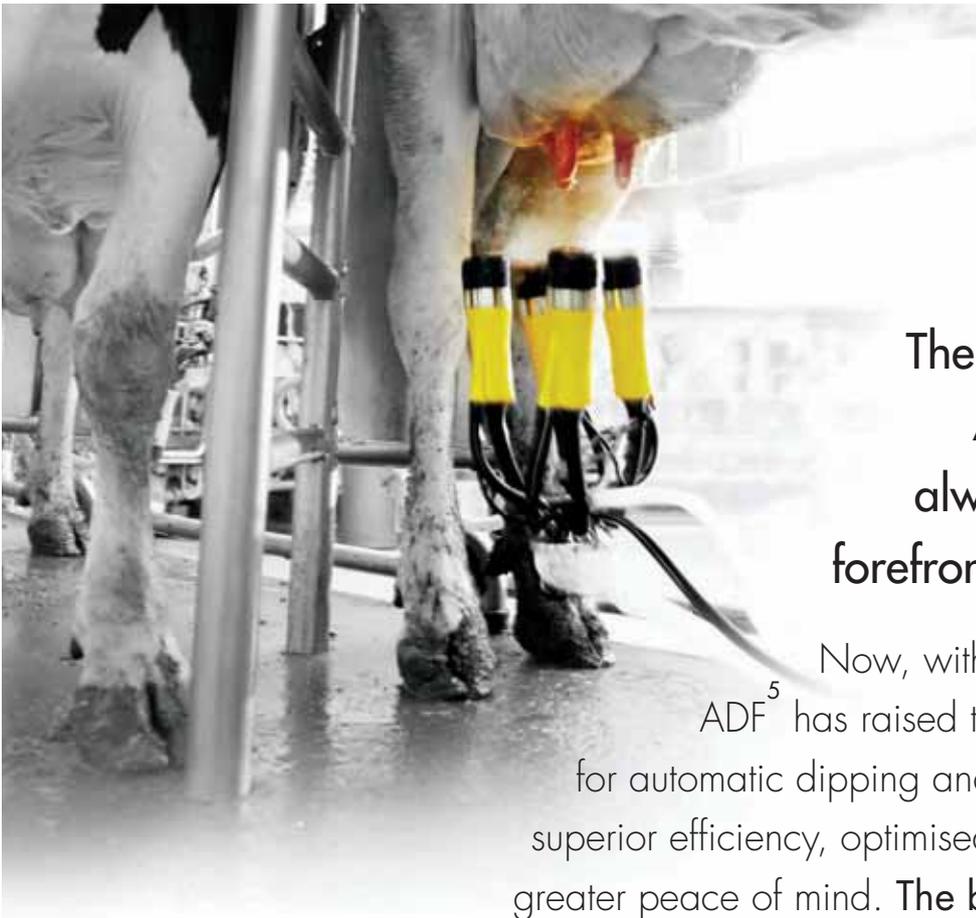
JEFO TESTIMONIAL

" We started using Jefo protected B vitamins for transition as our lead feed this calving. We've calved 40 heads in the last month and we've observed several encouraging results. We've had no retained placentas and no post-calving ketosis to date on this group. We also always treat any edema after calving very aggressively, because we have a number of show cows. We have only treated one cow this calving, which is pretty rare. The combination has made our fresh cow transitions much quicker and easier. And what we've saved in post-calving treatments makes Jefo protected B vitamins for transition very inexpensive. We appreciate it's early days for us, but we feel we've seen enough to share an encouraging pattern. "

– Dean Malcolm, Bluechip Genetics (130 cows: Victoria, Australia).



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IDW JUDGES AT A GLANCE

ABS Australia/Ridley All Breeds

National Youth Show:

Brad Gavenlock, Australia

IDW National Youth

Showmanship Champions:

Hayley Menzies, Australia

National Illawarra Show:

Ryan Weigel, United States

National Ayrshire Show:

Max Hyland, Australia

National Guernsey Show:

Murray Sowter, Australia

National Brown Swiss Show:

Paul Trapp, United States

National Jersey Show:

Robert Anderson, Australia

National Holstein Show:

Pierre Boulet, Canada

IDW National Youth Showmanship Champions



The 2016 International Dairy Week's Youth Showmanship judge, **Hayley Menzies**, needs no introduction at any level in the Australian industry. The 33-year-old dairyfarmer works alongside her husband, Stewart, on their busy 600-strong Holstein and Jersey herd at Nowra, NSW. Cairnsdale Holsteins and Rivendell Jerseys compete at the highest levels in both breeds.

Mrs Menzies is also well-known for her talented graphic design work within the industry. She is also the daughter of Lyn and Maurice Boyd, of Brunchilli Jersey fame. She has led many animals to championships against some of the best leadsman in the country on behalf of her parents. In her own farming right, Rivendell has won reserve intermediate Jersey at the 2015 IDW and honourable mention intermediate Jersey at the 2014 IDW. Rivendell has also twice won the Great Northern On-Farm Challenge.

Mrs Menzies's judging resumé is already strong. She has adjudicated at the 2013 Melbourne Royal Youth Show, the 2012 Sydney Royal Youth Classic, the NSW State Jersey Show Paraders' show and the showmanship section of the 2013 IDW Youth Challenge Show. She has also been in the hot seat at a host of local shows. The invitations came after her own success in showmanship competitions — she has won showmanship titles at IDW, the Melbourne Royal, the Sydney Royal Easter Show, the Shepparton National Show and the NSW State Jersey Show.

"I will be looking for those real partnerships between the heifer and the handler, that smooth ring-work can only be achieved with work and effort, and they will be the young people I will be looking for," Mrs ►

INTERNATIONAL Dairy Week (IDW) has again attracted a team of top quality judges from both Australia and overseas.

ABS Australia/Ridley All Breeds National Youth Show



Brad Gavenlock, along with his wife, Jessica, and daughter Penny own and operate Cherrylock Cattle Company, which recently relocated back to Australia with a strong influence in Jerseys with a few Holsteins and Illawarras.

Mr Gavenlock has judged throughout NSW, Queensland, Victoria and Tasmania. He has served as the over judge for Youth Challenge Competitions at Sydney, Brisbane and IDW. He has also assisted as an over judge for the National Holstein and Jersey Judging panels in NSW.

Mr Gavenlock also enjoys teaching proper fitting and judging techniques to youth across Australia. He also worked as a fitter throughout Australia, New Zealand and North America.

After having a herd dispersal in 2014 Royal Edition Sale at which Bralock Jerseys set a new Jersey sale average, the Gavenlocks moved to Central Wisconsin (WI) in the United States where they milked 60 Jerseys

that were scored 100 per cent Very Good (VG) or Excellent (EX). They were proud to show the fourth place winter calf at World Dairy Expo and first place winter yearling at the WI Jersey Spectacular. They also consigned cattle to three of the biggest sales in US, Apple Mania, International Intrigue and Summer Splash. They have collected more than 70 embryos in the US to develop in Australia.

Before relocating to the US, Mr Gavenlock worked for Agri-Gene as an area sale's manager based on the South Coast in NSW for 10 years. Mr Gavenlock has recently rejoined the team at Agri-Gene in a new role as dairy genetics manager.

He owes a lot of his career and achievements to the foundation cow that he bought when he was 16, Edi Merle 137. Merle was grand champion and best udder IDW 2005, second four-year-old and best udder at the World Jersey Conference 1999, along with taking eight other Championships.

Mr Gavenlock has also exhibited supreme champion Sydney Royal 2010 with Goldlabel Daydream owned in partnership with Murray Polson.

He has exhibited and won championships at Brisbane, Sydney, Melbourne and Adelaide Royals.

The Gavenlock exhibited the junior champion Holstein and Illawarra at IDW in 2012.

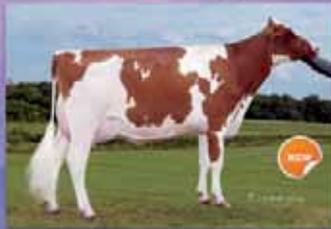
After exhibiting for many years in the National All Breeds Youth Show and exhibiting six champion or reserve champions, Mr Gavenlock is honoured and excited for the opportunity to judge the 2016 show.

Agri-Gen Showtime Sires

ALL BREEDS IDW Specials

PIRHANA-P

Black-Hi-Creek Piranha - P-RC Mogul x Secure-Red



New Sire, Piranha-P ranks amongst the industry's elite TR Red Camer Polled bulls and excels for Type, Production & Udders with Positive Components.
Min 25 Dose Order
Conventional: RRP \$31 / IDW \$24

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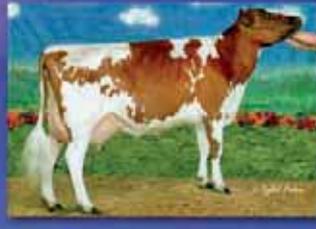
Victory Acres Genom Cartel Carter x Ettar



Cartel is a New Release A2/A2 "Carter" son who is one of the highest Genomic Sires from the USA with huge Production, good Type, SCC and PL.
Min 10 Dose Order
Sexed: RRP \$50 / IDW \$45
Min 25 Dose Order
Conventional: RRP \$20 / IDW \$17

BENEVOLO

Palmyra Raven Benevola - ET Raven x Jerry



Sired by "Raven" Benevola hails from a Show-Winning All-American pedigree and transmits high Production with Positive Components.
Min 25 Dose Order
Conventional: RRP \$32 / IDW \$28

PRIDESBUTTER

Blackwood Park Buttercup
Prides Prophet x Royal Treble



Popular "Prides Prophet" son from the much admired "Buttercup" cow family backed by generations of EX cows with Sexed & Conventional Semen available.
Min 10 Dose Order
Sexed: RRP \$50 / IDW \$45
Min 25 Dose Order
Conventional: RRP \$15 / IDW \$12.50

LATIMER

Coollee Crest Fame Latimer Fame x American Pie



Latimer is a New Release A2/A2 "Fame" son from 6 Generations of EX cows who transmits excellent Type, Production and Udders with Positive Components.
Min 10 Dose Order
Sexed: RRP \$50 / IDW \$45
Min 25 Dose Order
Conventional: RRP \$20 / IDW \$17

MCAPPLE

Childers Cove Annedale McApple - RC CV
McCutchien x Regiment



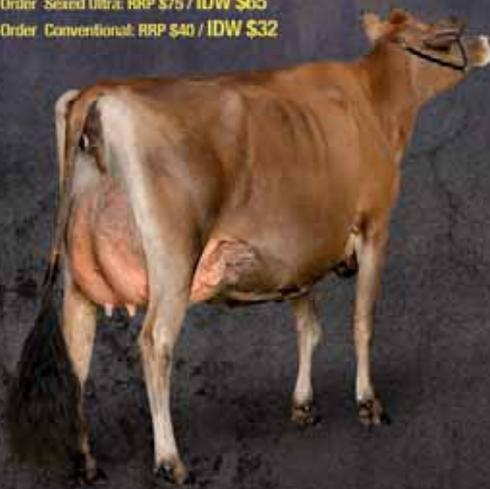
One of the highest Red Camer GTR sons from the world famous "Apple - EX96" cow with superb Type, Udders and Positive Components.
Min 25 Dose Order
Conventional: RRP \$25 / IDW \$18

TEQUILA

Tower Vue Prime Tequila - ET Primetime x Sambo

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Min 10 Dose Order Sexed Ultra: RRP \$75 / IDW \$65
Min 25 Dose Order Conventional: RRP \$40 / IDW \$32

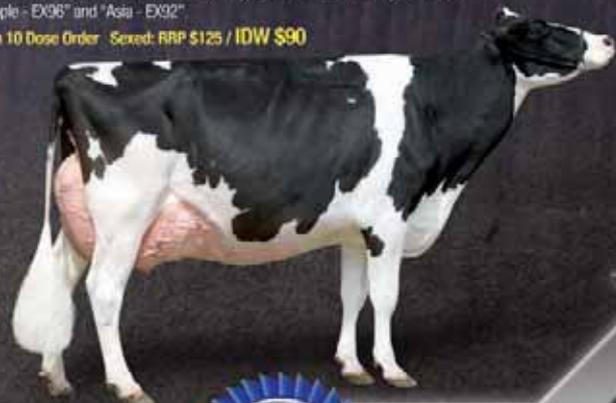


AWESOME RED

Luck-E Absolute Awesome - Red CV Absolute x Advent

Popular Red "Absolute" son with extreme Type and Udders from only the best in "Apple - EX96" and "Asia - EX92".

Min 10 Dose Order Sexed: RRP \$125 / IDW \$90



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All Other Proven bulls are available at a 15% Discount for a Minimum of 25 Straws.
All prices are GST exclusive.

◀ Menzies said. "I'm excited and honoured to be asked to judge and I'm looking forward to it."

The National Illawarra Show



Ryan Weigel is a sire analyst for Accelerated Genetics at Baraboo, Wisconsin (WI), in the United States. As a sire analyst, Mr Weigel is responsible for creating and procuring the highest genomic quality young sires within his assigned area. Before employment with Accelerated Genetics, Mr Weigel was the dairy cattle show manager for World Dairy Expo Inc. at Madison, WI.

Mr Weigel is co-owner of KHW Genetics. KHW has produced All-American show winners; has had active bulls in many different artificial

insemination organisations, and exported embryos around the world. Most notable of the animals KHW has bred include: KHW Kite Advent-Red (six-time premier sire of World Dairy Expo's Grand International Red and White Show), KHW Regiment Apple-Red (grand champion World Dairy Expo 2011), and KHW Goldwyn Aiko (2015 Red Impact Cow in Holstein International).

Their dam and the foundation cow of KHW Genetics, Kamps-Hollow Altitude, has received many honours including the Red Impact Cow of the Year awarded by Holstein International in 2009 and the Wisconsin Cow of the Year also in 2009. Together with his business partner Ryan Kamps, Mr Weigel was awarded Wisconsin's Distinguished Young Holstein Breeder in 2014.

Mr Weigel is an assistant coach for the University of Wisconsin-Platteville dairy judging team and is a certified judge with the Wisconsin Purebred Dairy Cattle Association. Additionally, he is on Holstein Association USA's qualified judges list. Mr Weigel has judged multiple dairy cattle shows and served as an

official for many different judging contests and clinics throughout the states of Minnesota, Illinois, Iowa and Wisconsin. He has also judged internationally in Japan on multiple occasions.

Mr Weigel resides in Platteville, WI, with his wife, Traci, and three young children.

The National Ayrshire Show



The Rockvale Ayrshire Stud was established by **Max Hyland** in 1962 in Tasmania and moved to Victoria in 1973. A number of females were imported from New Zealand in the 1980s and top artificial insemination sires from Canada, United States and the United Kingdom have contributed to the stud's success. The ▶



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OCD MOGUL
ABRACADABRA-ET VG-88

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◀ Rockvale Ayshire stud has been one of Australia's leading production herds and also won many championship awards at Melbourne Royal and country shows including IDW. The milking herd was dispersed in May 2015, with all unjoined females to be joined and sold at a later date.

Mr Hyland has judged at Sydney Royal, Melbourne, Brisbane Adelaide and Toowoomba as well as many country shows in Victoria, NSW and Tasmania. He has travelled to New Zealand to judge the North Island Championships, the North Island Royal in Hamilton, the All Breeds at SI Royal Invercargill, and the All Breeds at Feilding. He has also judged the Semex Great Southern On Farm Competition for the Jersey breed.

The National Guernsey Show



Murray Sowter owns and operates Murrubrook Holsteins on 110-hectares of prime improved pasture in Moss Vale, NSW, and has been breeding and showing Holstein cattle for more than 30 years. He registered his first cow at the age of 12, and his passion for the development and quality of the Holstein breed is still as enthusiastic today.

His solid, long-term focus on exceptional type, deep pedigrees and high production has returned consistent, first-class results in the show ring, in sales and in high-producing cows.

During the late 1980s and early 1990s, Murrubrook imported a number of cows from Canada, whose impact continues to be significant at Murrubrook and in the wider Holstein breed in Australia and New Zealand. Show ribbons and trophies abound from the 1970s, 1980s and 1990s through to 2015. Success at Sydney Royal during the 1970s and 1980s was interspersed with two showings at Melbourne Royal in the late 1980s. Whilst the results are too numerous to mention, some career highlights are three times premier breeder and exhibitor at IDW plus

2013 intermediate champion Holstein and 2014 junior and intermediate champion Holstein. Eleven times premier breeder and exhibitor at the Royal Sydney Easter Show plus 2015 junior and intermediate champion Holstein, and supreme intermediate Dairy exhibit.

Mr Sowter has also contributed to the show ring as a judge, judging the IDW All Breeds Youth Show in 2012, and a number of other high-profile shows across New Zealand and Australia.

Murrubrook Holsteins milks about 250 cows with a rolling herd average of 11,000 litres per cow per annum. In addition Mr Sowter runs an extensive embryo-transfer and natural breeding program with more than 200 young stock on the farm.

National Brown Swiss Show



Paul Trapp is currently in his 22nd year with ABS Global, working as a regional sire analyst. He graduated from the University of Minnesota in 1993 with a Bachelor of Science degree in Agriculture Economics with a marketing emphasis. Mr Trapp, along with his wife, Sarah, and sons, Kole and Beau, own an elite group of registered Brown Swiss, Jerseys and Holsteins, where they have received All-American nominations across all three breeds. He is also a partner in Pit-Crew Genetics, which has received 19 Brown Swiss All-American Nominations since 2007, including the 2014 reserve All-American aged cow and reserve All-American senior best three females.

Mr Trapp has judged shows in 20 different states in the US at the local, state, and national levels, and internationally in Argentina, Australia, Brazil, Canada, Columbia, Ireland, Puerto Rico, Mexico, Japan and the United Kingdom.

Mr Trapp has judged at World Dairy Expo, serving as the 2010 International Guernsey Show associate judge, 2011 International Milking Shorthorn Show lead judge, 2013 International Ayrshire Show lead

judge, and the 2014 International Holstein Show lead judge. This autumn he will serve as the lead judge for the International Brown Swiss Show.

He has served on All-American panels and has judged national shows for all seven dairy breeds. Mr Trapp has also served for five years on the World Dairy Expo dairy cattle exhibitor committee, has served 12 years as an official for the WDE intercollegiate dairy judging contest, and was a member of the Young Dairy Leaders Institute inaugural class.

The National Jersey Show



Born into a family passionate about Jerseys, **Rob Anderson** is the fourth generation to continue on the tradition and established Kings Ville Jerseys at the age of 16. Mr Anderson with his wife, Kerrie, and their three daughters milk 220 registered Jerseys in Gippsland, Victoria.

In 1993 Mr Anderson was awarded the Australian Jersey Breeders Qantas Youth Scholarship and travelled throughout the US and Canada for 10 weeks gaining knowledge of different farming practices and Jersey genetics. In 1994, he won the National Dairy Cattle Judging at Sydney Royal.

Mr Anderson is a member of both the Jersey Australia and Holstein Australia judging panels and a past classifier for Jersey Australia. He has judged at numerous shows within Australia and New Zealand. Major judging appointments include Adelaide, Melbourne, Brisbane, Sydney and Launceston Royals, All breeds Youth Show at Melbourne Royal, Shepparton National All Breeds, NSW Dairy Spectacular, twice at the NSW State Jersey Show and also twice at the New Zealand Dairy Event. Rob has also judged many Jersey and Holstein On Farm Challenges, judging the Semex Holstein Australian On Farm Competition final for Southern Australia in 2012 and the 2014 Great Northern Jersey On Farm Challenge Final. ▶



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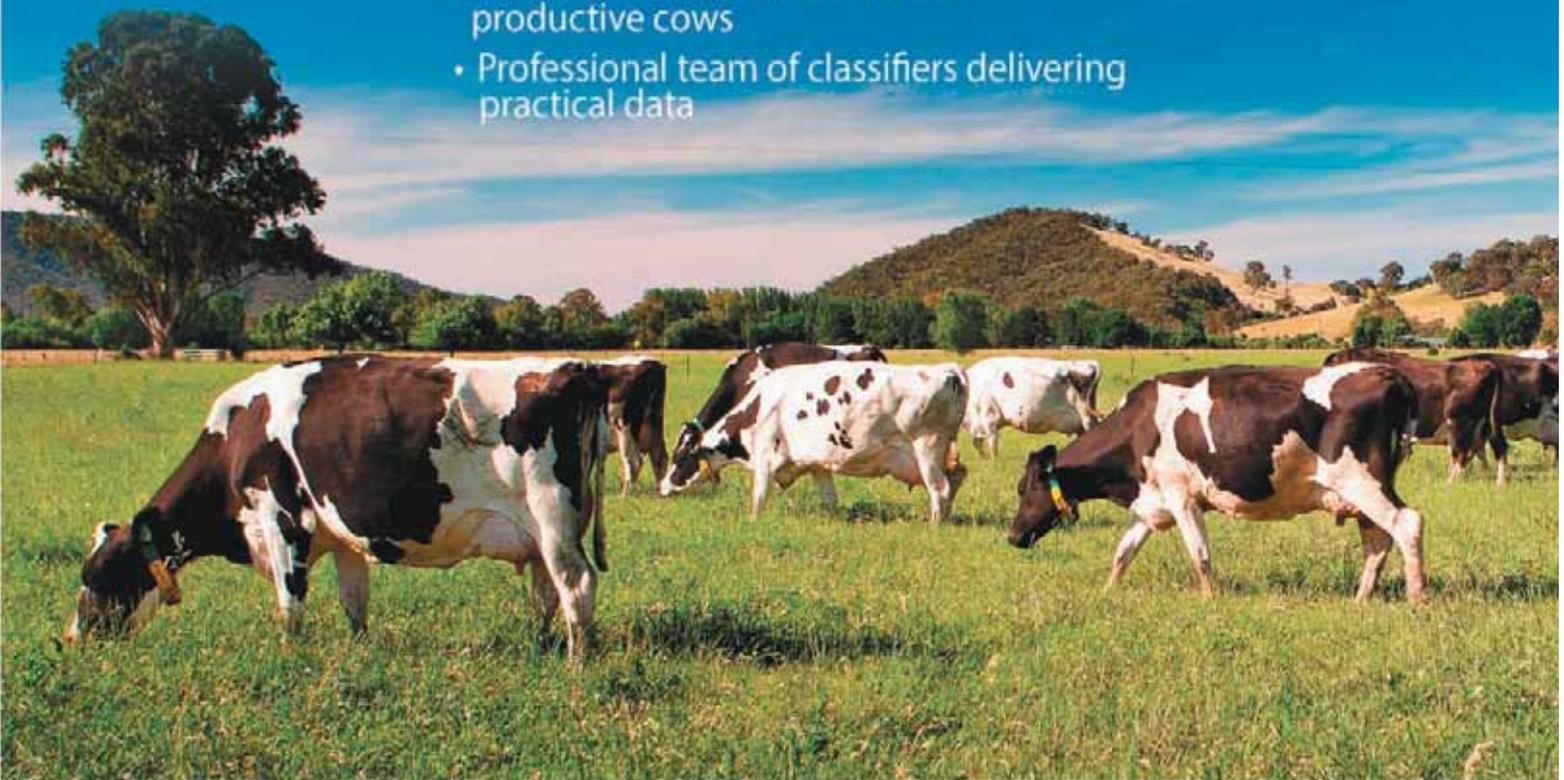
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◀ Showing Jerseys is enjoyed by Mr Anderson and his family with success for many years at local shows, on-farm challenges, fairs, Royal Melbourne Show and IDW. Kings Ville Jerseys was premier breeder of the very first Jersey Showcase held in 1994 before the showcase was incorporated with IDW. In 2013, Kings Ville Jerseys was a recipient of the Australian Bull Breeding Award for Jerseys of the 1990s.

Mr Anderson is honoured to be judging the National Jersey Show at IDW.

The National Holstein Show



Pierre Boulet has operated his dairy farm Ferme Pierre Boulet in Montmagny, Qu,bec, Canada, since

1995 under the prefix Pierstein. Alongside his partner, Katie, and his five children, they operate a herd of 500 Holsteins, as well as a few Jerseys and Ayrshires.

In addition to the milking herd, the farm deals thousands of cattle yearly for commercial dairies and export purposes.

Several cows are flushed monthly to supply embryos to local and international markets.

Mr Boulet is also co-owner and auctioneer for Les Encans Boulet, an auctioneering company specialising in on farm auctions and high-end genetic sales across Canada.

The farm is known world-wide for breeding and developing some of the top show cows and genetics in North America.

Mr Boulet's most famous cow is without a doubt Thrulane James Rose EX-97-2E 3*, two-time Holstein International world champion, World Dairy Expo supreme champion and three time grand champion at the Royal Winter Fair.

There are currently several high-profile show cows at the farm, the most popular of which is MS Gold-

wyn Alana EX-96-2E, reserve grand champion at The Royal Winter Fair in 2013.

The farm is also home to the crowd favourites Loyalyn Goldwyn June EX-96-3E and Pierstein Goldwyn Sunshine EX-96-2E, reserve intermediate grand champion at the Royal Winter Fair in 2010.

In the past eight years, Mr Boulet has owned two EX-97 point cows and four 96-point cows.

The Pierstein show string has received the premier breeder banner and premier exhibitor banner at World Dairy Expo, as well as the premier breeder and seven-time premier exhibitor at the Royal Winter Fair.

Mr Boulet's name is well known in the North American show rings, as he has been the owner of more than 130 All-Canadian and All-American nominated cattle.

Under his Pierstein prefix, Mr Boulet has bred and developed 102 Excellent cows.

Mr Boulet has been a Holstein Canada judge since 2005, and has officiated shows across Canada and in France.

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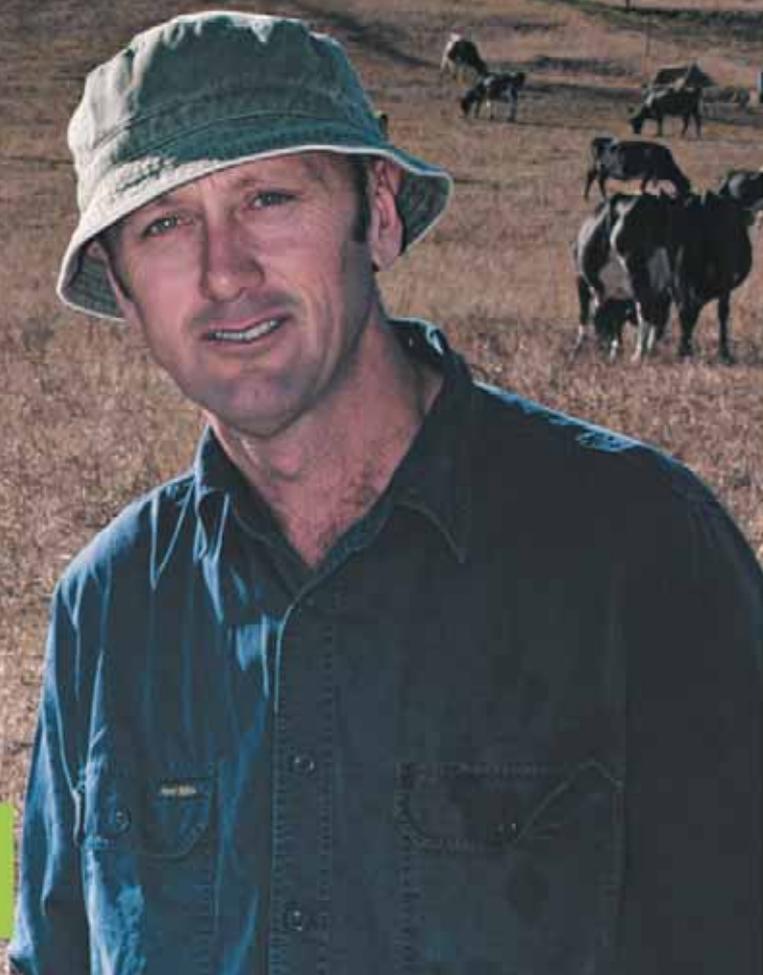
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Seminars to cover range of interests

INDUSTRY experts with a vast array of expertise will converge on International Dairy Week to provide dairyfarmers and industry representatives with the latest information on a wide range of topics.

Seminars are held in the Tatura Tennis Club Rooms, across the road from International Dairy Week. The 2016 program is outlined in the box story with details provided below about the subjects to be covered.



Dr Abdallah Zankar, from DVM-JEFO Australia, will explain how the requirements of the modern day dairy cow during transition are now different. If farmers get the transition period right, the cow is set up for the whole year; if they don't then reproductive performance, milk production, fertility and cow health are all affected.

Dr Zankar had with 20 years' experience in dairyfarming, having run a 5000 cow dairy of IDJ Almarai-PepsiCo JV in Jordan and he will share his experiences and the tools used.

See more information about Dr Zankar on page 82.



David Reynolds, from Proviso, will outline innovations in rearing healthy, strong calves. During the past decade there have been many advances in technology that have resulted in innovative products and feeding strategies for rearing healthy, better-framed dairy heifers.

This talk presents a number of these innovations with a view to separating fact from fiction and offers practical applications for dairy calf rearers.



Claus Langdahl, Holstein sire analyst with Viking Genetics, will talk about selection for health traits that have proven to be a great tool for increasing farm profits and decreasing veterinary and labour costs.

Reducing poor cow fertility, lame-

ness, mastitis treatments and metabolic disorders greatly increases cow longevity.

Mr Langdahl will share the results of breeding Holsteins in Denmark with a heavy emphasis on health trait selection for more than 30 years.

The last decade has seen an impressive increase of cow longevity in Scandinavia of 130 productive days.



Scott Ruby, from Fir Ridge Holstein Farm, Oregon, United States, and Kevin Jorgenson, sire analyst with Select Sires Inc-World Wide Sires Australia will feature in a panel discussion hosted by World Wide Sires Australia. Mr Ruby will work through a dairyfarmer's approach to genomics and profitability, how he identifies the right bulls and uses genomics to manage his breeding program and help he reach targets more quickly.

Mr Ruby milks 550 registered Holsteins three times daily with a rolling herd average of 12,044 kilograms of milk at 3.6 per cent butterfat and 3.1 per cent protein. ▶

International Dairy Week seminar program

Tuesday, January 19

10am: Dr Abdallah Zankar, DVM - JEFO Australia. The On-going Benefits of Improved Transition — Reproductive and Production Performance and Your Peace of Mind.

11.15am: David Reynolds, Bachelor of Science, Proviso. Innovations in Rearing Healthy, Strong Calves.

12.30pm: Claus Langdahl, Holstein sire analyst, Viking Genetics. Leaders are those with Followers — 30 years of Selection for Health Traits.

1.45pm: Scott Ruby, Fir Ridge Holstein Farm, Oregon, United States, and Kevin Jorgenson, sire analyst Select Sires Inc-World Wide Sires Australia. Genomics on the Fast Track.

3pm: Stephen Howells, national merchandising manager grains and oilseeds, Ridley Agriproducts. A Grain Market Outlook for Dairyfarmers.

Wednesday, January 20

10am: Jason Chesworth, Hunter Belle Cheese. Cooking with Cheese.

11.15am: Stephen Howells, national merchandising manager grains and oilseeds, Ridley Agriproducts. A Grain Market Outlook for Dairyfarmers.

12.30pm: Claus Langdahl, Holstein sire analyst, Viking Genetics. Leaders are those with Followers — 30 years of Selection for Health Traits.

1.45pm: Tom Farran, dairy farm business consultant, Farmanco. Analysing your business with DairyBase.

3pm: Helena Athans, manager social media, NAB Agribusiness. How to Milk Social Media.

Thursday, January 21

9am: Jason Chesworth, Hunter Belle Cheese. Cooking with Cheese.

10:00am: Helena Athans, manager social media, NAB Agribusiness. How to Milk Social Media.

11.15am: Scott Ruby, Fir Ridge Holstein Farm, Oregon, United States, and Kevin Jorgenson, sire analyst Select Sires Inc-World Wide Sires Australia. Genomics on the Fast Track.

12:30pm: Steve Harcourt — LIC Australia. Integrated Dairy Automation Systems to improve breeding, feeding, and animal management.

1.45pm: Dr Mark Humphris, Bachelor of Veterinary Medicine and Surgery (Hons), member of the Australian and New Zealand College of Veterinary Scientists (Dairy Medicine). Optimising the Dry Period: Why the Dry Period is the Most Important Part of Milk Quality.



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◀ The farm utilises a total mixed ration feeding system year-round, and also supplements the TMR with pasture during the spring, summer and early autumn.

Mr Jorgenson will add to the discussion with an update of reliability of genomics and a perspective of how genomics will continue to change dairy cattle and the industry.

In addition, Mr Jorgenson will provide an update on the ART program, Select Sires' female genetic program that is producing super elite young bulls such as Jedi and numerous other top sires.



Stephen Howells, national merchandising manager grains and oilseeds with Ridley Agriproducts, will look at the major drivers for international and domestic grain prices for 2016 and how this will impact major grain raw material inputs across the feed sector. Mr Howells is an expert in grain accumulation and grain price risk management.



Jason Chesworth, former My Kitchen Rules contestant and cheesemaker at Hunter Belle Cheese, returns to the kitchen to demonstrate some great and easy-to-cook dishes with cheese as the hero ingredient.



Tom Farran, dairy farm business consultant with Farmanco, will explain how analysing and understanding the overall farm business performance has become easier thanks to Dairy Australia's online farm business management tool DairyBase. He

will demonstrate how DairyBase can help farmers and their advisers track their own farm business over time, identify opportunities to drive profit and reduce risk, make more informed business decisions, compare their performance to other farms according to size, region and production system and create annual reports and forecasts.



Helena Athans, manager of social media with NAB Agribusiness, will explain social media, including Facebook, Twitter and Instagram.

Agriculture is the second largest industry using social media. This session will provide some key tips and hints on how a business can leverage social media, as well as helping people learn which social media channel is best for their business, how to build their brand and join the conversation.



Mark Humphris, veterinarian, will look at optimising the dry period and explain why the dry period is the most important part of milk quality. Dr Humphris has been involved in dairying since he was 10, growing up on dairy farms in South Australia and Victoria.

Since then, he has maintained his dairying interest through vet school at Murdoch University (1999 Graduate), mixed practice in Korumburra, South Gippsland, dairy practice in Scotland, England and then nine years in Maffra Vet Centre.

As well as the normal work of a cattle vet, he has completed further qualifications through the College of Veterinary Scientists in dairy medicine, trained many farmer short courses in mastitis, fertility, lameness, calf health and transition management and now has the role of project leader for Dairy Australia's Countdown Program.

He has a strong focus for disease prevention and for education in driving change and sustainability on farms.



Steve Harcourt, from LIC Australia, will talk about how integrated dairy automation systems can improve breeding, feeding and animal management.

LIC Automation has been formed to develop and deliver a range of practical farm automation technologies that are underpinned by insightful information services that improve decision making and make it easier to farm.

Its vision is to improve the prosperity and productivity of its farmers through automation and farm management insights.

Mr Harcourt will take attendees through the learnings that brought this 100-year-old co-operative to the realisation that a long-term commitment to farm automation was both necessary and strategically sensible for a co-operative that has always put farmers at the centre of its business. This journey has not been without its challenges, but through confronting and overcoming these hurdles, LIC Automation is now positioned as one of the premiere farm automation companies in the world.

This presentation will outline the current state of technology, how they have been made more accessible to farmers through information technology and what the future of on-farm automation might look like.

Mr Harcourt completed a PhD in invertebrate pathology at Lincoln University and has worked extensively with various Crown Research Institutes before joining the research and development team at Livestock Improvement.

He joined LIC in 2000 and has worked in the fields of reproductive immunology, genomics and biotechnology. Following an MBA in 2007, Mr Harcourt took on a commercialisation and industry relations role with LIC and was recently appointed as the head of product development with one of LIC's technology startup companies (LIC Automation).

Mr Harcourt's interest include rapid technology innovation, commercialisation and user oriented design. He describes his professional goal as "fostering and inspiring innovative thought leadership in the development of new technologies and business opportunities for primary industries".

Why are Australian dairy farmers turning to Viking Genetics?

Pioneers when it comes to breeding for health traits

VikingGenetics is owned by 30,000 dairy farmers in Denmark, Sweden and Finland. The mission to our owners is to provide “best genetics for best price to give them best profitability.” NTM is our tool to measure profitability. The higher the NTM, the better profit. Dairy farmers here in Australia are already noticing significant improvements in cow fertility, mastitis treatments, lameness and general fitness in just the first generation of using Viking sires.

Unique milk recording system

Nordic countries have been breeding for health traits since 1985, longer than anybody else in the world. We have had that opportunity because of our unique milk recording system where veterinarians, slaughter houses, AI-technicians, farmers, hoof trimmers and classifiers send information to the same database. 90% of all cows are in milk recording, which means registrations from about 900,000 dairy cows yearly resulting in high reliability for all traits.



Mastitis resistance

Mastitis resistance is an index where we are unique in Viking Countries. We select for the direct trait (actual treatment) and not for a correlated trait like SCC. Veterinarians report all clinical mastitis on heifers and cows.



The index is a combination of clinical mastitis in 3 different periods (early, mid and late) in lactations one, two and three, SCC in lactations 1-3 as well. Fore

udder attachment and udder depth classification scores further add to the index. When comparing Holstein bulls in interbull we see that VikingGenetics is far ahead of the other main Holstein populations in the world.

Other diseases

These traits include 7 different categories of illness in lactations 1-3 reported by veterinarians divided into early and late reproductive disorders, metabolic disorders, and feet and leg diseases. Other diseases is highly correlated to longevity, which in turn gives a boost to the profitability of your herd through longer lasting cows.

Claw health index

In 2003 collection of reports from hoof trimmers started in the Nordic countries and in 2011 the first breeding values were calculated. Today it is a very important index for all dairy farmers to take into consideration when selecting bulls. It consists of 7 different claw diseases and the strongest weight is for sole ulcer. The correlation to feet and legs is low, about 0,05. while the correlation to longevity is high, 0,25, meaning that if cows have good feet, they stay in the herd. As the figures show, the Hoof Health Index is decreasing lameness at a far greater rate than the feet and legs index!



Total dominance of Viking sires

Interbull proofs from August 2015 shows that both Holstein and VikingRed have total dominance when it comes to health traits, longevity and profitability. In Canada among the top 50 proven red bulls, all 50 are VikingRed. In Germany 48 of top 50 come from VikingGenetics and in USA, 42 bulls out of top 50 come from VikingGenetics.

VikingHolstein is ahead in mastitis resistance, longevity, protein production and NTM when we compare bulls from USA, Germany, Canada and Holland.

VikingGenetics is the leader

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Large herd management challenge

Key points

- ✓ Focus on feed, milking and animal health
- ✓ Better to group animals and feed different rations
- ✓ Calving management critical

By Carlene Dowie



Large herd specialist Dr Abdallah Zankar says attention to detail was vital in managing the health of cows.

LARGE herds present management challenges but also provide opportunities, according to a Canadian vet who has worked with larger herds throughout the world.

Jefo International global ruminant technical manager Dr Abdallah Zankar, who will be presenting seminars at International Dairy Week and who visited farms in Australia late last year, said Australian large herds could benefit from improved transition cow management and feed testing of pasture.

Dr Zankar said large herds were not necessarily defined by the number of cows — a large herd meant a different thing in different countries. For example, in China small herds averaged 1000 cows, medium herds were up to 10,000 cows and large herds were up to 50,000 cows, but in India there were a lot of small farms with only 1-2 animals, so a large herd could be one with 100 cows. In Saudi Arabia, the Almari group milked 135,000 cows and 80 per cent of farms were big.

Dr Zankar said herds in Australia were not that big comparatively. Most also used grazing, although there were different feed systems, compared with places such as Saudi Arabia where cows never grazed.

The key to improving management of large herds was to look at the different departments involved in managing the cows — feed, milking, animal health — and ensuring all were following best practice management.

Feed management

Managing feed was a balancing act between ensuring all cows had a diet that maximised milk production and keeping feed costs as low as possible to maximise profit, Dr Zankar said.

The best approach was to have different formulations for different groups of cows.

But grazing cows provided challenges in this area because it was more difficult to precisely control the formulation received by cows. Pastures provided different nutrients depending on the time

of year and varieties being grown. “It is tough to know what they are eating in the field,” Dr Zankar said.

Farmers should look at feed testing the pasture so they knew exactly the level of nutrients, particularly energy and protein, being fed to the cows. This would then allow farmers to control the diet by making changes to the amount and type of concentrate fed in the dairy.

Farmers should also not rely on grass to provide the vitamins needed by the cows, but look to provide these directly to the animals.

The other challenge — and opportunity — on Australian dairy farms was that on most, herds were run as a whole, so they contained mixed groups of cows, from fresh cows to those towards the end of lactation.

‘It is not efficient to feed cows together -- two or three groups makes more sense.’

But larger herds could run cows in groups and feed them differentially, providing an opportunity to increase milk production without a huge increase in costs. A different diet should be provided to the highest-producing cows. “It is not efficient to feed cows together — two or three groups makes more sense,” Dr Zankar said.

Grouping cows also allowed for special attention to those aspects of management relevant to that group. For example, the period from joining to calving was important in avoiding health issues that sometimes occurred post calving.

Good transition diets, for cows in the period immediately before and immediately after calving also helped improve the production of protein and fat in high-producing cows post calving and helped those cows fall pregnant again.

Milking management

Management of the milking process could also benefit from grouping cows — or at least identifying cows by their stage of lactation and average milk production.

Identifying cows that might have specific needs was one of the challenges of large herds. For example, high-producing cows had an increased chance of mastitis and higher somatic cell counts if not taken care of properly.

Dr Zankar said it was vital to pay attention to the details at milking and ensure staff followed a standardised milking routine — premilking teat dipping, checking milk before milking started and post-milk disinfection.

First-lactation cows should be milked and fed separately. Pressure placed by older animals on first-lactation heifers could impact negatively on the long-term health of those animals.

Health management

Attention to detail was also vital in managing the health of cows. Careful monitoring of all herd health issues was important.

Particular attention should be paid to close-up cows and calving cows. A vet should be used to take care of calving cows and all of the issues that could impact on the cow’s future performance, such as retained placentas and metritis.

Big herds could also face increased heat management issues so should work to manage heat stress.

Dr Zankar said big herds could produce good profits if they combined good genetics and good management, but they could produce low profits if poor genetics was combined with low-quality feed and poor management. **D**

Dr Zankar will be presenting a seminar on ‘The On-Going Benefits of Improved Transition’ at International Dairy Week on Tuesday, January 19, at 10am.

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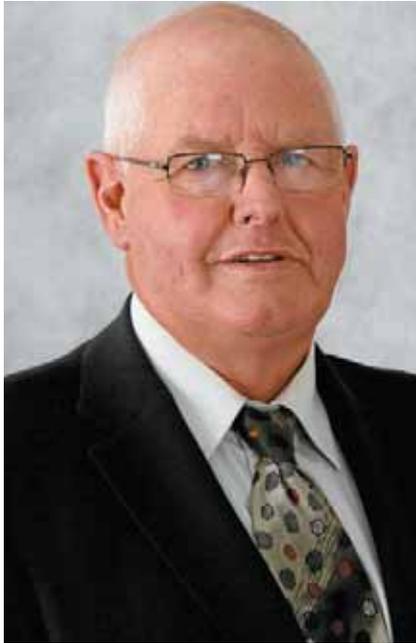
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Harlock to head ADHIS



John Harlock: opportunities to improve service through renewed leadership.

- Key points**
- ✓ Strong understanding of broader industry
 - ✓ Plans for new herd improvement centre of excellence
 - ✓ Genetic improvement significant contribution

VICTORIAN dairyfarmer John Harlock has been appointed as chairman of the Australian Dairy Herd Improvement Scheme (ADHIS), the organisation that provides Australian Breeding Values (ABVs) and other objective information about the genetic merit of dairy cattle.

Mr Harlock operates a 350-cow dairy farm near Warrnambool, with his wife, Shirley.

Mr Harlock has served on the ADHIS board for eight years after holding positions on a number of dairy industry boards including Warrnambool Cheese & Butter Company, Genetics Australia, Western Herd Improvement and Warrnambool Co-operative Society.

‘The improvement of the Australian dairy herd, through genetics, contributes in excess of \$25 million in profits per annum and accumulates year on year.’

As a member and former branch president of the United Dairyfarmers of Victoria, Mr Harlock also has a strong understanding of the broader dairy industry and the issues faced by farmers.

Mr Harlock thanked outgoing chair, Adrian Drury, who stepped down to focus on the adoption of new technology in his dairy business on the mid north coast of NSW.

“Adrian has led ADHIS through a sustained period of intense development,” he said. “Some of the key initiatives under Adrian’s leadership have been the introductions of genomics, the *Good Bulls Guide*, the Feed Saved ABV and the review of the National Breeding Objective.”

Mr Harlock takes over the reins at a critical time, with industry consultation and negotiations under way for the establishment of a new herd improvement centre of excellence to drive dairy breeding advances into the future.

To provide stability through this process, the annual ADHIS board nominations have been held over for 2015.

“The improvement of the Australian dairy herd, through genetics, contributes in excess of \$25 million in profits per annum and accumulates year on year,” Mr Harlock said.

“There are opportunities to improve service through renewed leadership and collective oversight in the delivery of industry herd/genetic improvement services and we look forward to talking to stakeholders about how we can achieve this.”

The ADHIS team will be sharing at stand at International Dairy Week with Dairy Australia. Drop in to get a sneak preview of some of the exciting developments for the April Australian Breeding Value release, such as the new Good Bulls app.

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Virtual farm tours a highlight

- Key points**
- ✓ Two farms to feature in virtual tour
 - ✓ Canadian judge's farm
 - ✓ Moxey farms other tour

ONE of the highlights of International Dairy Week is the opportunity to tour a couple of farms virtually. The virtual farm tours will be held on the Tuesday event from 7.30pm in Wilson Hall at Tatura Park.

This year's tours will look at the operations of Holstein judge Pierre Boulet and one of Australia's largest dairy farms, owned by the Moxey family.

Pierre Boulet has operated his dairy farm Ferme Pierre Boulet in Montmagny, Quebec, Canada, since 1995 under the prefix Pierstein. Alongside his partner, Katie, and his five children, they operate a herd of 500 Holsteins, as well as a few Jerseys and Ayrshires.

In addition to the milking herd, the farm deals thousands of cattle yearly for commercial dairies and export purposes. Several cows are flushed monthly to supply embryos to local and international markets.

Mr Boulet is also co-owner and auctioneer for Les Encans Boulet, an auctioneering company specialising in on-farm auctions and high-end genetic sales across Canada. The farm is known world-wide for breeding and developing some of the top shows cows and genetics in North America.

His most famous cow is without a doubt Thrulane James Rose EX-97-2E 3*, two-time Holstein International world champion, World Dairy Expo supreme champion and three-time grand champion at the Royal Winter Fair.

Moxey Farms at Gooloogong, NSW, will also be featured in the virtual tour. In 2015 two of Australia's biggest dairyfarming families formed a dairy consortium. Moxey Farms, in central-west New South Wales, and Leppington Pastoral Company, entered into an agreement, which forms part of the Australian Fresh Milk Holdings consortium.

The deal develops a four-way partnership between the Moxey and Perich families, Chinese private company New Hope Dairy Holdings and ASX-listed food-processing company Freedom Foods. The primary aim of the partnership is to invest in Australian dairy farms to increase milk sup-



Quentin Moxey will conduct a virtual tour during International Dairy Week.

ply so that value-added dairy products can eventually be exported to China.

The Moxey family will take a strategic stake in the consortium but will continue to operate Moxey Farms and retain key customers and staff during the takeover.

Moxey Farms runs 3700 milking cows on 2700 hectares producing 50

million litres of milk annually. The collective milk production from both the Moxey and Perich enterprises will total 75 million litres each year.

General manager of Moxey Farms, Quentin Moxey, will conduct the virtual tour of Moxey Farms and outline the operation and the opportunities they are excited to be exploring in the next few years.

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Semex Immunity+ heritability lifts

Key points

- ✓ Genetics for increased disease response
- ✓ Further research shows higher heritability
- ✓ Effects start from birth

STAYING on the cutting edge of genetics, technology and marketing is pivotal to the success of dairy operations. Whether it is using only the highest bulls, installing the latest technology to improve efficiency or marketing milk differently for the best prices possible, in today's world, being able to set oneself apart can be the difference between staying in the black or being in the red.

Farmers now have a management tool to help cut down on some of the biggest health problems in their herd — pneumonia, scours, mastitis, retained placenta and more. This tool is Immunity+ sires from Semex.

Semex, as the only company offering immune genetics for greater disease resistance, is excited to announce that dairyfarmers can now

feel even more confident in Immunity+ as recent studies show the factor to have a heritability of 30 per cent.

"This is huge," Semex's Immunity+ global brand manager and director, sales and business development, United States, Paul Krueger, said. "Our clients worldwide have been looking for a simple, genetic answer to herd health and Immunity+ is it.

"It's got 20 years of research behind it, over 100 published papers and is proven to reduce disease incidence by at least 4-8 per cent. With heritability estimated at 30 per cent, it's one of the easiest decisions you can make to improve the health of your entire herd."

The original immune-response research, based on a population of females tested for immune response, estimated heritabilities of 29 per cent for Antibody-Mediated Immune Response (AMIR), 19 per cent for Cell-Mediated Immune Response (CMIR) and 25 per cent for overall Immune Response.

In the past 12 months, there have been two separate genome association studies conducted where as part of each study, the heritabilities for AMIR and CMIR were reestimated. The first study published one year ago was based on a moderate population size including only males tested for immune response, and the latest study just completed was based on a larger group of both males and females.

The two studies showed similar heritabilities of 46 per and 44 per cent for AMIR, and both had a matching heritability of 22 per cent for CMIR. The three research studies were combined to calculate the new 30 per cent heritability figure for overall immune response. "All dairy producers, whether large or small, want trouble-free cattle," Mr Krueger said.

For more information on Semex, Genetics for Life, Immunity+ and Genomax sires visit the Semex booth at International Dairy Week.

Article supplied by Semex, website <www.semex.com>.

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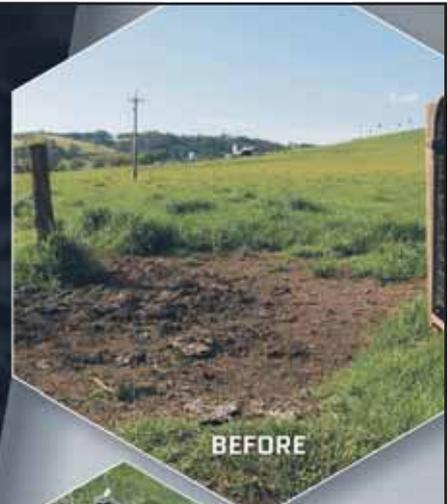
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Changes at top at Genetics Australia

Key points

- ✓ New chairman has third highest ranked BPI herd
- ✓ New general manager long involvement in business
- ✓ Significant contribution by outgoing people

GENETICS Australia has appointed a new chair and a new general manager.

Gippsland dairyfarmer Trevor Henry was appointed new chair at the organisation's annual general meeting in November, while general manager Jayne Senior is leaving the business and is taking up a general management role with a Sydney-based company.

Current commercial business manager Anthony Shelly has been appointed as the new general manager effective February 2016.

Genetics Australia's long-serving chairman Ross Gordon stepped aside as chairman of the board and was replaced by Mr Henry, who was deputy chairman.

Mr Gordon has led Genetics Australia through some difficult periods within the industry, with integrity, strength and resolve. His skills and commitment will not be lost to the co-operative as he is staying on as a board member.

Mr Henry and his wife, Tracy, run a 500-cow registered Holstein herd at Tinamba, Vic, in the Macalister Irrigation District.

He has been a Genetics Australia



Trevor Henry and his wife, Tracy, run a 500-cow registered Holstein herd at Tinamba, Vic.

board member for the past five-and-a-half years and deputy chairman for the past two years.

Outgoing chairman Ross Gordon congratulated Mr Henry on his appointment.

"Trevor is a highly respected person on the board and has been a great support to me as chairman," Mr Gordon said. "He is a progressive thinker and passionate about genetics. His herd is Australia's third-highest ranked BPI (Balanced Performance Index) herd after the August breeding value release so the cooperative could not be in better hands."

Allansford, Vic, dairyfarmer Craig Drake will replace Mr Henry as deputy chair. Mr Drake is a former board member of Warrnambool Cheese and Butter and chairman of Western Herd and was elected to the Genetics Australia Board in 2011.

The recent board elections also saw the appointment of Northern Victorian dairyfarmer Rohan Sprunt and Nowra, NSW, dairyfarmer Dan Cochrane.

Mr Gordon said Tamworth, NSW, dairyfarmer Wes Brown had resigned after five years on the board and specialist director Jens Karnoe had also decided to stand down after 11 years.

Yea, Vic, beef producer Tom Lawson filled a causal board position in November 2014 and was unsuccessful in obtaining a three-year board position. Mr Gordon said Mr Lawson had given the board a far greater understanding of the beef industry and made a significant contribution in the past year.

New general manager Mr Shelly has an intimate knowledge of all areas of the business and possesses a passion for the ongoing success of GAC.

As an employee of GAC for more than 20 years, Mr Shelly has worked in many facets of the business and will bring a different perspective to the general management role.

For the largest part of his career, Mr Shelly has been involved in the sales area, and more recently he has been the commercial business manager, responsible for the entire sales and marketing effort as well as managing GA's international portfolio. **D**

Genetics Australia staff will be at International Dairy Week. Article supplied by Genetics Australia, website <<http://www.genaustr.com.au/>>.

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Genetics for healthier transition cows

Key points

- ✓ New genetic selection tool
- ✓ Identifies genetics to improve transition
- ✓ Reduces number of mastitis cases

TRANSITIONRIGHT Genetics is the world's first genetic solution to the costly diseases and disorders that occur in dairy cows during the transition period.

ABS Global dairy brand manager, Mitch Amundson, will launch TransitionRight in Australia at International Dairy Week in January.

TransitionRight (TR) is a genetic tool developed by ABS Global, which identifies bulls with greater transition disease resistance traits that can be bred into future progeny. A selection of some of the TR bulls available in Australia is included in the table on the next page.)

Current evaluation of progeny performance demonstrates that five-star TransitionRight sires create \$100 in value per cow per lactation through reduced health costs.

"Sires that transmit these traits produce progeny with greater resistance to typical transition diseases such as metritis, ketosis and mastitis," Mr Amundson said. "The result is healthier cows going through the most vulnerable period for health issues and making a good start into their most productive period."

It is estimated that up to 75 per cent of a cow's health problems occur during the transition period from calving to lactation.

A preventative solution to transition

"Typically, the transition period has been handled through management: ▶

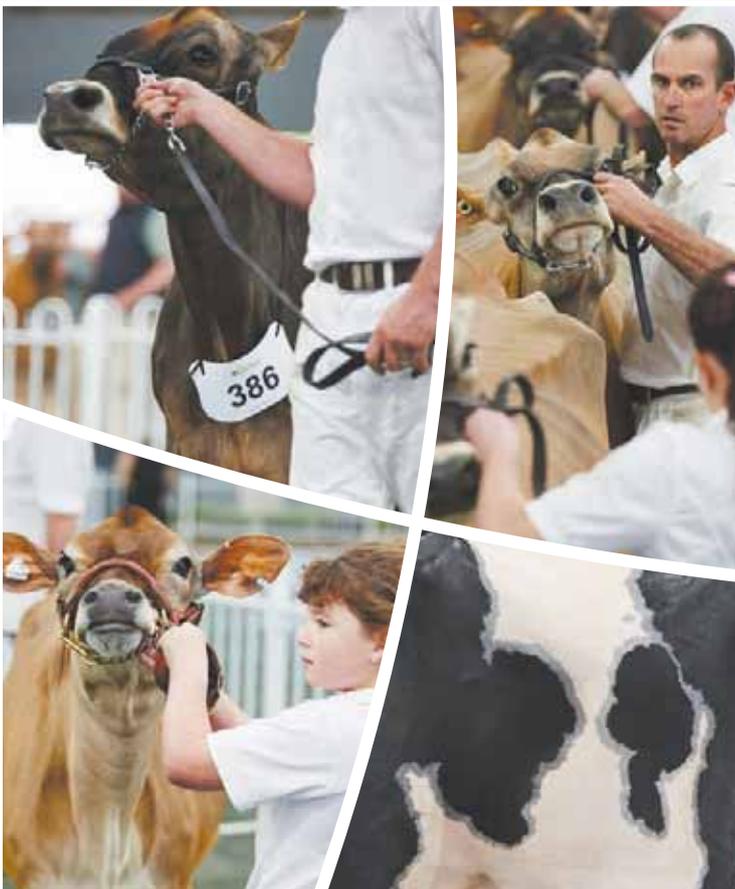
Transition Right launch event at IDW

ABS Global dairy brand manager Mitch Amundson will launch Transition Right Genetics with a presentation in the ABS marquee at International Dairy Week (IDW) at 5.30pm on Wednesday, January 20.

ABS Global regional sire analyst Paul Trapp, who is a judge at IDW, will also give a short talk on future trends in genomics and breeding.



Paul Trapp: to speak about genomic trends at launch of new ABS product.



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RASV wishes all stakeholders and competitors at IDW the very best of luck for the event.

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changes to nutrition, vaccinations and physical treatment of the cow when she comes down with one or more of these common transition diseases," Mr Amundson said.

"Now we are able to look at the transition period from a genetic perspective, we can take a preventative approach rather than a reactive one.

"ABS has created a genetic evaluation for transition cows that is truly revolutionary. We are the only company that is able to offer a genetic solution specifically for the transition period."

Metritis or inflammation of the uterus, often called pelvic inflammatory disease (PID), costs on average \$350 per cow and an average of 20 per cent of all calving cows are affected.

"It is not unusual for us to hear dairy-farmers say 90 per cent of their herd health work is on transition cows.

"This is the time a dairyfarmer hears those dreaded words — metritis, ketosis, mastitis, hypocalcaemia, abomasal displacement and many others that can only mean more expenses and lost production."

A 2010 study on Transition Cow Management by Dairy Australia's Grains2Milk and InCalf programs de-

TransitionRight bulls available in Australia

A SELECTION of 5 Star TransitionRight bulls available from ABS Australia:

Proven

- Currajugle Gonzo (Australian bull);
- 29HO16322 No-Fla Hurst;
- 29HO14961 RMW Armitage;
- 29HO16153 Regancrest Paradise.

Primetime

- 29HO16955 View-Home Monterey;
- 29HO17704 Pine-Tree Senator;
- 29HO17706 De-Su 12128 Tailor;
- 29HO17685 De-Su 12109 Battlecry.

TransitionRight bulls have greater transition disease resistance traits that can be bred into future progeny.

scribes the transition period as being "characterised by greatly increased risk of disease".

This period is dominated by a series of adaptations to the demands of lactation, and involves an orchestrated series of changes in metabolism that allow an animal to adapt to the chal-

lenges of the altered state. Diseases are failures to adapt that result in shortages of nutrients that are vital for existence, the study states.

During the first 30 days in milk up to 50 per cent of a herd can be affected by any of these post-calving diseases. The vet is called, the medications are administered and the treatments go on and on. The cost per case varies from around \$150 to \$350 depending on the disease and its severity. Up to 10 per cent of a herd can be lost in the two months after calving due to health issues.

TransitionRight has been built on ABS Real World Data, which is comprised of more than 22 million records provided by 1400 ABS customer herds from around the world.

"Real World Data has been combined with genetic insights to create TransitionRight Genetics," Mr Amundson said. "We would expect to have about seven fewer daughters out of 100 that had a case of mastitis in first lactation if a five-star TransitionRight sire was used in place of a one-star sire."

Article supplied by ABS. For further information go to <<http://www.absglobal.com/transitionright2>>.

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Dry exacerbates nitrate poisoning risk

Key points

- ✓ Monitor the herd closely
- ✓ Using the sap test to check nitrate levels
- ✓ Autumn break key period



By Jeanette Severs

GRASS tetany, nitrogen poisoning and ryegrass staggers are terms used interchangeably by many farmers — but, while not the same, the effects are quick and often unexpected and largely thought to be unavoidable.

There are signs and clues that dairy-farmers can use to avoid deaths from these diseases and advice is timely given the current drought conditions.

Grass tetany has been killing cows on dairy and beef farms in Australia's south east for nearly 50 years.

According to veterinarians, the disorder is associated with low levels of magnesium in the blood — hypomagnesaemia — or an excess of potassium that reduces the availability of magnesium.

Recently calved cows are at highest risk, because magnesium is leached from their bones and muscles.

Clinical signs include nervous excitement, bellowing, muscle spasms, tetany, convulsions and sudden death. It can also be measured in cerebrospinal fluid around the brain.

'Anything that slows the conversion of nitrate to plant protein is a risk factor, such as frost and spraying weeds in the pasture with herbicides.'

Table 1: Some plants associated with nitrate/nitrite poisoning

Crops/Pasture	Weeds
Oats	Capeweed
Sorghum	Variiegated thistle
Maize	Mintweed
Rape	Crown beard
Lucerne	Pigweed
Kikuyu	Redroot
Turnip tops	Caltrop (cat's head)
Sugar beet tops	Marshmallow
Rye	Blackberry
Sudan grass	Fat hen
Soybean	
Wheat Barley	

SOURCE: PRIMEFACT415, NSW DEPARTMENT OF PRIMARY INDUSTRIES

Nitrate poisoning from pastures can also be a source of considerable loss in production and genetics but is less likely to be diagnosed.

It occurs mostly in autumn after a prolonged dry period, but can occur at other times such as winter and early spring. The cause is complex, involving animal nutrition, pasture, climate and management factors.

It is, essentially, due to a high level of nitrate in the feed the cows are eating.

Nitrate is the form of nitrogen plants take up and use to make plant protein.

In the cow, the nitrate is converted to nitrite and then to protein. In excessive amounts, it can behave like a deoxygenator in the blood and the animal will express symptoms associated with low oxygen — difficulty breathing, salivation and high heart rate — and stock can die within two-24 hours of eating the feed.

Veterinarians often see animals suffering from nitrate poisoning when it is too late, because of the quick onset of symptoms and death.

Cattle can deal with nitrite in the rumen but there is a tipping point.

According to dairy extension officer Greg O'Brien from the Ellinbank Research Centre, Victoria, a simple test — the sap test — helps detect pastures



Managing cows on pasture is key to avoiding nitrate poisoning. Drought and extended dry periods, when plants are not receiving their normal rainfall flushes, increases the incidence of nitrate and nitrite poisoning, which is fatal in cows.

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◀ and crops that are high in nitrates and unsafe for grazing.

“When there is plenty of available nitrogen in the soil, the plant takes up ‘luxury’ amounts of nitrogen in the form of nitrate, which is then converted to plant protein,” Mr O’Brien said.

“There is a continuous production of available nitrogen in the soil, and in dry conditions the plants aren’t growing and using this nitrogen, so it builds up in the soil.”

In conditions like many dairyfarmers are experiencing this season, with next to no rain, the risk will be higher.

“Following autumn rain, the amount of nitrogen in the plant at grazing is likely to be more concentrated,” Mr O’Brien said.

“Nitrate can also be related to putting on high levels of fertiliser, so farmers should delay between application and grazing to allow time for the nitrate to be converted to plant protein.

“When the plant is growing in poorer conditions, the nitrate is being turned into protein more slowly and the decrease in plant nitrate levels is slow.

“Normally the plant grows fast and converts nitrogen to protein.”

Essentially, the plant is not being flushed as much as it would be in either a normal rainfall pattern or if normal irrigation was occurring.

Table 2: Nitrate risk factors

Factors that cause nitrate to accumulate in the plant

- Drought
- Cloudy or cold weather
- Herbicide application – especially phenoxy herbicides
- Wilting
- The amount of nitrate in plant tissues depends on
- Plant species
- Stage of maturity
- Part of the plant

SOURCE: PRIMEFACT415, NSW DEPARTMENT OF PRIMARY INDUSTRIES

“Anything that slows the conversion of nitrate to plant protein is a risk factor, such as frost and spraying weeds in the pasture with herbicides,” he said.

There are a number of risks to farmers now.

The level of nitrates could be too high in low-yielding crops such as brassicas that have been grown to be grazed over summer because of the poor quality growing season.

Capeweed, forage oats and annual ryegrass are also plants that carry risky levels of nitrates in dry conditions — they are nitrate accumulators.

Mr O’Brien said the biggest risk was the autumn break.

“The plants will become flush with nitrogen and the temptation will be for

farmers to put hungry livestock into the green paddock and graze them,” he said.

“The simple sap test for nitrates will give a clear indication of if this is safe or not. Where feed is high in nitrates, farmers should delay grazing or dilute the cows’ diet with hay and other low protein food, and limiting cattle time on the new pasture growth.”

Another risk could be fodder brought in from other areas.

Mr O’Brien recommends diligence should include talking to agronomists in that district to find out what weeds are endemic in crops.

“Feed from other areas could contain seeds of a nitrate accumulator and you won’t know it,” he said.

“There have been many instances of weeds brought onto properties and into districts in drought times by buying fodder from further away.”

Forage oats sown next autumn could be one of those risky accumulators, as is capeweed.

“They both have potential under certain circumstances and conditions,” Mr O’Brien said.

There is a very short window of time to treat nitrate poisoning in cattle. The remedy is methylene blue.

According to veterinarians, diagnosis can be made using fluid of the eye, or more definitively by blood test or post mortem. D

Hoary cress calf alert

CLARE and Trevor Porter first noticed what appeared to be ryegrass staggers in their calves on their farm at Yarram, Victoria, in July last year. Since then several had been affected by photosynthesis, while one was blind and one died.

Mrs Porter said she believed the dry conditions had exacerbated an existing problem, particularly as Mr Porter had periodically seen the culprit on the farm in the past two years.

The problem was Hoary cress weed, which Mrs Porter said she believed the calves were selectively eating because it was becoming dominant in drought-affected paddocks where they grazed.

“I thought first it was ryegrass staggers because they were on a newly-reseeded ryegrass paddock,” she said.

“Because it’s dry, this Hoary cress grew and in the distance it looks like white clover flowers.

“Apparently it thrives in dry weather and cultivated paddocks. Trevor said he’s



Noxious weed Hoary cress was identified as the culprit behind nitrate poisoning symptoms in Trevor and Clare Porter’s calves.

been spraying it for the past couple of years.”

With no other assistance, Mrs Porter sat down to research it online and found a photograph matching the plant in her calf paddock — identifying Hoary cress.

She has since sprayed the offending pasture.

“As I sprayed it, I could see where the calves had eaten it and the pasture around it,” she said.

Marshmallow has also erupted on the farm, which she has sprayed.

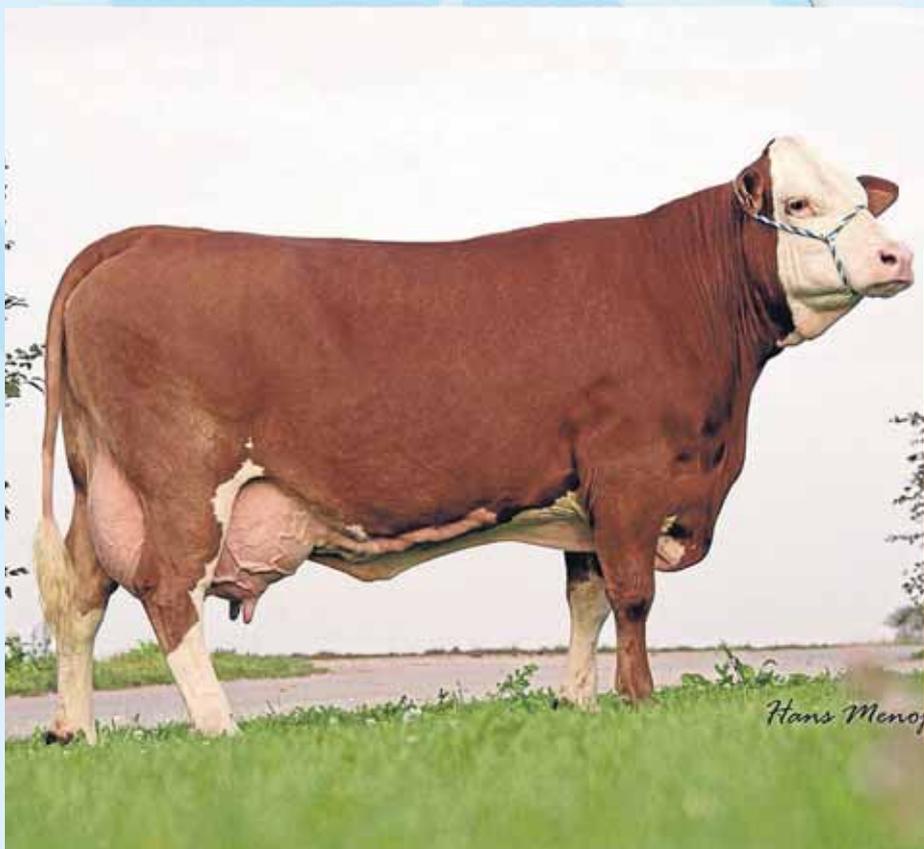
Mrs Porter said she felt like she was playing roulette and thinks some calves were affected last year, but with the greater pasture species diversity available to them, there were no ongoing symptoms.

“Last year I had three-month-old Friesian calves falling onto their sides and panting heavily,” she said.

“Last year and this year, the symptoms are pneumonia-like — respiratory distress — with photosynthesis and blindness.”

This year it has affected calves with Montbeliarde bloodlines, a new type they have introduced into their 250-head commercial composite self-replacing herd.

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Nitrate poisoning costly for farm

TWO bouts of nitrate poisoning in nine years cost Stony Creek, Victoria, farmers Fay and Daryl Sinclair dearly. In both cases, the poisoning occurred in dry cows following milkers on to newly-sown paddocks.

The Sinclairs started dairying in 1986, milking 140 cows in a 10-swingover herringbone. In the mid-1990s, they renovated this to a 16-swingover, which was rebuilt in 2001 to the current 20-swingover herringbone automatic system.

The farm was a focus farm in South Gippsland from 1995 to 1998, a project the couple credits with helping them develop to where they are now — milking a 300 self-replacing herd on 206 hectares, producing 27 litres of milk/cow/day.

The two bouts of nitrate poisoning in their herd — on June 13, 1998, and May 27, 2007, — led to loss of cows, genetics and milk production but an increased faith in their community.

Both occurred on newly sown pasture.

“The first time, about 160 dry cows followed milkers into the paddock,” Mr Sinclair said. “They went in at 11am. By 1pm when I checked them, a couple were on their backs with their feet up in the air.”

They lost 50 cows that had been due to calve in three weeks. “Losing the genetics was probably the greatest loss for us, money-wise,” he said.

For local veterinarians, it turned out to be an education opportunity, as many had not encountered nitrate poisoning before.

Pasture measurements showed “ryegrass nitrogen levels were through the roof and capeweed was high on nitrate”.



Fay Sinclair in the 20-swingover dairy.



Fay and Daryl Sinclair have lost a total of 80 cows from nitrate poisoning. They have since learned a lot about the problem and implemented management to avoid it, which particularly affects pastures during dry periods such as many dairyfarmers are dealing with this season.

The community rallied. Neighbours gave them a few cows each, while one farmer gave them 30 cows to milk through for a few months.

“It enabled us to get the total milk volume we needed,” Mr Sinclair said.

The second time, the dry cows went onto new ryegrass pasture on a fine day after frost. Thirty cows died.

In this instance, the Sinclairs had some reserve cows that would have otherwise been ‘choppers’, which they continued to milk through the season.

“Ever since then I’ve stopped following milkers with dry cows, I now run them separately on pasture,” he said. “You have to live and learn.”

The first experience enabled them to deal better with the second incursion.

— Jeanette Severs



Daryl and Steve Sinclair with silage. Daryl Sinclair harvests silage off 100 hectares of the property. He estimated he will feed silage to his herd for 180 days this season, to manage pasture growth and strive to avoid nitrate poisoning in his cows.



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Genetics plays key role in health

Key points

- ✓ Genetic selection for production led to infertility
- ✓ Irish selection for fertility has turned around problem
- ✓ Health issues also influenced by genetics



By Carlene Dowie

GENETICS has a key role to play in reducing health issues in dairy cows, but more data needs to be recorded on farm and shared with geneticists to speed up the process.

Principal investigator in quantitative genetics at Irish research centre Teagasc Dr Donagh Berry told the In-Calf and Countdown 2020 symposia held in Melbourne in October that genetics had almost solved the problem of infertility in dairy herds in Ireland and could do the same for health issues. Dr Berry said the Irish experience proved rapid improvement in herd fertility, without compromising milk production, was possible.

Understanding genetic gain

He said concerns that fertility was not highly heritable and therefore could not be improved through genetics showed a fundamental lack of understanding of genetic gain.

“Heritability is most misunderstood statistic in animal breeding, even by animal breeders them-

‘Heritability is most misunderstood statistic in animal breeding, even by animal breeders themselves.’

selves,” he said. “Heritability essentially is how much difference in particular characteristic in an animal is due to genetics.”

Genetic gain was a function of the intensity of selection, the accuracy of selection and the genetic variability, as well as the generation interval (see Figure 1).

The intensity related to the size of the group selected. For example, selecting for the top one per cent in a population was more intense than selecting for the top 10 per cent.

The accuracy related to how well the genetically superior cow could be identified.

Accuracy was a function of the heritability of a trait and the information content available about that trait, which in the case of dairy sire selection was the number of progeny.

For a trait that was highly heritable (such as milk production), the accuracy was higher with a smaller number of progeny than for a trait that was less heritable, where a higher number of progeny were needed

to get higher accuracy. For all traits, as the number of progeny increased, the accuracy of the genetic evaluation for that trait increased and it eventually plateaued at about 99 per cent accuracy.

“So once you have a high enough number of progeny, heritability is irrelevant in looking at the accuracy part of the equation,” Dr Berry said.

One of the challenges was to disentangle the genetic influences from the environmental influences. Although most genetic evaluation sorted this out by comparing the relative performance of daughters of different sires within herds and amalgamating that data, there could be problems when cows were treated differently within the same herd and this data was not made available to the geneticists.

For example, if a cow in a herd was fed more concentrates than other cows in the same herd and this was not recorded, that cow’s sire could have a higher breeding value for milk production.

In the case of fertility, if vets were using Controlled Internal Drug Release (CIDRs) or prostaglandins (PG) in some cows, then that influences the expression of those cows’ fertility. If these things were not recorded, the cow could be seen as genetically superior for fertility, Dr Berry said.

Variability was also important. If there was no genetic variation, then there was no way to increase genetic gain. Dr Berry used the example of people having five fingers on their hands. There was no variation in the population (every one had five fingers), so there was no way a breeding program could be developed for people to have six or seven fingers.

Bull reliability (which was a function of the number of daughters) was also important. Although bulls with high reliability could still produce progeny that had variation for a trait, bulls with low reliability would produce progeny with huge variation.

The final factor was generation interval — or the average age of parents when the progeny were born.

Irish fertility improvement

Dr Berry said the Irish, like most of the rest of the world, had strongly selected for production in its sires during the 1980s and 1990s. “We pro-



Genetics has a role to play in managing cow health and fertility issues.

duced a super milking machine but it was sub fertile or in many cases infertile,” he said.

In 2001, Ireland introduced its Economic Breeding Index (EBI), which included about 30 per cent emphasis on fertility. “We were really the laughing stock of the world because we put such a phenomenal emphasis on fertility,” Dr Berry said.

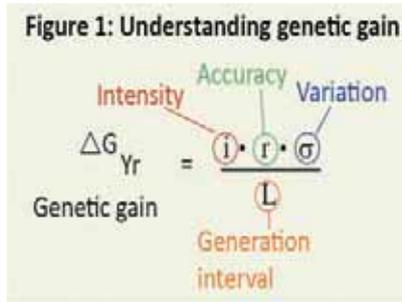
Three years later, the emphasis was lifted to 40 per cent. The result was that fertility in Irish herds was now beginning to improve.

Dr Berry said Irish fertility data was based on calving interval, which he acknowledged was a “crap indicator” because the data was often poorly kept by farmers.

But even using a genetic index based on poor indicator like calving interval had turned around the infertility problem in Irish herds, he said.

A trial conducted at the Irish research facility Moorepark had shown marked difference for fertility between a group of heifers selected from the top 20 per cent for genetic merit for calving interval and a group from the bottom 10 per cent.

There was little difference between



the groups for production, but there were big differences between the groups for fertility measures — 21-day submission rate, conception rate to first service, 42-day pregnancy rate and overall pregnancy rate (see Table 1).

A similar study was conducted at the facility on a much larger scale on animals selected on the Irish overall index, the EBI.

Three years ago, two herds were set up at Moorepark and run together. One comprised the top EBI maiden heifers in the country and the other comprised a group equivalent to the national average.

The top herd has had outstanding fertility results:

- 21-day submission rate: 95 per cent;
- six-week in-calf rate: 71 per cent; and
- 12-week pregnancy rate: 92 per cent.

Dr Berry said there was also a marked visual difference between the top group and the average group — the top group looked healthier and had better condition scores, despite being run the same way as the average group.

He said by 2020 the Irish would have fertility sorted in their herds, but it would still need to be included in the breeding index to ensure it did not return to the problems of the 1990s.

“Geneticists are now solving the problem, but what really gives me the willies about breeding is that we could actually be creating other problems because especially we are not getting good health data,” he said.

“My buzz phrase now is health is the new fertility. In 10 years time you are going to be attacking me as to why we didn’t address the health issues.”

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Table 1: Moorepark study of heifers selected for different genetic merit for fertility

Variable	Fertility +	Fertility -	Significance
Milk yield (kg/d)	19.54	18.69	0.02
Milk solids (kg)	1.43	1.39	0.09
Little biological difference in production			
21-day sbmission rate (%)	83.3	72.2	0.70
Conception rate to first service (%)	55.6	33.3	0.30
42-day pregnancy rate (%)	72.2	41.2	0.09
Overall pregnancy rate (%)	88.9	72.2	0.40
High fertility cows had better fertility			

◀ **Improving animal health**

Dr Berry said veterinarians sometimes claimed that genetics has nothing to do with health in dairy herds. “But I ask you show me one trait, any trait, that is not heritable,” he said.

“Everything is heritable. All diseases show some extent of heritability.”

As part of the strategy, genetics was always going to be useful in improving management of health issues.

Dr Berry pointed to some Irish research that showed just how important genetics was in disease prevalence. The research compared different sires used in Irish herds — with a requirement that the sires had to have a minimum of 50 progeny in a minimum of 10 herds.

It then looked at different health indicators for the daughters of those sires — including the number of daughters that had had mastitis, the number that had lameness, the number that had had cystic ovaries, that number that had had liver fluke and the number that had had bovine viral diarrhoea.

All the data showed marked differences. In all cases, there were some sires that had no daughters with the health issues, while other sires had high numbers of daughters with the issues.

For example, there were two sires that had no daughters with mastitis, while another sire had 46 per cent of the daughters with mastitis. The numbers for tuberculosis (TB) were even more extreme: 95 per cent of the daughters of one sire had had TB, while none of the daughters of others had contracted the disease.

Dr Berry said there also appeared to be a ‘health complex’ effect — where sires poor in one health trait were also poor in several others. For example, the sire that scored the worst for TB was also the worst for somatic cell count.

The big challenge for herd health was in getting good reliable data.

Dr Berry said with the exception of Scandinavian countries where vets had to do all the treatments and administer all the drugs and record it, most countries struggled to have good data in this area.

“In Ireland it is the weakest part of our index,” he said. “If we had better data quality, our emphasis on health (in our breeding index) would increase.”

He urged vets and farmers to start recording data about their animals and feeding it back into data sets to help improve this area. 

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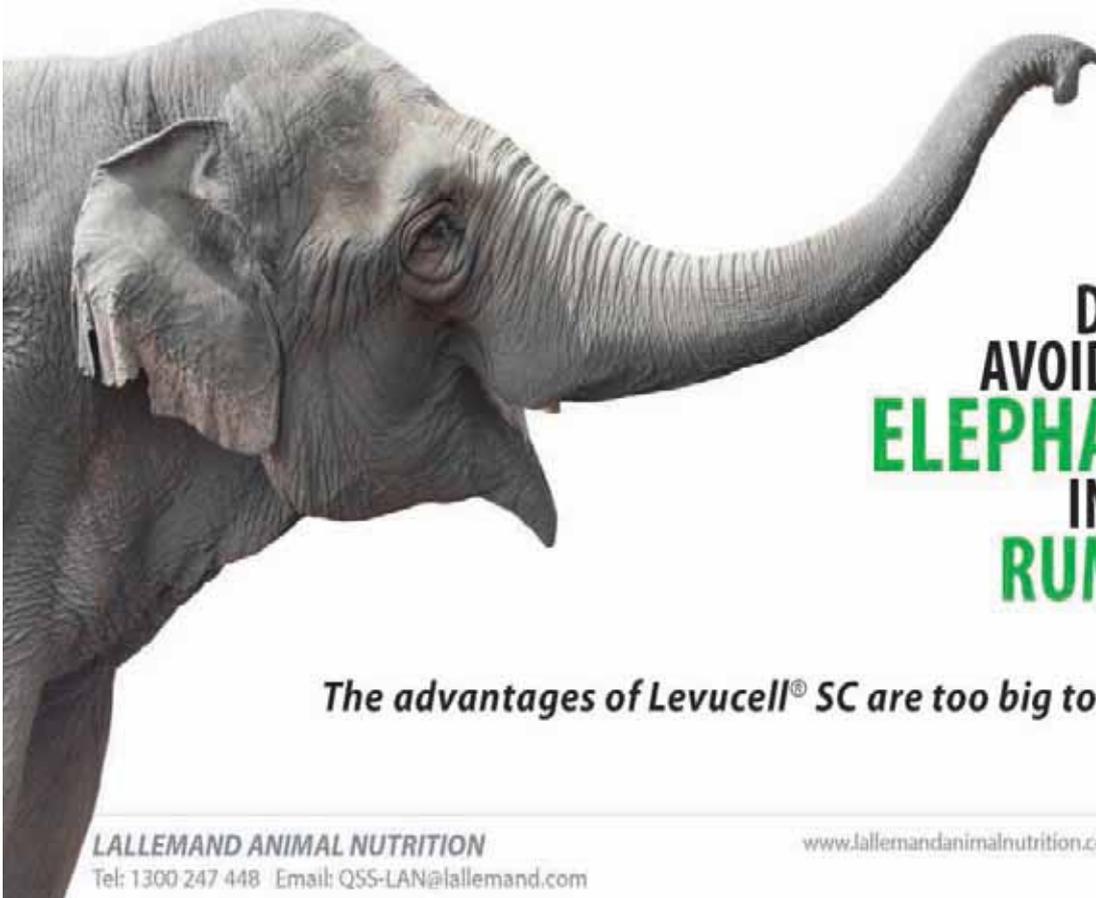
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New tools to manage lameness

Key points

- ✓ Score cows regularly for lameness
- ✓ Identify the type of lesions involved in lameness
- ✓ Implement prevention programs



By **Carlene Dowie**

DAIRY producers needed to develop a sustainable process for managing lameness in their herds, Zinpro Oceania area manager Dean Guenther told a seminar at Shepparton, Victoria, in November.

The process needed to be based around identifying the prevalence of lameness in the herd, preventing lameness and treating lameness.

Lameness affected everything in a dairy operation. It meant that cows were in pain and that led to reduced income. It also could create a poor public image for a farm because a lame cow was often visible to people driving past a farm, particularly in grazing systems as in much of Australia.

Mr Guenther said lameness did not have a single cause — it was multifactorial.

The keys were to be able to identify lameness, particularly subclinical lameness; to be able to identify the different lesions that were causing the lameness and whether it was infectious or noninfectious; and to understand the different ways of treating and preventing lameness depending on the type of lesion being observed on the farm.

Prevalence of lameness

Zinpro account manager Dean Fry told the seminar lameness was second only to mastitis as herd health issue in dairy herds. In some herds, it was the main issue.

It was the single most common cause of distress in dairy cattle.

“You need to think of lameness as being like mastitis of the foot,” he said. “You respond immediately to a cow with mastitis, but the general rule with lameness is to wait and see. But it should be dealt with immediately.”

Locomotion scoring was an effective way of detecting hoof disorders early. Zinpro had developed a new iPad app could help with scoring and identifying the cost of lameness. It also had a lameness scoring posters

‘You need to think of lameness as being like mastitis of the foot.’

and other tools to help farmers score cows.

Cows are scored from 1 to 5. A score 1 cow is normal, score 2 is mildly lame, score 3 is moderately lame, score 4 is lame and score 5 is severely lame.

Mr Fry said the key was to target the animals sitting at a score 3. These animals stood and walked with an arched back and short stride with one or more legs. But they were not clearly favouring one or more limb.

Cows at a locomotion score 3 or higher were:

- three times more likely to have increased days to first service;
- 16 times more likely to have more days open;
- nine times more likely to have increased services per conception;
- eight times more likely to be culled; and
- had eight per cent milk loss, which usually began weeks before they presented at score 3.

Mr Fry said lameness scoring was a simple system to use — farms were

never going to get 100 per cent of cows at score 1, but it was possible to get close to that, particularly in grazing herds in Australia.

In the United States, it was difficult to achieve score 1 levels above 75 per cent because of the prevalence of digital dermatitis and because cows were confined on concrete.

But in a grazing system, farmers should be aiming to have a least 75 per cent of cows at score 1 with the remainder at score 2-3. There should be no cows at score 4-5 — these were the ‘hoppy’ cows that were usually put in the sick pen.

Mr Fry said although the prevalence of lameness was lower in grazing herds than confined herds, the cost of a single case of lameness was higher in a grazing herd. This was because the animal needed to walk to get to the paddocks and it had to walk to graze.

In a 400-cow herd, the cost of having five score-3 or “invisible lame” cows was estimated at \$35,000 in a year. In a 400-cow with 60 per cent of cows at score 1, the cost was \$6000.

“The dollars lie in a cow that we don’t even call lame,” Mr Fry said.

But the cost to trim and treat those score 3 cows was relatively cheap — roughly \$25 a cow — even if they required hoof blocks.

Lameness factors

Maffra, Vic, based veterinary consultant Dr Mark Humphris said lameness programs needed to concentrate on prevention. “Treatment can improve the situation, but it is better to start with prevention,” he said.

The genetic improvement in cows in the past few decades had led to an increased propensity to lameness. Cows were now bigger and had bigger udders, which meant they had more weight on their feet.

Larger herds meant cows were walking further, were in bigger groups and often had longer milking times.

Higher producing cows also had a higher metabolic rate, which meant their hoofs grew faster.

Dr Humphris said calving cows were more susceptible to lameness problems because the hormonal changes affected the physiology of the claw and feet.

Other factors that affected lameness included time spent on concrete,

Claw lesion diagnosis and recording

Noninfectious

- Hoof trimming
- Transition period
- Time budget
- Nutrition and feeding
- Dirt lot
- The stall
- Walking surfaces
- Races/tracks/lanes
- Freestall
- Freestall ventilation
- Heat abatement
- Holding area
- Bedded pack
- Tie stall heat abatement
- Holding yard/milk shed

Infectious

- Hygiene
- Footbath/foot spray
- Biosecurity
- Hoof trimming
- Nutrition and feeding



Dean Guenther, Mark Humphris, Dean Fry and Daryl Kleinschmit with the a model of a cow's foot, used in the seminar to explain some of the causes of lameness.

rocks on tracks causing trauma and distance walked.

Hot weather and heat stress were also a lameness issue because cows did not lie down when they were hot as they tried to dissipate heat.

It was critical to identify the types of lameness as this helped farmers to plan where to spend the dollars to prevent it.

Different types of lameness had different causes. The two main types of lameness were infectious and noninfectious.

Dr Humphris said antibiotics were not needed to treat 90 per cent of lameness in dairy herds. Oxygen and blocks were the keys to curing lameness.

Infectious causes of lameness include footrot, which farmers often treated themselves and which should not require an antibiotic if picked up early.

Another infectious cause was digital dermatitis. It was not common in Australia, but it was found here.

Dr Humphris said it was a biosecurity issue and farmers should be aware of it when buying cows. It was caused by different bacteria but once it was on a farm it could not be removed. The digital dermatitis bacteria caused the erosion of the tissue of the foot.

In other countries, it had become virulent. In England, it had transferred from cattle to sheep and had been so severe that animals had had to have claws amputated.

But Mr Fry said the prevalence of digital dermatitis in Australia was not known because research had not been done into it here. But it was

not as virulent in Australia, possibly because cows were on grass, he said.

Origins of lameness

Zinpro research nutritionist based in Minnesota in the United States, Dr Daryl Kleinschmit, said farmers needed to understand the pathology or the origin of the development of lameness in their herd.

"There is no silver bullet," he said. "Lameness is rarely caused by just one issue."

The first step was to identify if the lameness was noninfectious or infectious.

Noninfectious lesion pathways included nutrition and metabolic factors, such as acidosis, hormones and metabolic byproducts. Sometimes cows claws showed "hardship" grooves that indicated some sort of stress event such as a metabolic disorder.

When these nutritional and metabolic factors were combined with mechanical or housing issues, it increased the risk of lameness. Mechanical factors included things such as rough surfaces.

Dr Kleinschmit said different types of lesions had different sources. For example, white line lesion was caused by poor trimming, walking surface problems, poor cow handling or poor nutrition.

Different lesions also occurred at different times. For example, white line lesion was more common earlier in lactation while sole ulcers occurred when cows were about 100 days in milk.

The transition period could be

particular challenging because the breakdown of collagen in the cow as its body prepared for birth made the pedal bone in the claw more susceptible to moving and causing problems.

This was exacerbated in freshly calved two-year-old heifers, which were then also exposed to concrete for the first time and often put in mixed groups with older cows, who pushed them around.

Other transition problems such as hypocalcemia or milk fever were associated with sole ulcers because calcium was the mineral needed for horn development.

For infectious causes like footrot, the first risk factors were those affecting the skin integrity because the breakdown of skin created the opportunity for bacteria to enter.

Preventative program

Mr Fry said Zinpro had developed a program to help farmers manage and prevent lameness in their herds. The First Step program, which was also available online, contained a series of tools to help identify what was happening on a particular farm.

It contained 20 different assessors that could be worked through to identify possible causes of lameness on the farm and ways to prevent it. Farmers did not have to do all the assessors but could choose and focus on one factor at a time.

For example, it contained assessors for locomotion scoring, lesion identification, the environment and nutrition.

Mr Fry said a good example of an assessor was the time-budget assessor. It helped farmers calculate how much time their cows spent lying down.

In confined systems, cows needed to be lying down for 12 or more hours a day. In a grazing system, the requirement was less — at about 6-10 hours. But if a farmer could increase the amount of lying time, for example by splitting a 1000-cow herd into smaller groups for milking, it would increase the milk production and reduce the incidence of lameness.

The footrot assessors looked at hygiene, nutrition and the footbath with suggestions about how these could be improved.

Heat stress was another assessor. For example, it might identify the need to have more water available to cows in the dairy.

More information about the First Step program is available from Zinpro, phone 1800 976 776, email <dfry@zinpro.com> or website <www.zinpro.com>.

Project looks at pasture technology

Key points

- ✓ Project looks at using pasture and irrigation technology
- ✓ Automated Pasture Reader collecting info on pasture growth
- ✓ Moisture probes being used to assist irrigation



A NEW Murray Dairy project in northern Victoria is looking at how new irrigation pasture research and technology can be used on farm to improve home-grown fodder production and water use efficiency. The Accelerating Change project is based on two partner farms, those of Tim and Lyndal Humphris at Tongala, Vic, and Don and Meg Stewart and Kelvin and Shelley Matthews at Yarrawalla, Vic.

Each partner farm has a performance innovation team (PIT) comprising 15 farms that discusses and provides feedback on how the partner farms are utilising the research and technology.

Accelerating Change is using the Automated Pasture Reader (APR) to

collect data about the average pasture height, uniformity and estimated mass (kilograms of dry matter a hectare) across selected paddocks. In a number of these paddocks on both farms, sample cuttings have been taken to compare to the figures presented by the APR, which enables the project teams to evaluate the accuracy of the device and better calibrate the input figures for the equation it uses to calculate mass. This will enable the teams to monitor growth rates and grazing consumption figures.

Some visual assessments of the different paddocks and fodder types have also been undertaken and fresh samples taken for nutritive analysis. With this information the project teams will get a better idea of optimal grazing times and the best management strategies for different pasture types.

The dry conditions and increased water prices this season has seen many farmers involved in the project reviewing their summer feeding strategies. Initial data collected is being



Some perennial pasture with a high clover content that was tested for nutritive value as part of the project.

used by the partner farms to weigh up whether certain pastures would be watered through or dried off.

Moisture probes

Both teams had technical sessions in the latter part of last year on the value of moisture probes. Rob O'Connor and Dale Board, both from the Department of Economic Development, Jobs, Transport and Resources (DED-JTR), spoke to PIT farmers about the benefits and challenges of using soil moisture-monitoring tools.

Soil moisture monitoring provides a tool that enables irrigators to make more informed decisions regarding water requirements of various crops, which can result in on-farm water efficiency gains and increased productivity.

Some key lessons discussed for moisture probe sessions:

- moisture probes allows farmers to refine their irrigation schedule to increase water efficiency and productivity;
- farmers get the best value from moisture probes when they aim maximise production rather than to minimise absolute water use;
- moisture probes allow farmers to maximise return on investment in farm layout and delivery upgrades as they can improve the timing of irrigation — this complements the greater precision and flexibility improved infrastructure offers to apply water;
- there are a number of different types of soil moisture-monitoring devices that can be installed in a range of price ranges (to assist farmers choose the right device, DEDJTR has developed a technote available at website <<http://agriculture.vic.gov>

Computer generated maps

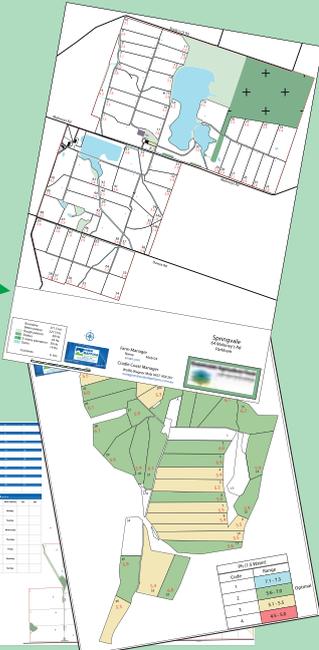
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One of five Observant moisture probes that have been installed on the Stewart Partner Farm, alongside the Automated Pasture Reader that is being used to measure pasture growth.

au/agriculture/farm-management/soil-and-water/soils/choosing-the-right-soil-moisture-monitoring-device>); and

- probes with telemetry systems (wireless systems that use the phone network to remotely send data from the paddock back to a phone or computer) are rising in popularity and can be used in conjunction with automation to irrigate a farm remotely.

Benefits of moisture probes

Number 1: Farmers can clearly identify periods when their plant is not using moisture and therefore not growing at full potential. This could be from waterlogging or moisture stress.

Number 2: Farmers can see the impact of rainfall events. This allows them to reschedule irrigation events to maximise the impact of rainfall and reduce water applied without the risk of loss of production. The target is to apply water to the root zone and not beyond.

Number 3: Farmers can use moisture probes to assist plan the first irrigation for the season. The probe can record the accumulation of soil moisture over winter and depletion in spring until the first irrigation is required.

Challenges

A number of PIT farmers who use soil moisture probes have indicated that it can be difficult to work out the refill and saturation point for their pastures. Probe data is displayed with graphing software allowing the ability to apply indicative wilting and saturation point usually highlighted in background colours.

It is important for farmers to ‘ground

truth’ the particular points on the graphs that are specific to their farm by validating soil moisture conditions with a physical examination of the soil at the depths where the sensors are located in the soil profile. Further steps can be taken to dry these soil samples in ovens to determine the millimetres of water in the soil by using the wet weight and dry weights in a volumetric soil equation. Alternatively ground

truing can occur by using cumulative evapotranspiration data or other scheduling methods that have been established on the farm. Graphs with one line produced by monitoring software usually show the summed value of soil water content over the total depth of the probe. This could be 80-120cm or more.

So it is important to look at the individual stacked sensor graphs that show soil moisture change trend lines over different depths. This will show farmers where moisture reaches with irrigation events and the impact of rain. These graphs will also display the rootzone of the plant and where the moisture consumption is occurring. This will indicate if the plant is nearing moisture stress so irrigation scheduling can be planned in conjunction with forecast weather, plant growth and future management activities on the paddock.

A summary of Mr Board’s previous research into moisture probes can be found at website <http://irec.org.au/farmer/f/pdf_186/Soil-moisture-monitoring.pdf>. Ongoing updates on the Accelerating Change project are available at website <<http://www.murraydairy.com.au/accelerating-change>>.

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Getting smarter with pasture data

Key points

- ✓ System will automatically sense pasture water needs
- ✓ Will use crop-modelling process to decide when and where to water
- ✓ First step collecting baseline data



Tasmanian researchers James Hills and David McLaren are developing a system that will sense when pastures need to be irrigated and then start irrigating them.

RESEARCHERS at the Tasmanian Institute of Agriculture (TIA) are using sensors and autonomous technology to develop a system that not only tells farmers when to irrigate their pasture, but then goes ahead and does it for them.

Not only will the system automatically irrigate pasture, it will also apply variable volumes of water to the same paddock, which could save farmers time, water and money.

Research and development team leader at the TIA Dairy Centre and chief investigator on the project, Dr James Hills, said the end goal was an autonomous machine interface that collected information about the pasture, water use, soil and climate and then used crop-modelling processes to make decisions about when and where to apply water.

The development of this autonomous system is part of a bigger three-year project that is looking at the use of irrigation water in pastures by collecting data on water use, energy use and pasture production from five sites across Tasmania.

The project is supported by funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural Research and Development for Profit program, Dairy Australia and TIA.

From the data collected at the five sites, the team will work with the farm-

ers to make changes to improve water-use efficiency and will continue monitoring the sites to measure the success of these changes.

Dr Hills said gathering this benchmarking data was an essential step to getting the most out of the new irrigation schemes.

“Significant investment in irrigation infrastructure in Tasmania from both Federal and State Government provides the opportunity to increase our agricultural productivity, but we need to make sure we are doing it properly and in a way that is going to be sustainable,” Dr Hills said.

“To introduce management strategies that increase efficiency we really need that baseline data. We need to know the facts and figures for water use to know how you can improve on that use.”

The five trial sites have been selected to give enough variability across differ-

ent topography and soils that are likely to be irrigated.

Project officer at the TIA Dairy Centre David McLaren will be on the ground installing the sensors and data logging equipment at the sites and will also oversee the data collected in the field.

“A big part of the project will be to visualise that data, so that when it comes to making management decisions we can very quickly know what to do through a visual display of data, and not have to interpret numbers,” Mr McLaren said.

“The devices on site will have an interface that you can connect to from your smartphone or tablet so you can start to look at real-time values of pressure, temperature and energy without being physically on site, which is a real advantage.”

In its third year the project will trial an automation system at one of the sites to see how this type of system could be used to save farmers time and effort.

“We are very interested in how far we can go using a system with a machine interface as opposed to a human interface,” Dr Hills said.

To do this, the team has linked with the National Centre for Engineering in Agriculture at the University of Southern Queensland, which have developed a control platform called VARIWise.

The VARIWise system has been developed and tested in cotton, but this is the first time it will be applied to a pasture-based system.

Installation of the sensor and logging equipment on the five sites was completed in October.

More information about the project as it progresses will be available on the TIA website at <utas.edu.au/tia>.

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Send in the drones to estimate pasture

Key points

- ✓ Drone survey options for dairy farmers
- ✓ 'Pasture on offer' map can further enhance the farmers' knowledge
- ✓ A drone can cost about \$30,000



By Frank Smith

MATT Rowbottom is an agricultural science student at the University of WA. A dairying enthusiast, he worked on dairy farms at the weekend while at school, later working for a year with Neville Bell, Gelorup, WA, and later Vic Rodwell, Boyanup, WA. Mr Rodwell is currently chair of Western Dairy.

After spending a year travelling and contract cropping in Canada, Mr Rowbottom started undergraduate study at UWA in 2011 and last year, for his honours project, he chose to trial using a small drone to estimate pasture biomass.

Feed budgeting is essential for optimum management of the dairy herd and for this it is necessary to estimate the feed available in each pasture paddock.

On most Australian dairy farms around 70 per cent of total feed intake comes from pastures.

Existing methods of measuring pasture biomass are either tedious, unreliable or both. As a result some 90 per cent of dairyfarmers use only visual assessment.

Cutting and weighing sample quadrats is not really practicable on a farm scale, although accurate and appropriate for research.

A more practical technique is a rising plate meter. These use weighted discs to determine the relationship between compressed grass height and pasture biomass. The rising plate method gives similar results to plot harvesting but takes half the time.

However, it is inaccurate at measuring biomass after grazing due to trampling, and the results may vary depending on the operator.

Another option is electronic capacitance meters. These use low voltage electric fields to detect changes in water content of pasture, which in turn is related to pasture biomass.

Capacitance meters are quick and simple to use but are unreliable in wet conditions and inaccurate in variable swards. They also need frequent cali-

Drones can produce pasture biomass maps that can be useful when it comes to grazing management and feed budgeting decisions.



Matt Rowbottom with the drone used in his research to see if they could be useful in pasture management.

bration, are expensive and not robust enough for field work.

A fourth option is remote sensing using satellite imagery. This allows larger areas of pasture biomass estimates to be made, but comes at high cost.

Other problems are infrequent image acquisition and inaccuracies due to varying atmospheric conditions and cloud cover.

Mr Rowbottom said remote sensing using a low-flying drone might have the same advantages as measuring biomass via satellites, but with timely image acquisition, low-costs and high spatial resolution.

Western Dairy agreed to support Mr Rowbottom for this proof-of-concept trial to the tune of \$4200, most of which paid for Griffin Spatial and Mapping to carry out four drone flights to acquire and analyse images.

The drone selected for this project is used in mining, environmental, surveying and agricultural industries.

It has a fixed wing, rear facing propeller, weighs less than 1kg and costs about \$30,000.

Almost all aspects of the drone's operation are automatic, making it easy to use.

The area to be covered is preset on a computer, which controls the flight path, automatically taking photographs at predetermined GPS way points.

The camera used was an 'off-the-shelf' digital camera that was converted for use in the drone by modifying it to capture red, green and near infrared light. Vegetation strongly reflects near infrared light, unlike other surfaces such as roads, water, or buildings. On the other hand vegetation strongly absorbs light in the visible section. Each pixel in the camera image represents a four centimetres square area of pasture.

"For consistency we flew the drone under conditions of cloud cover and minimum wind at solar noon to ensure a constant light angle," Mr Rowbottom said.

The trial was carried out on ryegrass/clover rain-fed pastures at the Vasse research station of the Department of Agriculture and Food WA.

Scientists have developed algorithms that calculate vegetation indices that estimate vegetation biomass based on the relative absorption of light at different wavelengths. Mr Rowbottom calculated several of these indices from the results collected by the drone.

He then compared them with the actual biomass, determined by cutting random quadrats with a scalpel and weighing the grass harvested. He also took rising plate pasture measurements just north of each sampled quadrant.

He then calculated the correlation between measured biomass, rising plate biomass estimates and the estimates from the indices from the drone.

The square of the correlation coefficient — R² values — are a statistical estimate of the extent to which they explain the variation in biomass of pasture in the paddock.

He found the rising plate method gave the best results with an R² of 0.66.

In other words it explained 66 per cent of the variation in pasture biomass within the paddock. Results for the vegetation indices were all lower with the highest R² of 0.42, explaining

42 per cent of the variation in pasture biomass.

Mr Rowbottom thinks the reason the rising plate method performed best was due to the limitations of using a low-end, 'off-the-shelf' camera sensor. He said lower-end sensors were more likely to be used for qualitative analysis tools rather than quantitative but future improvements in sensors should lead to more accurate results.

At this stage of development, remote sensing by drone does not provide highly accurate quantitative estimates of pasture biomass, but it allows paddocks to be compared qualitatively.

Mr Rowbottom used the sensor results to construct a 'pasture on offer' map (see Figure 1).

This illustrates the variability and quantity of pasture present within the paddock and helps farmers determine feed allocation more accurately based on herd daily requirements and pasture on offer.

This can then rank paddocks in terms of their 'readiness' to be grazed or if post-grazing, residual targets that are being achieved. He adopted the criteria that paddocks with more than



2600 kilograms dry matter (DM)/hectare (green) were ready to be grazed.

He said the bottom (left) paddock shown in Figure 1 was clearly ready to be grazed with the lower performing red areas around the edges most likely due to effects of the tree line. An intermediate range of 2200-2600 kg DM/ha was used to illustrate the identification of paddocks soon to be grazed for future planning of paddock rotations. If such maps were applied to whole farm scenarios the 'feed wedge' concept could then easily be applied.

A pasture feed wedge gives a visual picture of the current pasture situation by ranking the paddocks according to average pasture cover.

The post-grazing residual maps (shown on the right in Figure 1) show grazing intensity that has taken place. If stocking rates are too high, cows may be grazing too hard due to insufficient feed, resulting in lower residual biomass than the 1500-1600kg DM/ha target. This can have future implications on pasture regrowth and recovery.

Post-grazing residual maps can indicate if feed rations are optimal for daily herd requirements. Cows grazing too hard or too light can be indication of how well supplement feeds in the dairy are meeting daily requirements.

"Drones can produce pasture biomass maps that can be useful when it comes to grazing management and feed budgeting decisions," Mr Rowbottom said. "It helps in knowing when to graze, or reserve the paddock for silage."

"Remote sensing using drones also opens the door to estimating pasture digestibility, nitrogen and hence crude protein content."

"Not many famers will want to use their own drones but drone surveys could be offered as a service, particularly as suitable drones used in mineral exploration are readily available." D

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Bigger is not always better

Key points

- ✓ Robotic dairies using oversized equipment
- ✓ Increased energy use results
- ✓ Big variation in energy use between farms



WHEN it comes to energy consumption in robotic dairies, bigger is not always better, as FutureDairy energy audits recently showed. Gabriel Hakim, AgVet Projects, undertook energy assessments on 10 farms with Automatic Milking Systems (AMS).

One of his key findings was that most AMS dairies were operating with equipment that was oversized for the needs of automatic milking, resulting in unnecessary electricity consumption.

“When building an AMS it can be tempting to repurpose equipment from the existing dairy but automatic milking can place quite different demands on equipment to conventional milking,” Mr Hakim said.

Most Australian AMS operate with voluntary cow movement where small numbers of cows present themselves to be milked throughout the day and night. Milking equipment operates at a low capacity for up to 20 hours a day, compared with conventional milking which usually occurs in two intensive milking sessions a day.

“Operating equipment that is not sized correctly runs a real risk of loss in energy efficiency and excessive energy use,” he said.

Mr Hakim found many of the AMS dairies in the study had an oversized compressed air system.

Some also had vacuum pumps that were much bigger than required and most had hot water systems suitable for a conventional dairy, which was bigger than needed for an AMS.

“Operating oversize or over-capacity equipment wastes a considerable amount of energy,” he said. “For example if you are running a grossly oversized vacuum pump a significant proportion of the energy can be used just driving the pump. The same is likely for compressors.

“Studies in other industries where compressed air is used have shown that as much as 30-50 per cent of energy consumption was used to service leaks, artificial demand and system inefficiencies.

‘Despite energy costs being a small component of whole farm operating costs, those paying at the higher end of the range stand to save thousands of dollars a year by switching to tariffs at the lower end.’



Gabriel Hakim: many of the AMS dairies in the study had an oversized compressed air system.

“This warrants further investigation for AMS dairies.”

When planning an AMS, Mr Hakim recommended weighing up the savings made in capital outlay from retaining existing equipment against the longer term operating costs.

Large variation

The research found significant variation between AMS farms in both the amount of energy consumed and the price paid for energy, suggesting there are likely to be considerable opportunities for most AMS farms to cut energy bills and reduce greenhouse emissions.

The range in the amount of energy consumed on AMS farms was 53.72-132 kiloWatt hours per 1000 litres milk.

Mr Hakim said the highest farm consumed two-and-a-half times as much energy per 1000 litres milk harvested as the lowest farm and that, in general, energy consumption tended to be higher in robotic than conventional dairies.

“Although our data is fairly limited

so far, on average, AMS dairies appear to consume about 1.5 times as much energy per 1000 litres milk harvested as conventional dairies,” he said

Milk harvesting, milk cooling and water heating are the biggest users of energy in any dairy.

In AMS, milk harvesting consumes a much higher proportion of total energy use compared with conventional dairies. Although pumps and motors are smaller on AMS farms, the run times are much longer.

Energy use (kWh/1000L milk) for milk cooling was similar for AMS and conventional dairies.

AMS dairies have the potential to use less energy for water heating due to lower volumes being used.

He said he was cautious about making further conclusions from the AMS energy audits, given the small number of farms involved and the large variation in their energy use.

“I’m reasonably confident in our data for conventional milking systems as it is based on nearly 200 dairy farms across three states,” he said. “But further investigation is needed to understand energy use on AMS farms.”

Shop around

Mr Hakim also urged all dairyfarmers to shop around for their energy supplier. The AMS study also found a large variation in the tariff rate charges for both peak (22.01-36.78 cents/kWh) and off-peak electricity (8.86-19.39c/kWh.)

“Previous studies have shown a similar variation in tariffs paid by farmers with conventional milking systems,” he said.

“Despite energy costs being a small component of whole farm operating costs, those paying at the higher end of the range stand to save thousands of dollars a year by switching to tariffs at the lower end.”

The AMS energy study was funded through Dairy Australia’s project Smarter Energy Use on Australian Dairy Farms, funded by the Department of Industry and Science as part of the Energy Efficiency Information Grants Program. 

Contact: FutureDairy, Associate Professor Kendra Kerrisk, phone 0428 101 372 or email <kendra.kerrisk@sydney.edu.au>. FutureDairy’s major sponsors are Dairy Australia, DeLaval and the University of Sydney.

WHAT'S ON

January 17-21 Tatura, Vic	International Dairy Week Contact: Robyn Barber Email: <info@internationaldairyweek.com.au> Website: <www.internationaldairyweek.com.au>
January 19 Bodalla, NSW	Dairy Farm Monitor Project and DairyBase Introduction Workshop Contact: Kerry Kempton Phone: 0427 114602 Email: <kerry.kempton@dpi.nsw.gov.au> Website: <http://www.dairynsw.com.au/>
January 20 Bega, NSW	Dairy Farm Monitor Project and DairyBase Introduction Workshop Contact: Kerry Kempton Phone: 0427 114602 Email: <kerry.kempton@dpi.nsw.gov.au> Website: <http://www.dairynsw.com.au/>
February 10-12 Allansford, Vic	Sungold Field Days Phone: (03) 5565 3142 Email: <sungoldfielddays@wcb.com.au> Website: <www.sungoldfielddays.com.au>
February 16 South Burnett	Subtropical Dairy South Burnett annual dairy dinner Contact Belinda Haddow Phone: 0423 003 637
February 16-18 Shepparton, Vic	Australian Dairy Conference Website: <http://www.australiandairyconference.com.au/>
February 17 Darling Downs	Subtropical Dairy Darling Downs annual dairy dinner Contact Belinda Haddow Phone: 0423 003 637
February 17 South West Victoria	Summer/Autumn feeding Q&A session Contact: Alex Goudy Phone: 0428 577 212 Website: <http://agriculture.vic.gov.au/>
February 18 Gympie	Subtropical Dairy Sunshine Coast annual dairy dinner Contact Viv McCollum Phone: 0428 460 380
February 18 South West Victoria	Concurrent feeding field days Contact: Alex Goudy Phone: 0428 577 212 Website: <http://agriculture.vic.gov.au/>
February 22-24 Tasmania	Euthanese livestock workshops Contact: DairyTas Tasmania Phone: (03) 6432 2233 Email: <m.smith@dairytas.net.au> Website: <http://www.westvicdairy.com.au>
March 16 Tasmania	Tasmanian Dairy Conference and awards dinner Contact: Phone: (03) 6432 2233 Email: <m.smith@dairytas.net.au> Website: <http://www.dairytas.com.au/>
March 17-30 Homebush, NSW	Sydney Royal Easter Show Phone: (02) 9704 1111 Email: <enquiries@rasnsw.com.au> Website: <www.eastershow.com.au>
March 23 McLaren Vale, SA	DairySA Conference 2016: People, Production, Technology: getting the right mix Contact: Penny Schulz Phone: (08) 8766 0127 Email: <penny@dairysa.com.au>
April 7-10 Warragul, Vic	Farm World Field Days Phone: (03) 5626 1373 Email: <office@lardnerpark.com.au>
April 28-29 Boyanup, WA	Western Dairy Dairy Innovation Day, dinner and farm tour Contact: Esther Price Phone: 0418 931 93 Email: <esther@westerndairy.com.au> Website: <http://www.westerndairy.com.au/>
April 29-May 1 Paterson, NSW	Total Field Days Contact: Ruth Luckner Phone: (02) 4939 8827 Email: <fielddays@total.com> Website: <www.totalfielddays.com>
May 22-25 Lexington, Kentucky, United States	The 31st Annual Alltech International Symposium Contact: Alltech Website: <http://one.alltech.com/>
May 24-26 Melbourne, Vic	Irrigation Australia 2016 Conference Email: <info@irrigation.org.au> Website: <www.irrigationaustralia.com.au>
June 7-9 Toowoomba, Qld	Farmfest Phone: (02) 6768 5800 Email: <farmfest@fairfaxmedia.com.au> Website: <www.farmonline.com.au/events/farmfest>
June 15-18 Hamilton, NZ	New Zealand National Agricultural Fielddays Phone: +64 7 843 4499 Email: <www.fielddays.co.nz>

To have dates for a major event included in the diary, send information to Carlene and Alastair Dowie.
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Resolving problems, embracing conflict



By Kerry Ryan*

- Key points**
- ✓ Grow business resilience by staying close to problems
 - ✓ Develop professional approach to people management
 - ✓ Family businesses need to adopt structure

It takes real courage and commitment to deliberately choose a role that requires a full-time focus on problem solving and conflict resolution. However, focusing on these two aspects of business leadership offers the greatest reward by underpinning business resilience — the key characteristic of sustainability for long-term success in the modern environment.

That is my key learning from challenging times in New Zealand dairy, as I reflect on 2015.

At first glance this proposition may not offer the most attractive role. It certainly isn't a recipe for a comfortable professional and personal life. However, it goes with the territory of being the boss. It's fundamental to the job satisfaction of bringing to life fiercely held aspirations and desires for personal, family and business success.

Growing resilience is especially important as a business expands and confronts complexities such as multiple owners, involvement of succeeding generations and larger operational teams.

It is all about staying close to (rather than avoiding) problems and an unrelenting drive for excellence in two key areas — people and relationships and financial management and business performance.

The disciplines required to achieve this become embedded in business routines through commitment to key processes.

Getting the best from people means effective delegation while staying suitably close to the action.

It's all about having a clear and credible sense of what is going on through sufficient contact to see

'It is all about staying close to (rather than avoiding) problems and an unrelenting drive for excellence in two key areas — people and relationships and financial management and business performance.'

what others are missing and asking the hard questions.

This needs to be done without cutting across delegated authority and undermining trust.

It must build on a platform of clear expectations where collective performance responds to team values along with feedback to keep everyone focused on their role in hitting targets.

At an individual level this means regular performance reviews, encouragement and planned training. These tools are especially important for those who are new to supervision and people management. They will require discreet overview from business owners and leaders who can pass on their experience and give new managers confidence to challenge the performance of those who are not meeting expected standards.

Clarity around business and team values creates the culture for high-quality relationships. In lean economic times this is fundamental for achieving essential economies and efficiencies. When the team can focus collectively on smarter and more effective ways, gains can be captured without risk to sustainability and job satisfaction across the business.

Business growth and bigger teams mean greater complexity in relationships. This is especially the case with a family business where succeeding generations are given more responsibility or seek autonomy to make their contribution. If formality and structure are important for best practice relationship management in an "arms length" business, they are

crucial to the success of a family enterprise.

There is no room for complacency or avoiding people issues where family staff are involved. Systems and structures that deliver open communication, meaningful consultation and foster co-operation based on "generosity of spirit" are critical. The absence of these will almost certainly lead to conflict and dysfunctionality or only superficial harmony.

Achieving optimum financial performance has similar dimensions. It requires a clear plan that captures the vision of the owners and communicates how this will be executed to internal and external stakeholders.

The agreed strategy must be converted to an annual plan and budgets that ensure timely planning and robust monitoring to identify variances and anticipate challenges. The result will be more effective allocation of resources and clearer understanding of where wastage can be eliminated or successes celebrated. With up-to-date information there is increased opportunity for continuous improvement that captures efficiencies and builds effectiveness.

Concentrating on these two areas enables business leaders to be ahead of the game. Rather than reacting to challenges they can proactively downsize problems and convert them to more manageable bite-sized projects.

The big payback is greater focus by working "on" the business while growing leadership capability through a more entrepreneurial and less operational focus. This delivers the benefit of more time to reflect, grow personally and professionally, protect work/life balance and welcome the inevitable challenges that lie ahead.

While a farming business may get started through capabilities with cows and grass, farming entrepreneurs will only achieve their potential by shifting their focus to people and profits. It's a transition that requires a fresh mindset and competencies that are well worth the effort in obtaining. 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>.

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Understanding pink eye infection



By Sherri Jaques*

Key points

- ✓ Pink eye more severe in summer
- ✓ Caused by bacteria in tears
- ✓ Eye's immune response causes some of the symptoms

WITH the hot dry dusty weather the risk of pink eye infection (keratoconjunctivitis) increases. The heat evaporates the fluids or tears on the surface of the eye and the dust and gritty bits (or grass seeds) irritate the surface of the eye leaving it more prone to damage and infection.

It is common for a grass seed to be found in the eye, and every watery eye should be checked for a grass seed in the drier months.

Usually they are hiding or stuck behind the third eyelid; I check behind the third eyelid for every cattle eye I am called to treat. Because heat and dust contribute to the severity of pink eye outbreaks, it is a disease seen mostly in summer, however, it is sometimes seen in spring and autumn, and even in winter, if there is a hot dry spell.

Although pink eye is caused by a bacteria — in cattle *Moraxella bovis* — much of the treatment is aimed at healing the damage done to the eye both directly by the infection and indirectly by the eye's immune response.

Moraxella bovis is found in the tears of cattle. Sometimes there is no sign of infection, these are the carriers. The bacteria is present in the tears. The bacteria 'oozes' a liquid enzyme onto the surface of the eye — the cornea. This enzyme melts the outer layer of the cornea, creating an ulcer. It is spread by flies.

The cornea does not have a blood supply. In order to get the immune system into the damaged area of the eye, a red network of blood vessels needs to grow from the white part of the eye (the sclera) and across the cornea to the ulcer. This is a part of the healing and the more marked



Pink eye is caused by a bacteria which multiply on the surface of the eye producing destructive enzymes.

this inflammatory response the more 'pink' or 'red' the eye will be. When the cornea 'swells' with fluid, another immune reaction to the damage, the corneal layers change from being see-through to a blue colour. This normal healing response is called uveitis and is painful, so I prefer to cover moderate to severe pink eye cases with pain relief.

Vision is impaired as soon as the eye becomes 'blue' and the level of blindness increases the worse the eye looks. Unless the eye pops, blindness is usually temporary.

Pink eye cases are graded, and the grades reflect the level of ulceration or damage done to the eye and the level of immune response to it:

- **Grade 1** — watery eye with slight blueness to the cornea, the white can have a pink look, ulceration is absent or minimal. Simple topical antibiotic creams with or without a patch can be used successfully for most of these cases. These early less severe cases may not require a veterinary visit.

- **Grade 2** — the cornea is a cloudy blue and small line of red blood vessels is starting to develop around the corneal edge — in the white bit. In this stage the coloured pupil can still be seen through the cornea. An ulcer is usually visible.

- **Grade 3** — the back chamber of the eye fills up with immune cells that are yellow creating a yellow rather than a blue eye; sometimes just the bot-

tom half of the eye has these yellow cells. These yellow cells are the same cells found in pus but there is no bacteria in it in the case of the eye. This is called hypopyon. The red vessels growing in from the sclera will be obvious and a thicker like often with tendrils of blood vessels reaching out to fill the ulcer. These vessels are the healing part for the ulcer.

- **Grade 4** — For this stage the ulcer is so deep that the ulcer has 'popped', and the eye has a hole in it. The back parts of the eye, mostly the iris, can protrude or prolapse out through this hole. The iris may block the hole and stop the whole eye emptying but this eye will be completely blind.

The bits sticking out dry up and sometimes look a bit like a stick poking out of the eye. If the popped hole is large enough the eye ball empties fully and the whole eyeball will dry up and shrivel away leaving no eye in the socket.

Next issue will look at managing pink eye.

Happy milking and a safe and happy New Year.

*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. Please consult a veterinarian for herd health advice, protocols and/or treatments that are tailored to a herd's particular needs.

ABV(g)s: what you see is what you get

Key points

- ✓ Genomics reveal heifer performance
- ✓ Allows for corrective mating
- ✓ Maintaining heifers gives flexibility

TREVOR Parrish is always keenly interested to see the genomic results for his latest batch of heifer calves. And a recent experience confirmed that genomic Australian Breeding Values (ABV(g)s) are a good indicator of performance in the milking herd.

Mr Parrish, and his son-in-law Nathan milk up to 220 registered Holsteins at their Kangaroo Valley, NSW, property with part-time help from Trevor's wife, Leah, and their daughter Toni.

In any dairy herd, slow milking cows create frustration in the shed, and like many dairyfarmers, Mr Parrish aims to improve milking speed through breeding.

He recently noticed some first-lactation heifers were notably slow milking. When he looked up their genomic breeding values — ABV(g)s — for milking speed they were consistently lower than the national average of 100.

He made a similar observation for a group of heifers who were prone to mastitis. "I didn't need to wait until they were in the milking shed to find that out," Mr Parrish said. "It was in their genotypes which I'd had since they were about six months old."

The experience reminded Mr Parrish that heifers' genotypes can be used for corrective mating right from their first insemination.

With a year-round calving pattern, Mr Parrish inseminates small groups of heifers every month.

"I've already started identifying heifers with low ABV(g)s for milking speed and used a specialist sire over them at their first insemination," he said. "And I'm doing the same with daughter fertility and cell count. It's an opportunity to speed up genetic progress for these traits for animals that really need it."

Michelle Axford from the Australian Dairy Herd Improvement Scheme (ADHIS) said Mr Parrish's experience was a reflection of the improved reliability of ABV(g)s.



Trevor Parrish uses ABV(g)s to get a better picture of all his heifer calves.

'I've already started identifying heifers with low ABV(g)s for milking speed and used a specialist sire over them at their first insemination.'

"For females, the reliability of genomic breeding values is equivalent to about seven lactations of data," Ms Axford said.

"Although the reliability depends on the individual trait, in general, the reliability of genomic breeding values is about double that of breeding values based on parent average alone.

"So what you see in a heifer's ABV(g) is a good indication of what you'll get in performance once she's in the milking herd.

"It makes sense to consider ABV(g)s when choosing sires to use over maiden heifers, especially in situations like the Parrishes' where females are routinely individually matched to sires."

The Parrish family rear about 120 heifer calves a year.

While they could use genomic re-

sults to cull surplus heifers early and save on rearing costs, they prefer to keep them all until after their first calf.

With the herd ranking in the top 10 in the country for all three indices (Balanced Performance Index [BPI], Health Weighted Index [HWI] and Type Weighted Index [TWI]), it's no surprise there's a regular demand for animals with the Illawambra prefix.

"Most years we sell about 100 animals," Mr Parrish said.

"Keeping the heifers until after calving gives us the flexibility to adjust our herd size to seasonal feed availability, and financially it works for us as a calved cow is worth more than a heifer for export, plus it gives us the opportunity to retain at least one of their progeny in the herd."

While a small number of bull calves have been sold to artificial breeding companies, there's also a steady demand for Illawambra bulls.

"We sell about 20 bulls a year to be used over heifers or as mop up bulls," Mr Parrish said. "We could probably sell more but we didn't have the facilities to rear more bulls until recently." **D**

Contact: Michelle Axford, ADHIS extension and education manager, phone 0427 573 330, email <maxford@adhis.com.au> or website <www.adhis.com.au>.

Young farmer lauds DairyBase potential

- Key points**
- ✓ DairyBase helps steer business in right direction
 - ✓ Set up benchmarks to use annually
 - ✓ Will allow development of valuable data set

WHEN it comes to making decisions for his dairy business, young farmer Brody Kennedy doesn't like to rely on guesswork.

The 29-year-old from Forge Creek in East Gippsland likes to crunch as many numbers as he can before he makes strategic calls around the farm — so he is excited about what DairyBase can bring to his decision-making process.

DairyBase, which is a web-based tool developed by Dairy Australia, allows farmers to measure and compare their performance over time.

For Mr Kennedy, having a detailed look at what other dairyfarmers are doing and comparing it to his own situation is critical for his ability to steer his business in the right direction.

"I'd like to use it to set up benchmarks that I can use on a yearly basis," he said.

"It's having other people's information without having to probe into their business. You can just look at what people tend to do in a particular year or in a particular circumstance.

"It could really help us to see if we are trying to be a little too left field or if we are on the right track."

Having only been dairyfarming for

'Hopefully in 10 years' time we will have some very strong data in profitability, sustainability and the environment.'

five years and running a 320-hectare farm across two properties with two dairies, Mr Kennedy continually seeks information on how to improve his farm business.

For him, DairyBase is the latest example of how the dairy industry is willing to share information for the greater good.

"It's just having that extra information that you wouldn't have in any other style of business," he said.

"You don't get to see how the corner store down the road runs his business, but DairyBase opens up your business to help someone else.

"We all help each other to succeed. The stronger your next-door neighbour is, the stronger you will be, because it will be a stronger industry."

Mr Kennedy believes that DairyBase will be a much larger scale version of herd testing, which has used long-term data collection to improve the genetic base of Australian dairy cows.

"It's a similar concept to herd testing, which has got to the point where they can really benchmark a lot of things, so they can have confidence in making a call," he said.

"The same thing will happen in the dairy business side of things if we treat DairyBase the same way as herd testing has been done.

"Hopefully in 10 years' time we will have some very strong data in profitability, sustainability and the environment — all those areas. And it can all come from something like DairyBase."

The potential for DairyBase to fast-track the development of younger farmers and employees is an area that has Mr Kennedy excited.

He sees easy access to data as a key to helping build skills and decision-making abilities around the farm.

"It could be a huge knowledge base that could help younger people be a lot more confident with their decision making," he said.

Mr Kennedy's own development has been aided by mentors within the industry, but he thinks if DairyBase had been available when he started out, his farming education would have been dramatically accelerated.

"I did it all through trial and error and a couple of mentors, but if you could tie in DairyBase with a mentor, well that could be a big thing for the dairy industry," he said.

"We want to invest in the people who work for us, so they have the knowledge to help them make good decisions.

"With DairyBase our employees can ask questions, I can ask questions — and the actual facts will be there to help us make the right decisions."

DairyBase is a free online tool that will help dairyfarmers to:

- compare their own farm business over time;
- create annual reports and forecasts;
- identify opportunities to drive profit and manage risk;
- make more informed business decisions; and
- generate comparative analysis according to farm size, region and production system.

For more information go to website <www.dairybase.com.au>.



Brody Kennedy uses DairyBase to help manage his 320-hectare farm run across two properties with two dairies.

Don't gamble on dairy feed quality

Key points

- ✓ Calculate monthly feed requirements
- ✓ Secure fodder requirements first
- ✓ Collect a good feed sample

DAIRYFARMERS should closely examine potential feed purchases as they search for options during this El Niño cycle.

Farmers take a gamble if they don't know what they are buying or whether the feed really is good value or not, according to Dairy Australia's feed-base and animal nutrition program manager, Richard Romano.

Key actions are:

- Do a month-to-month feed budget for milkers, dry stock and young stock.
- Buy feeds on quality and value rather than their sticker price.
- Don't leave things to chance — actively manage the quality, price and supply risks.

Calculate monthly feed requirements, don't guess

Guesstimates aren't good enough. Dairyfarmers need to do a feed budget for their milkers and dry stock to ensure that they know what quantities of each feed they need to buy each month.

There are a number of feed-budgeting methods and tools available (paper and software based), and many dairy advisers can readily assist. Ensure the feed budget is based on realistic assumptions, including feed wastage. Revise the feed budget as circumstances change.

Secure fodder requirements first

Focus on securing fodder requirements first, as supplies of milker-quality hay are limited this year. Then think about buying energy-dense grains/concentrates and protein sources.

Use the Grain and Hay Report on Dairy Australia's website <www.dairyaustralia.com.au> to keep tabs on weekly feed market trends.

Take advantage of opportunities to buy feed-grade grain at a discount to milling-grade grain, but be aware of the risks.

'A verbal agreement (for example, over the phone) is a legally binding contract - it does not need to be written down and signed.'



By far the greatest source of variation is due to sampling method, so it's well worth taking the time required to collect a truly representative sample and not take short cuts.

Some quick number crunching can assure that the feed is good value, but the first thing to check, if possible, is the feed's physical quality, making sure to obtain a representative sample.

What does it look like? Is it too wet or dry, too fine or too coarse? Does it have an unusual odour? Has it been weather damaged or show any sign of mould? The feed's physical characteristics should be compared with the applicable feed purchasing standards.

When checking the physical quality of a feed at the time of delivery, don't accept delivery if it does not meet standards.

Look beyond the price tag

Having checked out the feed's physical characteristics, the next thing to check is its nutritional content, as this will determine its feed value. Energy and protein are the two major nutrients that determine the milk production potential of any feed in a cow's diet, so go beyond the feed's price tag and see how it stacks up in terms of

its relative cost per unit metabolisable energy (ME) and crude protein (CP) versus alternative feeds.

Collecting a good feed sample for lab testing

Feed lab testing should provide the key information needed to confirm a feed's nutritional value or to compare its nutritional value with another feed's before it is bought.

It's important to understand that there is always a certain degree of variation that is needed to allow for around the result as measured at the lab. By far the greatest source of variation is due to sampling method, so it's well worth taking the time required to collect a truly representative sample and not take short cuts.

Make it easy — confirm in writing

A verbal agreement (for example, over the phone) is a legally binding contract — it does not need to be written down and signed. But it is much better to convert it to writing in some form, so that there is documentation to refer to if later clarification is required. Sorting out contracts with a "He said-you said" approach is not recommended.

Always confirm verbal agreements with feed suppliers by mail, fax or e-mail, and keep all paperwork in a safe place. The Grain Trade Australia (GTA) Contract Confirmation form is a good pro forma to use when buying grain, hay or any type of feed (available from the Dairy Australia website).

Maintain regular communication with suppliers (particularly if supply starts to look doubtful). Price is only one of the key components in any contract; remember to also record quality and supply terms.

If buying grain, always specify the GTA grain standard being bought against and any additional quality requirements that have been negotiated with the seller. **D**

For further information access the factsheets on feed quality, planning and purchasing in the Pastures & Feeding section of the Dairy Australia website at <www.dairyaustralia.com.au>.

Focus on improvements

Key points

- ✓ Focus farms share ups and downs
- ✓ Generates enthusiasm from support group and at field days
- ✓ Help farms refine practices

FOR more than a decade, Focus Farms that look at key decisions on farms and the impact on the bottom line have been a key part of GippsDairy's commitment to building a more profitable and productive dairy industry. Focus Farms are now established in other dairy regions across Australia with more farmers seeing the benefits provided through the visibility around key decisions being made on real farms operating under real conditions.

The past year has seen the start of four new Focus Farms in Gippsland — at Leongatha South, Toora North, Mirboo North and at the Macalister Demonstration Farm at Riverslea. GippsDairy projects and events co-ordinator Karen Romano said this round of Focus Farms was the most diverse in the project's history and offered a great snapshot of different farms and different approaches to running a farm business.

'It's a two-way street of knowledge, where the focus farmers learn from the experience but those in the support groups and field day participants also get plenty of food for thought.'

"From Dan and Cindy Knee taking over as the next generation on a family farm to the unique challenges of a community-owned farm in the Macalister Irrigation District, this is a fascinating round of Focus Farms," she said. "Like every round of Focus Farms, all four were selected because they involve creative and passionate people who were willing to share their ups and downs for their own good and the good of the wider dairy community."

Focus Farms is a project funded by GippsDairy and Dairy Australia using dairy service levy funds along with addi-

tional funding, including those sourced through the Australian Government. The project provides an experienced farm consultant as a facilitator as well as a support group made up of fellow farmers and local service providers.

Field days are held regularly, with this round of Focus Farms attracting some of the biggest crowds ever. A nitrogen discussion day at Tim Cashin's Leongatha South farm attracted a bumper crowd and showed farmers are keen to access information they see as important to them.

"It's not only the numbers that turn out to these field days but the level of interest shown by everyone involved," Ms Romano said. "It's a two-way street of knowledge, where the focus farmers learn from the experience but those in the support groups and field day participants also get plenty of food for thought."

The current two-year Focus Farms will wrap up in 2016.

Toora North

For farmers looking at way to improve their business practices, Dan and Cindy Knee's Focus Farm was certainly

Focus Farms website launched by Dairy Australia

DAIRY Australia has launched a new website featuring the national network of Focus Farms, making it easier for farmers to follow the progress of these farms, which can help their own decision-making process. The site provides the background to all Focus Farms while also providing regular reports and updates.

Dairy Australia's on-farm adoption and evaluation program manager, Neil Webster, said Focus Farms were an integral part of an overall strategy from Dairy Australia to provide effective extension services and to help farmers build farm business management skills.

"The project is managed through our Regional Development Programs (RDPs) — and to be able to access up-to-date information across all Focus Farms is an exciting development for farmers and service providers," he said.

"Focus Farms are real farms, making real decisions under real conditions, which makes them very relevant to other

farmers. They provide visibility and insight into key decisions being made on farms and the impact of those decisions on the bottom line.

"In addition, Focus Farms allow consideration and discussion about the factors impacting decisions at any point in time, including seasonal and market conditions. At a regional level this highlights responses to regional conditions and settings.

"The national network of Focus Farms provides the ability to gain that visibility across more farms, more farming systems and various scales of operation.

"Complementing this, Dairy Australia's investment in support for discussion groups provides Dairy Australia and RDPs with a strong connection with farmers at a local level."

The farmers are:

Murray Dairy region

- Peter and Sue Weales, Kyabram, Vic.
- Patrick and Kerrie Glass, Gundowring, Vic.

- Brad Adams, Strathmerton, Vic.
- David and Jenni Owens, Finley, NSW.

WestVic Dairy region

- Taylor family, Heathmere, Vic.
- Whitley family, Timboon, Vic.
- Scott family, Barongarook, Vic.

Dairy NSW region

- Cochrane family, Longreach, NSW.
- McRae family, Barrington, NSW.

Subtropical Dairy region

- Andrew Wilson and Kelly Boyd, Woodlawn, NSW.

DairyTas region

- Peter and Jo Jones, Kayena, Tas.

GippsDairy region

- Dan and Cindy Knee, Toora, Vic.
- Macalister Demonstration Farm (research farm).
- Tim and Grit Cashin, Leongatha South, Vic.
- Bruce Maninveldt and Fiona Baker, Mirboo North, Vic.

Visit website <www.focusfarms.com.au> to find out more about farmers in the region and around Australia.



Dairy Australia extension co-ordinator Tony Platt catches up with Gippsland South MP Danny O'Brien and focus farmer Dan Knee at the Toora North field day.

worth investigating. The young Toora North couple are determined to build on the hard work put into the farm by Dan's parents Bruce and Rae. Developing an already high-quality farm means refining every part of the operation — from pasture management to herd genetics and better bookwork.

Dan and Cindy, who took full ownership of the property more than a year ago, have set four goals, included setting up the farm business and having the cash surpluses to support it; having more profitable production or having a lower cost of production;

maintaining a low cell count; and continuing to grow young stock.

But the ultimate goal for the Knees is to keep improving in every aspect of the farm. "The main reason I did it is that I think you can always be better than what you are and my goal is to try and improve," Dan said. "I want to improve the whole business, not just the things we've written down as our goals."

More than a year into the Focus Farm, facilitator Matt Hall said the enthusiasm of everyone involved had not dimmed. Mr Hall believes the be-

lieves the history of the Knee farm — in which Dan ran the business with his parents before they stepped away and allowed the younger couple to take control — is a good Focus Farm story. "It is a little different, but every Focus Farm has a story and hopefully each one has a legacy, so it will be interesting to see how this one turns out," he said.

Details about all GippsDairy Focus Farms and those from other regions can be found on the Dairy Australia Focus Farms website <<http://focusfarms.com.au/the-farmers>>.

Hay and Grain Report invaluable in tight times

DAIRY Australia's Hay and Grain Report is invaluable when seasons get tight, says South Australian dairyfarmer David Kuhl.

Mr Kuhl milks a peak of 180 cows on his year-round calving farm at Mt Gambier and relies on home-grown feed supplemented with grain.

"Any new information that you can gather, like the Hay and Grain Report, is a bonus whether you use it or disregard it," he said. "Simple fact is you have to have it if you want to make your own judgement and more times than not it will help your enterprise."

The Hay and Grain Report is commissioned by Dairy Australia to provide an independent and timely assessment of hay and grain markets in each dairying region. The report is updated 40 weeks per year.

Mr Kuhl said when the season became tight he regularly analysed the Hay and



David Kuhl: regularly analyses Hay and Grain Report when season is tight.

Grain Report information, which he receives by email after signing up to the Dairy Australia distribution list.

"If you come to the time when you need to top up like the bad spring we had

last year when there wasn't much opportunity to cut much hay then you will need it," he said. "It also helps with decision making and budgeting in those situations."

"Grain prices around the country also vary a bit so it's nice to know what I'm paying the local distributor to make sure it's around the mark."

This year Mr Kuhl planted cereal crops in the autumn and cut more hay silage due to predictions of a long hot summer ahead.

"This year we knew we were in for a dry spring we locked up the paddocks early, and it was the driest October on record here," Mr Kuhl said. "It's nice to look over and see that it's there in the shed with the predictions of dry weather ahead."

To sign up to receive the hay and grain report by email enter name and details at <www.dairyaustralia.com.au/subscribe>.

Large farm has high repro performance

Key points

- ✓ High levels of heat detection
- ✓ Compact calving pattern in cows and heifers
- ✓ High relative milk production in first calvers

VAN Diemen's Land Company (VDL) farm Island View has achieved excellent reproductive performance through a co-ordinated cow nutrition program before calving and by treating endometritis and non-cycling cows after calving aimed at getting cows in calf quickly.

Island View is a seasonal calving dairy farm with an effective milking area of 400 hectares operated in the far north-west tip of Tasmania.

Jan Johnston has been a sharefarmer on Island View for the past eight seasons but has recently stepped up to a new role as a VDL operations manager.

In recent years, calving has started on April 1. There has been an increased focus on cow fertility at VDL with special attention to non-cycling cows and heifer rearing.

Calving induction has been phased out on 24 of the VDL farms, and because animals can be moved between farms, later calving cows on one farm can be transferred to a farm that calves a little later.

Herd numbers peak on Island View at 1020 cows. Milk production has increased from 270,000 kilograms milk solids to 392,000kg in the last five years while herd size has remained relatively constant.

About one tonne of concentrates is fed per lactation, supplemented with silage and purchased hay. The herd is 60 per cent Friesian, 30 per cent cross-breed and 10 per cent Jersey.

This coming autumn, first-year calvers will start calving March 10 and mixed-age cows from March 20. All dry cows are run on the milking area. Heifers are reared to 100kg, and then sent to the central VDL calf-rearing unit. They then return to the farm when they are close to calving.

Features of the reproductive performance of this farm include:

- high levels of heat detection and an excellent submission rate;
- a compact calving pattern in cows and heifers; and

'On Island View good reproductive performance has been achieved without the use of calving induction.'

- milk production of first calvers being high relative to adults, indicating well-grown heifers.

Good reproductive performance

Mrs Johnston said good reproductive performance started in the dry period. Dry cows receive a fresh feed of grass every day, and are supplemented with hay and turnips. Heifer replacements are brought back to the farm two to three weeks before calving and are run as a separate group until they calve.

Three weeks before their due date, cows are drafted from the dry cow herd and started on their transition diet. This consists of 4kg per day of lead feed containing anionic salts, which is fed in the dairy, ad lib hay and 2-3kg grass. Once calved, cows go onto a diet of 4-5kg of milker grain and grass.

Mrs Johnston said she had found since she started lead feeding cows, they were in better health and condition once they calved.

In 2013 a decision was made to actively manage the period from calving to mating start date to try to maximise herd reproductive performance.

This started with a whole-herd check four weeks before mating start to identify and treat cows with endometritis. Some 103 cows were treated.

Pre-mating heat detection started four weeks before mating start date with tailpaint and oestrus alert indicators applied.

Ten days before mating start date, cows that had calved at least 40 days and hadn't cycled were enrolled into a Cuemate synchrony program.

From mating start date, tailpaint and scratchies were maintained until two rounds of artificial insemination (AI)

had been completed. A second group of later calving non-cycling cows were also treated with a fixed-time Cuemate program. In total, 230 cows were treated as non-cyclers.

AI lasted seven weeks and then a team of 31 bulls was run for a further three weeks. To identify accurately early and late calvers, pregnancy testing was undertaken on two occasions — 13 weeks after mating start and seven weeks after the bulls had been removed.

After using the more aggressive approach to reproductive management for the first time in 2013, VDL has continued these practices on all of their farms due to its success in improving reproductive performance.

Two groups of milkers are run on Island View. A group containing cows in lighter condition and older cows that are slower due to lameness or age is run separately to the main group of milkers. This smaller group runs closer to the dairy and is preferentially fed so that they have better milk production and have a better chance of getting back into calf.

Genetic selection for fertility and production

Sire selection on all VDL farms is based on calving ease, bull semen fertility, sire and dam records of the cow and solids production. From four weeks into the AI program, gestation length becomes the number one selection criterion, with short-gestation length bulls being used as a means of decreasing calving spread. New Zealand Friesian sires are used almost exclusively on all VDL farms.

Progeny from early-calving heifers are kept as replacements for Island View, while those from later-calving heifers are allocated to different VDL farms.

The culling policy on Island View places a strong emphasis on cell count and production, repeat lameness events, udder conformation and fertility. Carryover cows are not kept on the farm. The decision to cull carryover cows means that animals with poorer fertility aren't kept and is a way of improving overall herd fertility.

Calving induction stopped

Mrs Johnston stopped inducing cows following a poor outcome when a group of 85 cows suffered a high rate of milk fever, and she observed that many failed to come into milk production, and more failed to get back into calf.

As calving occurs during the coldest and wettest period of the season, having the extra burden of managing induced cows resulted in unnecessary stress for all working on the farm.

She said there were many manage-

ment practices that could be undertaken to eliminate the need to induce. An important practice was not to join cows for too long a period.

She said her farm operation was better off not inducing cows. The cows had better health, and animal welfare standards were better.

On Island View good reproductive performance has been achieved without the use of calving induction. A lot of time and expense has been devoted to improving reproductive performance and Mrs Johnston considers the

end result is better without using induction.

For those considering ceasing calving induction, Mrs Johnston recommends weighing up the costs associated with increased animal health issues, the loss of heifer calves, decreased production and the concern that many induced cows don't make it to the next season.

If there is little or no profit associated with calving induction, then she suggests farmers should cease inducing cows. **D**

Milk machine maintenance mastitis link

Key points

- ✓ Milking machine function impacts milk quality
- ✓ Healthy teat ends key to preventing infection
- ✓ Check machines regularly

KEEPING milking machines well maintained and regularly tested can make a big difference when it comes to milk quality, mastitis prevention and on-farm profitability.

Dairy Australia's animal health and fertility program manager, Kathryn Davis, said scientific reports and field reports had shown clear links between milking machine function and performance and milk quality.

A sample of 103 Australian dairy farms this year indicated a high proportion of herds were rated as a high or very high risk of mastitis because of factors related to a milking machine component — such as teat-end hyperkeratosis, open orifices, teat lesions, poor cow behaviour and incomplete milking out — or from machine risk highlighted from the company's milking-time testing.

This backs up international re-



Milking machine action or faults can cause problems such as slow or incomplete milking, poor teat condition or poor cow behaviour.

search that has analysed the links between milking machine action or faults and new mastitis infections.

Findings included:

- Direct and indirect milking machine effects may account for 20 per cent of new infections in some herds but only 10 per cent in an 'average' herd provide the machine settings are right;
- Mastitis risk is reduced by keeping bacterial numbers low on or near the teat-ends especially if machine

settings and/or milking management practices are less than ideal;

- Healthy teat ends are critical for achieving low rates of new infections; and
- New infection rates are reduced by pulsation characteristics that provide effective teat massage.

"Milking machine action or faults can cause problems such as slow or incomplete milking, poor teat condition or poor cow behaviour, so farmers should be quick to get their machines tested if they have concerns and also keep up with regular annual testing," Ms Davis said.

"By using Dairy Australia's Countdown Mastitis Toolkit App farmers can score teats and calculate liner life to help monitor these issues. A list of Countdown 2020 trained milking machine technicians is also available on the Dairy Australia website if farmers need to schedule any servicing." **D**

A list of Countdown 2020 trained milking machine technicians can be found at website <www.dairyaustralia.com.au/countdown>.

Countdown Mastitis Toolkit App

THE Countdown Mastitis Toolkit App has had more than 3000 downloads since it was first released in September 2013. The app was designed in consultation with dairyfarmers, advisers and vets and is based on the Countdown 2020 mastitis-control program and associated resources.

Divided into four sections, the app offers a range of the latest information and resources farmers need to manage mastitis in their herd including:

- tools;
- topics specific to common mastitis-control scenarios;
- Countdown Farm Guidelines; and
- A library featuring related articles, tips and traps.

The Countdown Mastitis Toolkit App is available for iPhone and Android mobile devices (including tablets).

For details on how to download the app visit website <www.dairyaustralia.com.au/countdown-app>.

What's happening in your region?

Contact your Regional Development Program



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