

Breeding Through the Tough Times

Focus | Integrity | Performance | Profit | Commitment | Innovation

EDITORIAL

The bushfire season has been inconceivable in its reach across Eastern Australia and at the human level, personally draining. For everyone affected planning can be complex for the rest of the year. Many of our friends and colleagues around the Eastern States have been affected and we feel deeply for the destruction it is having on health of people, livestock and the land. The affect on each business varies depending on what has been destroyed, fences, pastures or fodder, natural resources and biodiversity. The loss of livestock can be very confronting. There are a lot of resources being made available to assist in recovery.



Cows through the smoke in January at Rennylea.

Many books and management articles have been written about leadership. The context of leadership has changed over the past few decades from a context which was authoritarian, 'delivered from above' and patriarchal to one which is more inclusive and collaborative, leading and inspiring from within.

Some things never change. If you don't put your hand up you aren't part of the decision making. The advent of social media has meant that many people contribute to a conversation and do nothing. Worse than that they may comment on a topic or subject about which they know almost nothing, believing every view that is expressed by the keyboard warriors. Much of this is a distraction to an authentic life.

When is leadership real? Whom do we admire who express the values, who have ability and are prepared to take risks for more than themselves? This can be at a business level supporting staff, at an innovation level leading and implementing a change agenda, speaking out about issues that we feel passionately about and know something about. Taking practical actions that are more than fine words.

The passing of the former Deputy Prime Minister the Hon. Tim Fischer gave many of us a time for reflection about values based leadership. As the Federal member of parliament for our seat of Farrer we knew Tim as our member and a little more. His service covered much of our major public institutions, military service, state and federal parliament. You were never in doubt that he cared deeply about Rural Australia and his many other passions. Those issues which he didn't know about he kept his counsel.

Our challenge at the beginning of 2020 is lack of water and the uncertainty that it creates. Other industries face serious challenges right now. It is worth pausing and thinking about the global pig industry and the serious threat that African Swine Fever is causing. As it has moved out of Europe into Asia and down the Indonesian archipelago the risk to the Australian pig industry has risen. Keeping ASF out of Bali is considered a high priority for Australia, due to a larger density of pigs in the Hindu population and weak biosecurity. The outbreak is catastrophic in China where millions of pigs have died or been put down.

Our challenge at the beginning of 2020 is lack of water and the uncertainty that it creates. Other industries face serious challenges right now. It is worth pausing and thinking about the global pig industry and the serious threat that African Swine Fever is causing.

continued over page

As it has moved out of Europe into Asia and down the Indonesian archipelago the risk to the Australian pig industry has risen. Keeping ASF out of Bali is considered a high priority for Australia, due to a larger density of pigs in the Hindu population and weak biosecurity. The outbreak is catastrophic in China where millions of pigs have died or been put down.

We are sadly saying goodbye to three of the team over the summer period. Fergus Hassall has spent two years with Ruth in the cowherd and returns to his family farms at Holbrook and Braidwood. Jessica Hardie joined Rennylea after completing animal science at Charles Sturt University and has joined a stockfeed company at Leeton. And Dirk Ulett leaves us after 4 and half years to work closer to Wagga where his wife Wendy works with the horses at the CSU Veterinary School. We wish all three the very best for their future careers and will miss each one.

We welcome Rhys Tapscott, from Narrabri who arrived in September and was thrown headlong into calving and joining over the spring. Rhys and his family Virginia, Oscar, Elke and Eva (born in December) have settled at Rennylea. At Culcairn, Anthony was joined by Dylan Cook in December who was working near Wagga. And in February Claire Scott will join the Culcairn team. You will have a chance to meet Rhys, Claire and Dylan over the year.

The Rennylea brand represents the values important to us, Excellence, Commitment, Innovation and Performance that you can trust, underpinned by Integrity. Our integrity is the most important value of all, doing what we say we do. An objective description of an animal's performance, measured

in large management groups is proven to be the most reliable way of assessing an animal's genetic traits. Add these to the independent assessment of pedigree, structure and temperament and this provides the platform for our 100% trustworthy production system.

Of equal importance is the combined genetic literacy of the Rennylea team. Rather than relying on second or third hand information we work with research institutions to make sure we obtain answers to the questions we ask. A corollary to this is that if we are told something second hand eg. Birth weight is more accurately described by genomics and there is no need to weigh the calves we go straight to the experts and check the detail. And the answer is, not true at this stage

In this newsletter there is a report from the Association of Animal Breeding and Genetics conference held last October. Two papers were presented on the implementation of Single Step and the use of Pedigromics in the Rennylea herd.

We welcome you to the Rennylea Autumn Bull Sale on the 10th March where we are offering 105 18 month old bulls, packed with carcase merit and fertility with the phenotype to cope with these very challenging seasons.

Please ring Bryan (0429 038993), Anthony (0437 043443) or Ruth (0400 302629) to discuss the lots and pre sale inspections.

Lucinda



Jess and Fergus and Dirk.

RECORD NUMBERS GRADED THROUGH MEAT STANDARDS AUSTRALIA

AUSTRALIA'S world-leading eating quality grading program, Meat Standards Australia delivered an additional \$198 million to producers in the form of price differentials for graded versus non-graded young cattle in 2018-19. That figure translates to a direct in-the-pocket benefit worth \$84/head for non-feedlot cattle producers, a 30 percent increase on the year before.

A record 3.5 million cattle were MSA graded in 2018-19, an increase of 350,000 head on the previous year and the highest yearly number graded since MSA's inception in 1998, representing 43pc of the national adult cattle slaughter.

Not surprisingly, give the severity of the current drought, the proportion of grainfed to grassfed MSA cattle increased somewhat this year, with 58pc of all MSA-graded carcasses grainfed. Some years ago before the drought, there were more grassfed carcasses graded than grainfed. Most importantly, the MSA program delivers a consistent eating quality experience for consumers in Australia and in our export markets.

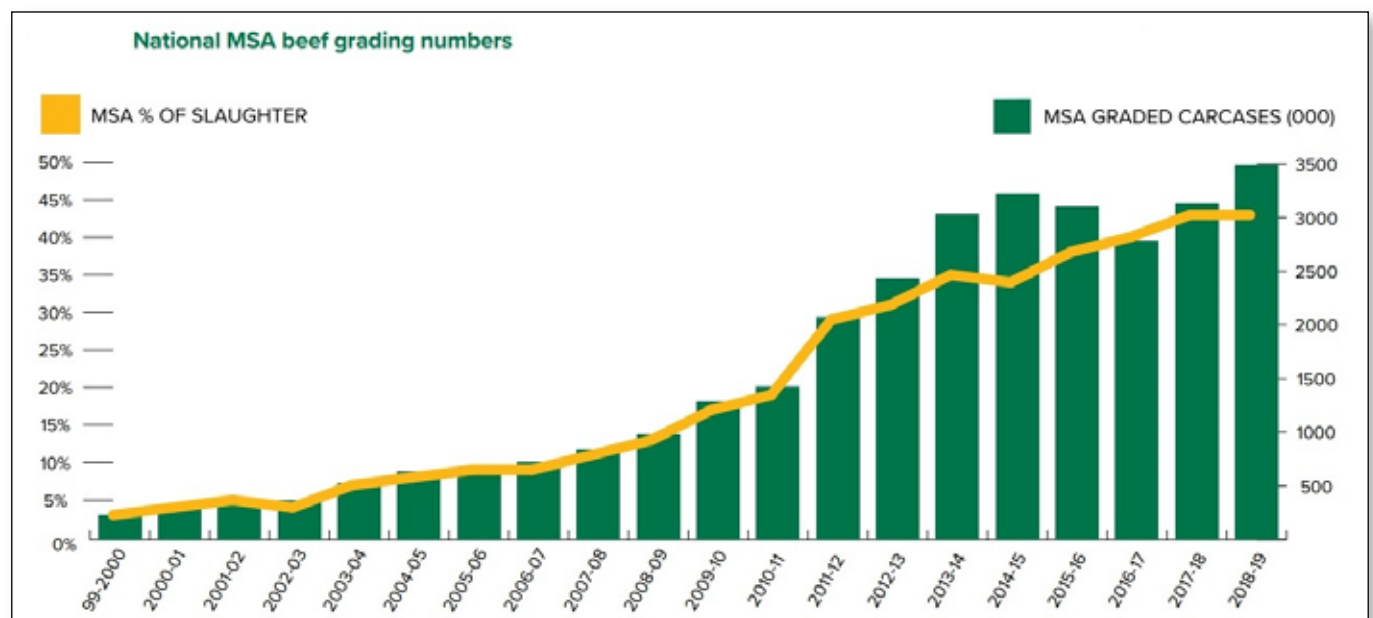
Growth in MSA beef and sheep brands continues, with an additional 23 new brands licensed in 2018-19, lifting the total number of MSA licensed brands to 195.

By volume, Queensland continues to process the greatest number of MSA graded cattle with 1.6 million head, while, at 82.4pc, South Australia had the greatest proportion of its slaughter cattle MSA graded.

It is a fantastic story, and a great example of transformational research, which takes about 15 years from the research phase to achieve success.



Highly marbled beef from 2 year old heifers. Our butcher, David Funnell said it was exceptional in his experience.



RENNYLEA RESEARCH AT AAABG

The biennial conference for the Association for Animal Breeding and Genetics was held in Armidale in late October.

We were delighted to have two papers presented on the research projects we conducted with CSIRO in 2018.

The first of these was “The Benefits of Genomic Information in Angus Cattle- The Rennylea Experience ” co-authored by Dr. Sonja Dominik, LR Porto-Neto, Antonio Reverter and L. Corrigan . This paper documented the adoption of genomics in the Rennylea herd and the greatest advantage displayed on young animals. Sonja Dominik presented the paper at the conference.

The second paper described the use of Pedigromics: A Network Inspired Approach to Visualise and Analyse Pedigree Structure with the same authors and the paper was

presented by Toni Reverter from CSIRO. Using the ‘highly curated’ Rennylea Angus herd, the paper demonstrated the use of Pedigromics to identify the features of family structures in the breeding population to understand the breeding history and the identity of influential ancestors. It is another tool to inform mating allocations in the design of breeding programmes.

There were many interesting papers presented. A highlight was the keynote address from Dr. David Johnstone from The Animal Breeding and Genetics Unit who delivered the John Vercoe Memorial Lecture. An extraordinary presentation with the key points noted below.

An extraordinary presentation with David’s key points summarised in an article on page 9.

ACCELERATED ADOPTION FROM MLA - ASSISTANCE DURING CHALLENGING TIMES

Red meat livestock (Cattle, Sheep and Goat) levy-payers can now access a wide range of Meat & Livestock Australia’s (MLA) products and services delivered directly to them at no cost following the commencement of the Accelerated Adoption Initiative.

The initiative – announced recently by MLA Managing Director Jason Strong at Red Meat 2019 in Tamworth – came into effect on 25 November 2019 and will operate until 30 June 2021.

Under the Accelerated Adoption Initiative, MLA will provide a temporary relief for costs incurred for the delivery of key products and services, from MLA, directly to red meat levy payers. It does not include the livestock transaction levy, which will remain unchanged.

Items eligible include:

- Livestock Production Assurance (LPA) accreditation and reaccreditation
- LPA National Vendor Declarations (NVD) books
- LPA record keeping books
- eDec tokens
- Training workshops, forums and field days delivered directly by MLA such as Bred Well Fed Well, BeefUp and MeatUp Forums; and
- Sheep Genetics membership and services.

For more information on the Accelerated Adoption Initiative including eligible MLA products and services, please visit <https://www.mla.com.au/AAI>.



Senator Perin Davey explaining the history and development of water policy in the Murray Darling Basin at the annual Holbrook Beef Group Dinner.

THE VALUE PROPOSITION FOR PRECISION AGRICULTURE FOR LIVESTOCK - Promise to Delivery

Professor Mark Trotter from Central Queensland University gave a comprehensive synopsis of the developments in digital tools to improve the efficiency of livestock production at the Beef Improvement Federation's conference last year. These technologies are well established in crop production to manage the variability of the production environment, fertility, moisture, yield and improve efficiency.

In intensive animal industries, dairy and feedlots, Precision Agriculture tools are focussed on individual animal performance to improve productivity.

In extensive systems, in addition to individual animal performance, there is the potential to monitor and make decisions on feed availability and landscape variability. PA tools have been developed to monitor and measure both the animal and the landscape leading to decision frameworks to improve management.

Sensors that detect pasture modelling have been developed, more promising is the use of satellite data, which when combined with other data sources produces accurate assessment of feed availability to adjust grazing pressure. In addition decision tools to adjust for variation in fertility across a paddock and enable more efficient application of fertilisers is starting to occur.

In terms of animal performance for extensive systems, walk over weighing at watering points provides the most practical assessment of body condition, weight, health, parturition, oestrus etc at this stage.

The next generation of monitoring the individual animal is 'on animal' tags and collars used in the dairy industry for a few decades. Data collection includes location, inventory, physiological state, onset of disease or reproductive activity, predation, grazing behaviour leading to pasture utilisation maps.

The technical challenge remains the sophistication of the battery on the sensor device and connectivity to a substation to collect data, being addressed in a range of solutions.

Generating more interest than most is the promise of Virtual Fencing. CSIRO produced IP for virtual fencing in the early 2000s. Agersens is commercialising the IP in Australia using a collar, solar pack for energy and base station to collect the data.

Could PA be used for improved genetic selection and automated phenotyping? This article raises the potential of developing algorithms for feed efficiency on pasture by automating the collection of phenotypes.

This is an alluring promise which seedstock producers would love to see a reality.

In summary, Prof. Trotter suggests that the key attribute for the success of these technologies will be the involvement of producers with technology companies so they can guide the practical outcomes and decision making. This will prevent producers becoming disillusioned when technical issues delay commercial release.



Looking for dung beetles in the underside of cow pats in the late spring.



On an ABC morning breakfast TV with Professor Leslie Wade from Charles Sturt University explaining the virtues of dung beetles. We have become a collaborator in a major national dung beetle project funded by MLA.

ARE OUR MATURE COWS BECOMING TOO BIG

by Alistair Rayner

Alastair Rayner is the Principal of RaynerAg, an agricultural advisory service based in NSW. He regularly attends bull sales to support client purchases and undertakes pre sale selections and classifications. He can be contacted here or through his website www.raynerag.com.au

Throughout the year one emerging trend is the topic of mature cow size. There are a number of causes for this trend to develop. Firstly the on going impact of drought across Australia has focussed many producers on the nutritional challenges in maintaining larger cows.

In the meantime the increased selection of bulls for growth and carcase weight has seen industry question the size of cattle being produced. As reported in Beef Central following this years Angus forum in Albury keynote speakers highlighted the challenges for processors and retailers from increasing carcase sizes.

At the same conference, attendees heard from New Zealand's Professor Dorian Garrick of the increase of mature cow sizes over the past 30 years. Professor Garrick from Massey University suggested mature cow weights had increase by between 100 – 150 kilograms from the 1970's until now. As reported by Beef Central, Professor Garrick told the Angus Conference the increase in cow size comes with additional costs for producers. Prof Garrick informed the conference "the cost of feeding the average Angus daughter in 2017 was \$57/head more than the average Angus daughter in 1980".

Increasing mature cow size is one of the outcomes of many producers continued selection for growth. While increasing growth rate is an important contributor to producing cattle

that can potentially achieve carcase weights at earlier ages, there are other outcomes to impact on the herd. The most obvious has been increased Birth Weights and larger mature cows.

While some producers have been able to accommodate an increase in mature cow size, the current drought has exposed many producers to the new reality that their feed reserves are insufficient to meet a herd of larger mature cows. Working with producers on their feeding programs highlights the impact increased cow size has on feed ration amounts.

As a typical example, an increase of 100kg live weight from 500kg to 600kg will see producers needing to increase their "as fed" ration weight by 15%. The implications for many producers has been to see their feed reserves declining at a faster rate than budgeted for. Or in some cases it has resulted in cattle being underfed and losing weight at a rate that was unexpected. In either scenario, producers were forced to make new decisions on the management of their cows at period much earlier than they expected.

Given the influence of sires used within herds extends over three generations, it's likely the mature cow size in many herds may continue to increase. I've seen this increase described as "frame creep" where mature cow size gradually increases over generations as a result of past genetic decisions and the tendency at selection to choose larger females as replacements.

Having observed the gradual increase in mature cow size in northern NSW for the past two decades, I am fairly sure the

continued next page



Moderating maturity pattern of the cows in a phenotype that copes with challenging seasons is a foundation goal for the Rennylea breeding program.

increasing trend is a result of “frame creep” rather than a specific approach by producers. However the flow on impact has implications that industry is now grappling with as focus is bought on both cow maintenance needs in drought and carcass weights for processors.

Its also important to highlight the economic impact ‘frame creep’ has over time within a herd. As highlighted earlier, the cost to maintain an angus female has increased over the last thirty year period by roughly \$1.80 / year. While other examples highlight that increasing mature cow size fails to increase returns per hectare. Some interesting More Beef from pastures work by Dr. John Webb-Ware demonstrated that at low stocking rates, larger cows can be reasonably profitable, but once average or higher stocking rates are achieved, there is no real economic advantage to cows exceeding a 550kg mature weight.

The inclusion of Mature Cow Weights within the EBVs for most breeds offers an opportunity for producers to consider and select for mature weights most appropriate for their country, and carrying capacities. A key feature

of BreedObject Version 6 is the creation of Indexes which include consideration of maintenance requirements for cows, and this will offer producers increased opportunity to select more appropriately suited genetics.

While there may be a natural inclination to attempt to select larger animals for replacements, its important to consider how much more feed larger animals demand and the impacts this has in nutritionally challenging times as well as on the efficiency of the breeding herd in general.

Rennylea Note

Rennylea has had a long term goal to moderate cow maturity pattern and it has been part of our collaborative R and D activities since the mid 2000s. (Beef CRC Maternal Efficiency, Trans Tasman Cow Efficiency). We think that a single cow efficiency EBV that includes mature cow weight, condition score and frame would be a good place to start. We have submitted mature cow weight since the trait was introduced into Breedplan.



Lucinda speaking with the Pakistan Dairy team who visited us during the year.

BEST BETS FOR METHANE REDUCTION IN BEEF CATTLE

Professor Richard Eckhard from the Primary Industries Climate Challenge Centre outlined the emerging and established technologies for reducing methane emissions at the recent Tropical Agriculture Conference. He suggests that lowering emissions will be multi faceted, from current known technologies through to blue sky solutions.

These include the addition of tannins and oils to feedstuffs for intensive production systems – dairy and feedlot cattle. Tannins are common in some legumes such as the black wattle (*Acacia mearnsii*), leuceana and lotus. Oils of interest include that found in grape marc, a by product of the wine grape industry which is used in feedlots. The oil is found in the grape seeds. Other compounds such as 3 – NOP is currently being investigated for blocking methane production.

Animal house studies conducted by CSIRO have found up to an 80% reduction in methane with the small addition of red algae (*Asparagopsis*) to the diet. The caveat on this work is the present of bromoform halogen compounds which have been shown to have toxicity issues in some studies.

Vaccination against methane production to save energy has been a program of work for more than two decades, the hypothesis being that if the belched methane is converted into a different biochemical pathway in the body, the energy currently lost can be saved.

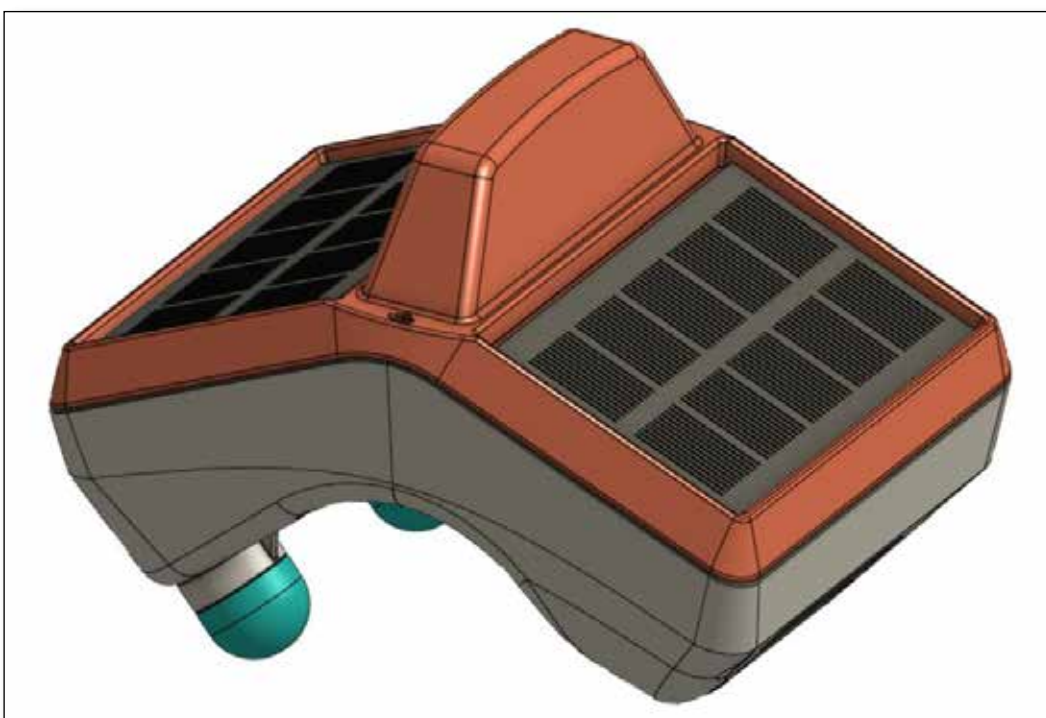
The low hanging fruit in the reduction of methane is the potential to change herd structure, reducing the average age

of the cowherd and also improving productivity so that prime stock are marketed at an earlier age. These practices lower the emissions intensity in the product.

Then there is the approach taken with genetic improvement, to improve growth and productivity and the potential to change the rate of methanogenesis in the rumen. There are antagonistic relationships that need to be managed, as leaner and faster growing animals in a supplemented situation have been shown to have lower emissions. The question for the breeder is always, what will such a selection goal have on the efficiency of the cowherd, grazing on forage in the paddock. Will it raise cost of production or lower fertility in a commercial situation?

The answer is similar to many trade offs in selection efficiency, there are animals that have the genetic profile that counter the common relationships which can be used to progress to the breeding goal. Progress will be slow with a number of priorities, high fertility, calving ease, fast growth, tender, marbled beef, docility, structure to name the topline goals.

Professor Eckhard said that the risk in this work was that the work to inhibit methane production may inhibit sound rumen function, a trait that would be disastrous for foraging ruminants. His closing remarks were that the research is long term and requires global collaborations and investment.



Virtual Fencing technology developed by CSIRO and in pre commercial trials is a technology breakthrough that will enable better management of pastures and livestock without the need for permanent fencing.

JOHN VERCOE MEMORIAL LECTURE

Dr. David Johnston Animal Genetics and Breeding Unit,
University of New England

David is broadly involved in research and development of improved genetic evaluation procedures and industry application for Australian beef cattle. His current research is focused on developing enhanced evaluation of reproduction traits enabling genomic selection that will drive increased rates of genetic improvement, particularly in tropically adapted breeds.

At the 2019 conference of the Association of Animal Breeding and Genetics, David Johnston gave a wonderful presentation to commemorate the contribution of Dr. John Vercoe to Australia's beef industry. This is a summary of a terrific presentation that covered many of the challenges we are facing in genetic improvement in a changing environment.

'SELECTING PROFITABLE BEEF CATTLE – back to basics'

David opened the lecture with a caution. Due to the Genetic x Environment interactions it is important to conduct interdisciplinary research. The lecture was peppered with very funny photos of John and his family and jokes about genetics which lose impact in recounting the content.



David Johnston where he loves to be - in the yards with the cattle.

LESSONS FOR TODAY

David posed the question, What Would John's advice be?

- Surround yourself with talented people
- Work together smarter not harder
- Be prepared to listen to others
- Always be curious
- Don't be afraid to take risks
- Be an innovator
- Publish our work
- We need effective leaders
- Be passionate
- Make complex issues simple
- Genetics is simple

And what legacies did John leave animal breeding?

Genetics works!!!

Phenotype is genetics + environment.

BACK TO BASICS

- EBVs work! – they describe genetic differences between individuals
- **ESTIMATED BREEDING VALUES** should be called **PREDICTED BREEDING VALUES**

WHY AREN'T WE MAKING PROGRESS? – relevant to all breeds, depending on adoption

- Selecting changes phenotypes, eg. Small cattle to big ones!!
- Avoid chasing fads and maintain the balance
- Manage inbreeding and maintain genetic diversity
- Mate allocation
- Power of crossbreeding, underutilised, good and bad traits
- Loss of breed differences
- With the development of multibreed ebvs will have greater power to select
- Hybrid vigour
- Not a free lunch – bigger cows and BWT, source of replacement females
- Product concerns marbling
- Increase reproduction, progeny test, crossbred
- The importance to maintain calving ease

THE CHALLENGES

- Attack methane emissions from beef and the role of genetics
- The challenge of adapting to a warming environment with less available feed.

continued over page

- Increasing pests and diseases such as Buffalo fly which has become endemic in New England area of NSW.
- Will that mean more Bos indicus genetics in the south?
- How big do our cows need to be, considering mature size, feed intake, survival, body condition score. Do we need additional ebvs?

To deal with all these challenges, David proposed a series of solutions that require research and development in genetic evaluations to improve them, more customised indicies, better recording because of the importance of phenotypes in the genomic era.

New traits will be recorded such as immunity to disease, health traits for the consumer, efficiency traits including cow intake at pasture, body condition score and the greater use of commercial data.

Current large investments will deliver multibreed analysis which will enable the commercial industry to find efficiencies with planned crossbreeding.

What will be the role of family operations versus the increasing corporatisation of the control of genetics that we see in the dairy industry for example? (See the Rennylea newsletter editorial Summer 2019 when we discussed these changes.)

Added to that are the advances in reproductive technologies such as sexed semen.

In the genomics era, the development of single step has been a disruptor and the changes are reflected how that is influencing industry structure. With 2.8m Holsteins genotyped, a genomic test is worth 25 to 140 phenotyped daughters.

This leads to a great advantage in genotyping at birth.

Genomics will keep disrupting with the advances in chips, methods, data. His advice to breeders is to define the breeding objective, know your environment and record, record, record. As complexity increases, build your capacity, work with the research, be part of the reference population and take advice!

David concluded with John's final advice

DON'T TAKE IT ALL TOO SERIOUSLY HAVE SOME FUN!!!



David talking at a field day.

OPT FOR SCIENCE NOT MAGIC

Recently two well known cattle consultants wrote about a trend in agriculture to disregard research and development and rely on anecdotes which was published in The Land Newspaper in October. Ian Maclean and Phil Holmes have given their permission to highlight the article "Avoid Magic Opt for Science".

The link is here to read this article in full.

<https://www.theland.com.au/.../why-farmers-should-avoid-magic-and-opt-for-science/?...>

The article highlights that agriculture is the most multidisciplinary of vocations. Producers need to be adept in many areas to manage their land, the pastures, their livestock, their people and their finances.

"Firstly; conventional agriculture as a whole is neither archaic nor unsustainable. It is not, and should not be presented as a binary choice, i.e. either conventional or new-age. There is a continuum of management practices within so-called conventional agriculture. At one end there are agricultural professionals who incorporate the latest proven research into a management system which effectively manages the fundamentals for their enterprise and location, these producers are seriously profitable and can tick all of the boxes for a sustainable agricultural business."

RENNYLEA FEATURED IN LATEST AUCTIONS PLUS SALE DAY MAGAZINE

Auctions Plus contacted us for an article for their electronic newsletter, the link for which is below. It gives a history of the business and the transition to the fifth generation of the Corrigan family.

<https://auctionsplus.com.au/sale-day-magazine>

AUSTRALIAN SCIENTIST EXPLAINS THE EMISSIONS CHALLENGE FOR AGRICULTURE

Science communication is Dr Alison Van Eenennaam's great talent. Trained with Prof. Mike Goddard in Melbourne, she is an Extension Specialist in Biotechnology and Genomics with the University of California Davis Campus. The following article has been recently published in the Australian Farm Institute newsletter and presents the data on Australia's agricultural emissions, some of the myths and challenges. Well worth reading!

https://animalbiotech.ucdavis.edu/sites/g/files/dgvnsk501/files/inline-files/SheepBrains%202019_Van-E%20AFPJ.pdf



We were delighted to host Shannon Landmark and Luke Evans, recipients of the Zanda MacDonald award in 2019. Pictured with Ruth Corrigan and Rozzie O'Reilly who runs the breeding program at Lambpro with Tom Bull.

Focus | Integrity | Performance | Profit | Commitment | Innovation



www.facebook.com/RennyleaAngus



twitter.com/CorriganLucinda



JBAS8

**BRYAN & LUCINDA
CORRIGAN**
"OLD RENNYLEA"
BOWNA VIA ALBURY NSW 2642
MOBILE 0409 038 993
BRYAN'S 0429 038 993
email:
rennylea@bigpond.com

SUE GOVAN
MOBILE
0427 038 993

RUTH CORRIGAN
MOBILE
0400 302 629
ANTHONY CORRIGAN
MOBILE
0437 043 443