

EDITORIAL

2018 has arrived! We hope the weather pattern is less variable than 2017 and delivers the rain you need this coming year. What an unusual year 2017 turned out to be, with the highest rainfall in December and the lowest in June at Rennylea.

In this issue we pay tribute to Peter Govan who has been with us for 17 years since the beginning of the century. Peter is retiring to run his own cattle business at the end of March. Beef Week on January 30th and the March bull sale on the 13th March are good opportunities to catch up with him.

The great news is that Sue is staying on! Peter and Sue are building a new home on their farm at Culcairn not far from Ellerslie Park. We are building a new office near the bull sale complex and Sue will continue in her current role of maintaining the extensive Rennylea database, collection of phenotypes and genotypes and client servicing. In addition she will also coordinate despatch and provide the 'shop front' entry point to the business.

We have had a terrific year with Anthony at home and working in the team at Culcairn with Dirk, Peter and Sue. Dirk and Anthony will take on more responsibility when Peter departs and you will see a lot more of Anthony in the truck, delivering bulls and discussing your needs.

At Rennylea Ruth has assumed the operational management of the cow herd, the reproductive, nutrition and recording. She works closely with Bryan to implement a seamless changeover in the selection and mating of the 1,500 cows. She has been supported by Shayne Halfpenny for the last 12 months. We are also delighted to welcome Hayley Mitchell and Fergus Hassall to the team for 2018. Hayley is completing her honours year at CSU in Animal Science and Fergus has just completed his 3 year Agribusiness degree at Marcus Oldham College. Both are Riverina locals, Hayley coming from Temora and Fergus from Holbrook.

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Autumn sale bulls.



Research and Development is a key element at Rennylea, following a long and proud history of collaborating with research institutions. This commenced in the early 90s with The Validation Project, followed by providing genetics and data for 3 Beef CRCs. In CRC3, Rennylea was one of the collaborators in the Maternal Efficiency project and this has continued with the new Trans Tasman Beef Cow Profitability Project.

We are also collaborating with the CSIRO, Zoetis and Angus Australia in a new project to analyse our genomic information and an update appears later in the newsletter. This work will be a breakthrough analysis of the value of genomics at a herd level. Later in the year we will hold a seminar with an international speaker and publishing our results.

When we look back on the last 12 months, it has been another full year. We visited clients in WA, New Zealand, Central Australia in addition to the countless day and overnight visits closer at hand. Bryan and Lucinda attended the World Angus Forum and pre conference tour in England and Scotland, Peter completed the Rabobank Executive Development Program. We also hosted the wedding of Martin, our eldest son, with

Cristina Romanin in November which was a delightful family occasion.

We have also initiated the most important discussion in the post genomic era #whocollectsandwhopays and taken leadership of the discussion about Trust in Breedplan. (see the Winter issue on the Rennylea website).

Our bull auctions for 2018 will be held on the 13th March and the 30th August. We will be attending Beef Australia in the first week of May in Rockhampton and are available to visit Northern clients and others interested in our breeding program. Let us know! Ruth is leading an intercollegiate Meat Judging group to Japan in late February. It will be fascinating to hear what she learns. Please contact any of the Rennylea team for a visit or follow up recent purchases.

CHARLES STURT UNIVERSITY ICMJ SUCCESS

Rennylea has sponsored the Charles Sturt University Intercollegiate Meat Judging team for a number of years. Last year's team achieved great learning and success in the competition. Three members of the team were selected to attend the finalists training in Brisbane. The team of 16 students achieved a number of personal awards including the coach Tamara Heir. Rennylea also hosts the team each year at Ellerslie Park, focusing on genetic improvement and meat quality.



CSU students Lachlan Woods and Jake Bourlet, along with Emily Webb Ware (University of Melbourne) and Harriet Moss and Bridie Luers (Murdoch University), were selected on the 2018 Australian team and are currently in the US touring and competing for a month. The team have performed exceptionally well already, winning the Southwest Invitational Competition hosted by Texas Tech. This is an amazing achievement for a group of Aussies with little prior exposure to the US meat grading system!



SINGLE STEP IMPLEMENTED, THE DISRUPTION IN GENETIC IMPROVEMENT IN LIVESTOCK

The biggest single change since the introduction of the National Beef Recording Scheme, leading to Group Breedplan in 1985, was implemented in 2017.

Known as 'Single Step' the analysis combines phenotypes and genotypes using the Relationship Matrix, (replacing pedigree information), which is the true relationship of an animal to its sire and dam. Single Step has now been implemented in Australian Brahmans, Herefords and Angus.

The Australian Angus single step follows on from its implementation in US Angus in July. The single step analysis incorporates all genotype, pedigree and performance data to produce the breeding values. There is no longer a need to incorporate the Molecular Breeding Values as separate traits and the routine calibration that was necessary with the previous 'additive' process is also no longer required.

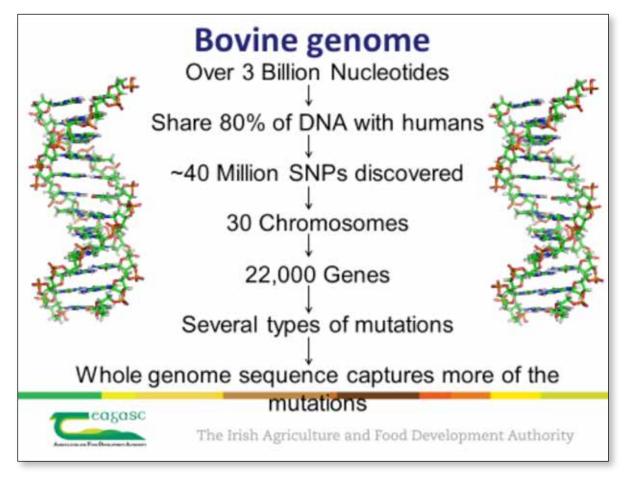
The US analysis is based on 1/3 of the new registrations in 2016 having genotypes which has risen sharply since molecular assisted breeding values became routinely available in 2010. As with the adoption of single step in Australia, the new analytical model was tested extensively prior to release. For example, in the US all the data post 2015 was

stripped out and the two methods used to calculate the breeding values. Then the breeding values were compared to see how accurately they predicted future performance. This analysis found that the breeding values predicted by Single Step were more accurate than the previous additive method. It will be interesting, down the track when there are significant numbers of cohorts genomically tested, to see the predictive accuracy of future performance in Australia.

In summary, the benefits of Single Step include:

- Eliminates the need for periodic calibration, allowing constant inflow information into the database
- ii. Simplifies the model, eliminating unnecessary correlations that add noise (in accuracy).
- iii. An improved carcase model
- iv. Eliminates a source of bias due to culling, because not all genotyped animals have progeny that are progeny tested.
- Uses a more accurate relationship matrix based on actual genomic relationship of genotyped animals rather than pedigree estimates of inbreeding (see last issue on website for the explanation of how this works)
- vi. Eliminated yearling weight drift
- vii. Increase accuracies, (note that the accuracy figure given pre single step is not directly comparable with the post single step accuracy, they are different calculations).

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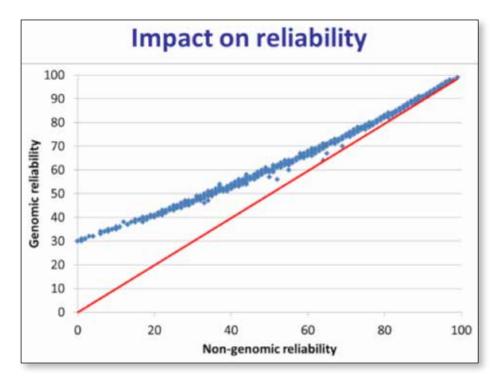




The most important point about Single Step genomic evaluation is that it is superior in its ability to predict future progeny performance.

Why will it be disruptive? If you look at the dairy industry, a large portion of the bulls are now selected genomically at

a very young age. Progeny testing has been replaced by a greater predictive accuracy at birth for the key traits. The slide from Dr. Donagh Berry leading geneticist in Ireland shows the error rate in pedigrees which is picked up by genomic testing, 15% in beef, 13% in sheep pedigrees and 7.5% in the dairy industry. Note that in Ireland all new registrations have genomic tests, paid for by the European Union.



RENNYLEA R & D DEMYSTIFYING GENOMICS AT THE HERD LEVEL

Rennylea has carried out approaching 5,000 genomic tests, in the K, L, M, N age groups. All the retained L, M and N animals have been tested genomically with the i50K test which is building accuracy throughout the pedigrees with the implementation of single step. Rennylea has the largest within herd genomic database in Australia, and as a consequence the Single Step changes have brought about a greater influence on our database than any other breeder. We are also genomic testing the whole drop of animals.

We are, based on our communication with the leading geneticists globally, confident that this is giving us the most accurate result for our selection program and our clients and their clients through the value chain.

Our work with CSIRO and Zoetis will be completed in the first half of the year and we will report in our next newsletter.

Rennylea has focused on innovation at a business and herd level for many years. The collaboration with CSIRO and Zoetis is a new way of working, as the signatory on the contract and matching our coinvestment with public dollars through the CSIRO Innovations Connections Program.

We can see this will become normal practice as business innovation becomes paramount in an increasingly global marketplace. It also enables us to obtain Research and Development tax benefits which make our matching investment worthwhile.

A recent article in the Australian Farm Institute highlights the importance of growing the public – private sector partnerships and investment in Australian agriculture. The evidence suggests that a strong public system, delivered from Rural Research and Development Corporations, universities and CSIRO enables a strong and growing private-sector agricultural R & D sector. International evidence also supports the premise that a strong public sector supports private investment. The two are seen as complimentary, pre competitive, public good and basic research done by publicly funded organisations while the private sector focusses on applied research and commercialisation.

The challenge for an SME (small, medium enterprise) such as Rennylea is negotiating the contractual agreements and other transaction requirements in an assymetric relationship with a corporate research organisation, such as a university or CSIRO. New learnings!



PETER GOVAN DAIRY FARMER TO BULL SUPREMO

Late in 2000, we advertised a 'Working Manager' position at "Ellerslie Park" Culcairn. At that stage we had owned EP for 7 years, had been through a considerable development phase, raising the fertility of the soils, sowing new perennial pastures and planting trees. When we purchased the property it was with the intent to diversify back into merino sheep as the enterprise was being squeezed out by the growing Angus seedstock business.

Looking back on the advertisement, one line catches my eye.

"There is opportunity to grow with the business." I shall return to this later!

Peter and Sue joined Rennylea in February 2001. Both Peter and Sue had extensive experience in beef and dairy family businesses, including their own, and in other corporate roles. With Peter, this included 5 years at Mandalong Park with the Pisaturo family, dairy overseer at the Emu Plains Correctional Centre and 4 years sharefarming at Kempsey on the NSW North Coast.

They came to Culcairn with their young family, Katelyn 7 and Megan 5. All members of the family quickly settled into school, work and the community.

At that stage we were running merino sheep and some young cattle at Ellerslie Park. The cowherd and bull production took place at Rennylea. Peter's old dairy dog, Roy, like Peter, soon adapted to sheep work. 2001 was an incredible year, if you look at the rainfall records, you see a dry winter, which followed a wet year in 2000. Then it rained in the spring and the grass grew!

Then we hit the 2002-2003 drought or more accurately, it hit us! While we had significant fodder reserves it was soon apparent that something had to give. The sheep went in late 2002, somewhat sadly, a quality flock bred continuously for more than 50 years.

This enabled Peter to use his considerable cattle skills more fully, and the development plans at Ellerslie Park commenced. First came the new yards in 2002. At the same time we built an office at Rennylea.



2001



2007



2016



2017



Lucinda and Bryan were marketing 200 bulls by private treaty, in 2001 this was more than \$1 million in bull sales. But it took up ALL our time, 6 months of the year or more and put undue pressure on all hours of the day and night. With Peter and Sue, we planned to commence on property auctions, at Rennylea.

However, in discussions with other parties including our agent, it became clear we needed mobile phone reception, and hence the change in plans and venue.

Since 2004, Peter has run the logistics of 26 bull sales at Culcairn. This was a massive task, for the first few years, without full time supporting staff. In 2005 he found sheds advertised at the Richmond Air Base and hence commenced the next big project, covering the yards and building a sales complex. Long term clients will remember the first sale in a marquee, the somewhat awkward moments, poor light control and the hard to see video.

In 2006 we commenced spring auctions in addition to the autumn sales. Not a great year to commence, as the season again collapsed completely and we were out of feed by the beginning of October. New bull yards were completed for the spring sale.

The next few years till 2010 were living hand to mouth, in terms of dry matter production, bringing pastures into production with low rainfall years. We leased a number of properties during the 2004-2010 years, those blocks also ran out of water. We were searching for different options to sure up our feed supply and bought "Hope Farm" in early 2010. This gave us another home at Culcairn, and we were able to appoint a very able Assistant Manager to Peter, Angus Brown.

2010 to 2018 has been a much kinder period, especially for those of us in livestock, excepting the gruesome low prices of 2013/14 when the liquidation of cattle in the Northern industry depressed prices throughout Australia. Peter now manages the four properties at Culcairn including "Kalinya" (purchased 2013) at Morven and "Wyuna" (purchased 2015) where Peter and Sue moved at that time. There are also 4 full time staff on the properties and one floating between Bowna and Culcairn.

The original statement "There is an opportunity to grow with the business" certainly eventuated!

Peter's role in the business and its growth and success cannot be underestimated. The 26 auctions (2004-2017) have seen 2294 bulls sold for an average sale price of \$7,333, with no credits or funny money. In addition he has become the contact point for many Rennylea clients including delivery and after sales service.

These figures belie the total picture, in 2017, 237 bulls were sold at auction, however in addition a total of over 550 bulls were sold for the 12 months, including contracts, leasing and private treaty. Peter has had a role in all these sales not to mention despatch and problem solving.

Over the years we searched for personal development opportunities for Peter and in 2017 he completed the Rabobank Executive Development Program for Primary Producers networking with a wide group of producers from Australia and New Zealand. Picking a good time to make a change he decided to retire from Rennylea after the March bull sale. The timing is also great for their family, as both Katelyn and Meg have completed university, Kate a primary school teacher and Meg an occupational therapist.

His other passion which some may not know about is his love of Collie dogs. Roy was the first dog he brought to Ellerslie Park. Over the years there has been Paris, Boon, Doc, Fred and a young bitch from Ceri Lewis in New Zealand, Sophie. Peter has become involved with cattle dog trials and experienced some early success in the trials, which has ignited his passion further. We are sure we shall see these pursuits blossom in the future.

Peter and Sue will have completed their new home along the Billabong Creek from Ellserslie Park in the autumn and Sue will continue with an expanded role within the business.

Peter has played a key role at Rennylea for all those years and everyone in the team wishes him great success for the future.









PETER'S FAREWELL

"I love a sunburnt country, a land of sweeping plains, of ragged mountain ranges, of droughts and flooding rains" and that has certainly been the case for the last 17 years I've been working here at Rennylea. We have weathered some extremely tough years through the drought, had some exceptionally good years, and then to the extreme of major flooding.

Even though the climatic conditions have varied dramatically, there has always been the one constant – and that is you, the people involved in this business. From Fellow co-workers to Clients, Vets, Agronomists, Agents and Contractors, you have all enriched my time at Rennylea. I greatly appreciate the support and learning experiences you have given me. I am proud to call you my trusted friends.

I've decided to jump the fence and work in the commercial industry, so will look forward to seeing you all at future sales. We are currently building a home on our own property just down the road (so I will be keeping an eye on what is going on!!)

Thank you to the Corrigan family. It has been an absolute privilege and pleasure to work in a family business with such high integrity. Thank you Bryan for mentoring me and sharing your exceptional cattle skills and Lucinda for your Industry knowledge and business skills. Thank you all for your continuing friendship, which we value highly.

Over the years, there has been many laughs, a few tears, lots of sweat and many great achievements and I wouldn't change any of them. I am very proud of the accomplishments that this business has made in my tenure and look forward to seeing further success with the next generation.

The outlook for Agriculture is looking fantastic and we are all hoping that this continues for many more years. In these busy times that we live in, never forget to live with passion, love deeply and laugh out loud!

Cheers Pete



Peter with David Haley checking the numbers on sale day.









MARKET TRANSPARENCY IN COMMERICAL AND SEEDSTOCK SALES

Following a stoush at the opening sale of the new Barnawatha saleyards in February 2015, The Australian Competition and Consumer Commission (ACCC) launched an enquiry into the cattle and beef industry in April 2016. This was driven by a combination of issues raised through previous ACCC investigations and in the Senate Inquiry into the effect of market consolidation on the red meat processing sector.

The recommendations focussed on more transparent price reporting including publishing grids on direct sales to processors, unannounced AusMeat audits in processing plants, independent dispute resolution between processors and producers, the prioritisation of objective measurement as the basis for payment. The report can be read at https://www.accc.gov.au/publications/cattle-and-beef-market-study-final-report

In the stud industry there has been little discussion about non transparent practices. To make sure that the sale ring is a level playing field for all buyers, we committed to no credits at Rennylea auctions from the first sale. We have had countless discussions with buyers who have 'credits' with other seedstock producers and are frustrated that the process.

We have always considered credits as lacking transparency in the auction setting, and having a five figure one ourselves some years ago, went through the drawn out process of trying to find a replacement animal(s) that would suit our breeding program.

Recently, there was commentary in a newsletter from PCC Ranch in Colorado about the games that go on with the sale of high prices cows and bulls in the States. The author is Kit Pharo from Pharo Cattle Company.

"In last week's PCC Update, I said we had no funny-money bulls to artificially inflate our sale average. A few subscribers asked me to explain what a funny-money bull is. My definition of a funny-money bull is a bull for which the sale price has been determined prior to the sale. Many of the big-name, status quo seedstock producers utilize this technique to inflate their sale averages and/or to make certain bulls appear to have extreme value.

Funny-money bulls sell for ridiculously high prices – from \$50,000 to over \$500,000. Believe it or not, one overfat

(Diesel) Bull sold for \$700,000 earlier this year. Very impressive – that is, until you realize there was no second-high bidder. That's right... they run the price up to the predetermined amount with no real bidding taking place. This is one of several ways status quo seedstock producers and AI companies dupe real-world cow-calf producers."



Mick Keogh

ACCC Commissioner Mick Keogh was the keynote speaker at MLA's AGM in Alice Springs last November. He outlined the important principle of market transparency and gave the example of the behaviour of investors in the stock market.

"They have identified two main factors that underpin investor confidence in share markets. These are the rules that specify listing, trading and company reporting requirements, and secondly the market reporting system, which provides instantaneous and comprehensive share market information, available to anyone, investor or not."

The discussion moved to direct sales of livestock, it is believed that 90% of slaughter cattle and 60% of prime lambs are sold directly. In the absence of comprehensive market reports for these sales, there is obviously an increased risk that anti competitive behaviour could be occurring, or that livestock farmers will make poor production and marketing decisions, meaning the entire market will operate less efficiently.

He argues the point succinctly, that poor market information leads to lack of confidence and investment and the future growth of the industry. The ACCC is keen to see improved reporting in 2018.



LINKING TRANSPARENCY WITH PRODUCTIVITY GROWTH

Mick Keogh turned his attention to the need for sustained productivity growth in the Australian livestock industries. The key issue, how to harness data and digital capability to remain competitive.

He quoted Australian milk yield per dairy cow has increased 220% since 1970 while the average beef carcase weight has increased 160%, giving the dairy industry twice as much gain in productivity.

"Objective carcase data has the potential to boost productivity in the beef industry to a similar extent, especially by enabling livestock producers to link genetic information and management strategies with ogjective carcase performance" he said.

"These investments depend on the confidence that the farm sector has in the way that livestock markets operate in Australia."

PADDOCK TALK BY BRYAN

2017 was a mixed bag as far as seasons go, generally quite good in the south, tough in much of NSW with some areas coming good with late rain. Then it was patchy across much of Queensland, NT and SA.

It was also a busy year in the seedstock industry, a lot of confidence shown and a lot of AI particularly in heifers.

At Rennylea we have invested heavily in genomics, because we are convinced of the major role it will play in ensuring we provide the best product for our clients.

The biggest change in performance testing since EBVs were introduced came in the December run of Angus Group Breedplan with the introduction of Single Step. In seedstock world this has caused a lot of discussion and some negative. I think it is an exciting change, the figures will settle down and life will go on!

Rennylea has been in a different position because around 20% of the Angus database of 25,000 tests come from our herd. I have spent some time looking at the resuls in our herd. There have been quite large shifts in some individual bulls, some positive, some negative but the genetics profile of the herd has not changed and averages of al EBVs and indicies are very similar.

This does not surprise us, the exciting thing is some individuals have moved significantly. We will be able to make more informed decisions particularly in relation to the young bulls we introduce into our herd and also our replacement females. These decisions are made at a young age, 400 days for the bulls and younger for some females.

The system before didn't differentiate between full siblings, only on individual performance, the relationship matrix clearly now shows up their correct relationship to their parents.

We expect the analysis will take some time to settle down, particularly in our case as we have so much genomic information. However, I am sure this will deliver more accurate EBVs which will enable clients to hone in their breeding objective which will help consistency in an emerging value based market.

We will continue to run our cows the same, 6 week calvings under heavy stocking rates, finding the phenotypes that handle such a system, emphasis on moderate maturity patterns and still concentrating on carcase traits.

Calving ease traits are not included in single step – bulls with short gestation will still have an advantage in calving ease and days to calving. I think that selection for short gestation needs to be kept in perspective, as it is highly heritable (65%) and has the potential to cause problems if it gets out of balance.

I have noticed in the last year articles by breeders that infer that herds that are heavily into performance have lost phenotype and what Angus females are meant to be. One thing I learned in going to the World Angus Forum in the UK is that breeders there have not only put no emphasis on carcase quality traits, but they have also created cattle that are far too big and have lost phenotype.

Every breeder has their own opinion, however there are performance breeders that do understand phenotype and the profit drivers in commercial herds. An Angus cow that calves easily, rebreeds in 6 weeks under restricted feed and whose progeny meet quality market specifications will be the cow that makes commercial clients profitable.



FARM SUCCESSION - WHAT DOES BEST PRACTICE LOOK LIKE?

In succession planning at Rennylea we are using a number of advisors and mentors to guide our processes. One of these is Mike Stephens, well known agricultural consultant, former Executive Director of the Beef Improvement Association and confidant to us over many years. Mike is currently writing a study on modern day succession planning and what best practice looks like. He contrasts it with the not so successful outcomes and highlights the attributes of the businesses that are successfully transitioning to a next generation vs those that are not. We are one of the 16 case studies.

Table 1: Contrasting Attributes of Continuing and Not Continuing Businesses.

From our experience, there are a number of important principles:

- i. You cannot start too early, in our case we commenced the process in 2011, and are now on five year cycles in terms of checking in with where each person in the family is up to, their goals and aspirations.
- Formal meetings, agenda and notes are very important.
 There are no 'cattle yard conversations'.
- Each person is respected, and it is understood that fair is not always the same.

Business continuing	Business not continuing
Intelligent leadership	Autocratic, patriarchal behaviour
A history of well thought out succession	Poor history of succession
Progressive farm management	Doing things the way we always did
A focus on the customer	What customer?
The intelligent use of capital	Using capital to support the lifestyle
Preparedness to go into debt and maintain low equity	Totally debt adverse and maintaining lazy capital in the business
Deliberate strategies to encourage stakeholders	A strategy of keeping stakeholders off farm and disengaged
Managing with humility and quietly going about your business	Maintaining your position in the family and society as somebody very important
A determination not to live like peasants	A determination not to look like peasants
A common end game goal	No agreement about the end game

WHAT DETERMINES BUSINESS SUCCESS? MARKET ACCESS OR COST OF PRODUCTION?

Many commentators and agri-politicians make the mistake of thinking that new market access treaties will usher in golden ages of profitability in the beef industry. They equate the industry opportunity to business success.

There have been some welcome 'breakthroughs' in trade agreements, especially with countries around the Asia Pacific Rim. The US Free Trade Agreement was one of the early breakthroughs, followed by the Japan Free Trade Agreement, the Korean Free Trade Agreement and then China. In each of these negotiations, Australian beef has been treated kindly and extra opportunity is created throughout the value chain.

Improved market access does not equate to higher prices as supply and demand operate to drive global prices for the myriad of markets x cuts x business relationships etc.

The liberalisation of the Japanese market early in the 1990s, enabling the foreign importation of beef of 700,000 tonnes per annum, sent a profound market signal to Australian beef producers, particularly of Angus cattle. That demand created opportunities that led to an expansion in the feedlot industry, to the demand for highly marbled beef and consistency of quality. It brought about the popularity of Angus cattle that is reflected in the increasing numbers of Angus cattle around Australia.

The recent improved access in China, the relaxation of protocols for importation of chilled beef are also new opportunities. The Chinese market is a long play, 'go early, stay long'.

But they do not guarantee business profitability or success.

Rennylea has built our own business and reputation on cost of production. If you haven't read Lucinda's paper to the Angus Conference in 2000 it was a seminal paper showing that COP accounts for 75% of the difference in profit between the top 20% of producers and the average producer. It will be on the Rennylea website. The principles are still the same with a much higher cost base.

Two new studies highlight the quality of management and cost of production as the driver of beef profit. Resource Consulting Services recently published data on profit in the Northern Beef industry on the Beef Central website.

The report discusses the change in Return on Assets since the year 2000, pointing out that the last three years have averaged the highest ROA since the turn of the century. However the report clearly shows that price received has no relationship with ROA and some years with higher average ROA had lower prices.

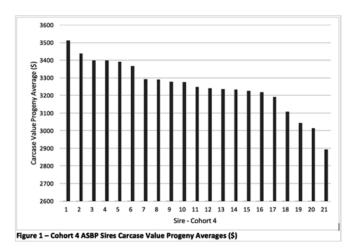
In an analysis of the 2016-17 year, the report graphs cost of production and price received against ROA. These graphs show that there is no relationship with price received and a strong relationship with cost of production.

The second study is by Agricultural Consultants Phil Holmes and Ian Maclean. The report shows the profitability by herd size and region across Australia, makes recommendations based on the conclusions drawn from the data and links to tools and websites with management aids to improve profitability.



RENNYLEA G255 EXCELS IN BENCHMARKING PROJECT

Progeny Average Values for the Cohort 4 ASBP Sires Sorted in descending order by Carcase Value (\$). We were recently notified by Christian Duff who coordinates Strategic Projects for Angus Australia that Rennylea G255 is Bull No. 1 on the graph below.



The carcase results for Cohort 4 of the Angus Benchmarking project show that there is ample scope to select Angus sires and genetics for the component traits that impact on the overall value of Angus carcases such as carcase weight and marbling score. Importantly, the corresponding EBVs available for selection decisions, being the Carcase Weight EBV and Intramuscular Fat (IMF) EBV, have a strong, positive

relationship with the progeny average values as shown and the graph below for IMF EBV to MSA Marbling score. Angus breeders with a goal of genetically improving carcase value should therefore have confidence in utilising related EBVs in their selection decisions.

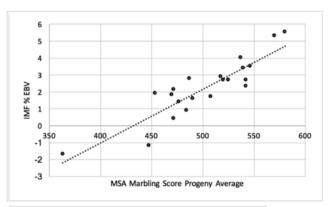


Figure 3 – Relationship between MSA Marbling Score progeny averages and IMF EBVs for the ASBP Cohort 4 Sires







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Peter Govan:
"Quality genetics
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affordable."