

HELEN NEWTON TURNER MEDALLIST ORATION 2007

CREATING VALUE FROM GENETIC IMPROVEMENT

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Trustees of the Helen Newton Turner Medal Trust, Professor Van Der Werf, ladies and gentlemen.

My challenge is “where to start?”. When I read the orations from previous medal recipients, it was clear I needed to talk about where I spend my time, which is at the interface of science and industry.

Harold Wilson said, “Courage is the art of being the only one who knows you’re scared to death”.

This may be true on public occasions, but to lead into the future, Mark Twain captures the sentiment aptly;

“It is curious that physical courage should be so common in the world and moral courage so rare”

I looked up the word oration, thinking it may give some further clues on how to approach this event. “Speech of a ceremonial kind or harangue” from the Oxford dictionary. And a harangue is “A speech to an assembly, a loud or vehement address.”

I promise not to harangue!

I could spend this valuable time, describing the world I was brought up in, on a Riverina sheep station, working large mobs of merinos in dusty yards, sheep sales where tweeded Merino breeders parted long, Peppin staples with loving hands, never ending discussions on sheep breeding between my father, Martin Bell, and his close friends, Corriedale breeder Peter Sloane from ‘Neyliona’ and Merino studman Raymond Taylor from ‘Pooginook’.

Or, following university, joining the newly established cashmere goat industry, under the tutelage of wool and mohair supremo, Fred Moylan, breeding 4,000 does at Kinross Cashmere Company, eventually starting a cashmere group breeding scheme with Doug Winter, who had worked with Dr. Barrie Restall at Wollongbar Research Station and then the Australian Merino Society. Or, joining a fourth generation farming business in 1986, where Bryan had started selling small numbers of Angus bulls a few years earlier; to expanding the herd to its current scale.

1. However, I thought I would start with maternal genetics!

Being female and accepting a great female scientist’s legacy, it seemed an appropriate place to start. Helen Newton Turner’s name was well known to me by the time that Dr. Frank Nicholas taught us genetics at university, her efforts hotly debated by the tweeded merino men and not always with reverence!

Traditionally, the role of females in genetic improvement systems can be overlooked, when the contribution of genes by the male of the species is so much greater.

Consider the value of the following group of cows, and their attributes in 2009. (All these cows are searchable on the Angus Australia website under these identities)

Helen Newton Turner Medal

NOR V97 – born in 2000, this high performing cow has had 57 progeny, and grossed over \$90,000 in income. She has high performing carcass genetics, in the top 1% of the breed for marbling and top 5% for the Certified Australian Angus Beef, Long Fed index. She is an Angus Performance Registered cow.

NOR W449 – Born in 2001, this elite cow has had 60 progeny, producing sale topping bulls a few times. Her performance is at the very top of the breed in carcass and fertility genetics. She is also an Angus Performance Registered cow.

VBB M14 – Born in 1992, we purchased this cow when she was young and she has produced over \$100,000 income with a total of 112 progeny. She is an Angus Performance Registered cow.

VLY Y5 – Born in 2003, this is a high performance cow with 18 progeny, whom we purchased when young.



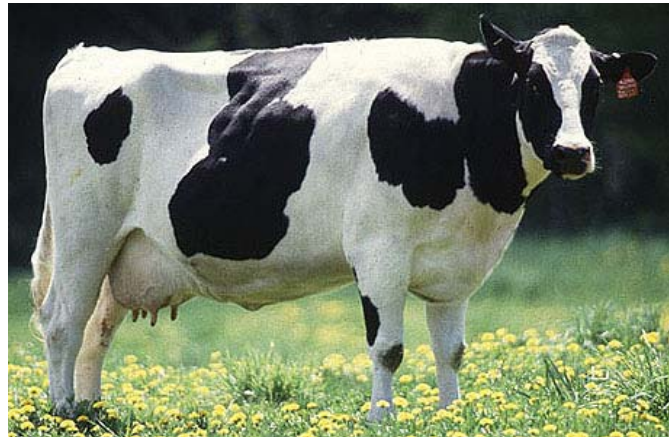
These are all elite, proven breeding cows, the first three are Angus Performance Registered, and the VLY Y5 is a Herdbook registered cow. On market value, the Y5 cow is worth much more than the other cows collectively, based on her registration status. On a return on capital basis, the others are way out in front and their genetic merit is judged by the performance of their offspring and reflected in their own breeding values.

That is solely due to their genetic description, created by the collective efforts of the Australian industry in genetic improvement. The APR cows would have remained anonymous and undescribed, had it not been for the ability to measure and record their performance in our national evaluation system Breedplan. You may agree with me, that it is an anachronistic system, where

value is created by a studbook entry category, rather than any relationship to their value in the supply chain.

2. Costs and a Serious Dilemma

The average Australian dairy cow eats over 200MJ of energy a day compared with an average Bos Taurus beef cow who consumes around 120MJ. Contrary to some proponents, I don't believe the future for the beef industry is ever increasing cow size, like the dairy industry, because we are competing internationally and with countries who have very different cost structures to our own. We have an increasingly variable climate, where water has become a precious input, where dry matter production for the cowherd competes with other uses for fodder and grain, such as energy. As emissions trading is introduced into this country, the urgency to improve the efficiency of beef production in variable climates is an immense challenge. More than ever we need the accurate tools to select animals with the right traits for this challenge.



I will come back to the dairy cow a little later on.

3. Data Quality

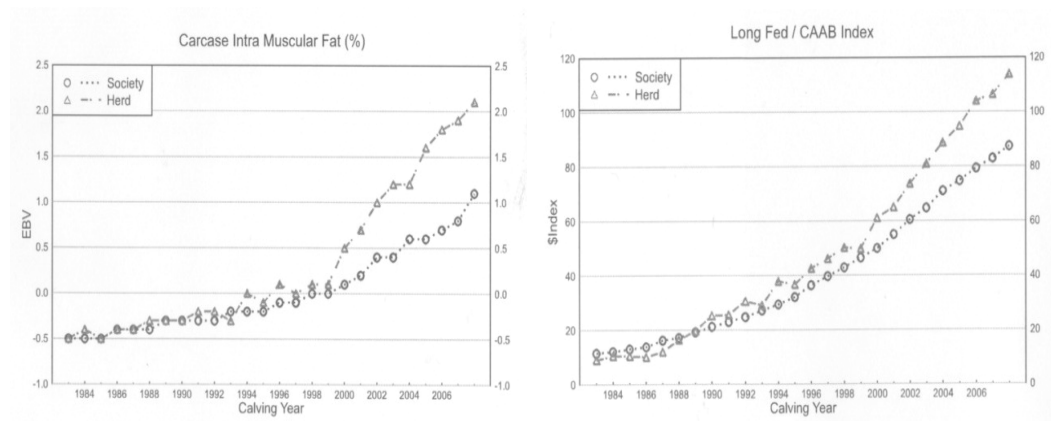
Many breeders forget about the females, and there is very poor data collection on females in many herds. When Dr. Peter Parnell and I gathered data from ABRI in 2006 for our paper, on “The Uptake of Genetic Technologies in Southern Australia”, the low level of recording was an eye opener. In some high profile herds in this country, scan data is only collected on the male progeny and not the female. Many herds are not collecting and submitting birthweights, mature cow weights, days to calving and other simple to collect data. For the commercial client, that should set the alarm bells ringing, because the breeder uses Breedplan for marketing but has not made the connection between using Breedplan for genetic selection and improvement.

At the time of the 2007 AAABG conference, one major Bos Taurus breed had stopped reporting mature cow weight, due to the lack of data. At this stage, this is the most important trait for selecting for maturity pattern. The relationship between maturity pattern, fat cover and fertility in southern Australian is the topic of investigation in the Beef CRC's Maternal Efficiency project. Feed efficiency in an ad libitum situation is also being investigated. Being able to use these data for accurate selection is a matter of urgency for the industry.

The beef cow in a carbon constrained world will need to breed quickly, produce progeny that grow evermore quickly to meet market specifications, with a moderate maturity pattern that minimises her own carbon emissions.

January 2009 ANGUS GROUP BREEDPLAN
Herd Rennylea – Comparison to Breed Genetic Trends

These genetic trends, illustrate what the progress that is possible using embryo transfer. The key tool required is to be able to monitor inbreeding. These tools are available at the press of a button in 2009.



4. Industry Professionalism

I have always had a soft spot for dairy cows. In the early 1960s, Saturday work was dropped from the Federal Pastoral Industry award. Hence my father had a problem, who would milk the cow on the weekend? He discovered his six year old could fulfil the job, and after an hour or so I would appear back at the house with a gallon of milk in the bucket and more on me!

When I married Bryan, ever the romantic, he gave me a milking cow, and I milked Jane and her successors for ten years, escaping from young children to the cowshed, where the first rays of the sun would hit my face, tucked into the cow's flank!

Sometimes in this industry, the specialist genetics producer can feel like a milking cow. We pay to collect data, we submit this to the sole provider of genetic services, we pay to put it in, we have to pay to get it out again, we are bound by many useless regulations that do not create value, and do not take into account business risk, our commercial clients may not access the data on the bulls they purchase from us if they have a certain category of membership, in a system paid for by the levy payers and tax payers of Australia.

The Beef Genetic Improvement systems were commercialised without minimum standards, which continues to reduce the professionalism of the genetics industry. There are others who comment on this. Industry expert Bob Freer tells the story about visiting the surgeon who is also a stud breeder and while he is eminently qualified to be surgeon, has no training to breed cattle. It is inconceivable that such a situation would be tolerated in any other profession. It is an industry with no barriers to entry.

5. Value for the Commercial Industry

As Bos Taurus cattle are used across Australia in a greater range of environments, the need for accurate selection is intensified. We supply bulls to producers in the centre of Australia, west of the Simpson desert where the competition for energy is life threatening in some seasons. Their

specifications for low milk, moderate maturity pattern, positive carcass quality are important for this environment. If the simple traits were well recorded on 100% of the database, the reliability would deliver greater accuracy and commercial value to these producers, and the supply chain.

After some serious self examination, and reading the contributions of the previous awardees, I am humbled by the honour that the selection committee conferred on me. It is not always a comfortable place, to decide to challenge the status quo. In that role I have some admirable role models. Recently I was listening to Mr. James Litchfield, who received the Helen Newton Turner medal in 1997. His final statement was extremely telling “Nothing has changed”, he said “the conservatism we faced when we introduced performance testing, from the early 1960s, is alive and well today.”

In his presentation in 2003, Professor Frank Nicholas mentioned his inherited colour blindness as a major factor in his choice of career. I cannot claim the same, that my webbed toes (two on each foot) had any similar effect!

Bryan’s breeding skills, our love of livestock, and my background in applied research and communication combined, have been an insightful journey. I acknowledge his generosity and the partnership we have been able to create together. As we face the challenge of running a beef genetics business in an increasingly variable climate, we need to keep drawing on the intellectual discovery in the science community, to work together to solve these problems.

While I was not fortunate to meet Dr. Helen Newton Turner, she has been an inspiration throughout my life. She led CSIRO’s sheep breeding programme from 1956 to 1973, and laid the foundations for the selection and improvement of merino sheep using objective measurement. After she retired from the CSIRO, she dedicated her time to animal production in developing countries, and travelled all over the world. Colleagues tell a story, after working together one day in the 1960s, they retired to the Canberra Club. Dr. Newton Turner was not allowed to enter and they went elsewhere! Times have changed.

Our ruminant industries require productivity increases that will keep up with declining terms of trade. Genetic improvement is permanent and cumulative, using an array of tools and clear breeding goals. Our industries need these improvements as we face new challenges and come under constant scrutiny from the very urban Australia of the 21st Century.

Reference

Corrigan, L. and Parnell, P.F. (2006); Application of Genetic Technologies in the Temperate Australian Seedstock Industry, in ‘Australian Beef The Leader, The Impact of Science on the Beef Industry’, CRC for Beef Genetic Technologies, pp 81-90.

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