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International genetics congress: Take home messages

The 11th World Congress on Genetics Applied to Livestock Production was held in Auckland last month. This premier event for researchers and professionals involved in livestock genetic improvement is held every four years. It attracted 1480 delegates and strategically overlapped with two other important genetics-related conferences, the annual ICAR gathering and Interbull Meeting. ICAR focuses on global standards for livestock data, while Interbull covers bovine genetics R&D and national and international genomic evaluations.

Several members of the B+LNZ Genetics team attended the congress. Here are the key messages they identified as most relevant to New Zealand ram and bull breeders:

- **Single step genomics is becoming standard operating practice.*** In the past four years, many SIL equivalents, internationally, have implemented single step genomics and are now enjoying the full benefit of that move. Specifically, (a) improved accuracy of genetic merit in early life for better selection of the next generation's dams and sires; and (b) faster rates of genetic gain in hard-to-measure or expressed-late-in-life traits, such as health, longevity, feed efficiency, etc.
- **Good phenotypes still underpin good performance recording.** Quality phenotype information (measured traits) is vitally important. We now have the means to maximise the selection value we get from the performance recording we do. Question: For expensive or hard to measure traits, how are the costs and benefits shared fairly?
- **Modern SNP chips are superior to DNA parentage.** Modern SNP chip information shows how closely related animals are genetically and informs selection of the best sires and dams. SNP chips have more markers to differentiate which dams and sires are the parents, even when mated in large mobs and with closely-related parents (e.g. full sibling sires).

- **The traits – methane, residual feed intake, feeding behaviour and body composition – are intertwined.** There is a lot of international collaboration in this area. The research presented talked about the animal's impact on rumen microflora and vice versa – i.e. changing one may change the other.
- **Capturing extra information from commercial animals going through meat processing plants to build into genetic evaluations.** Many countries are looking at how they can do this, to enhance meat traits. EID and genomics play a part.

* See story below – “What is single step?”.

[More details](#)



What is single step?

[This article re-caps a letter sent to breeders in July.]

Single step is a genetic evaluation method that incorporates genomic information from DNA testing. Previously, genomic-enhanced breeding values have involved a multi-step process. Single step evaluation is faster and more accurate, because it processes all genotype, pedigree, performance and progeny data simultaneously.

Benefits for breeders

- Single step evaluation continues to provide breeding values, whether an animal is DNA tested or not. Where an animal is DNA tested, this information will enhance the animal's breeding values and increase breeding value accuracy, especially when the animal is young.
- More accurate breeding values in young animals will enable more reliable use of younger breeding animals in seed-stock breeding programmes.
- The use of young animals reduces generation interval and therefore speeds up genetic gain.
- Genomic testing can incorporate parent verification, overcoming any errors in an animal's pedigree.
- Genomic information for a specific animal improves the accuracy of that animal's breeding values, but also the accuracy of its relatives.

NB: The inclusion of new genomic information can result in some animal re-ranking, especially if pedigree error is detected.

Benefits for commercial farmers

- Farmers can have more confidence when purchasing and using new sires from breeders who are using genomics and single step evaluation.
- Removing pedigree error, increasing the accuracy of breeding values and having breeders making better, more timely selection decisions will result in a rams presented for sale with more robust information behind them.
- Farmers following seed-stock breeding programmes with accelerated genetic gain should, in-turn, benefit from improved production, reduced costs and profitability.

Where B+LNZ Genetics is at with single step

We are currently pilot testing the use of single step with a trial group of breeders. This will identify any issues, before we introduce single step across the evaluation. The intention is to do so later this year.

BEEF



Beef performance recording reminders

To select sires of higher merit and create genetic improvement in a herd, we must record our animals.

We can only select the better animals as parents if we are objective in our measurement and sniff out the variation between them.

Traits to record at weaning:

- Weigh calves
- Weigh all cows and, if you're keen, Body Condition Score them too
- Docility score all calves.

These recordings will generate eBVs for 200 Day Weight, Milk (and correlated growth traits), Mature Cow Weight and Docility (not available for all breeds).

Read our [six top tips](#) on performance recording.



Dairy-Beef Progeny Test: extra dairy calves do make money

The B+LNZ Genetics Dairy-Beef Progeny Test aims to find ways of adding value to the dairy-beef output for the meat industry, drystock farmers and dairy farmers. Selected high-merit Angus and Hereford sires are being used over dairy cows, compared with average, unrecorded bulls typical of those dairy farmers might use over the tail end of their herd post AI.

After two seasons of calving 800 cows from the Limestone Downs' dairy herd, preliminary findings are now available. Lead researcher Dr Rebecca Hickson presented results during the property's annual field day in February.

Key message: Estimated breeding values (EBVs) for bulls are doing their job and there are gains to be had for dairy farmers using more suitable beef bulls.

[Read the full article in Farmers Weekly](#)



PODCAST: Better Beef Breeding

In this Better Beef Breeding podcast, B+LNZ Genetics National Beef Genetics Manager Max Tweedie talks about what the figures mean and how to use them, what to look for in a bull, and how to keep him performing at his best.

[Download podcast](#)

[View B+LNZ Genetics bull selection tools](#)



Power of the beef cow field day

The power of the beef cow was the catch phrase at the NZ Hereford and Beef + Lamb New Zealand Field Day held at Paparata Farms, near Taumarunui earlier this month. B+LNZ Genetics National Beef Genetics Manager Max Tweedie spoke about how farmers could set objectives, how animals were scored and selected, and how to use good genetics to cross breed.

Other speakers included Paparata owner Trevor Johnson, Greenlea Premier Meats managing director Tony Egan and Hawke's Bay veterinarian Dave Warburton.

[Read the full article in NZ Farmer](#)

SHEEP



Sheep Progeny Test update

Lambs have been processed on all CPT (including HUB) sites and VIAscan data is now informing the rams' EBVs and indexes on SIL.

Data from Progressive Meats Ltd and Silver Fern Farms has been used to provide within-site 'research' BVs for NZTW traits. The BVs have been given the same weightings as used in SIL, but with raw measures still being calibrated as part of the B+LNZ Genetics Meat Module project due to be complete 30 June 2018.

Facial eczema dosing has been carried out on Smedley and Otiwhiti and we are waiting on results from GGT21 blood sampling.

In 2018, we will be assessing about 200 rams on eight properties. We welcome a new Next Generation site: WRIG (Wairarapa Romney Improvement Group) is establishing a maternal site in the Wairarapa for 2018. Ram entry is being negotiated for all sites, with WRIG mating first (25 March), followed by Maraetotara-PML and HUB Mangarata (5 April), HUB Invermay (9 April), Smedley-Perendale (19 April), and Otiwhiti-FE Breeders and Duncraigen-SIGC (20 April).



Wool Survey results

Thank you to everyone who participated in the recent wool survey. Respondents were SIL breeders and commercial farmers from across the country, almost all producing crossbred or strong wool.

Insights from the survey:

- Respondents considered wool an important income source, which was influenced by quality.
- Most recorded individual fleece weights and presence of black fibres on ram and ewe hoggets. Wool fibre diameter, colour and staple length were recorded less often. Other quality traits were rarely to never recorded.
- Almost a third of respondents were extremely or very interested in a crossbred wool quality index.
- Generally, respondents considered wool colour, black fibres and fibre diameter to be the most important quality traits, while CV of fibre diameter and curvature were considered least important.
- There was good interest in systems to measure or assess wool quality traits: 30-40% of respondents were extremely, or very interested in standard colour scoring systems and assessing fibre diameter.

[View summary of results](#)



Do you have questions about your data on SIL?

If you have any questions or problems with your data on SIL, here are some ways you can get hold of us:

Phone: 0800 745 435

Email: silhelp@sil.co.nz

Ask your bureau: You can discuss any questions with your bureau. B+LNZ Genetics holds regular bureau technical meetings and conference calls where they can also raise issues on your behalf.

EVENTS



Beef Events April/May

Better Beef Breeding Workshop: Wairere Angus, Hawera

Tuesday 17 April

B+LNZ Better Beef Breeding Workshop: Raupuha Studs,

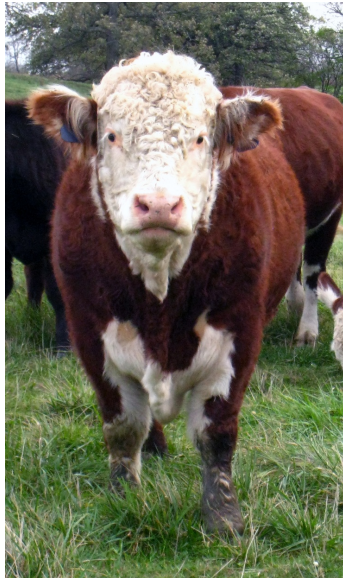
Mahoenui Tuesday 3 May

Beef Progeny Test Field Day: Mendip Hills, Canterbury

Tuesday 1 May

Beef Progeny Test Field Day – Rangitaiki Station, Taupo

Tuesday 8 May



Power of the bull

Hore family's Stonehenge Station
Tuesday 24 April | 10am-4pm

This event is delivered in collaboration with Southern Districts Hereford Club and Beef + Lamb New Zealand.

Key topics:

- Structural correctness
- Understanding eBVs
- Real bulls on real farms: The Beef Progeny Test
- Hybrid vigour.

For more information, call Darryl King on 027 6015 384 or email southerndistrictherefords@gmail.com



The team (from left): General Manager Graham Alder, IT Programme Manager David Campbell, Lead Scientist Dr Michael Lee, Science Manager Eleanor Linscott, Genetic Evaluation Technical Manager Sharon McIntyre, Sheep Genetics Manager Dr Annie O'Connell, Beef Genetics Manager Max Tweedie and Office Administrator Pam Schofield.

[More information about team](#)



The future's in the genes



For more information visit
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