

SIR ARTHUR WARD AWARD

Dr Sheryl-Anne Newman

BAgrSc, PhD

The NZSAP Sir Arthur Ward Award recognises the successful application of research or experience to an aspect of animal production in New Zealand. Dr Sheryl-Anne Newman has been at the forefront of developments to the Sheep Improvement Ltd (SIL) Genetic Engine since its inception, working closely with scientists from a range of fields, and with sheep breeders who use SIL breeding values to improve their flocks, to apply genetics research for the betterment of the New Zealand sheep industry.

SIL is the national performance recording service for the New Zealand Sheep Industry, and most rams sold from stud properties in New Zealand have SIL estimated breeding values. Sheryl-Anne has worked at the 'coal-face', applying research into new traits or making improvements to the genetic evaluation of existing traits, meticulously testing and validating the results, and working with breeders through any implementation issues that have occurred to deliver a state-of-the-art genetic improvement system for sheep. Her logical approach to problem solving and her ability to explain things to users from different backgrounds have been key attributes contributing to SIL's success.

SIL was established in 1999, when Meat New Zealand and the New Zealand Wool Board sought to bring together the rival genetic improvement services that established through the 1980s and 1990s. Merging the various services together into a single operation was no small feat. SIL had to deliver at least what the other individual services offered, and preferably more. Sheryl-Anne has been a key contributor to SIL development since 1997, through its launch in 1999 and has been responsible for its maintenance and development for the entire lifetime of SIL.

Since the launch of SIL, there have been major advances in what can be measured in animals to use in genetic improvement programmes. This includes CT scanning, in-plant carcass scanning, genomic tests for parentage and for performance traits to name a few. While many scientists have worked in a single field, Sheryl-Anne has had to develop knowledge across many fields so new trait measurements can be entered into the SIL database and be included into analyses without affecting existing results. Her work on enhancements to the SIL system has increased the number of traits analysed, improved



the accuracy of evaluations, and introduced auditing tools designed to lift data quality. The sustained improvement in genetic merit of NZ sheep, and accelerations in the rate at which this has occurred, are all partly due to these improvements. Without these gains, today's sheep farms would be a lot less profitable.

The standard for breeding values at SIL's launch was within flock breeding values and across flock breeding values for sire reference groups. In 2004 the SIL Advanced Central Evaluation was launched which was an opt-in industry wide analysis that was the first of its kind in sheep. SIL is now implementing

the NZGE (New Zealand Genetic Evaluation) which is a weekly all-of-industry analysis. This is a major advance over simple across-flock analyses, requiring substantial improvements in industry infrastructure (mainly through substantial increases in genetic connectedness between flocks), and significant implementation issues. The software SIL used for genetic analysis had to be changed as it was no longer able to deliver results for these analyses. Sheryl-Anne has overseen this, and done it all with no loss of service in delivering breeding values to industry.

Genomics has had an enormous impact on the sheep breeding world, and has had to be incorporated into SIL. Firstly applied through 'fractional parentage', and latterly incorporating molecular breeding values into the system, the SIL system underwent significant change to allow this and is still evolving as genomic technologies develop.

Sheryl-Anne has been the engineer in SIL's genetic engine room for close to two decades, the skilled mechanic overseeing its operation and maintenance. The New Zealand sheep industry has benefited hugely from what is arguably the world's best sheep genetic-evaluation system. Sheryl-Anne's dedication to SIL support has been a key plank in SIL's success.

It is fitting that Dr Sheryl-Anne Newman, who has dedicated much of her scientific career to making Sheep Improvement Limited what it is today, be recognized with the NZSAP Sir Arthur Ward Award.

*Neville Jopson
John McEwan
Mark Young*