

MCMEEKAN MEMORIAL AWARD 1998

Brian W. Wickham

B.Agr.Sc., M.Agr.Sc. (Massey), Ph.D. (Cornell)

Brian Walter Wickham completed his undergraduate and masterate education in Agricultural Science at Massey University in 1972. Following this he travelled to the USA with the assistance of Fulbright and William Georgetti scholarships to undertake his Ph.D. under the guidance of a doyen in quantitative animal genetics, Dr Charles Henderson. Brian completed his Ph.D. in 1975, and returned to New Zealand to take up a position as Statistical Geneticist with the Farm Production Division of the New Zealand Dairy Board.

Over the ensuing 22 years, Brian held various positions within what today is named the Livestock Improvement Corporation. The last 8 of these years were as a Group Manager. Recently, Brian established Animal Improvement Matters Ltd (AIM) with the aim of providing management and technical services to animal breeding organisations world-wide. Brian is currently on a long-term contract to integrate breeding services in the Irish cattle industry.

The McMeekan Memorial Award recognises an outstanding contribution to New Zealand animal production over the previous five year period. The following are five major contributions made by Brian in recent times. As Brian readily admits, each of these contributions have been carried out by teams of people, not by him alone. However, Brian's contribution has been to provide the vision and leadership that have resulted in ideas becoming reality.

Database

The New Zealand dairy industry can owe much of its success to being a low-cost producer of milk relative to the rest of the world. Being a low-cost producer requires that the animal component be closely monitored to ensure that management can be manipulated at short notice to regulate cow performance. This necessitates the usage of animal and herd performance records. The dairy industry has been fortunate that Brian foresaw the need for the storage of such information during the 1980s and was the main driving force behind what has become the envy of other dairying nations (see Wickham (1984) "The research potential of shared information resources", *Proceedings NZSAP* 44:83-86.). Significant funds were spent on this project, and not all people involved were convinced of the need for such an elaborate system. While the initial drive for a dairy database was made some years ago, the ongoing review and maintenance of the system continues as a matter of priority for Livestock Improvement Corporation (LIC) staff. The database now underpins the generation of breeding and production worths for individual animals and provides data to assist with farm management decisions.



Animal evaluation review

Brian's scientific education was in the field of animal breeding and genetics, so it is not surprising that he had a comprehensive grasp of the wide range of methodologies for predicting animal genetic merit. Having trained at Cornell University under the famous C.R. Henderson, Brian was more than conversant with the advantages of Best Linear Unbiased Prediction (BLUP) methodology, a technique invented by Dr Henderson. However, while other countries were clamoring to change their evaluation systems to BLUP in the 1980s, Brian took a more considered view in New Zealand. The organisation of the dairy cattle industry in New Zealand was such that the additional genetic gains to be had from introducing BLUP were not as great as in other countries. Simply, the cost/benefit argument was not so strong in New Zealand. However, when it was time to review the dairy cattle genetic evaluation system, Brian brought together an expert team that built a comprehensive system that should take New Zealand into the 21st century with an internationally competitive genetic evaluation system. In addition to introducing BLUP, the new system also allows for genetic comparisons across breeds. This is not a widely available service to dairy farmers elsewhere in the world, and again puts New Zealand at the forefront of genetic evaluations. The new animal evaluation developments introduced in 1996 were reviewed by Garrick *et al* (1993) "A prototype sire evaluation for New Zealand dairy cattle", *Proceedings NZSAP* 53:91-94.

Marker assisted selection

The last two decades have seen a rapid growth in research oriented towards finding genetic markers for economically important genes. The New Zealand dairy industry was cautioned by Brian not to make an early entry into this novel field of research, because of the high cost relative to likely financial returns. However, in the mid 1990s, Brian saw an opportunity to develop a collaborative effort between the Livestock Improvement Corporation, Holland Genetics, Massey University, Liege University in Belgium and Wageningen Agricultural University in The Netherlands in searching for genetic markers. This programme is now into its fifth year and a number of significant associations have been found. These will be used to assist with selection of animals for 1998 matings, and should lead to additional improvements in the genetic merit of New Zealand dairy cows. Professor Michel Georges reviewed the benefits of marker assisted selection in the inaugural Livestock Improvement Corporation Lecture "Perspectives for marker

assisted selection in dairy cattle breeding”, *Proceedings NZSAP* **56**:5-7. The ability of New Zealand to undertake this project was also heavily dependent on the existence of an extensive pedigree and performance database of dairy cattle, something that even Dr Wickham could not have foreseen in 1984!

Interbull and ICAR

The success of animal trading on the international market is dependent on how the rest of the world perceive a country’s animal evaluation system. Brian has been very active in the international scene, ensuring that New Zealand’s evaluation scheme was understood by our major trading partners. His standing in this arena is signified by his current Presidency of Interbull. Both ICAR and Interbull held their annual conferences in New Zealand in January 1998, giving New Zealand yet another opportunity to show off our dairying systems to the rest of the world. Brian was

Chairman of the New Zealand Organising Committee.

Long-life liquid semen

Brian was also responsible for managing the groups responsible for male and female reproduction research and development. Scientists at LIC developed techniques for extending the life of semen, and Brian put in place the necessary organisational and structural changes to ensure the uptake of this new technology. Long-life liquid semen now accounts for some 70% of semen sold by LIC.

By conferring the McMeekan Memorial Award on Dr Brian Wickham, the New Zealand Society of Animal Production has recognised a career that has spanned over two decades and, more importantly, has impacted positively on the income of New Zealand dairy farmers.

H.T. Blair