

THE McMEEKAN MEMORIAL AWARD 1986

J.N. CLARKE, M.Agr.Sc. (N.Z.), Ph.D. (Edinburgh)

The McMeekan Memorial Award is made to recognise outstanding contributions to animal production in New Zealand during the period of five years preceding the award. The recipient of the 1986 award, the tenth since its foundation, is John Neil Clarke.

Neil was born in Palmerston North, the first son of E.A. Clarke, a foundation member of this Society, one-time Head of the Sheep Husbandry Department of Massey Agricultural College, first Superintendent of Whatawhata Hill Country Research Station and later Director of the Sheep and Wool Division of the Department of Agriculture. It is worthy of note that Whatawhata in its initial phase of development from a hill country farm to a research station was Neil's home in the early 1950's. Without doubt these early impressions were important in establishing his understanding and love of hill country farming and helped to determine that agriculture was to be his vocation. The early contact with agricultural research, and many of its directors of that period, also stimulated his interest.

He came to Massey Agricultural College, as it then was named, in 1957 after having completed his first year at Auckland University College. He finished the Bachelor of Agricultural Science degree in 1959, being awarded the Senior Scholarship for that year. It is interesting to note that he was the first son of a graduate of Massey Agricultural College to follow his parent in completing an agricultural degree at Massey.

At this stage, the impulse to go farming was uppermost and he became the manager of the family farm at Kopaki in 1959. However, in late 1961 he made the crucial decision that a career in research in animal science presented a greater challenge. Hence he returned to Massey in 1962, and having been awarded a New Zealand Wool Board Scholarship, he undertook work for the Master of Agricultural Science in the Sheep Husbandry Department under my supervision. He was awarded the degree with First Class Honours in 1963 and in that year joined the Genetics Section at Ruakura Animal Research Station. In 1966 he was awarded a National Research Fellowship for post-graduate study under Professor D.S. Falconer and Professor Alan Robertson at the Institute of Animal Genetics in Edinburgh. There he gained a Ph.D. degree of the University of Edinburgh, his thesis being a study of the genetics of growth and body composition in mice.

Dr Clarke returned to Ruakura in 1969 and became heavily involved in the design, establishment, integration and analysis of a number of long term sheep breeding research projects. He played a major role in the importation of exotic sheep breeds from Britain in 1972 and in the initiation and co-ordination

of research projects and facilities for their evaluation in comparison with local breeds and crosses. He was also closely involved with the development of national performance recording programmes, particularly for sheep (Sheeplan). In 1978 Dr Clarke took over the leadership of the Genetics Section. At the same time he became increasingly involved in the co-ordination of MAF research on animal breeding and in the establishment of training programmes to further the application of animal breeding principles in the sheep and beef cattle industries.

Dr Clarke's activities over the last five years encompass all four main areas of the application of genetic knowledge to livestock improvement; namely, the definition and assessment of appropriate objectives for improvement; the evaluation of breeding merit of individuals, families, strains and breeds; the assessment of alternative mating plans (inbreeding, crossbreeding and population structure), leading to the development of optimal breeding strategies for individual flocks and herds and for the sire-breeding industries as a whole; and finally the operational problems of disseminating this research information and encouraging its adoption by the livestock industries. Three particular aspects of these duties in the last five years which have made a major contribution to animal production relate to the importation of sheep breeds from Europe, development of breeding policies for lean lamb production and the publication of a blueprint for the future development of Sheeplan.

Dr Clarke has long been aware of the advantages of some overseas breeds for expanding the production potential of the New Zealand sheep industry. In the area of meat production both the Texel and Oxford Down breeds have well documented attributes which warrant their evaluation in New Zealand. Dr Clarke was closely involved in the importation of the Oxford Down, German White Headed Mutton, East Friesland and Finnish Landrace breeds from Britain in 1972. The termination of this project in 1978 due to a suspected disease outbreak was a bitter blow to Dr Clarke and his colleagues involved in the evaluation of these breeds. However, the failure of this first importation presented him with the opportunity to implement a broadly-based experimental programme at Rotomahana, covering comparisons of strains within existing breeds and investigation of the use of the Booroola Merino. The continuing success of this programme is a tribute to his resilience and his ability to manage a complex exercise which relies on maintaining the close co-operation of breeders, breeding groups and the Department of Lands and Survey.

It was widely believed in 1979 that it was very unlikely that another importation of sheep from Europe would be sanctioned by the Maximum Security Quarantine Advisory Committee. Dr Clarke's well documented cases, and tenacity were a major factor in persuading the Committee to permit a second exotic sheep importation, this time from Scandinavia. Although still in its early stages, this project began in 1984 with the importation of frozen embryos and semen from the Texel, Oxford Down and Finnish Landrace breeds which were successfully thawed and implanted into Coopworth ewes on Somes Island in 1985. Dr Clarke's responsibilities for this new programme involved assistance with its initiation, and the establishment of a mainland quarantine station (Hopu Hopu) where the breeds will be expanded in numbers and evaluated under his direction. Given a successful disease-free quarantine period, these breeds have a huge potential in the New Zealand sheep industry.

The recent MAF report of the Lean Meat Working Party, of which Dr Clarke was a member, suggested that during the next 15 years New Zealand should aim to achieve a 1.5 kg increase in average carcass weight and a 1% decrease in average fat content. Because genetic change is permanent, the report recognised that it must become a major element for future change both through selection within breeds and through exploiting differences among breeds and strains. Dr Clarke, in co-operation with his colleagues, has made the above target an area of high priority. His research has documented the relative performance of meat breeds of sheep in New Zealand and overseas, in terms of both growth and carcass composition. He has also documented expected rates of genetic change in lamb growth and composition for different selection goals and for a variety of selection programmes. He is one of the initiators of the Wiremu project, the development of a large lean sire-breed being undertaken in conjunction with the Department of Lands and Survey and Massey University. One of the major difficulties in achieving the target proposed is the basic developmental antagonism between carcass weight and carcass fat content. This is an area which Dr Clarke first addressed in some detail in his Ph.D. study with mice and many of the principles involved have also applied in sheep.

Dr Clarke's valuable and demanding role as a leading member of the Sheeplan Technical Working Group has demonstrated both his scientific ability, his versatility and his concern to ensure that the results of animal breeding research are applied in the industry. The document recently (April 1985) produced by himself and two other members of the Sheeplan Technical Working Group provides a detailed planning proposal for the future of the National Flock Recording Scheme. It is an innovative and exciting concept which, when implemented, will clearly establish the superiority of the New Zealand national flock recording

service compared to any other similar service in the world. It will also provide the means for New Zealand sheep breeders to maximise genetic improvement in the future. Dr Clarke sees the application of animal breeding to be of prime national importance. Thus, as well as the time he has spent developing Sheeplan, he also has had regular involvement with other innovative commercial breeding ventures from both a technical and political viewpoint. He has heavy regular commitments in training and supporting both MAF field and servicing staff, as well as industry personnel, and has related well to these groups. A recent example of this sort of industry liaison is his efforts to support and expand the use of artificial insemination in the sheep industry. These initiatives by Dr Clarke recognise the limited technical expertise available in New Zealand for the extension and servicing of industry animal breeding programmes for sheep and beef cattle, the need to maintain confidence among key people in the industry, and the potential these people have in ensuring that present commercial interest in genetic improvement is developed along sound lines.

Over the last five years, Dr Clarke has shown outstanding ability in the direction and management of research. This is reflected in the performance of his section and its ability to attract a continuous flow of NRAC and visiting fellows from overseas. He has also made a very significant contribution in encouraging and participating in collaborative projects with scientists in other disciplines, especially in nutrition, physiology and meat, wool and veterinary science. His success in this area stems from not only his obvious professional competence, but also his pleasant personality, his humour, his enthusiasm and his concern for people.

Dr Clarke's work and status have also been recognised internationally, as indicated most recently by an invitation to be a key speaker at the 1985 meeting of the Australian Association of Animal Breeding and Genetics and an invitation to be the Co-ordinator of a Session on Sheep and Goat Breeding Programmes at the 3rd World Congress on Genetics Applied to Livestock Production in Lincoln, Nebraska in 1986. He also is contributing to international co-operation in sheep breeding with the U.S. Department of Agriculture.

Dr Clarke has rendered important service to this Society. Of special significance is the number of papers which he has presented (as author or co-author) to the annual conferences of the Society; more, I understand, than any other single member. He has served for three years as a committee member and has been appointed to several committees set up by the Society.

It is for these contributions to animal production that the New Zealand Society of Animal Production recognises J.N. Clarke as the recipient of the McMeekan Memorial Award for 1986.

A.L. Rae and K.E. Jury