

LIFE MEMBER

Neville D. Grace

M.Agr.Sc., Ph.D.

Neville Donovan Grace is nominated for an Honorary Life Membership of the Society for his long and outstanding contribution to our understanding of macro- and trace element requirements in farm animals, and for the application of that knowledge to solving problems in the field. On the strength of 45 years of researching this subject, he has become the foremost authority in New Zealand and has made a major contribution to the country's agriculture productivity.



Neville graduated from Massey University in 1964 with a Master in Agricultural Science. He was Senior Scholar in Agriculture and won a Fulbright Travel Award to pursue his Ph.D. at the University of Missouri under the guidance of Boyd O'Dell. He returned to New Zealand in 1968 and was recruited by Graham Butler to the Plant Chemistry Division of DSIR at the Grasslands campus in Palmerston North. Early work with the DSIR explored the metabolism of the macro-elements magnesium, calcium, phosphorus, sodium and potassium in ruminants, with occasional forays into trace elements cobalt, copper, iodine, manganese and zinc. This provided new insights into how diet affects nutrient requirements and how individual elements differ in their absorption. Neville spent two further periods studying overseas. During 1976–77 at the Moredun Research Institute near Edinburgh he worked with Alec Field and Neville Suttle on the detrimental effect of molybdenum-sulphur interactions on copper metabolism. In 1984 he spent a sabbatical at the University of Leeds with Tony Care studying the fundamental processes underlying hypomagnesaemic grass tetany in grazing cattle.

During the 1980s Neville embarked on a series of systematic studies to determine the mineral requirements of sheep for maintenance, growth and wool production. He and colleagues generated sheep carcass composition data for a variety of elements in a remarkably wide range of tissues; information that was a prerequisite for developing biochemical criteria used to assess animal nutrient requirements. During the late 1990s Neville used the same approach to create a database of the elemental composition of equine tissues. This greatly facilitated an assessment of the nutritional requirements of horses reared on pasture.

Since the mid 1990s Neville's research interest in cobalt/vitamin B₁₂, copper, iodine and selenium has involved diagnosing deficiencies and developing

technologies to supplement grazing livestock efficiently. He recognised that Northern Hemisphere approaches are not always the best solution and so invented long-acting controlled-release supplements of vitamin B₁₂ suited to animals raised in New Zealand pastoral systems. This led to the successful SMARTShot product line, which is practically synonymous with Neville Grace.

Throughout his career Neville has communicated his results to scientific and lay communities. His record includes at least 180 papers published in refereed journals, conference proceedings or in books, and another 60 industry reports and seminars to farming groups, animal health companies and consultants. His ability to explain research issues at a practical level to diverse audiences is a particular strength and the envy of many scientists.

Neville remains a strong supporter of the New Zealand Society of Animal Production and has published 27 papers in the proceedings. He has served on the Society's Management Committee and been the Publications Officer. Neville also edited and wrote many of the chapters in the Society's popular 1983 Occasional Publication No. 9 *The Mineral Requirements of Grazing Ruminants*, its subsequent adaptation in 1994, and its thorough updating and expansion in Occasional Publication No. 15, *Managing Mineral Deficiencies in Grazing Livestock*. This new book, published in 2010, collects a lifetime of expertise into a comprehensive, scholarly reference work focused on New Zealand.

In the field of livestock mineral nutrition, Neville is justly famous for both authority and enthusiasm. When it comes to his science, he likes good data and good debate. He is driven to solve problems for the intellectual challenge and then delivers answers and understanding to the people who need it most; the veterinarians, farmers, consultants and students directly responsible for making New Zealand agriculture successful.

Eleven years ago the Society acknowledged Neville's achievements by presenting to him its prestigious McMeekan Memorial Award. We believe that Neville also merits election to Honorary Life Membership for his distinguished service to the Society and his contributions to the New Zealand pastoral industries.

Marc Ulyatt and Scott Knowles