HONORARY LIFE MEMBERSHIP

Michael McRae Hanna

Until his retirement in 1996, Michael McRae Hanna, better known as Mac Hanna, farmed a hill country sheep and beef cattle property near Tokoroa. Raised in Wellington city, Mac's first encounter with farming was through his many relatives who had farms. After, in Mac's own words, "reaching the end of the school curriculum of the time" he went farming because he wanted to do his own thing.

Although he had no formal training in science, Mac could be aptly described as a scientist who earned his living as a farmer. Over the years he became fascinated with the scope of interest possible in pastoral farming. In the early 1990s when few farmers had computers, Mac had three. Throughout his long farming career Mac had a passion to get the best performance from his livestock and when he identified factors that limited performance he actively sought ways of overcoming them.

One of the foundation meetings for Stockpol was held in 1986 at Mac's farm and was attended by scientists and advisers. In the late 1980s he developed his own software for farm management purposes based on a system involving feed budgeting on an individual paddock basis.

He always had a keen interest in objective measurement. In the early 1980s he carried out MAF pasture rate of growth trials on his farm. Results from these regular cuts of two plots on his farm became an important tool for the management of his livestock. However, he was concerned that the direct method of pasture measurement was tedious, labour intensive, and slow. This led to his interest in developing a new system of measurement.

Mac became a familiar figure around the Ruakura and Whatawhata campuses as he pursued his interest in a practical indirect technique for measuring pasture production. The advent of the SPOT and LANDSAT earth satellites with their apparent ability to report on green biomass using optical radiometric sensors alerted him to the possibility of using optical-sensing techniques at ground level. Keen to find out more about this technology, he phoned NASA and was sent a number of scientific papers on the subject. He worked with engineering staff at Ruakura to develop a prototype pasture radiometer, and in 1991 he radio-metrically scanned 220 pasture samples in an attempt to calibrate his machine.

In 1992 Mac met Invermay scientists at the New Zealand Society of Animal Production conference at Lincoln and discussed some peculiar aspects of the reproductive performance of his flock, which he thought could be due to the Inverdale gene. He subsequently sent some ewes to Invermay and it was later shown that there was a single gene segregating in his flock that had the same effect on prolificacy as the Inverdale gene. He presented a paper at the 1995 NZ Society of Animal Production conference titled 'Living with the Inverdale gene (FecX) in a Romney flock'. His line of sheep played an important role in the recent discovery that the effect in Inverdale sheep is caused by mutations of the GDF9B gene. Although the original Inverdale sheep and Mac's sheep had the same phenotype, it is now known that they are two quite separate mutations. The Hanna allele has been named in his honour.

Mac became concerned that he was not getting the expected animal production level from his feeding system. From this observation grew his interest in the effects of mycotoxins on animal performance and he soon became very well informed on this subject. He collaborated with the mycotoxic diseases group at Ruakura where he was noted for his enthusiasm and willingness to collect pasture samples. Mac insisted that his stock were suffering from phyto (myco) –oestrogen effects in the spring as well as in the autumn and challenged the accepted dogma on the seasonal (autumn) effect of these substances. He was eventually proved correct by findings of oestrogenic fungi in his spring pasture. In this field, Mac was ahead of his time because the specific assays were not developed until after his retirement.

After Mac sold his farm in 1996 he told Dave McCall that he wanted to further develop his radiometer and asked if he could come to Whatawhata. He moved to Whatawhata and carried out trials over two years, which included weekly pasture measurements to validate his radiometer. These trials demonstrated that his radiometer concept had merit and since 1998 Mac has worked with Ruakura and Waikato University staff on a project aimed at redesigning his radiometer to make it more portable.This project also involved a low flying aircraft to take pasture images. At the same time Mac used his radiometer at ground level to take readings, and the results were compared with direct pasture cuts. Subsequently his experimental results were also compared with predictions from a theoretical model of canopy reflectance. Results showed that green biomass could be estimated from pasture reflectance, and in 1999 a paper titled 'Estimating biomass for New Zealand pasture using optical remote sensing techniques' authored by M.M. Hanna, D.A. Steyn-Ross and Moira Steyn-Ross, was published in *Geocarto International*. In a fitting gesture, his work was informally recognised by his colleagues at Waikato University by the award of Doctor of Grass.

A few years ago Mac wrote in the Society's newsletter "…. were I offered a rerun of the last 50 years I would play the game much as the first time round with a couple of major differences. One would be that I would pay

much closer attention to those scientists working in areas of interest to me. Translated into practical terms, for the present context this means I would join the likes of the New Zealand Society of Animal Production earlier in life and be much more involved in listening to, and asking about, the messages delivered." I like to think that Mac's regrets about not joining earlier in life are somewhat compensated later in life by his election as a life member.

It is a privilege to nominate Mac Hanna for Honorary Life Membership of the New Zealand Society of Animal Production. Mac would have attended more conferences of the New Zealand Society of Animal Production than any farmer I know, and it is in recognition of his significant service to animal production over many years that we accord him the honour of Life Member of the Society.

G.H. Davis
J.F. Smith