

# NZ GRASSLAND ASSOCIATION

Fuelled by Science, Tempered by Experience

**GRASSLAND NEWS**

[www.grassland.org.nz](http://www.grassland.org.nz)

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## FROM THE PRESIDENT

David Stevens

It was with great sadness that we heard the news of Trevor Ellet's passing. He was a great pioneer of our home-grown ryegrass industry, through his keen observation and enduring persistence. His obituary, by two of our Executive, is a fitting tribute to his contributions to the advancement of pastoral farming.

We turn again to focusing on our next conference. The call for papers is out, and we restate the challenge laid down at the Timaru conference for our wider industry to put forward the work that they are doing. We have a significant investment in non-conventional agricultural research

through the Primary Growth Partnership programme. The way to ensure that what is done is valid is to put it to the test of peer review. Publishing in the Journal of New Zealand Grasslands provides that opportunity. We have deliberately offered a wide range of potential topics to enable this approach.

The conference audience also noted a significant lack of soil related papers and again we ask those in that research area to let us know what they are doing by offering papers.

We look forward to what there is to offer and welcome everyone to submit for the next conference.

## WHANGANUI 2017

The NZGA executive is lucky once again to have a keen and enthusiastic LOC ably led by Noel Johnston. They have been busy and have already had a couple of meetings so are well underway.

The last time the conference was in Whanganui was 1989. A quick look at the papers from that conference showed that hill country research was a priority with topics such as the long term effects of withholding phosphate fertiliser, evaluation of white and sub clover for hill country, new pastures for hill country finishing systems, and merinos as an option for NI hills.

Interest in breeding and evaluating new pasture cultivars such as prairie grass, tall fescue, phalaris, chicory and lotus was evident.

Climate change and the greenhouse effect were also covered.

It is always interest to look at any particular NZGA conference and see what was engaging the scientists, farmers and consultants at the time. At this conference they challenged attendees to think about alternate pasture species, effective use of fertiliser, strategic nitrogen and more.

Following in this vein it's a good time to prompt everyone to prepare abstracts for the Whanganui conference 2017. Abstracts are due to the editor by Friday 17th February 2017.

For further details on the topics, submission dates and more download the [Call for Abstracts here](#).

## TILLER TALK - DAIRYNZ

*Want to increase profit through better pasture use? And work with a group of like-minded farmers who want to do the same? Then sign up for the Tiller Talk programme today!*

Tiller Talk is a programme based around the progress of 18-20 key farms throughout New Zealand as they receive expert advice and support. This is the right programme for farmers who want to improve profit through better pasture management, committed to monitoring their pasture per-

formance, and work with a group of like-minded farmers. Tiller Talk is about farmer to farmer learning and participants can get involved at two different levels; as key farmer or as one of the participating farmers in a regional, small focus group (4-6 people). All participants also have access to the closed on-line forum to ask and answer pasture questions.

Please feel free to visit our web page for more information.

<http://www.dairynz.co.nz/feed/pasture-management/tiller-talk/>



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On 12 October 2016, at his home on the farm at Mangere, South Auckland, Trevor Robert Ellett died, aged 95. He is survived by his daughters Jillian, Susan and Penny, and sons Jim and Ernie, eight grandchildren and two great grandchildren. Trevor's wife, Elizabeth, died in 2006.



While the largest part of his career was as a farmer, Trevor was an ardent advocate for pasture farming and a pioneer of ryegrass development who had a profound impact on plant breeding in New Zealand. Among other awards, Trevor was an Honorary Life Member of the New Zealand Grassland Association and was a recipient of the Ray Brougham Trophy from the New Zealand Grassland Trust.

Trevor attended Mangere primary school and then Auckland Grammar before completing a Bachelor of Agricultural Science degree at Massey College (now Massey University) in 1945, his studies being interrupted by service in the army during World War II. On returning from the war, Trevor was appointed assistant lecturer in Dairy Husbandry and then lecturer from 1950-1951, before returning to the home farm at Mangere, that has now been in the Ellett family for 154 years.

**Dairy farming**

Trevor owned two dairy farms known as 'Ihumatao farms', the original at Mangere and one at Karaka that were managed as one unit. From 1968 the Karaka farm (ex-sheep) was set up for town milk supply and calf rearing, while the Mangere farm had the town supply herd while dry, fattened cull cows, reared heifers for sale, with herd replacements and dairy beef bulls.

The herd achieved high milk production and because the farms were efficiently managed, they were highly regarded by scientists and advisors of the day, hosting regular farmer field days. Details of Trevor's town milk farming operation were outlined in a paper he gave to the 1974 Grasslands Conference (Vol. 35, Part 2, pp. 175-181).

**Mangere ryegrass ecotype**

While lecturing at Massey College, Trevor developed a close friendship with Dr Peter Sears (later Grasslands DSIR Director), sparking his interest in plant improvement.

When he returned to farm at Mangere in 1951 he sowed the 'latest' Government-bred and certified pasture seed mix: New Zealand perennial ryegrass (later called 'Ruanui'), H1 short rotation ryegrass (later called 'Grasslands Manawa'), pedigree white clover (later called 'Huia') plus broad red clover (later called 'Pawera'). This he did in three paddocks (sometimes without H1) in successive years, and on each occasion the perennial ryegrass had disappeared after one year.

Disappointed, Trevor decided to harvest his own ryegrass seed from his best paddock to sow in his worst to try and improve its performance. Obtaining seed was difficult, but his tenacity to succeed meant initially using a home-made flail to separate seed from the straw, and after a couple of years, a locally-owned standing threshing machine was co-opted to do the job.

Visual comparisons between the New Zealand certified perennial ryegrass/H1 mixture and pasture sown with the seed Trevor harvested and called 'Mangere' ryegrass, showed it had much better growth and persistence than the recommended mixture. Trevor thought this was due to his ryegrass having adapted to be more drought and heat tolerant, since the soils in the area are of volcanic origin (ash and scoria) and dried out in summer.

At this stage, nothing was known about the important role of ryegrass endophyte, a fungus that lives inside ryegrass and is essential for insect control and ryegrass persistence in the upper North Island. New Zealand perennial ryegrass and H1 ryegrass seed had lost most of their endophyte, whereas Trevor harvested and sowed fresh seed from pasture with a high endophyte content. The endophyte story was about to unfold.

**Involvement in New Zealand's ryegrass improvement**

Trevor mentioned his concerns to the then director of DSIR Grasslands, Lionel Corkill, which led to the DSIR sowing out a perennial ryegrass spaced-plant nursery of their best breeding lines on Trevor's farm. When they departed, Trevor also sowed out seeds from his best pasture adjacent to the nursery.

When the summer came, most of the DSIR plants disappeared as they did not have endophyte protection. The seed Trevor sowed was freshly harvested and thus was (inadvertently) high in endophyte. Trevor told how he took Lionel Corkill to the middle of the nursery, and standing with brown plants on one side and green healthy plants on the other, asked him "Which do you think are yours?"

The superior performance of the Mangere ecotype and Trevor's disappointment with the DSIR Grasslands Division-bred seed, led to their staff taking plants from Trevor's farm in 1962 that were selected, crossed and trialled and eventually released as 'Grasslands Nui' perennial ryegrass in 1973. Unfortunately, during the breeding process and storage of the stock seed under ambient conditions, endophyte viability was lost.

When Trevor, together with MAF Field Research Officer Garth Cumberland, sowed some early release seed of the new Grasslands Nui ryegrass, it was badly affected by insect damage, and again did not persist. It is fair to say that for many years Trevor was disappointed and frustrated, as he felt other farmers would benefit from sowing his Mangere ryegrass. He realised he needed assistance to make this happen.

In 1972, Trevor contacted Ross Duder, agronomist for

Arthur Yates & Co Ltd., well known as a horticultural seed producer and marketer. Coincidentally, Yates were looking to expand their business and agreed to develop and market Mangere ryegrass. With the introduction of Plant Variety rights in New Zealand, Mangere ryegrass was the first proprietary ryegrass to be marketed.

Arthur Yates staff harvested seed from Trevor's best paddock, heavily rogued it for off-types and goose grass, and multiplied it for sale in the mid-1970s, originally as Mangere perennial ryegrass and subsequently certified as 'Ellett' ryegrass in the 1980s. Inadvertently, as they sowed and sold fresh seed, endophyte viability was maintained at a high level, which gave it better performance and persistence than other ryegrasses in the upper North Island. In return for Yates having the rights to market the Mangere ryegrass ecotype, the Company agreed to pursue an on-going selection programme and to pay royalties, based on seed sales, into a charitable agricultural research trust fund.

Ross Duder carried out a selection within the Mangere plant population and trial work over 15 years that led to the certification of 'Yatsyn 1' ryegrass the first successor to Ellett ryegrass.

Ellett, Grasslands Nui and Yatsyn 1 ryegrasses dominated the seeds market in the 1980s and 1990s. Up until 2006, about 20 ryegrasses have been marketed that contain at least 25% of their genetics from Trevor's Mangere farm. Other examples include 'Vedette', 'Dobson' and 'Bronsyn'.

Trevor's recognition of the Mangere ecotype and the eventual involvement of a commercial seed company in the development and marketing of perennial ryegrass, strongly influenced the New Zealand seeds industry and ryegrass breeding, precipitating further research regarding the role of the ryegrass endophyte.

### **Ryegrass endophyte**

The significant difference in performance between Ellett and Grasslands Nui ryegrasses led to the discovery by entomologists at MAF Ruakura, in collaboration with Arthur Yates' agronomist (see the 1983 Proceedings of the New Zealand Grassland Association, Vol. 44, pp. 240-243), of the link between endophyte presence and insect control. A wide range of endophyte research followed.

In hindsight, it is likely that during seed multiplication process and storage the New Zealand certified perennial ryegrass had lost its endophyte. The endophyte provided a chemical deterrent, later identified as peramine, to feeding by Argentine stem weevil.

The Mangere ryegrass/endophyte combination produced high levels of peramine and the viability of the endophyte in the seed was maintained by sowing of freshly harvested seed each year. Unfortunately, the fungus also produces a neurotoxin, lolitrem B, which causes ryegrass staggers in grazing livestock such as cattle, sheep and deer.

### **The T.R. Ellett Agricultural Research Trust**

Trevor was a passionate supporter of the advancement of grassland agriculture in New Zealand. He saw an

opportunity to make a financial contribution by seeking a royalty (based on seed sales) to be paid into a charitable agricultural research trust fund by commercial seeds companies (Arthur Yates & Co Ltd and later Agriseeds) using the Mangere ecotype in breeding programmes. The Trust fund was formed in 1979 and was renamed The T.R. Ellett Agricultural Research Trust in 1996. The trust deed states the purpose to be: *to further education, study, investigation and research for the benefit of the agricultural industry in New Zealand.*

Over the past 37 years the Trust has financially supported 4 -5 projects each year; Trevor was particularly keen to help promising students completing Masters and PhD degrees on pasture-based topics, this being an important part of their developing scientific careers.

The Trust will continue its activities as a fitting legacy to Trevor's philanthropy towards the agricultural industry that he actively promoted, especially relating to pasture and its pivotal role in farm systems.

### **Industry awards**

Trevor's outstanding contributions towards New Zealand grasslands and agricultural science have been recognised by the agricultural industry with the following awards:

1. Fellow of the New Zealand Institute of Agricultural and Horticultural Science in 1980.
2. New Zealand Grassland Trust Ray Brougham Trophy in 1995. The citation states "for his long contribution to dairying, and particularly for his development of Mangere ryegrass, first commercialised as Ellett and Grasslands Nui ryegrasses, from an ecotype he discovered growing on his farm." This trophy depicts a bronze stature of a hand seed sower, which Trevor most certainly was.
3. Honorary life member of the New Zealand Grassland Association in 1997. The citation states "for his long contribution to the New Zealand Grassland Association (approximately 50 years), his contribution to the advancement of agriculture as an active participant in Federated Farmers and fostering Young Farmers Clubs; for serving as a director of the local dairy co-operative for 30 years; for his formation of The T.R. Ellett Agricultural Research Trust, that provides grants to assist the career development of young scientists by funding of Masters and PhD projects; and for funding of relevant industry projects that may not otherwise attract sufficient funds."

Trevor will be remembered as a pioneer in ryegrass development in New Zealand. As a dairy farmer, researcher, innovator and mentor, he had a profound impact on ryegrass breeding and development in New Zealand and the pastoral industry as a whole.

Friends and colleagues knew Trevor as a fiercely independent and private man but with considerable drive to make things that he strongly believed in happen.

Members of the New Zealand Grassland Association convey their condolences to Trevor's family.