

**BEFORE THE COMMISSIONERS
At PALMERSTON NORTH**

UNDER: the resource management Act 1991

IN THE MATTER OF: an application for a **Notice of Requirement** by **New Zealand Transport Agency** to the Palmerston North City Council, Manawatu District Council and Tararua District Council for **E AHU A TŪRANGA MANAWATŪ TARARUA HIGHWAY.**

Statement of evidence of JEREMY DAVID NEILD on behalf of AgResearch Ltd

Dated 15 March 2019

STATEMENT OF EVIDENCE OF JEREMY DAVID NEILD

INTRODUCTION

1. My name is Jeremy David Neild.
2. I hold a B.Ag.Sc in Farm Management and Animal Production and an M.Ag.Sc in Agricultural Economics & Business, both from Massey University. I am a Registered Consultant with the NZ Institute of Primary Industry Management Inc.
3. I am currently a self-employed Agricultural Economics and Business Consultant with over 40 years' experience in agricultural extension and consultancy to NZ's pastoral industries and government agencies.

EXPERT WITNESS CODE OF CONDUCT

4. I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I agree to comply with that Code. Other than where I state that I am relying on the advice of another person, this evidence is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

PURPOSE AND SCOPE OF EVIDENCE

5. I have been asked to provide evidence of the value of retaining the long-term phosphorus fertiliser and sheep grazing trials on Ballantrae Research Farm, which would be severely impacted by the construction of the preferred option for the e ahu a Tūranga Manawatū Tararua highway.

EVIDENCE

6. It would be extremely difficult to estimate a dollar value on the Long-Term Phosphorus Fertilizer and Sheep Grazing Trials at Ballantrae and then compare that value with the marginal costs of shifting from the currently preferred route

to an alternative option that has minimal impact on the trial. However, that does not mean that the trial does not have significant value to the sheep & beef pastoral sector, to the New Zealand economy and society. Essentially, I wish to comment on the three sources of value. Firstly, the trial has an option value for the future which we cannot foresee the benefits at the present time. Second, the trial can be regarded as unique in terms of its long-term status, its location on medium North Island hill country and that it is a grazing trial involving farmlets and the impact of the grazing animal which considerably adds to its value. Thirdly, and less significantly, the trial represents a significant investment for the taxpayer over 40+ years to date.

7. **Future Option Value**

Long term trials like this one at Ballantrae are designed to provide information over many years and to identify long term impacts that can not be observed by shorter term trials. There will be impacts with both benefits and costs observed which were not expected at the time of the trial's design or even considered.

When the trial began in 1975, I am sure that the main concerns were about the positive benefits of using fertilizer regularly and gaining production and profit at the farm level and the importance of higher stocking rates to get the benefits from the fertilizer. In the 1980s when the fertiliser price increased, the focus was partially on the impact of stopping fertiliser use. The trial also providence evidence of the impact of slope and aspect in the hill country.

There was little understanding of need for understanding of sustainability (NZ still had fertilizer subsidies in 1975 at the start of the trial), environmental impact on water quality, rising cadmium levels from regular fertilizer use and the impact of climate change. These topics tend to represent the current interests in the outputs from this trial but were not relevant when the trial started. What will be the outputs of focus from this trial in 50 years- we don't know but this trial provides options for the future to study emerging issues critical to this country's agricultural production, environmental protection and export income.

It is interesting to note that pasture production is declining on the North Easterly slopes on high fertiliser sites. Is this evidence of climate change or just a part of a decadal climate cycle, and what are the implications?

In summary, we don't know the full value of this trial because it is likely to provide information for issues we only vaguely recognise now but will grow in importance in the future just as it has contributed to important issues in the mid 1970/80s and to those in the 2005-2020s.

8. Uniqueness

This trial at Ballantrae can be considered as unique and hence irreplaceable for three reasons in my opinion.

Firstly, as many submitters have noted, it is a long-term trial, one of only two in New Zealand and of a handful internationally. New Zealand has been farming much of its hill country for only a bit over 100 years and we still don't know just how sustainable our systems are compared to many other parts of the world where agricultural systems have been operating much longer. A long-term trial will help in evaluating our impact on our resource base.

Secondly, it is a farmlet trial involving grazing livestock which is unique in New Zealand and rare internationally. The other NZ long-term trial is irrigated agriculture without the livestock component.

Thirdly the trial is located on North Island hill country which is very important to New Zealand's sheep and cattle industry and becoming more so over time as flat and rolling land is taken for the expansion of dairy farming, dairy support activities, horticulture, urban and lifestyle development.

I have gathered some data from Beef and Lamb New Zealand¹ to indicate how important North Island hill country is to our sheep and beef industries.

Table 1 Number of Sheep & Beef Farms in New Zealand

Farm Type	1991-92	2000-01	2017-18
Class 3 NI Hard Hill	1650	1280	1065
Class 4 Hill Country	4700	4395	3640
Class 3 & 4 combined	6350	5675	4705
Total Farm in NZ	19600	15740	11295
5 Farms on NI Hill	32.4%	36.0%	41.7%

In terms of the numbers of farms, the North Island hill country has increased from 32% in 1991-92 to 42% in 2017-18 over 25 years. I am told that data from the last census indicates that the number of sheep & beef farms has dropped to 9996 farms with the biggest loss in the South Island, so the proportion of farms on North Island hill country may now be approaching 50%. However farm numbers are not farm output.

Table 2 Sheep and beef Cattle numbers in NZ

	1991	2001	2001	2017	2017
Sheep & Beef Cattle numbers	Sheep	Sheep	Beef Cattle	Sheep	Beef Cattle
Class3 & class 4 North Island hill	18.1m	14.2m	2.07m	12.24m	1.81m
NZ Total	55.2m	44m	4.79m	27.53m	3.62m
% on North Island hill country	32.7%	32.2%	43.2%	44.4%	50%

The proportion of NZ's sheep population on the North Island hill country has increased from 33% in 1991 to 44% in 2017 and the proportion of beef cattle run on the North Island hill country is 50%.

The North Island hill country is more critical to our meat and wool industries, but the research input into the hill country has probably declined given the closure of hill country research areas since 1975 when this trial began. Whatawhata Hill Country station, the Kaikohe and Te Kuiti research areas are

¹ NZ Meat & Wool Board's Economic Service, NZ Sheep & Beef Farm Survey, 1991-92.
Meat & Wool Innovation, Economic Service, Sheep & Beef Farm Survey 2001-01.
Beef & Lamb NZ, Economic Service, Sheep & Beef Farm Survey 2016-17

gone and Ballantrae is leased to an education institution with a fee paid to maintain this trial. While AgResearch will be doing research on commercial hill country farms and elsewhere that is relevant to the hill country, this trial is a unique research trial for a significant production landscape in New Zealand pastoral production.

9. **Long-term investment.** The Taxpayer has made a significant investment into a long-term trial and research that will be lost if the current roading option proceeds and the future benefits of this will be foregone.

CONCLUSIONS

10. The long-term phosphorus fertiliser and grazing trial at Ballantrae has significant value for New Zealand's sheep and beef hill country farming sector for both sustainable farm production and environmental protection. This value comes from both its uniqueness – long-term, pasture animal interactions and hill country locations and from its potential to contribute to future issues as it has demonstrated over the last 40 years, initially contributing to farm production and profitability issues and now environmental protection, sustainability and climate change issues.

Dated: 15th March 2019

A handwritten signature in black ink, appearing to read "J. P. Nalca", is written over a horizontal line.