

Wise Use of N-Fertiliser on Hill Country Pastures

WiseN Up!

Hill Country Nitrogen Project Kicks Off

Special points of interest:

- The key components of the project are: Research trials, focus farms, networking and communication
- Project will run for 3-4 years
- Project is overseen by a Steering Group, chaired by Taihape farmer Mark Illston
- The project is being managed by AgResearch's Greg Lambert

The 'Wise Use of N-Fertiliser on Hill Country Pastures' project, sponsored by the Sustainable Farming Fund, Fert Research, Ballance Agri-Nutrients and Ravensdown Fertiliser Co-operative, was officially launched in February at an inaugural conference in Palmerston North.

The objective of the project is to demonstrate the wise use of fertiliser nitrogen (N) under commercial conditions in a range of hill farming situations in order to encourage practices that enhance long-term farm profitability whilst minimising potential detrimental environmental effects.

The project involves research studies at AgResearch's Ballantrae (Manawatu) and Invermay (Otago) Research Stations and is backed up with demonstrations on fourteen focus farms nationwide.

The focus farm network will gather production and economic data to substantiate the commercial implications of N-fertiliser use, but will support their decisions with information from the research trial outcomes. The research trials will focus on issues such as environmental outcomes, pasture composition and pasture production.

Effective networking and communication is also important and the aim is to provide sufficient information for the development of best management practices so that N-use on hill country is given a sensible future direction. Regional Council groups will be involved in the project and are likely to attend focus farm meetings and contribute to project outcomes.



Hon Jim Sutton addressing participants at the inaugural 'Wise Use of N-Fertiliser on Hill Country' Conference

Image kindly supplied by Country-Wide Publications Limited

Inside this issue:

- Inaugural Nitrogen Conference a Success **2**
- Summary of PCE Report "Growing for Good" **2**
- Focus Farm Feature—Kimbolton **3**
- Open Days This Quarter **4**
- AgResearch Scientist Profile—Annette Litherland **4**

A Word From the MAF Sustainable Farming Fund

The Sustainable Farming Fund was established in 2000 and is part of a Government policy to work with industries and communities in partnership. The aim is to facilitate growth, innovation and opportunities within these groups, and central and regionally based teams within MAF manage the Fund. Around \$9.5m is allocated to projects each year.

Since 2000, 320 projects have been funded and a recent independent review conducted by BERL shows that the Fund is providing real benefit to the primary sector. The BERL review projected that 65 projects could potentially add between \$350-\$530 million per year in farmgate returns.

The growing use of nitrogen to increase on-farm production is very significant and there is a real need to ensure that this use is both sustainable and 'wise'. For these reasons, and in keeping with the principles and objectives of the Sustainable Farming Fund, the 'Wise Use of Nitrogen on Hill Country Pastures' project is receiving considerable SFF financial support.

Inaugural Nitrogen Conference a Success



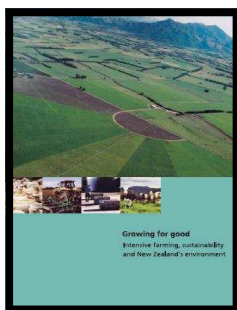
Project Manager, Dr Greg Lambert of AgResearch introducing the project at the annual conference

Image kindly supplied by Country-Wide Publications

“There is a need for balancing the short-term economic and longer-term environmental consequences of increased nitrogen fertiliser use. We need to remember that the economic needs are important – it’s hard to be green when you’re in the red.”

Hon Jim Sutton

Inaugural Nitrogen Conference



Parliamentary Commissioner for the Environment’s report addressing nitrogen issues— ‘Growing for Good’

The Palmerston North Convention Centre was the location for the first annual N-project conference, addressed by the Minister of Agriculture, the Hon Jim Sutton.

Farmers, consultants, scientists, regional council, media and industry representatives from around NZ attended the one-day conference held on the 25th February 2005.

The key objective of the day was to provide a forum for parties to understand and discuss the scope and aims of the project, whilst taking away useful messages for their respective groups.

The Hon Jim Sutton addressed

the conference, applauding the projects participants and goals, and going on to say that it is important that farmers know the benefits and consequences of increasing nitrogen fertiliser use on hill country. He also commended the fact that the project will look at these proactively so that sound advice can be given at the front end rather than seeking to sort out problems after they have occurred.

Representatives from each focus farm presented either their 2004 results or 2005 scenarios to the conference, and topical N-related presentations given by Dr Greg Lambert and Dr Stewart Ledgard of AgResearch. Early results

from the Ballantrae and Invermay trials were presented by Coby Hoogendoorn and Jeff Morton.

Five focus farms presented trial results for the 2004 season and the remaining properties will begin their demonstrations this winter/spring. Initial results indicated that low-moderate rates of nitrogen can be profitably applied but that returns may decline as rates increase. Check your April copy of Country-Wide magazine for further details.

For copies of the conference presentations, please contact Clare Johnston (see page 4).

Summary of PCE Report, ‘Growing for Good’

The office of the Parliamentary Commissioner for the Environment (PCE) recently produced a report entitled “Growing for good: intensive farming, sustainability and New Zealand’s environment”. It is available on the internet at www.pce.govt.nz or as hard copy from the PCE office.

In its 238 pages (be sure you want to download this off the web before you start) it considers a range of intensification issues: - farming systems and sustainability; farming trends; drivers of intensification; emerging trends in farm systems; and the need for change.

It uses fertiliser N and water use issues as case studies of intensi-

fication practices, and concludes the following:

- Intensification in pastoral, horticultural and viticulture sectors is placing our natural capital under intense pressure. (“natural capital” is rivers, lakes and aquifers, soils, biodiversity and atmosphere)
- “Synthetic fertiliser” use grew by 34% during 1994 to 2002 and urea use by 160%
- Our waterways and lakes are becoming nutrient enriched and degraded from nitrogen, animal faecal matter and eroded sediment
- Many of our key export markets will not want products sourced from farms that are polluting the

environment

- Immediate action is needed to remedy pollution from farms, to manage the use of nitrogen fertilisers, and to deal with contamination of waterways
- We need more dialogue regarding these issues, need a pan-sector institution to articulate a vision for the future, and need more investment into research

The report has generated considerable debate, which was most likely what it was intended to do. Some aspects of the report are open to criticism however there is strong scientific evidence to back up the under-pinning assertion that intensive pastoral agriculture has detrimental environmental impacts.

Focus Farm Feature

Harvey Community Group, Kimbolton, Manawatu

Farm Profile and Nitrogen Demonstration

Ian and Annie Harvey, in consultation with Farm Consultant Will Wilson and the community group, began their nitrogen demonstration in 2003.

The 500ha effective Harvey property is located at Kimbolton, Manawatu and is made up of 24% cultivatable land and 76% hill country. This high fertility

farm receives an average annual rainfall of 1300 mm/yr and applies 40 kg P/ha/year.

The group saw this project as an opportunity to “push the boundaries” and test the theory of profitable N-use. The trial involved stocking ewes at 11, 13 and 15 ewes/ha with applications of 50, 90, 150 kgN/ha respectively in

2003 and 13, 15 and 17 ewes/ha with applications of 110, 190, 260 kgN/ha in 2004. The project started slightly earlier in 2004 in order to handle the tight spring with greater confidence. The following table outlines the financial results for the trial to date.



Dr Greg Lambert of AgResearch (centre front) and other community group members at a Harvey community group meeting, Manawatu

2003 and 2004 Financial Results Applied to 300ha

The nitrogen applied in each of the three treatments provided additional feed from July through to October.

In the 2003 yr, the 11, 13 and 15 ewes/ha mobs produced 504, 579 and 667 kg lamb/ha. In 2004, the 11, 15 and 17 ewes/ha treatments produced 692, 756 and 848 kg lamb/ha under the given nitrogen treatment regimes.

• NOTE: This project looked only at stocking rates in spring. Carrying higher stocking all year round requires further investigation for a given situation.

| Whole year Ewes/ha | Weight of meat & fibre/ha (kg/ha) | Gross Margin/ha after allowing for the cost of extra Nitrogen | Advantage over base ewes/ha (\$/ha) |
|--------------------|-----------------------------------|---|-------------------------------------|
| 2003 | | | |
| 11 | 272 | \$836 | - |
| 13 | 316 | \$943 | \$107/ha |
| 15 | 360 | \$911* | \$ 75/ha |
| 2004 | | | |
| 13 | 355 | \$992 | - |
| 15 | 387 | \$992 | \$0/ha |
| 17 | 433 | \$1,059 | \$67/ha |

*Includes extra labour due to increase in ewe numbers. Without the extra labour, the gross margin is \$1011/ha (an increase of \$175/ha above 11 ewes/ha). The impact of any extra labour required should be assessed on a case by case basis.

“Whereas nitrogen fertiliser has been used for several decades as a tactical management tool to overcome a short-term feed deficit, this trial is looking at the strategic use of nitrogen to increase pasture production and lift stocking rates – especially during the late winter-spring period (July-December)”

What has the Group Learnt So Far?

- That pushing the boundaries requires careful planning, timely implementation and excellent monitoring systems
- That the feed situation needs to be tight in Sept-Nov to have well-controlled pastures in Dec-Jan
- That the financial benefits beyond 13 ewes/ha are marginal on the Harvey property
- That high profit is a result of lambing%, weaning weight via stocking rate, pasture quantity in early spring & quality in late spring
- That there was a rapid change in pasture composition after 2-years of higher n-use
- That periods when feed is tight can be stressful
- That a back-up plan should always be available

“There is no such thing as NO flexibility - only lack of PLANNED flexibility”



Farm owner Ian Harvey (centre) and other Kimbolton community group members

For further information, contact:

Clare Johnston
Project Coordinator
PO Box 1319
Palmerston North

Phone: 06 363 7944
Fax: 06 363 7944
Email: cmjconsulting@extra.co.nz

Sound Bites - Lindsay Fung, Team Leader Research, Horizons Regional Council:

"Horizons Regional Council is pleased to have the opportunity to become involved with the Harvey Monitor Farm and Wilson and Keeling, and in particular to be able to present our viewpoint, which is concerned with minimising adverse environmental impacts on water quality (in both waterways and groundwater aquifers).

We look forward to working alongside the Harveys to help understand the fundamental question of how much (nitrogen) fertiliser is enough? We do not expect this to be a straight-forward exercise, but are very pleased to see farmers, industry stakeholders, consultants and researchers collaborating on this issue with a view to determining sound practices on the increasing use of fertiliser on hill country."

Open Days This Quarter

| Focus Farm | Date | Contact |
|---------------------------|---------------|-----------------------------|
| Winton, Western Southland | 15th April 05 | Richard Stuart, 03 448 8028 |
| Kimbolton, Manawatu | 20th April 05 | John Stantiall, 06 357 6333 |
| Manawahe, BOP | 17th May 05 | Mark Macintosh, 07 307 1142 |
| Mangamingi, Taranaki | 1st June 05 | John Stantiall, 06 357 6333 |
| Waipukurau, Hawkes Bay | 6th July 05 | Roy Fraser, 06 858 7215 |



Farm systems expert, Dr Stewart Ledgard

AGRESEARCH SCIENTIST PROFILE: Annette Litherland

AgResearch Scientist Annette Litherland is currently working with N-project facilitators at the Hardwick-Smith property (Taranaki), the Ellingham property (Taranaki) and the Crowfoot property (Castle Point).

Annette joined the AgResearch team as an AgSystems Scientist in August of 1997 after spending 12 years working in the area of fibre science, both here in New Zealand and in the USA.

Annette graduated with a PhD in Animal Science from Massey University in 1997 and went on to generate papers in fine wool pro-

duction in sheep and goats, pasture quality and quantity, ill thrift in production animals and the use of satellite imagery for predicting pasture characteristics.

Annette believes the 'Wise Use of N-Fertiliser on Hill Country Pastures' project is valuable because it provides an assessment of both the economic and environmental implications of high use of nitrogen on hill country.

"I hope in time we can take the results and extrapolate these to whole farm use. I find it very interesting that the results to date, which use the current high price of N and include

some assessment of the whole year costs associated with higher stocking rates, show that high N use is currently marginal economically. It will be interesting to more thoroughly investigate the next stage, which looks at the environmental implications of high N use."

Annette is based at AgResearch Grasslands, Palmerston North.



AgResearch Scientist, Annette Litherland

The Project Team again wishes to acknowledge the sponsors:

