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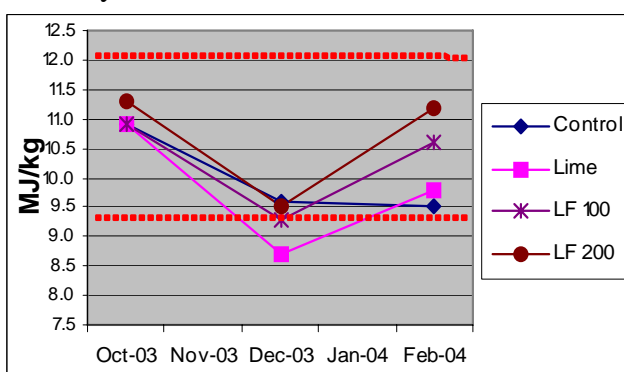
## BENEFITS OF LIMEFLO FERTILISER DEMONSTRATED

Last month I reported on a livestock trial we supervised which examined the impact of both Mainland Minerals and conventional granular fertiliser on stock health. This article reports on another trial which we also supervised for Mainland Minerals to investigate what benefits, if any, would accrue from applying finely ground calcium carbonate or Limeflo.

Many farmers are of the opinion that there are only two soil criteria that really matter, pH (which measures acidity) and Olsen P (which measures plant available phosphorus). In this trial undertaken in the South Canterbury hill country near Albury, a conventional aglime application of 2.5T/ha was compared with Limeflo applied at 100kg/ha and 200kg/ha in a situation where Olsen P levels were not a limiting factor. The trial site pH was 5.5. The objective was to compare plant responses over time to the aglime and Limeflo treatments. The trial was set down in February 2003 and ran for three years. We used a randomised block design with 5 replications. No clover was oversown with any treatments.

|               | Year 1 | Year 2 | Year 3 | TOTAL        | Extra DM    | Increase (%) |
|---------------|--------|--------|--------|--------------|-------------|--------------|
| <b>CTRL</b>   | 4817   | 5356   | 6913   | <b>17086</b> | <b>0</b>    | <b>0</b>     |
| <b>AGLIME</b> | 5477   | 6106   | 7411   | <b>18993</b> | <b>1907</b> | <b>11.2</b>  |
| <b>LF100</b>  | 6270   | 6968   | 7839   | <b>21076</b> | <b>3990</b> | <b>23.4</b>  |
| <b>LF200</b>  | 8006   | 8663   | 8112   | <b>24780</b> | <b>7694</b> | <b>45.0</b>  |

The table above summarises the quantity of dry matter grown i.e. the Limeflo treatments grew 23.4% & 45.0% more dry matter compared to the untreated control and twice and four times as much dry matter as the bulk lime treatment.



Over the summer of 2003/2004 we also tracked a number of pasture feed profile parameters to see whether the Limeflo was just growing more pasture or also growing better quality pasture. Metabolisable energy (cf graph) and other analyses all demonstrated that the Limeflo treatments also grew better quality feed. (N.B. The Desired range for Metabolisable energy is 9-12).

We believe most of the reason why the Limeflo treatments grew more and better quality pasture was because these treatments stimulated a response from the clover. The associated photo's compare the clover present in a typical aglime plot with a typical Limeflo (200 kg/ha) plot. The photo's were taken 9 months after the trial was set down i.e. December 2003.

There was substantially more clover present in the LF 200 plots than in the aglime plots. The pasture in the LF 200 plots was also more dense than that growing in the aglime plots.



An obvious question arises: “Why did the Limeflo treatments give such an improvement in dry matter grown, feed quality and clover composition?” Based on these results and other observations over the years, we believe that the Limeflo treatments stimulated a response in the soil biology (earthworms, bacteria, fungi etc). This in turn led to better soil physical properties (structure, porosity, moisture retention) and better nutrient cycling.

Does this mean anything to the farmer? Consider the following economic analysis which highlights the impact the extra dry matter grown makes to the “bottom line.”

| Treatments                                    | Lime              | LF100             | LF200             |
|---|-------------------|-------------------|-------------------|
| Applied in Feb 2003                           | 2.5Tonne/ha       | 100kg/ha          | 200kg/ha          |
| Extra DM grown (3 yrs) over control treatment | 1907kg<br>(11.2%) | 3990kg<br>(23.4%) | 7694kg<br>(45.0%) |
| Extra SU/ha able to be run on the extra feed* | 1.16              | 2.43              | 4.68              |
| Return/SU**                                   | \$68.00           | \$68.00           | \$68.00           |
| Potential increase in return/ha***            | \$78.88           | \$165.24          | \$318.24          |
| Cost/ha fertiliser applied****                | \$175.00          | \$78.00           | \$110.00          |
| Fertiliser cost spread over 3 years           | \$58.33           | \$26.00           | \$36.00           |
| <b>Net return/ha</b>                          | <b>\$20.55</b>    | <b>\$139.24</b>   | <b>\$282.24</b>   |

- \* Assumes a SU requires 1.5kg of dry matter intake/day (1643 kg over 3 years)
- \*\* Assumes \$8.00 for wool + 1.2 lambs @ \$50.00/lamb
- \*\*\* Extra SU/ha multiplied by the Return/SU
- \*\*\*\* Assumes application was by groundspread truck

The trial clearly demonstrated significant benefits from the use of Mainland Minerals Limeflo fertiliser, both in terms of the quantity and quality of the dry matter grown and the economic advantages of taking such an approach.