

# FINAL REPORT FOR ACID SOIL ACTION AND ASSPRO PROJECTS for the period up to 30 June 2000

## NAME OF PROJECT

Binalong Landcare Acid Soil Action Project (SRSAMC97/C15)

## OBJECTIVES

- Investigate the economics of top dressing a native grass/sub clover pasture with lime and fertiliser under a wether grazing enterprise.
- Investigate how lime may improve acid soils, pasture productivity and therefore lower a rising water table.
- Measure livestock performance in wool and live weight gains.
- Raise awareness of the above issues.
- We are hopeful that the results will demonstrate an economic and environmental benefit of topdressing lime and super.

## PEOPLE INVOLVED

Project Leader: Ian Giles

Others immediately involved: Binalong Landcare Group,  
Fiona Leech and Phil Graham, NSW Agriculture, Yass  
Sari Glover, NSW Agriculture, Queanbeyan

Site of Project: The project site is situated approximately 4 kilometres north east of Binalong. See Appendix 1: Site Layout

## **MILESTONES (achievements). Please include some detail, e.g. employed TO (selected site at .... with some detail of why, soil etc; published paper, title and where published.**

1. March 1998 - Site selected, fenced, watering system set up and base soil tests taken. The site selected is representative of Binalong district, ie: native based pasture on undulating country.
2. May 1998 - Lime and fertiliser spread.
3. August 1998 - Initial botanical composition assessment.
4. December 1998 - Comprehensive soil samples collected.
5. Jan/Feb 1999 - Trial sheep shorn and drenched and paddock stocked to commence trial.
6. February 1999 - Fertiliser spread on paddock 1.
7. May 1999 - Lime movement soil samples collected.
8. August 1999 - Botanical composition assessment.
9. December 1999 - Comprehensive soil samples collected.
10. Jan 2000 - Shearing and mid side sampling for fleece quality measurements.
11. April 2000 - Lime movement samples collected.

Monthly pasture assessments are being taken to calculate monthly pasture growth rates for the site. Livestock weighing and pasture assessment is used as a guide for stocking rate adjustments.

## **EXTENSION AND TEACHING ACTIVITIES ASSOCIATED WITH THE PROJECT**

1. June 1998 - Launch of site to district - approximately 40 producers attended.
2. December 1998 - Pastures Identification Field Day - Peter Dowling, NSW Agriculture invited to help provide technical advice. Approximately 25 producers attended.
3. Sheep weighed on a regular basis as a group activity to aid in stocking rate decisions.
4. Various ASA project updates at Landcare meetings.
5. August 1999 - Pasture and Weed Identification course run by NSW Agriculture. Fifteen producers attended the day.
6. The trial is used regularly by Fiona Leech and Phil Graham, NSW Agriculture, Yass for inclusion in Prograze farmer meetings.
7. Poster prepared for NSW Agriculture display at Murrumbateman Field Days, October 1999

### **A BRIEF REPORT suitable for the ASA annual report. Include a list of any significant outcomes.**

The Binalong Landcare Group has established their demonstration on Ian and Jan Giles' property "Kuriong", Binalong.

The site consists of 3 paddocks with different treatments of lime and fertiliser (see Appendix 1 - Site Map for details). The paddocks are being grazed with young Merino wethers. The pasture consists of predominantly native perennial grasses, annual grass and broadleaf species and subterranean clover, which is typical of much of the country in the Group.

The three paddocks have had the following treatments over the past 3 years:

**Paddock 1** Autumn 98 - lime 2.5 t/ha, 125 kg/ha super  
February 99 - 125 kg/ha super  
February 00 - 125 kg/ha super

**Paddock 2** Autumn 98 - lime 2.5 t/ha, 125 kg/ha super

**Paddock 3** Autumn 98 - 125 kg/ha super.

Paddocks two and three will receive 125kg/ha in late summer 2001, and every three years thereafter.

The livestock performance from Autumn 98 to January 99 was ignored because we had to allow time for the lime to work.

The following data applies from January 1999 to January 2000. Wethers were set stocked in the three paddocks.

Initial stocking rates were:

**Paddock 1** 13.2 wethers/ha

**Paddock 2** 11.4 wethers/ha

**Paddock 3** 10 wethers/ha

Adjustments were made on the 1<sup>st</sup> of September, 1999 due to differences in animal body weight between the paddocks. Stocking rates were adjusted to the following:

**Paddock 1** 14.5 wether/ha

**Paddock 2** 11.4 wether/ha

**Paddock 3** 8.7 wethers/ha.

These rates have been continued into 2000.

**An economic analysis of the performance of the paddocks for 1999 is as follows:**

	<b>Paddock 1</b>	<b>Paddock 2</b>	<b>Paddock 3</b>
Area, ha	4.4	4.2	4.7
Stock Numbers	60	48	45
Stocking rate/ha	13.7	11.4	9.5
Total greasy wool, kg/ha	85	66	55
Total Clean wool, kg/ha	63.5	48.7	40.4
Whole clip wool price, clean c/kg	486	502	552
<b>Wool income, \$/ha</b>	<b>\$308.61</b>	<b>\$244.47</b>	<b>\$223.00</b>
<b>Costs</b>	<b>/ha</b>	<b>/ha</b>	<b>/ha</b>
Variable \$5.20/hd	71.24	59.28	49.40
Fertiliser (see note)	25.62	8.53	8.53
Lime (see note)	27.00	27.00	0.00
Wool selling tax	12.34	9.78	8.92
Costs Commission	13.33	10.56	9.63
Interest on extra livestock	10.50	4.75	-
Overhead costs	93	93	93
<b>Total Cost per ha</b>	<b>\$253.03</b>	<b>\$212.90</b>	<b>\$169.48</b>
Profit per ha	55.58	31.57	53.52
Cost of production cents/kg clean	3.98	4.35	4.20
\$/ha difference to paddock 3	2.06	-21.95	0.00

## Notes

- Fertiliser: Paddock 2 & 3 receive 125kg super/ha every third year, 1/3 of the cost is allocated each year.
- Lime: The cost of lime (\$135/ha) is being spread over 10 years. Each year a capital repayment of 10% is made plus the interest costs at an interest rate of 10%.
- Livestock Interest: The interest (10%) of running the extra livestock above paddock 3 has been included. Allowed value of \$25/hd.
- Overhead costs: This figure is representative of the local costs, based on local benchmarking data.

Some care is needed looking at these results. Paddock two and three could well have lower performance this year without much change in costs due to a run down in fertility (fertiliser is not due until February 2001), whereas paddock one with yearly inputs should continue improving.

A full years production at the adjusted stocking rates (Pad.1 14.5/ha, Pad.2 11.4/ha, Pad.3 8.7/ha) will change the relative performance of the paddocks. The stocking rates were changed based on how the stock were performing.

## Lime Movement

Complete soil cores have been taken each year to a depth of 20cm and cut in 2.5cm segments down to 10cm depth and then 5cm segments down to the 20cm depth. Such soil tests were taken in Autumn '98 – before lime or super was applied, in Autumn '99 – 1 year after lime application and in Autumn '00 – 2 years after lime application.

Over the 2 year period, the lime appears to have moved through the soil profile to a depth of 7.5 cm.

Tables 1, 2 and 3 show soil pH (CaCl<sub>2</sub>) readings in each of these years down to 20cm in paddocks 1, 2 and 3 respectively.

**Table 1**

Pdk 1			
pH(CaCl)			
2000	1999	1998	Depth (cm)
5.8	6.6	4.4	2.5
4.7	4.6	4.2	5
4.5	4.4	4.1	7.5
4.5	4.3	4.1	10
4.4	4.3	4.2	15
4.5	4.3	4.2	20

**Table 2**

Pdk 2			
pH(CaCl)			
2000	1999	1998	Depth (cm)
6.1	6.3	4.4	2.5
5.2	4.7	4.2	5
4.9	4.3	4.3	7.5
4.8	4.4	4.4	10
4.8	4.6	4.4	15
4.9	4.6	4.6	20

**Table 3**

Pdk 3			
pH(CaCl)			
2000	1999	1998	Depth (cm)
4.4	4.4	4.4	2.5
4.2	4.1	4.1	5
4.2	4.1	4.1	7.5
4.2	4.0	4.1	10
4.3	4.0	4.2	15
4.4	4.3	4.3	20

In Paddock 1 the lime has significantly increased soil pH down to 5cm and there appears to be some effect down to 10cm. There appears to have been no true effect of the lime on soil pH beyond a depth of 10cm to date.

In paddock 2, the lime has significantly raised soil pH down to 7.5cm and a lesser effect to 10cm.

Paddock 3 has never received lime and hence the soil pH readings have remained very similar over the 3 years of testing.

It is too early to assess the impact from lime. At least another 3 years are needed before we can determine what the economic response is, when used on native based pastures.

### **Pasture Composition and Growth Rates**

Pasture composition is being measured with no significant changes to date.

Pasture dry matter assessments are carried out monthly to allow the calculation of pasture growth rate (measured in kg Dry Matter/ha/day) for the month. Following is a table showing pasture growth rates for the period April to October during 1999 and 2000.

#### **Pasture Growth Rates in kg Dry Matter/ha/day**

<b>MONTH</b>	<b>1999</b>			<b>2000</b>		
	<b>Pad 1</b>	<b>Pad 2</b>	<b>Pad 3</b>	<b>Pad 1</b>	<b>Pad 2</b>	<b>Pad 3</b>
<b>April</b>	26	22	18	26	18	15
<b>May</b>	11	11	9	13	9	9
<b>June</b>	14	8	9	13	7	8
<b>July</b>	12	10	9	16	11	10
<b>August</b>	21	14	12	18	12	9
<b>September</b>	38	26	23			
<b>October</b>	55	30	23			

### **Conclusion**

The trial has raised the awareness of soil acidity within the Binalong and Yass districts. The interest shown in the trial by the Binalong Landcare Group is very strong. Members are eagerly awaiting further economic information generated from the trial. The Binalong Landcare Group is interested in viewing other Acid Soil Action community grazing demonstrations in neighbouring districts with the aim of learning from their work.

**ATTACH copies of publications, conference proceedings etc. Please detail any publicity that the project has attracted and photos that will help describe what the project is achieving.**

All publicity and press releases have already been sent in with previous reports – originals sent (group did not keep a copy of these documents)

Please refer to Appendix 1 for trial site details.

Please refer to Appendix 2 to view a selection of photographs taken of the trial.

Please refer to Appendix 3 for the Final Project Expenditure Report ending June 2000.

**OPPORTUNITIES for publicity in the coming year for your project and/or the ASA/ASSMAC programs. If there are ways that the programs can support you please include details.**

The Binalong ASA site is in early stages of assessment. It is hoped that the monitoring of this site will continue for at least 10 years. This site will provide the opportunity for various field days and associated publicity as the information generated enables further chapters to evolve in the “ economics of topdressing lime” story.

The Binalong Landcare Group are planning their next field day on the site on 2<sup>nd</sup> November, 2000.

**RETURN completed form BY FRIDAY 29<sup>th</sup> September, 2000**

Greg Fenton

Project Coordinator, Acid Soil Action.

# APPENDIX 1

## Binalong Landcare Group ASA Project

