

# **Current Practices and Extension on Acid Soils in Tasmania**

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## **Description of Practices**

There are predominantly four techniques that will assist in ameliorating acid soils. These are:

- application of liming material
- use of acid tolerant plants
- using management practices which reduce the rate of acidification
- apply other types of neutralising agents

## **Extent of Practices**

### **1. Application of liming material**

Lime production in 1996/97 was 106,000 t and in 1997/98, 108,000 t. The total production for 1998/99 was about 150,000 tonnes. Lime use has increased recently with expansion of the poppy industry.

#### **Cost at pit for major suppliers;**

\$18-\$22 / tonne

#### **Cartage and spreading costs;**

Variable depending on distance from the pit and supplier transport arrangements, but is approximately \$12.50/tonne for carting and spreading.

#### **Lime quality classification in Tasmania;**

The Tasmanian Fertilizer Regulations 1993 grades lime by way of a formula that uses the total neutralising value (TNV) and particle size of the lime to determine its effective neutralising value (ENV) (see Table 1). The formula breaks down particle size into three ranges; less than 0.30 mm, 0.30 to 0.85 mm and greater than 0.85 mm

$$\text{ENV} = (\% < 0.30\text{mm}) \times \text{TNV} + (\% 0.30\text{-}0.85) \times 0.6 \times \text{TNV} + (\% > 0.85\text{mm}) \times 0.10 \times \text{TNV}$$

Grade 1 limes have high neutralising value and/or fine particles (high ENV) while grade 3 limes have a lower neutralising value and/or coarser particles (low ENV).

**Table 1: Minimum effective neutralising value of lime grades**

<b>Grade</b>	<b>Min. Total Neutralizing Value (%)</b>	<b>Min. Effective Neutralizing Value (%)</b>
1	80	80
2	65	65
3	50	50

A 1996 DPIF survey of some of the ground limestones available in Tasmania, showed that all of the products were grade 3 limes (see Table 2). This was not because the limes were impure (their total neutralising values were all more than 94%), but because they contained relatively coarse particles. Since that survey, some suppliers have changed their lime processing plants to produce a finer, grade 2 product.

**Table 2: Effective neutralising value of some Tasmanian limes**

<b>Producer</b>	<b>% &lt; 0.85mm</b>	<b>% 0.85-0.30mm</b>	<b>% &lt; 0.30mm</b>	<b>% Total N.V.</b>	<b>% E.N.V.</b>
Beams Bros.	36.5	32.0	31.5	94.2	51.0
Circular Head	40.5	23.0	36.5	97.5	53.0
David Mitchell	23.0	36.5	40.5	95.7	61.9
Blenkhorn	37.5	30.5	29.0	96.2	50.8
Railton					

Grade 3 limes are not necessarily inferior limes; it depends on the situation in which they are used. As part of a regular liming program where the aim is to maintain soil pH at a target level, a grade 3 lime is sufficient. However, if a quick increase in pH is sought, then a grade 2 or grade 1 lime will probably be more effective. At the present time there is insufficient data to be able to predict how much better a grade 1 or 2 lime might be in Tasmania compared to a grade 3 lime.

**List of current agricultural lime producers in each State.**

Beams Brothers Lime, RSD 545 FLOWERY GULLY, 7270

David Mitchell Ltd, Den Road, MOLE CREEK, 7304

Circular Head Dolomite & Trading Co, Havelock Street, SMITHTON, 7330

**2. Use of Acid Tolerant Plants**

Because lime is widely used in Tasmania, there has not been a need for the deliberate promotion of acid tolerant plants, although many locally developed pasture cultivars are probably selected with some tolerance of the natural acidity of Tasmanian soils.

### **3. Use management practices that reduce the rate of acidification**

Again, because lime use is a common farming practice, and also because Tasmanian soils have relatively high organic matter concentrations to buffer them against pH change, practices which reduce soil acidification are not actively promoted. However, the climate favours perennial pastures, which are thought to slow acidification compared to annual pastures.

### **4. Apply other types of neutralising agents**

#### **Clay spreading**

Clay spreading is not used in Tasmania.

#### **Alkaline Irrigation Water**

The practice of applying alkaline irrigation water to treat soil acid is not used in Tasmania.

## Summary of Land Use, by Agro-ecological region by Practices for Tasmania

Table 3 provides a summary of the practices being used by landholders in Tasmania to combat soil acidity. The table describes the practices on an agro-ecological area and land use basis. This can be used when comparing between states.

**Table 3: Practices used to combat soil acidity on an agro-ecological and land use basis**

AER	8. Wet Temperate Coasts		
Land use	Potato and other vegetables	Sown pasture	Apples
Lime use (1998/99, 150,000t)	90,000	37,500	7,500
Lime use (range)	75,000 – 105,000	30,000 – 45,000	4,500 – 10,500
Rate of use (t/ha)	3-5	1-3	1-3
Reliability*(lime use)	1.5	1.5	1.5
Reliability* (rate)	2.5	2.5	2.5
Farming practices:			
Use lime	yes	yes	Yes
Grow tolerant plants		Not consciously, permanent pastures are the norm	
Use less acidifying practices	no	no	No
Do nothing		Some pastures need no lime. Lime withheld when wool and meat prices are low	

\*reliability of answers was assessed on a 1 to 5 scale with 1 unreliable and 5 very reliable.

### State Programs

Tasmania has no soil acidity program as it is not viewed as an issue which needs particular assistance. Farmers are generally well aware of soil acidity and deal with it as a normal part of farming.

### Extension Programs

Nil

### Web Sites

Nil

## Research

### Current

Nil

### Historical

Previous studies include long term pasture responses to lime in the State's north-west, the effectiveness of finer limes in Tasmania's poppy industry, and the influence of lime on cadmium uptake by potatoes (see reference list).

### References

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