



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Establishing pastures - Readers' Note

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Soil acidity and liming

Soil acidification is a natural process that is accelerated by leaching of nitrate from the soil, addition of organic matter, and removal of calcium and magnesium in agricultural products such as milk.

As soils acidify there is generally an increase in undesirable nutrients such as aluminium and manganese, which can become toxic to pastures and crops and reduce productivity. Soil acidity is corrected by applying liming materials. The Agfacts *Soil acidity and liming* (AC.19) and *Liming materials* (AC.15) contain detailed information on the subject. These Agfacts should be in the back of this manual. If they are not, contact your nearest NSW Agriculture office for copies. The rest of this section presents information not found in those two Agfacts.

How much do I apply?

Approximate amounts of calcium carbonate (kg/ha) needed to raise the pH of the top 10 cm of soils of different texture (From Pearson, R. W. and Adams, F. I. (eds), 1967. *Soil Acidity and Liming. Agronomy Series No. 12, American Society of Agronomy, Madison, Wisconsin, USA.*)

Soil texture	To increase pH from:	
	4.5 to 5.5	5.5 to 6.5
Sand, loamy sand	850	1100
Sandy loam	1300	1950
Loam	1950	2400
Silty loam	2800	3200
Clay loam	3200	4100
Organic	6800	7900

Useful tips for applying liming products

- Lime is relatively insoluble. It must be worked into the soil to get best results. Broadcasting lime on top of the ground is wasteful. Lime moves only 2.5 cm a year. An average pasture root system of 15cm depth will receive the benefits only after 6 years.
- Do not mix lime with fertilisers.
- Calcium is one of five exchangeable cations (calcium, magnesium, potassium, sodium and aluminium). It is important that the 5 be kept in balance. Use soil tests to monitor this.
- Both calcium and magnesium compete with potassium for entry into plants. Therefore soils high in one or both of these cations will require large additions of potassium.

Further information

Agfact AC.15, *Liming materials*, NSW Agriculture

Agfact P2.2.7, *Inoculating and pelleting pasture legume seeds*, NSW Agriculture

Winter cereal management guide, NSW Agriculture

Soil acidity and plant growth, edited by A. D. Robson, Academic Press, Sydney.

