

Which liming material is best?

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If you have acid soil, adding lime will make it less acid, because lime is alkaline. There are several liming materials available, so you need to know which one will do the best job for you and give you value for money.

What to look for

Before you buy any liming material, check these details.

Neutralising value (NV)

NV tells you the lime's capacity to neutralise soil acidity. Pure calcium carbonate has NV of 100, which is the standard. Ideally, NV should be over 95. The NV figure is marked on the lime bag, or the invoice if you buy bulk lime.

Fineness

The finer the particles of lime, the faster they react with soil. Lime manufacturers have to specify the percentages of different-sized particles in their product.

Calcium and magnesium content

Your soil test results and your crop's need of calcium and/or magnesium will help you decide which lime to buy. Agricultural lime has calcium and little magnesium; dolomite has calcium and magnesium; and magnesite has magnesium and little calcium. You will find the percentages of each nutrient marked on the bag or invoice.

Types of liming materials

Agricultural lime (calcium carbonate)

This is the most commonly used liming material on the North Coast. It consists of limestone crushed to a fine powder and is usually the cheapest material for correcting soil acidity. Good quality lime has 37–40% calcium.

Burnt lime (calcium oxide)

Also known as quicklime, burnt lime is derived by heating limestone to drive off carbon dioxide. It is more concentrated and caustic than agricultural lime and unpleasant to handle, so is rarely used in agriculture.

Hydrated lime (calcium hydroxide)

This is made by treating burnt lime with water, and is used mainly in mortar and concrete. It is more expensive than agricultural lime.

Dolomite

Widely but often incorrectly used on the North Coast, particularly in horticulture, dolomite is a naturally occurring rock containing calcium carbonate and magnesium carbonate. Good quality dolomite has an NV of 95–98, and contains 22% calcium and 12% magnesium. It is good for acid soils where supplies of calcium and magnesium are low, but if used constantly may cause a nutrient imbalance, because the mix is two parts calcium to one part magnesium (2:1), whereas the soil ratio should be around 5:1.

There is a blend of lime and dolomite available with a 5:1 ratio.

Magnesite (magnesium carbonate)

Made from crushed magnesium carbonate rock, good quality magnesite has 25–28% magnesium, virtually no calcium, and NV of 95–105.

Burnt magnesite (magnesium oxide)

This is derived by heating magnesite, and contains about 50% magnesium. It is sold in granulated form and its NV is 180–220. Use magnesite and burnt magnesite if your acid soil already has enough calcium.

Wet lime

Wet liming materials are sometimes available at low prices. Their usefulness is determined by the NV and water content. If the water content is 10%, then the lime will only be 90% as effective as dry lime. You need to consider the extra costs of handling, freight and spreading.

Lime and cement kiln dusts

These dusts can be good value but you need to check the analysis before you buy. Their NV varies from 70–150 and calcium from 25–54%. Magnesium is usually less than 1%.

Crushed shells

Shells of oysters and other shellfish are mainly calcium carbonate, but the shell tends to be contaminated with sand and organic material and is usually too coarse to be effective in soil.

Gypsum (calcium sulfate)

Gypsum is classified by the Fertilizer Act as a liming material, but is not considered one in farming as it does not reduce soil acidity. It is used mainly to improve the structure of sodic clay soils, and these are not common on the North Coast.

Value for money

You can compare the value of different liming materials by checking NV and fineness against spread cost.

$(\text{Fineness} \times \text{NV}) \div 100 = \text{efficiency}$

$(\text{Spread cost} \times 100) \div \text{efficiency} = \text{comparative cost}$

For example:

LIME A

Fineness: 50

NV: 95

\$70/tonne spread

$(50 \times 95) \div 100 = 47.50$

$(\$70 \times 100) \div 47.50 = \$147.37/\text{tonne}$

LIME B

Fineness 100

NV: 99

\$90/tonne spread

$(100 \times 99) \div 100 = 99$

$(\$90 \times 100) \div 99 = \$90.91/\text{tonne}$

Lime B is comparatively cheaper because its fineness makes it more efficient at neutralising acidity.

Labelling

The NSW Fertilizers Act requires liming materials to be labelled. Labelling has to include

- ♦ Neutralising Value
- ♦ calcium and magnesium percentages
- ♦ the form of calcium and magnesium (carbonate, oxide or hydroxide)
- ♦ fineness

If this information is not on the lime bag, or on the invoice if you buy bulk lime, consider buying another product.

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