



Peat and Lime Requirement

Why lime peat?

Peat is limed to neutralize the acids in the peat. An increase in pH increases the peat cation exchange capacity.

Lime requirements depends on?

1. Acidity and target pH. The lime requirement depends on the amount of acid in the peat (initial pH) and on the target pH (generally between 6 and 7).

2. Long term liming effect More lime is required for a longer lime effect. Limestone (calcium carbonate) dissolves slowly and can therefore be used in relatively large quantities. Even large amounts of limestone do not increase pH excessively and pH generally remains between 6 and 7.

3. Type of peat. The lime requirement of sphagnum peat is often about 3 to 4 kg per m³ peat (approximately 5% of the dry weight of peat), although more (e.g., 8 to 10 kg lime per m³ peat) can be applied as a basal dose. For acid peat humus, the lime requirement may be as much as 10 to 15 kg lime per m³ peat.



Lime is often required to adjust the pH of peat moss.

Incorporation

1. Timing Slightly soluble limestone can be applied in large amounts at the time of preparing the growth media. This method is an easy way to meet long term lime requirement.

2. Surface applications Surface applied lime remains near the surface; leaching only very slowly to the deeper parts of the peat layer.

What to apply

Dolomitic lime and ground limestone are the most common liming agents. Both are suitable because they neutralize acid while having low solubility. As such, they may be added safely in large quantities.

Dolomitic lime is a natural mix of calcium and magnesium carbonates. Dolomitic lime is particularly suitable because it contains calcium and magnesium in proportions corresponding to the plant's requirements. When Dolomitic lime is applied, other nutrient cations such as potassium and ammonium have to be supplied. Such applications increase the electrical conductivity of the peat. However, if potassium is supplied as potassium sulphate, the potassium replaces some calcium on the peat and the Calcium then precipitates as calcium sulphate, lowering the electrical conductivity.

Ground limestone (calcium carbonate) can also be applied. When limestone is used, magnesium needs to be added in a form such as magnesium sulphate. Since magnesium sulphate is water soluble, it raises the electrical conductivity of the soil solution making the water uptake of the plants more difficult.

The use of Dolomitic limestone is therefore preferable.

Reference: "Peat and Its Use in Horticulture" - Viljo Puustjarvi Helsinki 1977

Prepared by Muhammad Marrush, Mark Bell and Shadi Atallah October 24, 2007

For more information visit: International Programs <http://ip.ucdavis.edu>

Copyright © UC Regents Davis campus, 2011. All Rights Reserved.