

# Lime or wood ash? Which one should I apply?

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Generally speaking, nutrient availability and crop yields are highest at neutral soil pH (6.5-7.5). Thunder Bay District soils are by and large acidic. Application of lime/or wood ash, at amounts determined by pH and buffer pH soil tests, is required to bring the pH to a desirable level (at least to 6.2 for alfalfa). Lime, despite of its ease of application, has several disadvantages as compared to wood ash. These are:

- Lime has to be imported from southern Ontario and is therefore costly
- It is slow to react; might take a year or more to raise the soil pH
- It has hardly any nutrients other than calcium (calcitic lime stone) or calcium and magnesium (dolomitic lime stone). These two nutrients are not deficient in Thunder Bay District soils, and
- Calcium from lime can release potassium from clay layers into soil solution and hence lead to leaching of potassium beyond the root zone

On the contrary,

- Wood ash is almost free of cost and is delivered by Bowater at farmers' fields
- It can be applied with solid manure spreader
- It is quick to react in the soil and its effect can be realized during the year of its application
- Wood ash improves availability of nutrients (phosphorus, potassium, zinc, manganese, copper and boron) in the soil, more than the lime does. Consequently, crop yields and quality of produce were found to be better with application of wood ash than that with lime (Ref. Annual Reports TBARS 2005 and 2006)
- It can substitute not only lime, but manure too. Growers who don't have the livestock component at their farm can use wood ash to improve soil and crop productivity

## Lime or wood ash?

- Wood ash has a lot of nutrients other than calcium and magnesium, especially micronutrients, which are increasingly becoming important to realize crop(s) yield potential.

Ten tons of wood ash could supply:

- 335 kg Calcium
- 33 kg Magnesium
- Up to 10 kg Sulphur
- 12 kg Phosphorus = 27.5 kg  $P_2O_5$
- 48 kg Potassium = 57.6 kg  $K_2O$
- 15 kg Sodium
- 580 gram Zinc
- 12 kg Manganese
- 56 kg Iron
- 180 gram Copper
- 42 gram Cobalt-considered essential for legumes and cereals
- Up to 25 gram Molybdenum

These nutrients have a lot of dollar value (if one has to buy and apply these nutrients). Because of additional nutrients benefit from wood ash as compared to lime, application of wood ash was found to increase alfalfa and barley yields even in neutral soils of Emo. However, one of the regulatory requirements for use of wood ash is that the soils should be acidic. Wood ash from natural forest sources, as is the case with wood ash from Bowater, is permitted for use under organic farming systems!