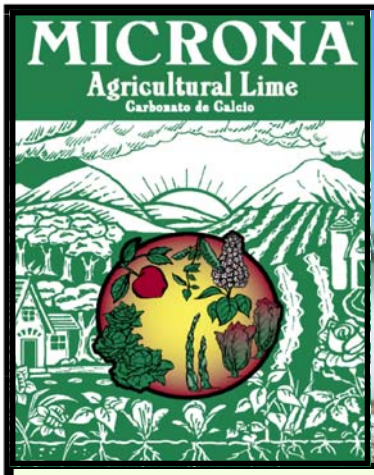


MICRONA™ AG Lime

High quality Agricultural Lime—Why Target Liming pays!

MICRONA™ Agricultural Lime
(Calcium Carbonate) is registered for use in conventional and certified organic crop production. This is an ultra-fine, white, natural limestone powder with proven advantages over standard Ag-lime. MICRONA is used in direct field applications for plough and grassland, as well as for nurseries; it really shines when blended with organic composts and organic soils.

MICRONA's High Dissolution Rate explains the lightning quick response for pH adjustments and high calcium nutrient availability. Effective at reduced application rates, MICRONA can help growers lower input cost and time.

- Higher Dissolution Rates
- Quicker Reactivity
- Proven Effectiveness
- Fast Uptake
- Increased Calcium Availability

In conjunction with European Ag-Lime standards, a variety of US limestone materials have been tested in Columbia River Carbonates' research laboratories evaluating dissolution and reactivity rates. [Table 1]
Tests show that different Ag-lime materials in general, can greatly vary in terms of reactivity and soil neutralization.[Reference 1] confirming years of prior independent research. [Reference 2]

MICRONA's Superior Acid Neutralization
The rate of acid neutralization strongly depends on the rate of dissolution of calcium carbonate. While particle size has a significant influence (and MICRONA is ultra-fine); we found that variations in reaction times exist regardless of particle size. As soil acids come into contact with the surface of Ag lime particles, the calcium carbonate converts to calcium ions, water and carbon dioxide.

MICRONA's high quality, fine calcium carbonate neutralizes soil acids very efficiently.

MICRONA™ Saves Cost
Time and distance are formidable enemies for any crop producer. Liming, like other crop fertility application, can be costly. Using target nutrient applications during the crop's major growing periods, placement of material as close to the plant as possible, and utilizing high quality lime maximize efficiency, effectiveness and affordability.

MICRONA works better because smaller particles have a higher surface to volume ratio thereby enhancing reactions. Contrary to common belief, this ultra-fine calcium material does not easily wash out, but is retained in the top layers of soil. The result: less lime is required to both gain desired pH levels and increase soil calcium levels. [Table 2].

With MICRONA™ you can use up to 50% less product than is traditionally recommended for liming, potentially resulting in lower labor and transportation cost.

MICRONA™ crop fertility management
MICRONA high quality lime not only acts faster, it also helps support proper soil structure and porosity which enhances plant respiration. With a particle size below 200 mesh, it supports natural biological life in the soil which more effectively releases needed minerals to the plant—particularly in heavy clay and high organic soils.
It has long been known that most soil microbes are sensitive to acid soils. Microbial biomass carbon in limed soil is significantly greater than in non-limed soils. Research done by soil microbiologists shows that fine agricultural lime has the largest positive impact on earthworms and microbes as compared to coarser lime or dolomite.
MICRONA's high neutralizing value, ultra-fineness, and solubility makes it the most effective liming material available in its class.

Add MICRONA™ to your fertility program today.

Columbia River Carbonates **www.gardenpearls.com** **(360) 225-6505**

Add MICRONA to your soil fertility program today!

Table 1

Comparing various limestone materials of similar particle size.

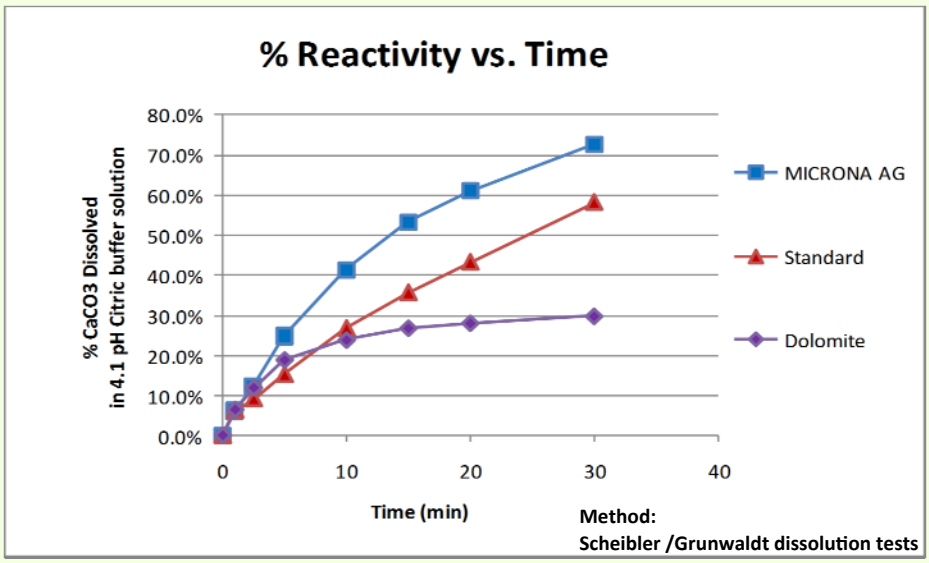
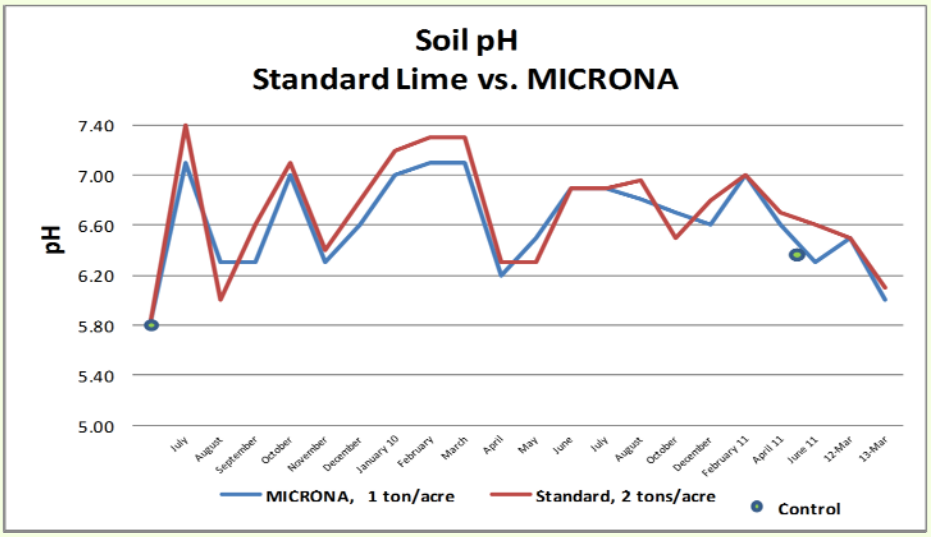


Table 2

Comparing MICRONA fine limestone at 1 ton per acre with standard lime at 2 ton per acre. Oregon Willamette Valley Grass seed fields.

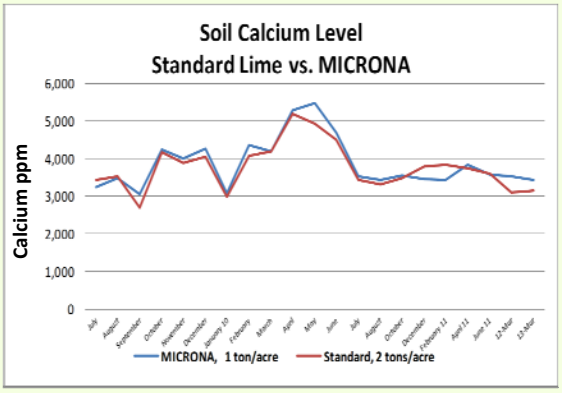
MICRONA = 50% less input, but gain the same or better results.



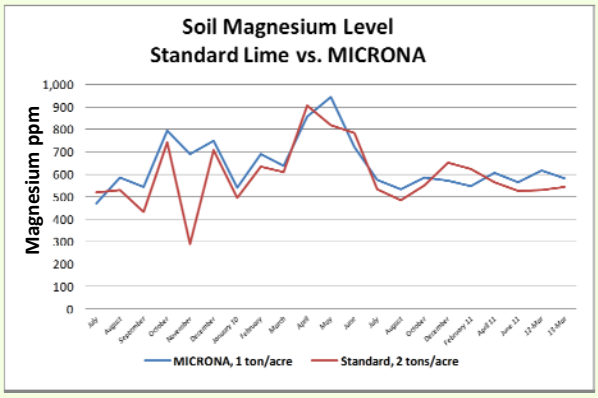
50% less input cost (labor, transportation, and materials)

Table 3 and 4

Available calcium and magnesium levels in field trial plots.



Higher levels of available Calcium.



Higher levels of available magnesium. (no magnesium was added!)

References:
1. CRC, R&D lab tests, Scheibler/Grunwaldt 2009, 2) Reaction times of 20 limestone, J.FM. Rippy et al , and Cation leaching tests using lysimeters by Marcos/ Gonzales 1994, 3) CRC grass seed field trial 2009-2013 Western Biochemical Consulting/Weisner.

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