

Liming U.P. Soils

With the increasing cost of fertilizers, can you afford NOT to lime?

Ag lime corrects soil acidity and improves availability of essential plant nutrients. It improves soil aggregation and tilth. This results in greater root exploration of the soil for nutrients by healthy root systems. Ag lime improves nutrient and water uptake while protecting the soil from wind and water erosion. Ag lime improves fertilizer efficiency by as much as 50 percent or more and boosts the effectiveness of certain herbicides. It is a real profit-maker for farmers when used according to need.

University research has shown that liming an acid, sandy soil that had a pH of 5.0 to pH 6.0 increased the effective cation exchange capacity (CEC) approximately 50%. When a fine sandy loam soil with a low effective CEC was limed, the amount of potassium (K) lost to leaching was reduced 300 percent. CEC of clay soils are less sensitive in this regard. Long-term soil experiments in Michigan and other Midwestern states indicate that every dollar spent on agricultural lime applied according to soil tests returns from \$5 to \$10. Correcting low soil pH by liming increases availability of nitrogen, phosphorus, potassium and other plant nutrients. It also supplies calcium and magnesium (if dolomitic lime is used), promotes better soil microbial activity, soil structure and tilth, and promotes longevity of legume stands.

Nitrogen fertilizers including urea, manure and green manure crops are converted more slowly to plant-available nitrate form by soil bacteria in soils with pH below 5.6. Phosphorus fertilizers undergo a chemical process called "fixation" in acid soils and are much less available to plant roots. Liming "frees up" fixed phosphorus in acid soils, especially those with high clay content. Raising the soil pH from 5.2 to 6.2 is like finding free fertilizer. It will pay for the cost of ag lime.

The bottom line is that soil testing should be one of the first investments. If lime is needed, it should be the first plant nutrient investment.

Soil testing will provide information on the amount of lime needed and determine if your soil needs magnesium. Sandy soils with less than 35 ppm of magnesium and clay soils with less than 50 ppm of magnesium are considered deficient. Lime recommendations for all crops assume that good quality ag lime will be applied, and that tillage depth will be 9 inches, unless specified otherwise. Different tillage depth will reduce, or increase the amount of lime needed.

All limes are not equal in ability to neutralize soil acidity. The two factors that determine quality of lime are the calcium and/or magnesium carbonate content of the liming material and how finely the lime is ground. A coarse-ground ag lime may need to be applied at up to 200% the rate indicated on a soil test report to get the desired result. Using information from a lime analysis report, a simple calculation can be used to determine if any correction of liming rate is needed based on lime quality. Lime analysis can be obtained through the MSU Soil Testing Lab or other reputable labs. Proper application and incorporation of ag lime is critical to obtaining good results.

Woodash, when available in adequate quantities, is a suitable substitute for ag lime. Good quality, hardwood ash has about ½ the liming effectiveness of ag lime by dry weight and includes about 3% potassium, 0.5% phosphorus and numerous other essential plant nutrients.

Thanks to the Noble Institute, National Stone Association and Cornell Extension

(Sources of lime and lime spreaders listed on reverse side)

Major sources of agricultural lime in the U.P. region:

(updated November, 2011)

Carmeuse Lime and Stone, Port Inland Operations, Gulliver, MI

- For farmers with their own trucking, contact: Doug Troyer 906-283-2251 or Bill MacArthur 906-283-2250
- For farmers without their own trucking, contact a local trucker and request a “delivered price” for agricultural lime from Port Inland
- Calcitic limestone (about 10% magnesium carbonate)
- Trucking is not provided, loading is provided

Carmeuse Lime and Stone, Cedarville Operations, Cedarville, MI

- For farmers with their own trucking, contact: Jeremy 906-484-2201
- For farmers without their own trucking, contact a local trucker and request a “delivered price” for agricultural lime from Cedarville
- Dolomitic lime (over 15% magnesium carbonate)
- Coarser-ground lime ‘sand’
- No trucking or loading is provided. A local contractor is available to load trucks on-site for a fee.

Western Lime, Port Inland Plant, Gulliver, MI

- Contact: P.J. Stoll, plant manager 906-283-2900 ext 401
- Trucking is not provided, loading is provided, truck liner suggested
- Slaked (calcium oxide, stronger acting than ag lime, very powdery)
- Availability depends on plant operations schedule

Great Lakes Agri Service, Inc., Escanaba, MI

- Contact: Mark, Jay or Wally 906-789-9957
- Calcitic or dolomitic lime available, 24 ton minimum order
- Trucking included, lime spreader available
- U.P.-wide service

Great Lakes Calcium, Green Bay, WI

- 1450 Bylsby Ave., P.O. Box 2236, Green Bay, WI 54306-2236
- (800) 236-7737

Lime spreading options for U.P. farmers:

- Lime spreader available for rent from Great Lakes Agri Service, Inc. (above)
- Add lime to manure as spread on fields
- Small lime spreaders may be available for rent through local chapters of wildlife associations

*Questions? Contact Jim Isleib, Alger County MSU Extension
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