

Seven Reasons

Why It Is Never a Good Time to Cut Aglime Use



IS SOIL ACIDITY robbing you of crop profits? Did you know that low soil pHs can cut fertilizer use efficiency by 50 percent...or more? That means you could be spending \$100 an acre for fertilizer, but getting only \$50 worth of results. Can you afford to lose crop yields and fertilizer use efficiency in today's agricultural economy?

Aglime should be applied whenever acid soil conditions threaten crop production...year in and year out, in good times and bad. There is no input more important than aglime. Right now times are tough out on the farm. Commodity prices are low. The temptation to lower input costs is high. Cutting aglime use to save money could be a huge management error. There are many reasons why. Here are seven.

Reason 1:

Aglime cuts fertilizer costs on acid soils. The relative efficiency of fertilizer use by crops is highest when aglime is used to correct soil acidity. Compare that to a fertilizer use efficiency of 75...or 50...or even 25...percent. Efficiencies of nitrogen (N), phosphorus (P), potassium (K), and other essential nutrients are dramatically affected by soil acidity. At a pH of 5.5, the efficiency of P use might be 50 percent of that at a pH of 6.5 That means fertilizer costs have been effectively doubled.

Reason 2:

Aglime promotes high yield and improves profit potential. The table below shows how dramatic crop yield responses to aglime can be.

A recent four-year Iowa survey of soybean growers showed that high yields accounted for nearly 70 percent of increased profits among top farmers. Everybody knows that high yields and high profits go hand-in-hand. On soils where pH is below optimum, aglime should be the first consideration in improving soil fertility and productivity so yields and profit potential can be increased.

Table 1. Response of corn and first cut alfalfa to aglime applied just before planting.

Lime rate, tons/A	Corn response, bu/A	First cut alfalfa response, lb/A
0.0	—	—
1.0	84	926
4.0	89	1,888
6.0	100	1,959

Reason 3:

Proper use of aglime helps to protect the environment. Aglime helps the crop take up nutrients more efficiently. That means more of the fertilizer nutrients...and soil nutrients...are removed from the field with crop harvest. So, potential losses to leaching are reduced. Also, aglime helps the crop to get off to a fast start, with quicker canopy cover, which helps to

minimize the impact of rainfall and reduces runoff and erosion.

Reason 4:

Aglime corrects toxicities. Aluminum (Al) and manganese (Mn) are sometimes present in toxic levels in acid soils. In some cases, yield losses from such toxicities can be so severe that any chance of producing a profitable crop yield is lost. Aglime eliminates toxicities and allows the crop to more nearly reach its genetic potential.

Reason 5:

Aglime provides the essential plant nutrients calcium (Ca) and magnesium (Mg). Calcitic aglime contains Ca while dolomite aglime supplies both Ca and Mg. Crops need lots of Ca and Mg. For example, an 8-ton alfalfa crop removes 175 lb of Ca and 40 lb of Mg. The table below shows Ca and Mg uptake by several common crops.

Table 2. Calcium, magnesium, and sulfur taken up by some common crops.

Crop	Yield level	Pounds in total crop		
		Ca ¹	Mg	S
Alfalfa	8 tons	175	40	40
Coastal bermudagrass	8 tons	52	26	44
Corn	160 bu	39	52	27
Cotton	1,000 lb lint	14	23	20
Grain sorghum	8,000 lb	60	40	39
Oranges	540 cwt	80	22	— ²
Peanuts	4,000 lb	20	25	21
Rice	7,000 lb	20	14	12
Soybeans	60 bu	26	24	20
Tomatoes	40 tons	30	36	54
Wheat	60 bu	16	18	15

¹Estimated ²Not available

Reason 6:

Aglime boosts the performance of certain herbicides. Research has shown that weeds rob the crop of nutrients, water and air, cutting yields and crop quality. Herbicides are more effective at killing weeds when the soil pH environment is optimum for herbicide activity.

Reason 7:

Aglime improves chemical, biological, and physical conditions in the soil. These include water infiltration rates, drainage, N fixation by legumes, and the mineralization of organic matter. Also, alfalfa and other legumes need proper pH to maintain healthy stands. Aglime costs are much less than those of re-establishing thinning or lost stands. All these benefits increase the potential for higher yields and higher profits.

In summary...

Successful farmers understand the importance of setting long-term goals. They don't make short-term decisions that negatively impact future profits. They consider all options and the risks associated with each. They make smart, site-specific decisions, which include the use of aglime when it is needed to correct soil acidity, boost yields, and increase profit potential. Successful farmers know that aglime, fertilizer, micronutrients, and other inputs must be in balance for maximum profitability.

Technical information in this publication prepared by agronomic scientists of the Potash & Phosphate Institute (PPI), in cooperation with the Foundation for Agronomic Research (FAR).

For more information about aglime for profitable crop production, check ***Aglime Facts***, a 16-page booklet available from the National Stone Association.

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1415 Elliot Place, N.W. • Washington, D.C. 20007 • 202-342-1100