What Makes Good Liming Material?

NORCROSS, Ga. — Liming is the process by which farmers control soil acidity. Agricultural liming materials contain calcium and magnesium compounds in various combinations which react in the soil to neutralize unwanted soil acidity.

Agricultural limestone (aglime) is the major liming material used today. Aglime is composed primarily of calcite (Calcium carbonate) or dolomite (calcium-magnesium carbonate) or a mixture of the two. It reacts with soil acidity, neutralizing that acidity and increasing soil pH. As acidity declines, soil pH increases. The soil's pH value alone does not determine the amount of aglime needed. The amount of aglime required to neutralize soil acidity is determined by measuring its pH and its resistance to change; that is, its buffering capacity. Buffering capacity is directly related to the amount and kind of clay and organic matter in the soil.

Quality and value of aglime sources are dependent upon three factors:

- Particle size
- Chemical reactivity
- Moisture content.

The speed of the reaction between aglime and soil acidity is dependent upon contact of the liming material with the soil. The smaller the particle size, the faster the rate of reaction. It is generally best to use an aglime that will react completely with the soil acidity within two to three years. Since the rate of reaction is related to fineness of grind, the finer the lime is pulverized, the more contact it has with the soil, and the more rapid the rate of reaction or neutralization of soil acidity.

Aglimes have a range of reactive particle sizes ranging from very fine, passing a 100 mesh sieve (100 mesh to the inch) to larger particles which pass a 60 mesh sieve. Particles of these sizes produce a rapid and an extended reaction with soil acidity.

The chemical effectiveness of a liming material is measured by its calcium carbonate equivalent. This is defined as the acid neutralizing capacity of the material expressed as weight percent of calcium carbonate or calcium carbonate equivalent (CCE). Aglimes containing primarily calcium carbonate usually have a CCE of 80 to 90 percent. Pure dolomite (calcium-magnesium carbonate) has a CCE of 108 percent. Aglime containing a mixture of calcium carbonate and calcium-magnesium carbonate (dolomitic lime) usually has a CCE greater than that containing only calcium carbonate (calcitic).

Moisture content is important because water replaces an equivalent weight of liming material. The more water in the aglime, the lower the content of reactive materials per ton of product.

Combining the CCE with reactivity factors based on particle size determines the effective calcium carbonate equivalent (ECCE) of aglime sources.

Be sure the aglime that you purchase meets specifications spelled out in state or provincial law that governs aglime quality. This ensures that the liming material you purchase has a high ECCE.

Remember, control of soil acidity through liming is the foundation of profitable crop production. Remember, too, that soil testing is the only means of determining the need for liming and the capital improvement investment it represents.

For more information, contact Dr. W.R. Thompson, Midsouth Director, Potash and Phosphate Institute, 621 Sherwood Road, Starkville, MS 39759, (601) 323-8543.

Even With Late Planting, There Are Awards In National Corn Yield Contest

ST. LOUIS, Mo. — Corn may have been planted late this year in most growing areas due to constant wet weather, but the National Corn Growers Association (NCGA) encourages farmers not to let that stop them from entering the National Corn Yield Contest (NCYC).

"Due to later planting, potential for lower yields exists, but that puts most U.S. corn farmers on a level playing field," said Richard Peterson, NCYC chairman and a farmer from Mountain Lake, Minn. "The opportunities to learn from using new or different production methods and earn rewards remain the same in this year's contest as in a year of record yields like 1994. In addition, the contest helps farmers compare their own proven corn production capabilities with other farmers in their state and across the country."

Though yield remains the focal point of the contest, the major role of the contest has always been to educate farmers on alternative methods of production that increase profitability and address environmental concerns.

"The NCYC encourages farmers to try new resourceful production methods, such as no-till or new techniques of nutrient management, on a contest plot before adopting them on a large scale," said Peterson.

Not only will entrants gain knowledge on which production techniques that work best on their farm, but they will also be rewarded for their efforts. Entrants can look forward to winning trophies and recognition from the NCGA, along with up to $10,000 in cash, a new car, free trips, or free seed from participating seed and crop protection companies.

Although all entries postmarked by the final deadline of August 15, 1995 will be included in the contest, a reduced entry fee is available for those entering by July 1, 1995. Entry and harvest forms can be obtained by contacting the NCGA at (314) 275-9915 or your local seed company representatives.

Winners in the contest will be announced January 15, 1996 and recognized at the Commodity Classic, the first combined convention and trade show of NCGA and American Soybean Association, on February 25-27, 1996 in Phoenix, Ariz. Trophies will be awarded to the top three winners in each class by state and on the national level.

Last year, 471 trophies were awarded in nine contest classes, including dryland and irrigated acres in conventional or mulch-till, no-till and ridge-till production programs. Because farmers only compete with those in similar growing regions, the prospect of winning is just an entry form away.