For Immediate Release

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Industry Leaders Discuss Improved Testing of Liming Materials to Better Predict Soil pH Change

AMES, IOWA -- On 12 November 2013, members of the U.S. agricultural lime industry met near Iowa State University to discuss improving the measurement of limestone reactivity to better predict pH changes in soils. The goal of this conference was to compare current practices with other developed methodologies to determine if there are opportunities to improve measuring limestone reactivity in soils among a variety of liming materials. Research has shown that optimizing soil pH levels can help producers improve their yields while lowering environmental impacts in support of the Nutrient Management Strategy. In attendance were key leaders from the lime industry, academia and USDA.

Reactivity testing describes the capacity of agricultural lime to raise soil pH. Accurate testing methods for lime reactivity are essential for determining how much and how often liming materials should be applied. "The current method for determining the capacity of an agricultural liming material to change pH deserves re-evaluation, as the full effect of a material's degree of fineness may be understated. A related issue that also deserves re-evaluation is the equations used to prescribe the amount of lime needed to raise pH to a desired level." stated Dr. Antonio Mallarino, Professor, Soil Fertility and Nutrient Management, at Iowa State University.

According to conference presenters, current U.S. methods for testing liming material reactivity involve strong acids that may not reflect how they behave in soil environments. The methods are quick and repeatable, but the accuracy of these methods to describe a given material's behavior in soil is unknown. It may be possible that the neutralizing capacity determined by these methods overestimates the actual reactivity of liming materials in the soil, which indicates the need for further investigation of improved methods. Further, current methods that don't predict soil-based reactivity with accuracy are not compatible with advancements in precision ag technology.

Keynote speaker, Dr. Hans-Siegfreid Grunwaldt, from the University of Applied Science in Kiel, Germany, has spent the last 40 years investigating the reactivity of lime materials based on their chemical composition and how they react in soil to better predict impacts on soil pH, which has obvious implications on long term soil health and nutrient utilization.

Grunwaldt's research team has proven that the lime score currently used in the U.S. is not transferrable from lime source to lime source. In other words, using the lime scoring method does not accurately show the effectiveness of a particular lime material to change soil pH under field conditions. Based on his work, it was clear that conducting a reactivity/dissolution test with a weak acid that may more accurately portray a soil environment improves the assessment of a lime material's ability to change soil pH in the field.

"Research has shown that the most important factors when liming are your pH goal, material source, its particle size, and placement in the field," said Dr. Andrew Hoiberg, Director of Research and Development at Calcium Products. "There's a wide range of purity between various types of limestone and their ability to dissolve in the soil solution. We know that smaller particles react faster in the soil, but the overall reactivity is still very dependent on the source of the material."

Dr. Dan Olk, Research Soil Scientist with the USDA-ARS National Laboratory for Agriculture and the Environment reported that the current U.S. lime methods only measure the potential reactivity. These methods appear unlikely to tell the grower the rate of reactivity of agricultural lime materials based on the chemical composition of the limestone, soil type and soil pH. By contrast, reactivity-based test methods could inform producers how quickly a specific lime source will actually react to increase soil pH. Successful implementation of such methods would allow growers to make better use of fertilizer inputs and reduce excess nutrients lost to the environment.

"We need to look at lime reactivity differently to understand how lime really reacts in the soil. We know that not all lime behaves the same across all soil," stated Dr. Jerry L. Hatfield, Director of the USDA-ARS National Laboratory for Agriculture and the Environment. "We want to know that when a lime is used that it really translates to an increased benefit in yield, and ultimately, how the reactivity affect soil processes that have downstream environmental impacts."

The conference was put together to bring the liming industry, academia, and the USDA together to join forces that will affect change in the way liming materials are evaluated and marketed. Conference coordinators and agricultural lime industry representatives are working to schedule similar conferences in other regions of the world. Presentations can be found at www.reactivelime.org .

"At the end of the day it's about making a good recommendation to producers, stated Dr. Antonio Mallarino, Professor, Soil Fertility and Nutrient Management, at Iowa State University.

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ABOUT CALCIUM PRODUCTS, INC.

Calcium Products is recognized as a leader in the development of advanced techniques for processing super-fine powders for agriculture. The company is credited for developing the fertilizer industry's most efficient manufacturing techniques to convert pure limestone, gypsum, humates and other materials into pelletized form. The company's pellets are specially engineered so that they are uniform in size and breakdown quickly. This allows for precision placement and spreading efficiency in the field while decreasing dust pollution.