

# Efficiency of pH Change with 98G vs. Aglime



Study Cited: Jones, J.D. and A.P. Mallarino. 2018. Influence of source and particle size on agricultural limestone efficiency at increasing soil pH. Soil Sci. Soc. Am. J. 82:271-282.

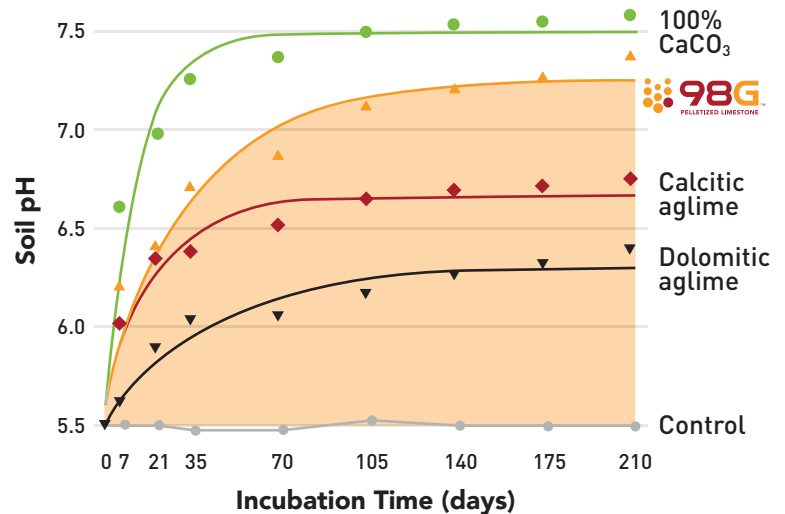
## Overview

Research was performed by Iowa State University evaluating how 98G, calcitic and dolomitic agricultural limestones (aglime), and different particle sizes of both aglime sources increased soil pH.

### KEY STUDY FINDING

98G raised the soil pH 0.7 and 1.0 units higher than calcitic and dolomitic aglimes, respectively, at equalized rates.

## Study Results



## Background

- Three acidic soils were collected from central, eastern and southeastern Iowa. Soil series were Nicollet (loam), Fruitfield (sand) and Mahaska (loamy clay).
- Three liming materials were used in the study. 98G from Calcium Products (ECCE = 92), calcitic aglime from Ames, IA (ECCE = 59), and dolomitic aglime from Cedar Rapids, IA (ECCE = 65, Mg = 15%).
- One equalized rate (to ensure the same amount of effective neutralizing material) of 4 tons ECCE/A was used to ensure maximum pH change response (98G = 8,700 lbs/A, calcitic = 13,600 lbs/A, dolomitic = 12,300 lbs/A).
- Three replications of soils and liming treatments were mixed thoroughly, kept at relatively constant moisture, held at 77°F and evaluated for pH change at specified intervals over the course of 210 days.

## STUDY FINDINGS

- 98G resulted in more rapid and sustained pH correction than calcitic and dolomitic aglimes.
- Averaged across all soils used in the study, the final pH values were 7.3, 6.6, and 6.3 for 98G, calcitic aglime, and dolomitic aglime, respectively, all with a starting pH of 5.5.
- Performance of all liming materials was very similar across soil types.
- Overall performance was affected by particle size composition. The Iowa Limestone scoring system, ECCE, doesn't differentiate particles finer than 60-mesh and therefore, did not account for the difference in performance of these liming materials.
- Results demonstrate the value of differentiating between particles passing mesh sizes 60-100 and finer for production agriculture, since particle sizes finer than 60-mesh often get pooled into one category in aglime assessments in most states.
- This study also showed the value of distinguishing between calcitic and dolomitic aglime in protocols for aglime assessments and recommendations. Calcitic aglime resulted in more rapid and complete pH change compared to dolomitic aglime despite a lower ECCE value.