

The Mississippi Lime Project



**Mike Cox, Ph.D.
Professor - Soils**

**Larry Oldham, Ph.D.
Extension Professor – Soils**

Introduction

- Lime is expensive in MS due to importation
- Cost can impede application
- Yet low pH is a first indicator of production problems
- Need to find “best” method of determining Lime Requirement
 - Will not over or underestimate lime needed
 - Does not add to the expense of soil testing

Progress

- Ten soils with pH from 4.33 to 5.26 collected from around the state
- Preliminary Lime requirement found (target 6.8) with different methods
 - University of Georgia
 - University of Kentucky
 - Auburn University
- Incubation study using rates of 0.25xLR, 0.5xLR, 0.75xLR, and LR added to each soil

Dubbs	FINE-SILTY, MIXED, ACTIVE, THERMIC TYPIC HAPLUDALF	Sunflower
Savanna	FINE-LOAMY, SILICEOUS, SEMIACTIVE, THERMIC TYPIC FRAGIUDULT	Oktibbeha
Dundee	FINE-SILTY, MIXED, ACTIVE, THERMIC TYPIC ENDOAQUALF	Sunflower
Forestdale	FINE, SMECTITIC, THERMIC TYPIC ENDOAQUALF	Sunflower
Alligator	VERY-FINE, SMECTITIC, THERMIC CHROMIC DYSTRAQUERT	Sunflower
Lucedale	FINE-LOAMY, SILICEOUS, SUBACTIVE, THERMIC RHODIC PALEUDULT	Perry
Dundee	FINE-SILTY, MIXED, ACTIVE, THERMIC TYPIC ENDOAQUALF	Sunflower
Ora	FINE-LOAMY, SILICEOUS, SEMIACTIVE, THERMIC TYPIC FRAGIUDULT	Clay
Ruston	FINE-LOAMY, SILICEOUS, SEMIACTIVE, THERMIC TYPIC PALEUDULT	Pontotoc
Atwood	FINE-SILTY, MIXED, SEMIACTIVE, THERMIC TYPIC PALEUDALF	Pontotoc
Providence	FINE-SILTY, MIXED, ACTIVE, THERMIC OXYAQUIC FRAGIUDALF	Pontotoc

Progress

- Samples sent to soil testing laboratories
 - Mississippi State (modified Woodruff)
 - Auburn (Modified Adams and Evans)
 - University of Kentucky (Sikora II)
 - University of Georgia (Single Point Titration)
 - North Carolina State (Mehlich)
 - University of Florida (Adams and Evans)
 - Clemson (Moore-Sikora)

Results

Buffer Method	r²
Adams and Evens	0.32
Mehlich	0.22
Modified Adams and Evens	0.27
Moore-Sikora	0.26
Sikora II	0.89
Modified Woodruff*	0.37

Future Work

- Validate the Sikora II buffer
 - Estimate the Lime Requirement of several soils using both Sikora II and Woodruff and conduct incubation study
 - Compare resulting soil pH change to determine each method's accuracy
- Begin dissemination of this information through appropriate Extension Service channels