



# SRA - L G A R E C UPDATES

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## FIELD EVALUATION OF THE SUGAR REGULATORY ADMINISTRATION (SRA) LIME RECOMMENDATION FOR SUGARCANE (*Saccharum officinarum* Linn.) GROWN ON MANAPLA SANDY CLAY LOAM<sup>1</sup>

George L. Talam<sup>2</sup> and Dr. Wilfredo C. Cosico<sup>3</sup>

Lime added to acidic soils raises the soil pH and influences availability of minerals. Crops respond to liming because it may correct calcium, magnesium and molybdenum deficiencies. It lessens aluminum, manganese and iron toxicity, makes phosphorus more available and potassium more efficient in plant nutrition.

The initial pH of Manapla sandy clay loam soil (4.5) increased to pH 5.80-6.80 with the application of 3, 6, 9 or 12 tons/ha of calcitic lime. This also reduced soil exchangeable Mn and Al. The 6 tons/ha calcitic lime rate increased soil pH from 4.5 to 5.98 at harvest and favored the growth of Phil 8839.

Among the macronutrients, only potassium was significantly reduced at all calcitic lime rates. Calcium increased while Al decreased with increasing lime rates. Using 6 tons/ha dolomitic lime increased Mg only at 6 MAP. Unlike iron, liming influenced soil exchangeable Mn. As the rate of lime application increased, soil Mn also decreased.

Plants grown with dolomitic lime had low nitrogen content but potassium leaf uptake was high. The excessive leaf uptake of Mg at 6 MAP and at harvest observed in all treatments was due to the high Mg levels in the soil. The high concentration of soil Mn in the control treatment resulted to a low Mg uptake of the leaf.

The different lime rates did not significantly affect LKg/TC. However, cane yield (TC/ha) under 3 and 6 tons/ha calcitic lime rates were higher than those plants applied with 12 tons calcitic and 6 tons/ha dolomitic lime (Table 1). The 3 tons calcitic lime gave the highest LKg/ha but was comparable with 6 or 9 tons/ha calcitic lime and the control. Using 6 tons dolomitic lime in a very strongly acidic soil high in Mg had the lowest sugar yield indicating that magnesium in excess is toxic to plants.

**Table 1. Cane (TC/ha) and sugar yield (LKg/ha) of Phil 8839 as influenced by liming**

TREATMENTS	TC/HA	LKG/HA
A. 0 lime + NPK	96.25ab	219.45ab
B. 3 tons calcitic lime + NPK	108.34a	247.02a
C. 6 tons calcitic lime + NPK	108.94a	240.76a
D. 9 tons calcitic lime + NPK	87.78ab	193.12ab
E. 12 tons calcitic lime + NPK	80.84b	182.70b
F. 6 tons dolomitic lime + NPK	76.95b	172.37b

The SRA recommends 5 tons/ha calcitic lime for a very strongly acidic (pH 4.5) Manapla sandy clay loam. This lime recommendation is within the range of 3 and 6 tons/ha calcitic lime that gave the highest sugar yield.

Results of the study showed that liming did not significantly increase the sugar yield of Phil 8839. However, the economic analysis showed an added income of P10,576.42 by applying 3 tons/ha calcitic lime and P6,527.97 for 6 tons/ha calcitic lime, hence, liming is still necessary for Manapla sandy clay loam to avoid further acidification of the soil (Table 2).

**Table 2. Economic analysis per hectare**

Treat-ments	Gross income	Cost of prod'n	Add-ed cost	Net in-come	Added income
A	104,873	35,000	0	69,873	0
B	117,856	35,846	1,560	80,449	10,576
C	115,409	35,888	3,120	76,401	6,528
D	93,081	34,407	4,680	53,994	-15878
E	87,726	33,921	6,240	47,565	-22308
F	82,803	33,649	2,880	46,275	-23598

Crop response to added lime does not occur immediately. It is suggested that residual studies be pursued along this line using different sugarcane varieties, different soil types and at different seasons of planting to determine specific responses.

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<sup>2</sup> Research Analyst I, (SRA) ; M.S. Soil Science (Soil Fertility)

<sup>3</sup> Adviser and Faculty, Soil Science Dept., UPLB