Sugarcane Fertilizer Recommendations – 2015

Priorities

When considering a sugarcane soil fertility program, we offer the following guidelines. The number one priority should be the soil pH. A soil pH that is outside the optimum range of 6.0-6.5 will adversely affect the availability of all other applied nutrients. The second most important component of your fertility program should be nitrogen, followed by potassium and sulfur. The lowest priority of your fertility program should be phosphorus.

RECOMMENDED NITROGEN RATES

Crop	Soil Type	Nitrogen Rate (lbs. N/acre)
Plant-cane	Light	60 – 80
Plant-cane	Heavy	80 – 100
Stubble	Light	80 – 100
Stubble	Heavy	100 - 120

- For efficient nitrogen utilization, it is important that soil pH is in balance (ideally 6.0 to 6.5) and adequate P & K are available.
- Recommendations are based on tests where UAN 32% was the primary nitrogen source.
- Recommendations are based on data with current varieties and on a wide range of soil types at locations throughout the industry on plant-cane through third stubble crops.
- Higher than recommended rates of nitrogen may increase tons of cane per acre, but also decrease sugar per ton of cane. Recommended rates will maximize sugar per acre yields with optimum sugar per ton of cane.
- Apply nitrogen between April 1 and April 30 – earlier if the crop is more advanced and later if the crop is less advanced.
- There is an association between rust severity and excess levels of nitrogen.

POTASSIUM (as K_2O)

Soil test category	Plant-cane	Stubble-cane
	----------lbs/acre----------	
Very low	120	140
Low	110	120
Medium	80	80
High	0	0
Very high	0	0

- Recommendations are based on soil tests.
- When prices are high consider applying only when soil test levels are low or very low. Although not specifically recommended above, if one is not considering the application of potassium at all, it would be wise to consider applying at least 60 lbs/acre to those fields testing very low or low.
- Sugarcane utilizes approximately 3 lbs of K_2O per ton of cane.
- Response is more likely in a stubble crop than in a plant-cane crop.

PHOSPHOROUS (as P_20_5)

Soil test category	Plant-cane	Stubble-cane
	----------lbs/acre----------	
Very low	50	60
Low	45	50
Medium	40	40
High	0	0
Very high	0	0

- Recommendations are based on results of soil tests.
- When prices are high consider applying only when soil test levels are low or very low.
- Sugarcane utilizes approximately 1 lb of P_2O_5 per ton of cane with availability dependent upon soil pH & soil type. Optimal soil pH for best phosphorous availability is 6.2.
- There is an association between rust severity and excess levels of phosphorous.

SULFUR (S)

Soil test category	Plant-cane	Stubble-cane
	----------lbs/acre----------	
Low	24	24
High	0	0

- Recommendations are based on results of soil tests.
- Stubble cane is more likely to respond than plant-cane.
- Response is more likely on medium-heavy to heavy textured soils.
- There is an association between rust severity and excess levels of sulfur.

MICRONUTRIENTS

Zinc (Zn)

Soil test category	Application Rate
	-------lbs/acre----------
Very low (<1 ppm)	6
Low (< 2.25 ppm)	3

- Apply only if soil tests or tissue analyses indicate deficiencies.

LIME

Check lime requirements by conducting soil tests. Liming is primarily a method of correcting soil pH, but there are several other benefits to include:

- *To adjust soil pH to improve fertilizer use efficiency by maximizing nutrient availability*.
- To supply calcium, an essential plant food nutrient. If magnesium is deficient, use dolomitic limestone.
- To reduce aluminum and manganese toxicity.
- To enhance the activity of soil microorganisms.
- To improve the activity of soil applied herbicides.
- To decrease the total amount of lime applied, consider variable rate lime applications.

Lime when:

- Soil pH <5.5 on sandy loam & silt loam soils.
- Soil pH <5.2 on clay loam & clay soils.
- The lime rate should be based on soil test and ideally should raise soil pH to 6.2.
- It is ideal to broadcast lime to fallow fields or in crop during the fall or winter.
- Apply lime after precision leveling.

How long will it take for lime to work?

- The biggest change in pH will occur within 3-4 months. The pH may continue to increase for 6-12 months.

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[1] *Prepared by Dr. Kenneth Gravois, Sugarcane Specialist, LSU AgCenter, from information obtained from research conducted by Drs. Benjamin L. Legendre, Brenda Tubana, Sonny Viator, Jim Wang and Jeff Hoy, LSU AgCenter; and Drs. Rich Johnson, Paul White, and Mike Grisham, USDA-ARS, Sugarcane Research Laboratory, in cooperation with County Agents, Louisiana Cooperative Extension Service.*