

Experiment Info:

Planted: 9/9/10
Variety: HOCP 96-540
Plot Size: 2 rows x 50'
Replications: 4

Objective:

Compare effects of conventional dry fertilizer and Liquid fertilizer programs for effect on yield and quality of sugarcane.

An experiment was started in 2011 on sugarcane that was planted in September of 2010. Although 28% UAN is commonly used as a nitrogen source, liquid fertilizers are not a common source for application of other essential crop nutrients. The fertilizer recommendation rate for this site is 120-46-120-20S. The challenge was to determine an effective way of fitting AgroLiquid fertilizers into the culture of growing sugarcane, while proving sustainable yields. Conventional cane production starts in the spring before emergence with a broadcast application of dry phosphate, potassium and sulfur. Then there is what is called an off-bar operation where the beds are shaped and soil and fertilizer in the furrows is thrown up on the edges of the bed. This exposure of soil on the sides of the beds causes the beds to warm up. Then several weeks later after shoot emergence, UAN nitrogen is knifed into the beds. This completes fertilization. So for Liquid applications, Pro-Germ + Sure-K + Micro 500 + accesS were knifed in immediately after off-barring, to simulate a simultaneous application. Another treatment waited until the nitrogen was knifed in, and combined the Liquid treatments at that time. Also tested was the use of 28% UAN blended with eNhance and applied behind conventional dry. In 2011, encouraging results were obtained with the AgroLiquid treatments compared to those with dry fertilizer. As the cane was planted in 2010, 2011 was the plant cane crop and 2012 was the first stubble crop according to sugarcane terminology. Fertilizer treatments are applied to the same plots each year. Yield results from both years are in the table.

Fertilizer Program Comparisons in Sugarcane										
Pest Management Enterprises, Cheneyville, LA - 2011										
#	Treatment	Rate/A	placement	Stalks - T/A		%sucrose		sugar-lb/A		sugar-lb/A 2 yr total
				2011	2012	2011	2012	2011	2012	
1	Pro-Germ + Sure-K + Micro 500 + accesS + 28% UAN/eNhance	4 gal + 9 gal + 2 qt + 4 gal 28 gal (80% rate)	knife after off-bar knife at N appl.	40.2	71.2	17.3	18.1	9,761	18,536	28,444
2	Pro-Germ + Sure-K + Micro 500 + accesS + 28% UAN/eNhance	4 gal + 9 gal + 2 qt + 4 gal 28 gal (80% rate)	knife at N appl.	39.1	52.1	17.5	17.7	9,627	13,205	22,958
3	Pro-Germ + Sure-K + Micro 500 + accesS + 28% UAN + eNhance	4 gal + 9 gal + 2 qt + 4 gal 35 gal (100% rate)	knife at N appl.	43.7	68	17.5	17.8	10,781	17,556	28,337
4	0-46-120-20S 28% UAN	(actual lb applied) 35 gal (100% rate)	broadcast knife at N appl.	38.7	59	16.6	18.5	8,953	15,720	24,673
5	0-46-120 + 28% UAN/eNhance	(actual lb applied) 28 gal (80% rate)	broadcast knife at N appl.	41.9	72.8	17	18.1	9,995	18,870	28,865
Treatment information by year for sugarcane planted September 10, 2010				LSD(0.1):	nsd	19.6		nsd	5166	
Broadcast dry: 4/4/11				LSD(0.2):	nsd	14.9		1441	3931	
Knife Liquid after off bar: 4/4/12				CV%:	14.5	24.1		15.3	24.4	
Knife in N application: 4/20/11										
Harvest: 11/29/2011										
Broadcast dry: 3/19/12										
Knife Liquid after off bar: 4/2/12										
Knife in N application: 5/13/12										
Harvest: 11/12/11										

Conclusions:

- One factor is that sugarcane yields are very variable, based on the raw data and high CV values. But there are some trends worth noting.
- The knife after off-bar treatment (1) was shown to be an effective application both years.
- The 2012 results of treatment 2 were of concern, where all of the liquid fertilizer is knifed with the nitrogen, which was a reduced rate of 28%/eNhance. In 2011 the sugar yield was comparable to the other treatments, but was much lower in 2012. Last year the knife application was 16 days after off bar, but was almost 6 weeks after in 2012. This may have been too long to wait with the reduced rate of applied nitrogen even with eNhance. In 2013 we will see that the knife application is sooner.