



Control of Sugarcane with Glyphosate: Non-Crop Fallow Programs and No-Tillage Soybeans

Jim Griffin

Delayed planting of sugarcane due to hurricanes in 2008 coupled with dry conditions in the fall have resulted in weak plant-cane stands in some areas. Many growers are uncertain as to whether stands will be adequate. If replanting is needed, one option would be to destroy the stubble with herbicides and retain the row integrity. This same option might be a consideration as well in older stubble fields that will be replanted. Since conventional fallow weed control programs impose a cost with no direct return, planting soybeans may also be an option. I have received questions as to the feasibility of no-till planting soybeans on old sugarcane rows. For this to work, sugarcane stubble must be killed so that it does not interfere with soybean growth, and the planter must be capable of good seed placement to assure an adequate soybean stand. In a no-tillage program, either traditional fallow or soybean fallow, glyphosate would be needed to kill sugarcane stubble. Dr. Luke Etheredge, while a graduate student in my program, conducted research to evaluate glyphosate rates and formulations for control of sugarcane stubble. Results of his research are presented in the tables below. His findings would be applicable to situations where a no-tillage or reduced tillage program is used in fallowed fields and also where soybeans are planted no-till on existing sugarcane beds.

Table 1. Control of third ratoon 'LCP 85-384' sugarcane with Roundup UltraMax 5L applied from April through mid-May. A 1x rate = 1.0 lb ai/A or 26 oz/A.

Sugarcane height at application	Roundup UltraMax rate (oz product per acre)			
	26 oz (1x)	39 oz (1.5x)	52 oz (2x)	65 oz (2.5x)
inches	Control 42 days after treatment (%)			
6	90	95	95	96
10	82	91	94	94
16	82	86	89	91
18	68	76	86	88

Results:

- Control of sugarcane stubble with Roundup UltraMax was dependent on herbicide rate and sugarcane height at application.
- To obtain around 90% control of sugarcane stubble at 42 days, Roundup UltraMax rate required was 26 oz on 6 inch stubble, 39 oz on 10 inch stubble, 52 oz on 16 inch stubble, and 65 oz on 18 inch stubble. In relating these rates to other glyphosate products: Roundup UltraMax 5L at 26 oz would be equivalent to 32 oz (1 qt/A) of a 4L formulation and 22 oz for a 5.5L formulation.
- To reduce cost, sugarcane should be treated by the end of April before stubble reaches 12 inches.
- Typically in a no-till program a second glyphosate application will be needed to control weeds and any sugarcane regrowth that might occur.

Table 2. Control of third ratoon 'LCP 85-384' sugarcane with several glyphosate formulations applied in late April when sugarcane height was 10 inches. A 1x rate = 1.0 lb ai/A for all products.

Glyphosate product and 1x rate (oz/A)						
Glyphosate rate	Roundup	Roundup	Roundup	Mirage	Honcho Plus	Avg.
	WeatherMAX X rate = 22 oz	OriginalMAX X rate = 22 oz	UltraMax X rate = 26 oz	X rate = 32 oz	X rate = 32 oz	
Control 35 days after treatment (%)						
1x	73	74	75	72	76	74 c
2x	85	87	84	85	85	85 b
3x	91	91	90	93	94	92 a

Roundup WeatherMAX 5.5L and Roundup OriginalMAX 5.5L are potassium salt formulations of glyphosate; Roundup UltraMax 5L, Honcho Plus 4L, and Mirage 4L are isopropylamine salt formulations of glyphosate.

Surfactant was added to only Mirage.

Results:

- Equal control of sugarcane stubble was obtained for all glyphosate formulations applied at the same rate of active ingredient per acre.
- To obtain around 85% control of sugarcane stubble at 35 days, a 2x rate of the glyphosate formulations was required.
- A considerable difference in price exists among glyphosate formulations. A more economical glyphosate formulation could be selected to reduce input cost.

Hopefully this article will be of value in planning weed control programs. A meeting with your county agent, consultant, or crop advisor may help to develop or to fine tune a weed control program specific to your needs.

Dr. Jim Griffin is with the LSU AgCenter in the School of Plant, Environmental, and Soil Sciences and has research and extension responsibilities in sugarcane weed management. He can be reached at jgriffin@agcenter.lsu.edu or by phone at 225 578-1768. Additional information related to weeds and weed management can be found at http://www.lsuagcenter.com/en/our_offices/departments/spess/.