

## ECONOMIC RESEARCH IN SUGARCANE IN 2006

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Projected costs and returns for the various stages of sugarcane production in Louisiana were estimated for the 2006 crop year. Production and tillage practices, as well as application rates for fertilizer, herbicides and insecticides were updated. Input suppliers and equipment dealers were surveyed in 2005 for current input prices. Specific operations for which production costs were estimated included field operations on fallow land, seedbed preparation, cutting and planting heat treated seedcane, planting cultured seedcane, field operations on plantcane, first stubble, second stubble, and third stubble, succession planting, as well as the costs of harvesting with wholestalk and combine harvesters. Costs and returns were estimated for tenant-operators, reflecting the predominant land tenure situation, and reflect a mill payment of 39 percent of production and a land rent payment of 20 percent of the "after milling crop" proceeds (12.2 percent of production). Total costs of production plus overhead for crop cycles through harvest of second, third and fourth stubble were estimated and breakeven prices to cover direct and total specified production costs were estimated for one-fifth and one-sixth share rental arrangements. Summary breakeven prices to cover production costs through harvest of 3rd stubble for alternative yield levels are shown in Table 1. These values also represent production costs per pound of sugar produced at assumed yield levels. Breakeven raw sugar yield per acre of sugarcane harvested are presented in Table 2 for a selected range of raw sugar prices.

A study was conducted in 2006 to estimate the technical and economic feasibility of producing ethanol from alternative sugar feedstocks using conventional fermentation technology. This study was a cooperative research project between the Louisiana Agricultural Experiment Station and the Office of Energy Policy and New Uses, Office of the Chief Economist, U.S. Department of Agriculture which evaluated the economic feasibility of producing ethanol from sugar feedstocks in the United States. These sugar feedstocks included: sugarcane juice, sugar beet juice, sugarcane or sugar beet molasses, raw sugar and refined sugar. Results from this study have several important implications concerning the production of ethanol from sugar crops in the U.S., in general, and from sugarcane in Louisiana, in particular. First, under existing fermentation technology, corn is currently the cheapest feedstock available for use in the production of ethanol in the United States. If other feedstocks are being considered, their costs must be comparable to corn for the use of those feedstocks to be economically viable over the long run. The use of molasses, from either sugarcane or sugar beets, does appear to be economically competitive with corn for use as an ethanol feedstock. Second, given current and future projected sugar and ethanol market prices, it appears that, at the present time, the production of sugar is the most profitable use of sugarcane or sugar beets. Third, cellulosic conversion of biomass into ethanol offers the potential for a wide variety of feedstocks to be used in ethanol production. Sugarcane, a crop which produces a substantial amount of biomass per acre, would certainly be a viable feedstock candidate in this process, although this process would require varieties of sugarcane with higher tonnage and fiber than are currently being grown.

Table 1. Projected breakeven selling prices for raw sugar for selected yield levels, harvest through third stubble, tenant-operators, Louisiana, 2006.

	Selected Yield Levels				
	-20%	-10%	Base	+10%	+20%
Cane yield per harvested acre <sup>1</sup> (tons)	27.9	31.1	34.9	38.4	41.9
Sugar yield per harvested acre <sup>2</sup> (lbs)	5,584	6,212	6,980	7,678	8,376
Sugar yield per rotational (farm) <sup>3</sup>	4,257	4,736	5,321	5,853	6,386
One-Fifth Land Share Rent:					
	-----dollars per pound of sugar-----				
Breakeven price to recover <sup>4</sup> :					
Direct costs	0.187	0.170	0.157	0.146	0.137
Total specified costs	0.245	0.222	0.203	0.188	0.175
Total costs plus overhead	0.259	0.234	0.214	0.198	0.184
One-Sixth Land Share Rent:					
	-----dollars per pound of sugar-----				
Breakeven price to recover <sup>4</sup> :					
Direct costs	0.180	0.164	0.151	0.140	0.131
Total specified costs	0.235	0.213	0.195	0.180	0.168
Total costs plus overhead	0.249	0.225	0.206	0.190	0.177

<sup>1</sup> Average farm yield across harvested acreage of plantcane, 1st stubble, 2nd stubble, and 3rd stubble (base yield of 36 tons plantcane, 37 tons 1st stubble, 34 tons 2nd stubble, 33 tons 3rd stubble).

<sup>2</sup> Average yield in tons per acre multiplied by a 200 CRS.

<sup>3</sup> Assumes standard land rotation of 20% each of fallow, plantcane, 1st stubble, 2nd stubble and 3rd stubble.

<sup>4</sup> Breakeven prices are calculated by dividing grower's share of production into direct costs, total specified costs, and total specified costs plus overhead. No adjustment is made for molasses payments, hauling rebate, or other adjustments.

Table 2. Projected breakeven raw sugar yields for selected raw sugar price levels, harvest through third stubble, tenant-operators, Louisiana, 2006

Raw sugar price (cents per pound)	Selected Raw Sugar Price Levels				
	-1.0	-0.5	Base	+0.5	+1.0
	19.5	20.0	20.5	21.0	21.5
One-Fifth Land Share Rent:					
	-----pounds of sugar per harvested acre-----				
Breakeven yield to recover:					
Direct costs	5,622	5,482	5,348	5,221	5,099
Total specified costs	7,282	7,100	6,926	6,762	6,604
Total costs plus overhead	7,676	7,484	7,302	7,128	6,962
One-Sixth Land Share Rent:					
	-----pounds of sugar per harvested acre-----				
Breakeven yield to recover:					
Direct costs	5,401	5,266	5,137	5,015	4,898
Total specified costs	6,995	6,820	6,654	6,495	6,344
Total costs plus overhead	7,374	7,190	7,014	6,847	6,688