

ECONOMIC RESEARCH IN SUGARCANE IN 2000

M. E. Salassi

Department of Agricultural Economics and Agribusiness

Projected costs and returns for the various stages of sugarcane production in Louisiana were estimated for the 2001 crop year. Sugarcane producers were surveyed to update information on production and tillage practices. Input suppliers and equipment dealers were surveyed in November 2000 for 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% of production and a land rent payment of 20% of the "after milling crop" proceeds (12.2% 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 third stubble for alternative yield levels are shown in table 1.

Costs of precision grading sugarcane fields were estimated for the case in which the producer would purchase the laser-leveling and dirt-moving equipment and perform the work with on-farm labor. Both variable and fixed costs associated with precision grading were estimated on a per hour of operation basis as well as costs per acre and per cubic yard of dirt moved. Two key cost considerations include whether a producer should perform the work himself or hire it on a custom basis and determining how many years will be required to recover the investment in precision grading equipment. Results of the study found that the total costs of purchasing the equipment and performing the work with on-farm labor were in the range of \$0.50 to \$0.60 per cubic yard of dirt moved, compared to custom charges of \$0.80 to \$0.90 per cubic yard. Increased production due to removal of some ditches in the field would result in increased annual returns, allowing for a 4- to 6-year cost recovery of investment in precision grading equipment. Estimated costs of precision grading are shown in tables 2 and 3.

Table 1. Breakeven Selling Prices for Raw Sugar for Selected Yield Levels, Arrangements, Harvest Through Third Stubble, Tenant-Operators, Louisiana, 2001

	Selected Yield Levels				
	-20%	-10%	Base	+10%	+20%
Cane yield per harvested acre ¹ (tons)	31.0	34.4	38.7	42.6	46.4
Sugar yield per harvested acre ² (lbs)	6,192	6,889	7,740	8,514	9,288
Sugar yield per rotational (farm) acre ³	4,712	5,242	5,890	6,479	7,068
One-fifth Land Share Rent:					
	-----pounds of sugar per rotational acre-----				
Share of production per rotational acre:					
Mill share (39.0%)	1,838	2,045	2,297	2,527	2,757
Landlord share (12.2%)	575	640	719	790	862
Grower share (48.8%)	2,300	2,558	2,875	3,162	3,449
	-----dollars per pound of sugar-----				
Breakeven price to recover ⁴ :					
Direct costs	0.136	0.123	0.114	0.106	0.099
Total specified costs	0.177	0.160	0.146	0.135	0.126
Total costs plus overhead	0.205	0.185	0.169	0.156	0.145
One-sixth Land Share Rent:					
	-----pounds of sugar per rotational acre-----				
Share of production per rotational acre:					
Mill share (39.0%)	1,838	2,045	2,297	2,527	2,757
Landlord share (10.2%)	481	535	601	661	721
Grower share (50.8%)	2,394	2,663	2,992	3,292	3,591
	-----dollars per pound of sugar-----				
Breakeven price to recover ⁴ :					
Direct costs	0.130	0.118	0.109	0.101	0.095
Total specified costs	0.170	0.154	0.141	0.130	0.121
Total costs plus overhead	0.197	0.178	0.163	0.150	0.139

¹ Average farm yield across harvested acreage of plantcane, 1st stubble, 2nd stubble, and 3rd stubble (base yield of 40 tons plantcane, 42 tons 1st stubble, 38 tons 2nd stubble, 35 tons 3rd stubble).

² Average yield in tons per acre multiplied by a 200 CRS.

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

⁴ 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. Estimated costs of precision grading per hour of operation.

	Tractor large 4 wd 300 hp capacity	Scraper 17 cu. yd.	Laser equip.	Labor	Total costs
Purchase price (\$)	115,000	32,000	20,000	–	–
Expected life (years)	10	15	10	–	–
Salvage value ^a (\$)	11,500	3,200	2,000	–	–
Annual use (hours)	1,000	441	441	–	–
Precision grading use ^b (hours)	441	441	441	–	–
Repair cost factor ^c (%)	96	66	20	–	–
Operating costs per hour:					
Fuel costs ^d (\$)	12.96	–	–	–	12.96
Repair costs ^e (\$)	11.04	3.19	0.91	–	15.14
Labor costs (\$)	–	–	–	10.00	10.00
Total operating costs (\$)	24.00	3.19	0.91	10.00	38.10
Fixed costs per hour:					
Depreciation (\$)	10.35	4.35	4.08	–	18.78
Interest on investment ^f (\$)	6.33	3.99	2.49	–	12.81
Total fixed costs (\$)	16.68	8.35	6.57	–	31.59
Total costs per hour (\$)	40.68	11.53	7.48	10.00	69.69

^a Salvage value equals 10% of purchase price.

^b Estimated grading hours based on 8 cycles per hour, 17 cubic yards moved per cycle, 300 cubic yards moved per acre, and 200 acres precision graded annually.

^c Total repair costs over equipment life as a percentage of purchase price.

^d Fuel consumption is 14.4 gallons of diesel per hour with diesel priced at 90 cents per gallon.

^e Total estimated repair cost divided by total hours of use over the useful life of the equipment.

^f Interest on average investment charged at an annual rate of 10%.

Table 3. Estimated costs of precision grading per acre and per cubic yard of soil moved.

	Tractor large 4 wd 300 hp capacity	Scraper 17 cu. yd.	Laser equip.	Labor	Total costs
Total costs per acre ^a :	<i>(dollars per acre)</i>				
Operating costs	52.94	7.04	2.00	22.06	84.04
Fixed costs	36.78	18.40	14.50	–	69.68
Total costs	89.72	25.44	16.50	22.06	153.72
Total costs per cubic yard ^a :	<i>(dollars per cubic yard)</i>				
Operating costs	0.18	0.02	0.01	0.07	0.28
Fixed costs	0.12	0.06	0.05	–	0.23
Total costs	0.30	0.08	0.06	0.07	0.51

^a Estimated grading hours based on 8 cycles per hour, 17 cubic yards moved per cycle, 300 cubic yards moved per acre, and 200 acres precision graded annually.