

ALLOCATION OF SUGARCANE PLANTING COSTS IN 2006



Michael E. Salassi and Janis B. Breaux¹
Department of Agricultural Economics and Agribusiness

Sugarcane in Louisiana is a perennial crop which provides for three or more years of harvest before being replanted. Planting costs associated with sugarcane are generally allocated over the years of harvest. This report provides estimates of allocated sugarcane planting costs applicable to 2006. It is generally accepted that sugarcane goes through three stages prior to having the first acre of harvestable cane for sale to the mills. The first step is to plant cultured seed cane. The second step is to harvest cultured seed cane and plant it as propagated seed cane. The third step is to harvest the propagated seed cane and plant it as plant cane, which is then harvested the following year and sent to the mills for processing into raw sugar. Each stage has associated costs that must be considered. However, given that each acre of cultured seed cane will plant several acres of propagated seed cane which, in turn, plants several acres of plant cane, many of the costs associated with each stage must be spread across several acres rather than simply one.

Sugarcane planting ratio, the number of acres of sugarcane which can be planted from one harvested acre of seed cane, varies by sugarcane variety and planting method. Sugarcane varieties impact planting ratios due to differences in stalk populations per acre. Currently, three types of planting methods are utilized at different stages of the seed cane expansion process in Louisiana: hand planting, mechanical wholestalk planting, and mechanical billet planting. For purposes of this report, the following planting ratios will be used to estimate total allocated planting cost per acre of plant cane planted: (1) hand planting wholestalk seed cane = 8 / 1; (2) one-row mechanical planting wholestalk seed cane = 5 / 1; and (3) one-row mechanical planting billeted seed cane = 3 / 1.

Given the assumptions listed above and using the LSU AgCenter's Department Agricultural Economics and Agribusiness enterprise budgets, this report provides a procedure to estimate the total planting investment a producer would have in an acre of sugarcane at any point during the crop cycle. However, depending on the stage of the planting process of a particular acre of sugarcane, these estimates will differ. As a result, estimates of the total planting costs a producer would have invested in a sugarcane crop as of January 1, 2006 (prior to any cultivation operations and costs during the 2006 calendar year) are provided. Planting costs are listed for cultured seed cane, propagated seed cane, plant cane planted in 2005.

Two estimates of planted costs are presented in this report. Total variable planting costs and total planting costs. Total variable costs include primarily planting expenses for purchased seedcane as well as fuel, labor and repair expenses for field operations. Total planting costs include variable costs plus fixed expenses on equipment.

Table 1 presents total estimated allocated planting cost per acre of cultured seed cane. This value represents the total estimated planting cost invested in an acre of cultured seed cane planted in the previous year. Table 2 and 3 present total estimated allocated planting cost per acre associated with propagated seed cane. These total values represents planting costs invested in propagated seed cane planted last year. Table 2 reports planting cost estimates associated with hand planting wholestalk seed cane of both cultured seed cane and the first seed cane expansion.

¹ Michael E. Salassi, Professor; and Janis B. Breaux, Research Associate, Department of Agricultural Economics and Agribusiness, LSU Agricultural Center, Baton Rouge, LA.

Table 3 reports planting cost estimates associated with hand planting wholestalk cultured seed cane and mechanically planting wholestalk first expansion seed cane.

Tables 4, 5 and 6 presented total allocated planting costs associated with plant cane planted last year. Table 4 includes estimated total planting costs per acre of plant cane assuming the cultured seed cane and both seed cane expansions are hand planted wholestalk. Table 5 includes estimated total planting costs per acre of plant cane assuming the cultured seed cane was wholestalk hand planted and the two seed cane expansion were mechanically planted wholestalk. Table 6 includes estimated total planting costs per acre of plant cane assuming the cultured seed cane was wholestalk hand planted and the two seed cane expansion were mechanically planted billets.

Planting cost estimates presented in this report represent estimated unrecovered planting cost investment per acre at any point within the crop cycle. The allocation of total planting cost investment to plant cane and stubble crops are listed in the footnotes to Tables 4, 5 and 6. These planting cost allocations are based on the assumption that the sugarcane crop planted will be harvested four times (plant cane through third stubble) before plowing out and replanting. As a result, as each crop is harvested and processed, one fourth of the total planting cost is assumed to be recovered. No allocations of planting cost beyond third stubble are presented in this report.

Table 1. Estimated Costs Associated With Cultured Seed Cane In 2006

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs
2005	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Cultured Seed Cane	\$514.48	\$524.85	100.0%	\$514.48	\$524.85
	Hand Plant – Wholestalk	\$233.62	\$300.78	100.0%	\$233.62	\$300.78
	<i>Total allocated planting cost per acre of cultured seedcane =</i>				\$881.65	\$1,038.91

^A The allocation percentage for cultured seed cane indicates that for every 1 acre of cultured seed cane planted, 1 acre of fallow, seedbed preparation, seed cane purchase and seed cane planting are required.

Table 2. Estimated Costs Associated With Propagated Seed Cane In 2006– Hand Planted.

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs
2004	Fallow and Seedbed Preparation	\$124.67	\$207.86	12.5%	\$15.58	\$25.98
	Cultured Seed Cane	\$515.71	\$526.07	12.5%	\$64.46	\$65.76
	Hand Plant – Wholestalk	\$208.28	\$276.87	12.5%	\$26.04	\$34.61
2005	Seed Cane Field Operations	\$190.77	\$230.44	12.5%	\$23.85	\$28.81
	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Harvest Propagated Seed Cane ^B	\$53.21	\$87.23	12.5%	\$6.65	\$10.90
	Hand Plant – Wholestalk	\$233.62	\$300.78	100.0%	\$233.62	\$300.78
	<i>Total allocated planting cost per acre of propagated seedcane =</i>				\$503.75	\$680.12

^A The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 8 acres of hand planted wholestalk propagated seed cane. Therefore, the costs associated with an acre of cultured seed cane would be spread over 8 acres of propagated seed cane. In other words, every acre of propagated seed cane would be charged 1/8 (12.5%) of the costs associated with cultured seed cane.

^B First expansion of seed cane (wholestalk seed cane).

Table 3. Estimated Costs Associated With Propagated Seed Cane In 2006- Mechanically Planted.

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs
2004	Fallow and Seedbed Preparation	\$124.67	\$207.86	20.0%	\$24.93	\$41.57
	Cultured Seed Cane	\$515.71	\$523.07	20.0%	\$103.14	\$104.61
	Hand Plant – Wholestalk	\$208.28	\$276.87	20.0%	\$41.66	\$55.37
2005	Seed Cane Field Operations	\$190.77	\$230.44	20.0%	\$38.15	\$46.09
	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Harvest Propagated Seed Cane ^B	\$53.21	\$87.23	20.0%	\$10.64	\$17.45
	Mechanical Plant – Wholestalk	\$206.89	\$256.90	100.0%	<u>\$206.89</u>	<u>\$256.90</u>
<i>Total allocated planting cost per acre of propagated seed cane =</i>					\$558.97	\$735.27

^A The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 5 acres of machine planted wholestalk propagated seed cane. Therefore, the costs associated with an acre of cultured seed cane would be spread over 5 acres of propagated seed cane. In other words, every acre of propagated seed cane would be charged 1/5 (20%) of the costs associated with cultured seed cane.

^B First expansion of seed cane (wholestalk seed cane).

Table 4. Estimated Costs Associated With Plant Cane In 2006 Hand Planted Wholestalk.

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs ^B
2003	Fallow and Seedbed Preparation	\$123.59	\$187.35	1.6%	\$1.93	\$2.92
	Cultured Seed Cane	\$514.52	\$524.88	1.6%	\$8.03	\$8.19
	Hand Plant – Wholestalk	\$222.86	\$281.10	1.6%	\$3.48	\$4.39
2004	Seed Cane Field Operations	\$188.06	\$229.42	1.6%	\$2.93	\$3.58
	Fallow and Seedbed Preparation	\$124.67	\$207.86	12.5%	\$15.58	\$25.98
	Harvest Propagated Seed Cane ^C	\$45.16	\$78.97	1.6%	\$0.70	\$1.23
	Hand Plant – Wholestalk	\$208.28	\$276.87	12.5%	\$26.04	\$34.61
2005	Seed Cane Field Operations	\$190.77	\$230.44	12.5%	\$23.85	\$28.81
	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Harvest Propagated Seed Cane ^D	\$53.21	\$87.23	12.5%	\$6.65	\$10.90
	Hand Plant – Wholestalk	\$233.62	\$300.78	100.0%	<u>\$233.62</u>	<u>\$300.78</u>
<i>Total allocated planting cost per acre of plantcane =</i>					\$456.36	\$634.67

^A The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 8 acres of wholestalk propagated seed cane which then can be expanded into 64 acres of plant cane. Therefore, the costs associated with an acre of cultured seed cane would be spread over 64 acres of plant cane while the costs associated with an acre propagated seed cane would be spread over 8 acres of plant cane. In other words, every acre of plant cane would be charged 1/64 (1.6%) of the costs associated with cultured seed cane and would be charged 1/8 (12.5%) of the costs associated with propagated seed cane.

^B Allocation of variable planting costs over a 4-year crop cycle:
plantcane - \$456, first stubble - \$342, second stubble - \$228, third stubble - \$114

Allocation of total planting costs over a 4-year crop cycle:
plantcane - \$635, first stubble - \$476, second stubble - \$318, third stubble - \$159

^C First expansion of seed cane (wholestalk seed cane).

^D Second expansion of seed cane (wholestalk seed cane).

Table 5. Estimated Costs Associated With Plant Cane in 2006 Mechanically Planted Wholestalk.

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs ^B
2003	Fallow and Seedbed Preparation	\$123.59	\$187.35	4.0%	\$4.94	\$7.49
	Cultured Seed Cane	\$514.52	\$524.88	4.0%	\$20.58	\$21.00
	Hand Plant – Wholestalk	\$222.86	\$281.10	4.0%	\$8.91	\$11.24
2004	Seed Cane Field Operations	\$188.06	\$229.42	4.0%	\$7.52	\$9.18
	Fallow and Seedbed Preparation	\$124.67	\$207.86	20.0%	\$24.93	\$41.57
	Harvest Propagated Seed Cane ^C	\$45.16	\$78.97	4.0%	\$1.81	\$3.16
	Mechanical Plant – Wholestalk	\$186.09	\$238.95	20.0%	\$37.22	\$47.79
2005	Seed Cane Field Operations	\$190.77	\$230.44	20.0%	\$38.15	\$46.09
	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Harvest Propagated Seed Cane ^D	\$53.21	\$87.23	20.0%	\$10.64	\$17.45
	Mechanical Plant – Wholestalk	\$206.89	\$256.90	100.0%	\$206.89	\$256.90
<i>Total allocated planting cost per acre of plantcane =</i>					\$495.16	\$675.14

^A The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 5 acres of propagated seed cane which then can be expanded into 25 acres of plant cane. Therefore, the costs associated with an acre of cultured seed cane would be spread over 25 acres of plant cane while the costs associated with an acre propagated seed cane would be spread over 5 acres of plant cane. In other words, every acre of plant cane would be charged 1/25 (4%) of the costs associated with cultured seed cane and would be charged 1/5 (20%) of the costs associated with propagated seed cane.

^B Allocation of variable planting costs over a 4-year crop cycle:

plantcane - \$495, first stubble - \$317, second stubble - \$248, third stubble - \$124

Allocation of total planting costs over a 4-year crop cycle:

plantcane - \$675, first stubble - \$506, second stubble - \$338, third stubble - \$169

^C First expansion of seed cane (wholestalk seed cane). ^D Second expansion of seed cane (wholestalk seed cane).

Table 6. Estimated Costs Associated With Plant Cane in 2006 Mechanically Planted Billets.

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage ^A	Total Variable Cost Per Acre	Total Allocated Planting Costs ^B
2003	Fallow and Seedbed Preparation	\$123.59	\$187.35	11.0%	\$13.59	\$20.61
	Cultured Seed Cane	\$514.52	\$524.88	11.0%	\$56.60	\$57.74
	Hand Plant – Wholestalk	\$222.86	\$281.10	11.0%	\$24.51	\$30.92
2004	Seed Cane Field Operations	\$188.06	\$229.42	11.0%	\$20.69	\$25.24
	Fallow and Seedbed Preparation	\$124.67	\$207.86	33.0%	\$41.14	\$68.59
	Harvest Billet Seed Cane ^C	\$53.89	\$91.05	11.0%	\$5.93	\$10.02
	Mechanical Plant – Billets	\$158.84	\$211.70	33.0%	\$52.42	\$69.86
2005	Seed Cane Field Operations	\$190.77	\$230.44	33.0%	\$62.95	\$76.05
	Fallow and Seedbed Preparation	\$133.55	\$213.28	100.0%	\$133.55	\$213.28
	Harvest Billet Seed Cane ^D	\$65.06	\$102.35	33.0%	\$21.47	\$33.78
	Mechanical Plant – Billets	\$179.64	\$229.65	100.0%	\$179.64	\$229.65
<i>Total allocated planting cost per acre of plantcane =</i>					\$612.49	\$835.72

^A The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 3 acres of propagated billeted seed cane which then can be expanded into 9 acres of plant cane. Therefore, the costs associated with an acre of cultured seed cane would be spread over 9 acres of plant cane while the costs associated with an acre propagated seed cane would be spread over 3 acres of plant cane. In other words, every acre of plant cane would be charged 1/9 (11%) of the costs associated with cultured seed cane and would be charged 1/3 (33%) of the costs associated with propagated seed cane.

^B Allocation of variable planting costs over a 4-year crop cycle:

plantcane - \$612, first stubble - \$459, second stubble - \$306, third stubble - \$153

Allocation of total planting costs over a 4-year crop cycle:

plantcane - \$836, first stubble - \$627, second stubble - \$418, third stubble - \$209

^C First expansion of seed cane (billet seed cane). ^D Second expansion of seed cane (billet seed cane).