



## ALLOCATION OF LOUISIANA SUGARCANE PLANTING COSTS IN 2018 FOR SUGARCANE PLANTED IN 2017



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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 the 2017 crop year. It is generally accepted that sugarcane goes through three stages prior to having the first acre of harvestable cane for delivery to the mills for processing. 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 in the following year. 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 harvested acre of cultured seed cane will provide several acres of propagated seed cane which, in turn, provides several acres of plant cane, many of the costs associated with each stage must be spread across several acres rather than simply one acre.

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 whole stalk 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 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, 2018** (prior to any cultivation operations and costs during the 2017 calendar year) are provided. Planting costs are listed for cultured seed cane, propagated seed cane, plant cane planted in 2017.

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 seed cane 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

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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 whole stalk seed cane of both cultured seed cane and the first seed cane expansion. Table 3 reports planting cost estimates associated with hand planting whole stalk 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 whole stalk. Table 5 includes estimated total planting costs per acre of plant cane assuming the cultured seed cane was whole stalk hand planted and the two seed cane expansion were mechanically planted whole stalk. Table 6 includes estimated total planting costs per acre of plant cane assuming the cultured seed cane was whole stalk 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 on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs
2017	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Cultured Seed Cane	\$522.87	\$535.00	100.0%	\$522.87	\$535.00
	Hand Plant – Whole Stalk	\$214.40	\$291.11	100.0%	<u>\$214.40</u>	<u>\$291.11</u>
	<i>Total allocated planting cost per acre of cultured seed cane =</i>				<b>\$846.57</b>	<b>\$1,026.94</b>

<sup>A</sup> 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 Hand Planted Propagated Seed Cane on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs
2016	Fallow and Seedbed Preparation	\$108.29	\$200.30	12.5%	\$13.54	\$25.04
	Cultured Seed Cane	\$521.77	\$534.65	12.5%	\$65.22	\$66.83
	Hand Plant – Whole Stalk	\$209.44	\$287.78	12.5%	\$26.18	\$35.97
2017	Seed Cane Field Operations	\$224.88	\$268.31	12.5%	\$28.11	\$33.54
	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Harvest Propagated Seed Cane <sup>B</sup>	\$65.88	\$116.78	12.5%	\$8.24	\$14.60
	Hand Plant – Whole Stalk	\$214.40	\$291.11	100.0%	<u>\$214.40</u>	<u>\$291.11</u>
	<i>Total allocated planting cost per acre of propagated seed cane =</i>				<b>\$464.98</b>	<b>\$667.92</b>

<sup>A</sup> The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 8 acres of hand planted whole stalk 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.

<sup>B</sup> First expansion of seed cane (whole stalk seed cane).

**Table 3. Estimated Costs Associated With Machine Planted Propagated Seed Cane on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs
2016	Fallow and Seedbed Preparation	\$108.29	\$200.30	20.0%	\$21.66	\$40.06
	Cultured Seed Cane	\$521.77	\$534.65	20.0%	\$104.35	\$106.93
	Hand Plant – Whole Stalk	\$209.44	\$287.78	20.0%	\$41.89	\$57.56
2017	Seed Cane Field Operations	\$224.88	\$268.31	20.0%	\$44.98	\$53.66
	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Harvest Propagated Seed Cane <sup>B</sup>	\$65.88	\$116.78	20.0%	\$13.18	\$23.36
	Mechanical Plant – Whole Stalk	\$181.86	\$239.92	100.0%	\$181.86	\$239.92
<i>Total allocated planting cost per acre of propagated seed cane =</i>					<b>\$517.21</b>	<b>\$723.31</b>

<sup>A</sup> The allocation percentage is based on the assumption that 1 acre of cultured seed cane can be expanded into 5 acres of machine planted whole stalk 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.

<sup>B</sup> First expansion of seed cane (whole stalk seed cane).

**Table 4. Estimated Costs Associated With Hand Planted Whole Stalk Plant Cane on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs <sup>B</sup>
2015	Fallow and Seedbed Preparation	\$127.96	\$211.92	1.6%	\$2.00	\$3.31
	Cultured Seed Cane	\$522.72	\$535.25	1.6%	\$8.15	\$8.35
	Hand Plant – Whole Stalk	\$203.80	\$276.86	1.6%	\$3.18	\$4.32
2016	Seed Cane Field Operations	\$251.77	\$296.70	1.6%	\$3.93	\$4.63
	Fallow and Seedbed Preparation	\$108.29	\$200.30	12.5%	\$13.54	\$25.04
	Harvest Propagated Seed Cane <sup>C</sup>	\$66.83	\$118.38	1.6%	\$1.04	\$1.85
	Hand Plant – Whole Stalk	\$209.44	\$287.78	12.5%	\$26.18	\$35.97
2017	Seed Cane Field Operations	\$224.88	\$268.31	12.5%	\$28.11	\$33.54
	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Harvest Propagated Seed Cane <sup>D</sup>	\$65.88	\$116.78	12.5%	\$8.24	\$14.60
	Hand Plant – Whole Stalk	\$214.40	\$291.11	100.0%	\$214.40	\$291.11
<i>Total allocated planting cost per acre of plant cane =</i>					<b>\$418.06</b>	<b>\$623.54</b>

<sup>A</sup> 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.

<sup>B</sup> Allocation of total planting costs over a 4-year/3-harvest crop cycle:

Plant cane - \$624, first stubble - \$416, second stubble - \$208.

Allocation of total planting costs over a 5-year/4-harvest crop cycle:

Plant cane - \$624, first stubble - \$468, second stubble - \$312, third stubble - \$156.

<sup>C</sup> First expansion of seed cane (whole stalk seed cane).

<sup>D</sup> Second expansion of seed cane (whole stalk seed cane).

**Table 5. Estimated Costs Associated With Machine Planted Whole Stalk Plant Cane on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs <sup>B</sup>
2015	Fallow and Seedbed Preparation	\$127.96	\$211.92	4.0%	\$5.12	\$8.48
	Cultured Seed Cane	\$522.72	\$535.25	4.0%	\$20.91	\$21.41
	Hand Plant – Whole Stalk	\$203.80	\$276.86	4.0%	\$8.15	\$11.07
2016	Seed Cane Field Operations	\$251.77	\$296.70	4.0%	\$10.07	\$11.87
	Fallow and Seedbed Preparation	\$108.29	\$200.30	20.0%	\$21.66	\$40.06
	Harvest Propagated Seed Cane <sup>C</sup>	\$66.83	\$118.38	4.0%	\$2.67	\$4.74
	Mechanical Plant – Whole Stalk	\$176.07	\$235.38	20.0%	\$35.21	\$47.08
2017	Seed Cane Field Operations	\$224.88	\$268.31	20.0%	\$44.98	\$53.66
	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Harvest Propagated Seed Cane <sup>D</sup>	\$65.88	\$116.78	20.0%	\$13.18	\$23.36
	Mechanical Plant – Whole Stalk	\$181.86	\$239.92	100.0%	\$181.86	\$239.92
<i>Total allocated planting cost per acre of plant cane =</i>					<b>\$453.11</b>	<b>\$662.47</b>

<sup>A</sup> 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.

<sup>B</sup> Allocation of total planting costs over a 4-year/3-harvest crop cycle:

Plant cane - \$662, first stubble - \$442, second stubble - \$221.

Allocation of total planting costs over a 5-year/4-harvest crop cycle:

Plant cane - \$662, first stubble - \$497, second stubble - \$331, third stubble - \$166.

<sup>C</sup> First expansion of seed cane (whole stalk seed cane). <sup>D</sup> Second expansion of seed cane (whole stalk seed cane)

**Table 6. Estimated Costs Associated With Machine Planted Billet Plant Cane on Jan. 1, 2018**

Year	Operation	Variable Cost Per Acre	Total Cost Per Acre	Allocation Percentage <sup>A</sup>	Total Variable Cost Per Acre	Total Allocated Planting Costs <sup>B</sup>
2015	Fallow and Seedbed Preparation	\$127.96	\$211.92	11.0%	\$14.08	\$23.31
	Cultured Seed Cane	\$522.72	\$535.25	11.0%	\$57.50	\$58.88
	Hand Plant – Wholestalk	\$203.80	\$276.86	11.0%	\$22.42	\$30.45
2016	Seed Cane Field Operations	\$251.77	\$296.70	11.0%	\$27.69	\$32.64
	Fallow and Seedbed Preparation	\$108.29	\$200.30	33.0%	\$35.74	\$66.10
	Harvest Billet Seed Cane <sup>C</sup>	\$86.32	\$142.05	11.0%	\$9.50	\$15.63
	Mechanical Plant – Billets	\$149.95	\$209.26	33.0%	\$49.48	\$69.06
2017	Seed Cane Field Operations	\$224.88	\$268.31	33.0%	\$74.21	\$88.54
	Fallow and Seedbed Preparation	\$109.30	\$200.83	100.0%	\$109.30	\$200.83
	Harvest Billet Seed Cane <sup>D</sup>	\$84.65	\$139.61	33.0%	\$27.93	\$46.07
	Mechanical Plant – Billets	\$155.67	\$213.73	100.0%	\$155.67	\$213.73
<i>Total allocated planting cost per acre of plant cane =</i>					<b>\$583.52</b>	<b>\$845.23</b>

<sup>A</sup> 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.

<sup>B</sup> Allocation of total planting costs over a 4-year/3-harvest crop cycle:

Plant cane - \$845, first stubble - \$566, second stubble - \$279.

Allocation of total planting costs over a 5-year/4-harvest crop cycle:

Plant cane - \$845, first stubble - \$634, second stubble - \$423, third stubble - \$211.

<sup>C</sup> First expansion of seed cane (billet seed cane). <sup>D</sup> Second expansion of seed cane (billet seed cane).