



Costs of Producing Switchgrass for Biomass in South Carolina

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Objectives

- 1) Estimate the cost of producing and harvesting switchgrass for biomass in South Carolina
- 2) Evaluate the profitability (preliminary) of growing switchgrass



Assumptions

- The costs were estimated using data from:
 - Pee Dee REC experimental plots
 - Farmers' experience
 - Previous switchgrass cost estimation studies
- Input prices were collected from farmers and dealers who supply SC growers.
- Price of switchgrass: \$60 per dry Ton (farm gate)



Assumptions

Yield assumptions

Year	Tons/acre
1	0
2	3.5
3-10	7

- Management program from CU Extension Specialists



Equipment Requirements

Description	Purchase Price	Total Cost \$/Hour
	-----\$-----	
Tractor, 150H.P., W/Cab, Air	97,250	41.85
Mower	6,500	10.43
Rake	3,000	3.25
Round Baler, PTO, Large Round	23,000	31.25
Front End Loader	7,500	12.92
1520 Integral Drill - 15 Ft. - 10 In.	14,781	23.78
Sprayer, 60' boom	8,400	13.24
Chisel Plow 18'	11,053	12.27
Heavy Disk 16'	15,700	17.53



Establishment Costs

Operation	Year 1	Year 2
	----- \$/acre -----	
Land Preparation	27	0
Planting	132	0
Weed Control	21	4
Fertilizer Application	58	33
Harvest	0	118
Land Charge	25	25
Overhead & Interest Costs	28	14
Total Cost	292	194
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Prorated Establishment Costs	42	

Costs of a Established Switchgrass Crop

Operation	Material Costs	Equipment Costs	Labor Costs	Total Operation Costs	Operation Costs/ton
	-----\$/Acre-----			-----\$/Ton-----	
Weed Control	0	0	0	0	0
Fertilizer Application	81	9	2	91	13
Harvest	14	165	28	207	30
Land Cost	25	0	0	25	4
Overhead & Interest Costs	28	0	0	28	4
Establishment Costs	42	0	0	42	6
Total Cost	189	173	30	393	56



Profitability of a Established Switchgrass Crop

Item	(USD \$/Acre)
Gross Receipts (7 tons x \$60/ton)	420
Total Variable Costs	227
Income Above Variable Costs	193
Total Fixed Costs	124
Prorated Establishment Costs	42
Total Costs	393
Return to Management and Profit	27



Break even analysis

Break even yield (Tons/acre)	6.55
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Break even price (\$/ton)	56.14
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Shutdown price (\$/ton)	32.43
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Conclusions

- ❖ Under our price and cost assumptions switchgrass can be a profitable venture.
- ❖ However:
 - ❖ Yield patterns assumed no adverse weather, production setbacks or marketing difficulties.
 - ❖ Our cost estimates did not include transportation costs (\approx \$0.12-\$0.14 per bale per mile)



! CAUTION !!

- ❖ Budgets are only guides – not substitutes for a grower's own cost estimation.
- ➔ We recommended that each grower estimate their production and harvest costs & conduct a profitability analysis based on their own production