

*Working Paper*

**Switchgrass Budgets**

The mention in these budgets of any commercial product does not imply its endorsement by MSU, MAFES, or USDA over other products not named nor does the omission imply they are not satisfactory.

Table 1. Estimated Resource Use and Costs for Field Operation, per acre of Switchgrass, Establishment Year, Mississippi, 2011

OPERATION / OPERATING INPUT														
	SIZE/UNIT	POWER UNIT	UNIT SIZE	PERF RATE	TIMES OVER	MTH	PWR UNIT COST		EQUIP. COST	ALLOC HOURS	OPERATING INPUT		TOTAL COST	
							DIRECT	FIXED			AMOUNT	PRICE		COST
Soil Test	20 acre				0.05	Mar					0.05	\$ 12.00	\$ 0.60	\$ 0.60
Lime (Spread)	ton				1.00	Mar					0.50	\$ 35.00	\$ 17.50	\$ 17.50
Disk Harrow	32'	MFWD	170	0.061	1.00	May	\$ 1.28	\$ 18.65	\$ 1.01	\$ 18.00	0.06	\$ 0.70	\$ 0.42	\$ 39.64
Harrow Folding	48'	MFWD	170	0.033	2.00	May	\$ 1.38	\$ 9.87	\$ 0.57	\$ 7.03	0.06	\$ 0.76	\$ 0.46	\$ 19.61
Custom Apply Fert	acre				1.00	May					1.00	\$ 7.00	\$ 7.00	\$ 7.00
Amm Nitrate (34% N)	cwt										0.74	\$ 14.23	\$ 10.46	\$ 10.46
Polash (60% K2O)	cwt										1.00	\$ 26.10	\$ 26.10	\$ 26.10
Grain Drill & Pre	30'	MFWD	170	0.062	1.00	May	\$ 1.42	\$ 18.65	\$ 1.72	\$ 23.28	0.12	\$ 1.38	\$ 0.90	\$ 46.45
Switchgrass seed	lb										6.50	\$ 20.00	\$ 130.00	\$ 130.00
Atrazine 4L	pt										2.00	\$ 2.52	\$ 5.04	\$ 5.04
Hay Disc mower	10'	MFWD	170	0.206	1.00	Nov	\$ 3.81	\$ 62.54	\$ 1.84	\$ 4.86	0.2	\$ 2.34	\$ 0.47	\$ 75.38
<b>OTHER FIXED COSTS</b>														
Hay Rake Double	17'													\$ 2.44
Hay baler LB433	3x4 sqr													\$ 54.09
Hay Mover	1bale lift													\$ 0.16
Hay Trailer	20'													\$ 1.31
Spray (Broadcast)	60'													\$ 4.11
<b>TOTALS</b>							\$ 7.89	\$ 109.72	\$ 5.14	\$ 115.26	0.44	\$ 5.18	\$ 196.70	\$ 439.89
INTEREST ON OPERATING CAPITAL														
<b>TOTAL SPECIFIED COST</b>														
\$ 443.66														

Note: Cost of production estimates are based on 2010 input prices.

**Table 2. Estimated Cost per acre of Switchgrass, Establishment Year, Mississippi, 2011**

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
<b>DIRECT EXPENSES</b>				
SERVICE FEE				
Soil Test	20 acre	\$12.00	0.0500	\$0.60
FERTILIZERS				
Amm Nitrate (34% N)	cwt	\$14.23	0.7352	\$10.46
Potash (60% K20)	cwt	\$26.10	1.0000	\$26.10
HERBICIDES				
Atrazine 4L	pt	\$2.52	2.0000	\$5.04
SEED/PLANTS				
Switchgrass Seed	pls/lb	\$20.00	6.5000	\$130.00
CUSTOM FERT/LIME				
Lime (Spread)	ton	\$35.00	0.5000	\$17.50
Custom Apply Fert	acre	\$7.00	1.0000	\$7.00
OPERATOR LABOR				
Tractors	hour	\$11.35	0.3965	\$4.50
HAND LABOR				
Implements	hour	\$9.06	0.0628	\$0.57
DIESEL FUEL				
Tractors	gal	\$2.39	3.4701	\$8.29
REPAIR & MAINTENANCE				
Implements	acre	\$3.58	1.0000	\$3.58
Tractors	acre	\$1.26	1.0000	\$1.26
INTEREST ON OP. CAP.	acre	\$3.77	1.0000	<u>\$3.77</u>
<b>TOTAL DIRECT EXPENSES</b>				<b>\$218.67</b>
<b>FIXED EXPENSES</b>				
Implements	acre	\$115.26	1	\$115.26
Tractors	acre	\$109.72	1	<u>\$109.72</u>
<b>TOTAL FIXED EXPENSES</b>				<b><u>\$224.98</u></b>
<b>TOTAL EXPENSES</b>				<b>\$443.66</b>

Note: Cost of production estimates are based on 2010 input prices.

Table 3. Estimated Resource Use and Costs for Field Operation, per acre of Switchgrass, Single-Harvest Year, Mississippi, 2011

	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER		FIXED	EQUIPMENT COST		DIRECT	ALLOC LABOR		OPERATING / DURABLE INPUT		TOTAL COST
						DIRECT	INDIRECT		FIXED	VARIABLE		HOURS	AMOUNT	PRICE	COST	
<b>OPERATION / OPERATING INPUT</b>																
Spray (Broadcast)	60'	MFWD 170	0.028		1 Mar	\$ 0.59	\$	3.29	\$	0.24	\$	4.11	0.04	\$	2.08	\$ 8.68
2, 4-D Amine 4	pt														\$ 2.08	\$ 2.08
Prowl 3.3 EC	pt														\$ 4.19	\$ 4.19
Custom Apply Fert	acre				1 Apr										\$ 7.00	\$ 7.00
Amm Nitrate (34% N)	cwt														\$ 41.85	\$ 41.85
Potash (60% K2O)	cwt														\$ 26.10	\$ 26.10
Hay Disc Mower	10'	MFWD 170	0.206		1 Nov	\$ 4.70	\$	26.33	\$	1.84	\$	4.86	0.2	\$	26.10	\$ 40.07
Hay Rake - Double	17'	MFWD 170	0.101		1 Nov	\$ 2.08	\$	13.17	\$	0.57	\$	2.44	0.1	\$	19.40	\$ 19.40
Hay Baler LB433	3x4 sqr	MFWD 170	0.229		1 Nov	\$ 4.43	\$	29.62	\$	14.60	\$	54.09	0.22	\$	105.35	\$ 105.35
Hay mover	1B Lift	MFWD 170	0.300		1 Nov	\$ 5.74	\$	37.30	\$	0.98	\$	0.16	0.3	\$	47.59	\$ 47.59
+Hay Trailer	20'		0.300									0.34			\$	\$ 1.65
<b>OTHER FIXED COSTS</b>																
Disk Harrow	32'															\$ 18.00
Harrow	47'															\$ 7.03
Grain Drill and Pre	30'															\$ 23.28
<b>TOTALS</b>						\$ 17.54	\$	109.72	\$	18.57	\$	115.26	0.86	\$	81.22	\$ 352.26
<b>INTEREST ON OPERATING CAPITAL</b>																
<b>TOTAL SPECIFIED COST</b>																\$ 3.69
																\$ 355.95

Note: Cost of production estimates are based on 2010 input prices.

**Table 4. Estimated Cost per acre of Switchgrass, Single-Harvest Year, Mississippi, 2011**

<b>ITEM</b>	<b>UNIT</b>	<b>PRICE</b>	<b>QUANTITY</b>	<b>AMOUNT</b>
<b>DIRECT EXPENSES</b>		dollars		dollars
<b>FERTILIZERS</b>				
Amm Nitrate (34% N)	cwt	\$14.23	2.9411	\$41.85
Potash (60% K2O)	cwt	\$26.10	1	\$26.10
<b>HERBICIDES</b>				
2,4-D Amine 4	pt	\$ 2.08	1	\$2.08
Prowl 3.3 EC	pt	\$ 4.19	1	\$4.19
<b>CUSTOM FERT/LIME</b>				
Custom Apply Fert	acre	\$7.00	1	\$7.00
<b>OPERATOR LABOR</b>				
Tractors	hour	\$11.35	0.8647	\$9.81
<b>HAND LABOR</b>				
Implements	hour	\$9.06	0.0141	\$0.13
<b>DIESEL FUEL</b>				
Tractors	gal	\$2.39	7.5666	\$18.08
<b>REPAIR &amp; MAINTENANCE</b>				
Implements	acre	\$15.54	1	\$15.54
Tractors	acre	\$3.03	1	\$3.03
INTEREST ON OP. CAP.	acre	\$3.65	1	\$3.69
<b>TOTAL DIRECT EXPENSES</b>				<b>\$131.51</b>
<b>FIXED EXPENSES</b>				
Implements	acre	\$109.72	1	\$109.72
Tractors	acre	\$115.26	1	\$115.26
<b>TOTAL FIXED EXPENSES</b>				<b>\$224.98</b>
<b>TOTAL EXPENSES</b>				<b>\$356.49</b>

Note: Cost of production estimates are based on 2010 input prices.

Table 5. Estimated Resource Use and Costs for Field Operation, per acre of Switchgrass, Double-Harvest Year, Mississippi, 2011

	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST DIRECT	POWER UNIT COST FIXED	EQUIPMENT COST DIRECT	EQUIPMENT COST FIXED	ALLOC LABOR HOURS	OPERATING/DURABLE AMOUNT	INPUT COST PRICE	TOTAL COST
<b>OPERATION/ OPERATING INPUT</b>													
Spray (Broadcast)	60'	MFWD 170	0.028	1	Mar	\$ 0.59	\$ 3.29	\$ 0.24	\$ 4.11	0.04	\$ 0.45		\$ 8.68
2, 4-D Amine 4	pt										1	\$ 2.08	\$ 2.08
Prowl 3.3 EC	pt										1	\$ 4.19	\$ 4.19
Custom Apply Fert	acre			1	Apr						1	\$ 7.00	\$ 7.00
Anm Nitrate (34% N)	cwt										2.9411	\$ 14.23	\$ 41.85
Potash (60% K2O)	cwt										1	\$ 26.10	\$ 26.10
Hay Disc Mower	10'	MFWD 170	0.206	1	Jul	\$ 4.70	\$ 13.17	\$ 1.84	\$ 2.43	0.20	\$ 2.34		\$ 24.48
Hay Rake - Double	17'	MFWD 170	0.101	1	Jul	\$ 2.76	\$ 6.59	\$ 0.57	\$ 1.22	0.10	\$ 1.15		\$ 12.29
Hay Baler LBX432	3x4 sqr	MFWD 170	0.229	1	Jul	\$ 5.12	\$ 14.81	\$ 14.60	\$ 27.05	0.22	\$ 2.60		\$ 64.18
Hay mover	1B Lift	MFWD 170	0.3	1	Jul	\$ 6.42	\$ 18.65	\$ 0.98	\$ 0.08	0.30	\$ 3.41		\$ 29.54
+Hay Trailer	20'		0.3					\$ 0.34	\$ 0.66				\$ 1.00
Hay Disc Mower	10'	MFWD 170	0.206	1	Nov	\$ 4.70	\$ 13.17	\$ 1.84	\$ 2.43	0.20	\$ 2.34		\$ 24.48
Hay Rake - Double	17'	MFWD 170	0.101	1	Nov	\$ 2.76	\$ 6.59	\$ 0.57	\$ 1.22	0.10	\$ 1.15		\$ 12.29
Hay Baler LBX432	3x4 sqr	MFWD 170	0.229	1	Nov	\$ 5.12	\$ 14.81	\$ 14.60	\$ 27.05	0.22	\$ 2.60		\$ 64.18
Hay mover	1B Lift	MFWD 170	0.3	1	Nov	\$ 6.42	\$ 18.65	\$ 0.98	\$ 0.08	0.30	\$ 3.41		\$ 29.54
+Hay Trailer	20'		0.3					\$ 0.34	\$ 0.66				\$ 1.00
<b>OTHER FIXED COSTS</b>													
Disk Harrow	32'							\$	\$ 18.00				\$ 18.00
Harrow	47'							\$	\$ 7.03				\$ 7.03
Grain Drill and Pre	30'							\$	\$ 23.28				\$ 23.28
<b>TOTALS</b>						\$ 38.59	\$ 109.73	\$ 36.90	\$ 115.30	1.68	\$ 19.45	\$ 81.22	\$ 401.19
<b>INTEREST ON OPERATING CAPITAL</b>													\$ 5.09
<b>TOTAL SPECIFIED COST</b>													\$ 406.28

Note: Cost of production estimates are based on 2010 input prices.

**Table 6. Estimated Cost per acre of Switchgrass, Double-Harvest, Mississippi, 2011**

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
<b>DIRECT EXPENSES</b>				
FERTILIZERS				
Amm Nitrate (34% N)	cwt	\$14.23	2.9411	\$41.85
Potash (60% K <sub>2</sub> O)	cwt	\$26.10	1	\$26.10
HERBICIDES				
2,4-D Amine 4	pt	\$ 2.08	1	\$2.08
Prowl 3.3 EC	pt	\$ 4.19	1	\$4.19
CUSTOM FERT/LIME				
Custom Apply Fert	acre	\$7.00	1	\$7.00
OPERATOR LABOR				
Tractors	hour	\$11.35	1.7012	\$19.31
HAND LABOR				
Implements	hour	\$9.06	0.0141	\$0.13
DIESEL FUEL				
Tractors	gal	\$2.39	14.8864	\$35.58
REPAIR & MAINTENANCE				
Implements	acre	\$36.90	1	\$36.90
Tractors	acre	\$3.03	1	\$3.03
INTEREST ON OP. CAP.	acre	\$3.95	1	\$5.09
<b>TOTAL DIRECT EXPENSES</b>				<b>\$181.26</b>
<b>FIXED EXPENSES</b>				
Implements	acre	\$83.28	1	\$109.73
Tractors	acre	\$93.57	1	\$115.30
<b>TOTAL FIXED EXPENSES</b>				<b>\$225.03</b>
<b>TOTAL EXPENSES</b>				<b>\$406.29</b>

Note: Cost of production estimates are based on 2010 input prices.