

Bermuda Grass for Hay: Estimated annual revenue, operating cost, fixed cost and net returns per acre for large round bale hay with commercial fertilizer.

Budget 85-7
6/1/2013

Description	Unit	Price	Quantity	Value	Comments
Operating inputs					
-Lime, applied, pro-rated share	Ton	\$50.00	0.25	\$12.50	
-0-18-36, dry bulk	Cwt.	\$32.60	3.33	108.56	
-30% N Solution	Cwt.	\$20.50	6.66	136.53	
-Fert. Spread, custom	Acre	\$7.00	3.00	21.00	
-Baling Twine	Ball	\$15.00	0.30	4.50	
-Other:				0.00	
-Other:				0.00	
-Other:				0.00	
-Machinery Labor (From Table 2)				77.99	
-Other Labor	Hours	\$12.00	0.00	0.00	
-Machinery Fuel, Maint, Repairs (Table 2)	Acre			82.86	
-Annual Operating Capital ^a	\$	5.0%	184.97	9.25	
Total Operating Costs				\$453.18	
			Amount	Value	
Fixed Costs					
-Machinery Depreciation, Taxes, Insurance, and Interest (From Table 1)				112.63	
-Pasture Establishment Depreciation and Interest (From Table 1)				28.37	
Total Fixed Costs				\$140.99	
Total Cost				\$594.17	
	Unit	Price^b	Quantity	Value	
Production					
-Harvested as Hay, Dry Matter	Ton	\$90.00	4.50	405.00	
-Harvested as Pasture, Dry Matter	Ton	\$0.00	0.00	0.00	
Total Receipts				\$405.00	
RETURNS ABOVE TOTAL OPERATING COST				-\$48.18	
RETURNS ABOVE ALL SPECIFIED COSTS				-\$189.17	
AVERAGE COST PER TON OF DRY MATTER^c				\$132.04	

^a Interest on operating expenses for an average of 5 months.

^b Price hay kept for farm use at fair market value as if sold. Only place a value on pasture if it is rented out.

^c Total cost divided by total dry matter produced

NOTES

Hay typically is 52% digestible and provides 1040 pounds of TDN per ton of dry matter.

Well cured hay is approximately 85% dry matter. Multiply the dry matter cost shown in this budget by the hay dry matter % to convert the DM cost to the cost of hay as made. E.g., \$130.37/DM ton X 0.85 = \$110.81/ton of hay.

Divide the sale price of hay as made by the dry matter % to convert this hay price to a price per ton of dry matter.

Pasture typically is 20 to 25% dry matter, 55% digestible and provides 1300 pounds of TDN per ton of dry matter.

Each ton of pasture dry matter typically provides 68 animal unit days of grazing. A beef cow = 1 AU.

Budget does not include cost of pasture management for grazing livestock.

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Table 1. Initial investment in specialized equipment and annual ownership expenses

Operation and Item	Life	Initial Cost	Salvage Value	Depreciation ^a	Interest ^b	Tax & Ins. ^c	Annual D.I.T.I.	Annual Use	D.I.T.I. per Hour	Acres per Hour	Expense per Acre ^d	Times Over ^e	Total Expense	
	Years	\$	\$	\$	\$	\$	\$	Hours	\$	No.	\$	No.	\$/Acre	
Rate Charged, percent =====>														
Mowing					5.00%	1.40%								
Tractor, HP=	55	10	23,150	7,177	1,597	758	212	2,568	500	5.14	4.1	1.25	4	5.01
+ Mower-Cond.		10	22,525	6,758	1,577	732	205	2,514	100	25.14	4.1	6.13	4	24.52
Raking														
Tractor, HP=	35	10	19,075	5,913	1,316	625	175	2,116	500	6.00	4.1	1.46	6	8.78
+ Tedder/Rake		10	4,647	1,162	349	145	41	534	75	7.13	4.1	1.74	6	10.43
Baling														
Tractor, HP=	80	10	42,350	13,129	2,922	1,387	388	4,697	500	9.39	2.5	3.76	4	15.03
+ 4'X4' Baler		8	23,525	6,587	2,117	753	211	3,081	125	24.65	2.5	9.86	4	39.43
Move & Stack														
Tractor, HP=	55	10	23,150	7,177	1,597	758	212	2,568	500	5.14	3.3	1.56	4	6.22
+ Bale Fork		10	325	114	21	11	3	35	100	0.35	3.3	0.11	4	0.43
Pasture Clipping														
Tractor	55	10	23,150	7,177	1,597	758	212	2,568	500	5.14	3.7	1.39	0	0.00
+ Bushhog		10	4,225	1,479	275	143	40	457	100	4.57	3.7	1.24	0	0.00
Other														
Pickup Truck, 3/4 Ton	10		30,225	7,859	2,237	952	267	3,455	500	6.91	10	0.69	4	2.76
Pasture Establishment ^f	15		309	0	21	8								28.37
TOTAL														\$140.99

^a Depreciation = (Initial cost - Salvage value) / years of life

^b Interest on investment = ((Initial cost + Salvage value) / 2) X interest rate

^c Combined rate of property taxes and insurance premiums as a percentage of the average investment

^d Per acre costs for self-propelled vehicles include an additional 10% allowance for travel time from farm to field

^e Total number of trips across the field per year for this operation

^f Establishment cost per acre from Budget 85-6. Land cost or charges are not included.

Table 2. Operating expense for forage machinery and equipment per hour and per acre

Operation and Item	Repairs & Maint. ^a	Repairs & Maint.	Repairs & Maint. ^b	Fuel Use	Cost per Gal	Fuel & Lube ^c	Total Cost	Acres per Hour	Times Over	Equip. Op. Cost ^d	Labor Cost	Labor Cost ^e	Total Expense	
	%	\$/Year	\$/Hour	Gals/hr	\$	\$/Hour	\$/Hour	No.	No.	\$/Acre	\$/Hour	\$/Acre	\$/Acre	
Fuel cost per gallon & Labor cost per hour =====>														
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	4.1	4	11.30	12.00	13.46	24.76
+ Mower-Cond.		4%	901	9.01	0	0.00	0.00	9.01	4.1	4	8.79			8.79
Tractor, HP=	35	2%	382	0.76	1.54	3.45	6.11	6.87	4.1	6	11.06	12.00	20.20	31.26
+ Tedder/Rake		2%	93	1.24	0	0.00	0.00	1.24	4.1	6	1.81			1.81
Tractor, HP=	80	2%	847	1.69	3.52	3.45	13.97	15.66	2.5	4	27.56	12.00	22.08	49.64
+ 4'X4' Baler		1%	235	1.88	0	0.00	0.00	1.88	2.5	4	3.01			3.01
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	3.3	4	14.04	12.00	16.73	30.76
+ Bale Fork		1%	3	0.03	0	0.00	0.00	0.03	3.3	4	0.04			0.04
Tractor	55	2%	463	0.93	2.42	3.45	9.60	10.53	3.7	0	0.00	12.00	0.00	0.00
+ Bushhog		1%	42	0.42	0	0.00	0.00	0.42	3.7	0	0.00			0.00
Pickup Truck, 3/4 Ton		2%	605	1.21	3.00	3.45	11.90	13.11	10.0	4	5.24	12.00	5.52	10.76
TOTALS											\$82.86	\$77.99	\$160.84	

^a Repairs and maintenance costs are calculated as a % of the initial cost in Table 1. Percentages are higher for equipment bought used.

^b Repairs and maintenance costs per hour based on annual use shown in Table 1.

^c Total fuel cost plus lube costs estimated as 15% of the fuel cost.

^d Per acre costs for tractors and other self-propelled equipment includes an additional 10% allowance for travel time from farm to field.

^e Labor cost per acre includes an additional 15% allowance for travel time, setting up and finishing up.

Table 3. Sensitivity Analysis

This table shows the total cost per ton of dry matter produced under various assumptions about costs and yields. Specifically, the cost and yields shown in the enterprise budget on the first page are believed to be fairly representative of conditions in North Carolina. However, there is a wide variation in conditions from one farm to another and costs and yields can vary from year to year. The table shows the effects of yields and costs that are 10 percent higher or lower than the basic budget, singly and in combination.

AVERAGE TOTAL COST PER TON OF DRY MATTER PRODUCED

		YIELD		
		-10%	Base Budget	+10%
COST	-10%	\$132.04	\$118.83	\$108.03
	Base	\$146.71	\$132.04	\$120.03
	+10%	\$161.38	\$145.24	\$132.04