

Bermuda Grass for Hay and Pasture: Estimated revenue, operating cost, fixed cost, and net returns per acre in the **establishment** year, seeded.

Budget 85-6
6/1/2013

Description	Unit	Price	Quantity	Value	Comments
Operating inputs					
-Lime, applied	Ton	\$50.00	1.50	\$75.00	
-0-20-20, dry bulk	Cwt.	\$25.80	2.75	70.95	
-30% N Solution	Cwt.	\$20.50	4.00	82.00	
-Fert. Spread, custom	Acre	\$7.00	2.00	14.00	
-Grass seed (actual)	lb.	\$10.00	8.00	80.00	
-Herbicide	Acre	\$0.00	0.00	0.00	
-Baling Twine	Ball	\$15.00	0.06	0.90	
-Other:				0.00	
-Other:				0.00	
-Machinery Labor (From Table 2)				34.64	
-Other Labor	Hours	\$12.00	0.00	0.00	
-Machinery Fuel, Maint, Repairs (Table 2)	Acre			34.78	
-Annual Operating Capital ^b	\$	5.0%	163.45	8.17	
Total Operating Costs				\$400.44	
			Amount	Value	
Fixed Costs					
-Machinery Depr, Taxes, Insurance, & Interest (From Table 1)				\$39.01	
Total Cost				\$439.45	
	Unit	Price	Quantity	Value	
Production					
-Harvested as Pasture, Dry Matter	Ton	\$40.00	1.00	40.00	
-Harvested as Hay, Dry Matter	Ton	\$90.00	1.00	90.00	
Total Receipts				\$130.00	
RETURNS ABOVE TOTAL OPERATING COST				-\$270.44	
RETURNS ABOVE ALL SPECIFIED COSTS^c				-\$309.45	

^aIf sprigs are used to establish the bermuda grass instead of seed, replace seed cost with the estimated cost of the sprigs plus custom work, herbicide spray, etc., as appropriate. Cultivation and spraying costs must be included in Tables 1 & 2.

^bInterest on operating expenses for an average of 5 months.

^cThis is the **Net Cost** per acre in the establishment year, calculated as the Total Establishment Cost LESS the estimated value of hay and pasture produced during the establishment year.

NOTES

Hay typically is 52% digestible and provides 1040 pounds of TDN per ton of dry matter.
 Pasture typically is 55% digestible and provides 1300 pounds of TDN per ton of dry matter.
 One ton of pasture dry matter typically provides 68 animal unit days of grazing. A beef cow = 1 AU.
 Budget does not include the cost of managing cattle grazing the pasture.

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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 \$/Acre
	Years	\$	\$	\$	\$	\$	\$	Hours	\$	No.	\$	No.	\$/Acre
Rate Charged, percent =====>													
Field cultivation													
Chisel Plow													
Tractor, HP=	55	23,150	7,177	1,597	758	212	2,568	500	5.14	3.50	1.47	1	1.47
+ Chisel Plow	20	3,675	1,213	123	122	34	280	80	3.49	3.50	1.00	1	1.00
Disc													
Tractor, HP=	55	23,150	7,177	1,597	758	212	2,568	500	5.14	5.40	0.95	1	0.95
+ Disc	20	6,150	1,845	215	200	56	471	80	5.89	5.40	1.09	1	1.09
Harrow													
Tractor, HP=	35	19,075	5,913	1,316	625	175	2,116	500	4.23	5.40	0.78	1	0.78
+ Harrow	20	1,500	450	53	49	14	115	80	1.44	5.40	0.27	1	0.27
Plant (if seeded)													
Tractor, HP=	55	23,150	7,177	1,597	758	212	2,568	500	5.14	3.80	1.35	1	1.35
+ Seed drill	20	15,850	6,340	476	555	155	1,186	80	14.82	3.80	3.90	1	3.90
Post-sprig Spray (if sprigged)													
Tractor, HP=	35	19,075	5,913	1,316	625	175	2,116	500	4.23	11.10	0.38	0	0.00
+ Sprayer	15	2,350	940	94	82	23	199	80	2.49	11.10	0.22	0	0.00
Mow													
Tractor, HP=	55	23,150	7,177	1,597	758	212	2,568	500	5.14	4.10	1.25	1	1.25
+ Mower-Cond.	10	22,525	6,758	1,577	732	205	2,514	100	25.14	4.10	6.13	1	6.13
Rake													
Tractor, HP=	35	19,075	5,913	1,316	625	175	2,116	500	4.23	4.10	1.03	1	1.03
+ Tedder/Rake	10	4,650	1,163	349	145	41	535	75	7.13	4.10	1.74	1	1.74
Bale													
Tractor, HP=	80	42,350	13,129	2,922	1,387	388	4,697	500	9.39	2.50	3.76	1	3.76
+ 4'X4' Baler	8	23,525	6,587	2,117	753	211	3,081	125	24.65	2.50	9.86	1	9.86
Move & Stack													
Tractor, HP=	55	23,150	7,177	1,597	758	212	2,568	500	5.14	3.30	1.56	1	1.56
+ Bale Fork	10	325	114	21	11	3	35	100	0.35	3.30	0.11	1	0.11
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
TOTAL													\$39.01

^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

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	3.5	1	3.31	12.00	7.25
+ Chisel Plow		3%	110	1.38	0	0.00	0.00	1.38	3.5	1	0.39	12.00	0.39
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	5.4	1	2.14	12.00	4.70
+ Disc		2%	123	1.54	0	0.00	0.00	1.54	5.4	1	0.28	12.00	0.28
Tractor, HP=	35	2%	382	0.76	1.54	3.45	6.11	6.87	5.4	1	1.40	12.00	3.96
+ Harrow		3%	45	0.56	0	0.00	0.00	0.56	5.4	1	0.10	12.00	0.10
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	3.8	1	3.05	12.00	6.68
+ Seed drill		1%	159	1.98	0	0.00	0.00	1.98	3.8	1	0.52	12.00	0.52
Tractor, HP=	35	2%	382	0.76	1.54	3.45	6.11	6.87	11.1	0	0.00	12.00	0.00
+ Sprayer		3%	71	0.88	0	0.00	0.00	0.88	11.1	0	0.00	12.00	0.00
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	4.1	1	2.82	12.00	6.19
+ Mower-Cond.		4%	901	9.01	0	0.00	0.00	9.01	4.1	1	2.20	12.00	2.20
Tractor, HP=	35	2%	382	0.76	1.54	3.45	6.11	6.87	4.1	1	1.84	12.00	5.21
+ Tedder/Rake		2%	93	1.24	0	0.00	0.00	1.24	4.1	1	0.30	12.00	0.30
Tractor, HP=	80	2%	847	1.69	3.52	3.45	13.97	15.66	2.5	1	6.89	12.00	12.41
+ 4'X4' Baler		1%	235	1.88	0	0	0.00	1.88	2.5	1	0.75	12.00	0.75
Tractor, HP=	55	2%	463	0.93	2.42	3.45	9.60	10.53	3.3	1	3.51	12.00	7.69
+ Bale Fork		1%	3	0.03	0	0	0.00	0.03	3.3	1	0.01	12.00	0.01
Pickup Truck, 3/4 Ton		2%	605	1.21	3.00	3.45	11.90	13.11	10	4	5.24	12.00	10.76
TOTALS											\$34.78	\$34.64	\$69.42

^a Repairs and maintenance costs are calculated as a % of the initial cost in Table 1. Percentages are higher for equipment that is 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 annual charge to recover the full establishment cost under various assumptions about costs and stand life or planning horizon. Specifically, the cost 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 can vary from year to year. The table shows the effects of costs that are 10% higher or lower than the basic budget, singly and in combination with variations in stand life or planning horizon. Stand life is affected by many factors including persistence and farming plans may call for a stand to be replaced by another crop for reasons other than stand persistence. The annual prorated costs shown in the table do not include an interest charge on this investment.

AVERAGE ESTABLISHMENT COST PER ACRE OVER THE LIFE OF THE STAND

		STAND LIFE OR PLANNING HORIZON		
		5	10	20
		Years	Years	Years
COST	-10%	\$79.10	\$39.55	\$19.78
	Base	\$87.89	\$43.94	\$21.97
	+ 10%	\$96.68	\$48.34	\$24.17