

Economic Considerations for Hay Production & Storage

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Variables to Consider

- Number of cows
- Land availability
- Age and reliability of equipment
- Cost of new equipment
- Time availability
- Adequate hay supply at reasonable price
- Tax considerations
- Desire of producer

Input Costs

- Ammonium Nitrate (ton) \$450
- DAP (ton) \$675
- Potash (ton) \$850
- Fertilizer Application (acre) \$5.00
- Diesel (gallon) \$2.50

Grass/Clover Hay Establishment Variable Cost

• Seed	37.00
• Fertilizer (30-60-60)	96.00
• Lime (2 tons)	55.00
• Fuel & Oil	24.00
• Repairs	14.00
• Operating Interest	<u>9.00</u>
• Total Variable Cost	\$235.00

Grass/Clover Hay Establishment Fixed Cost

Grass/Clover Hay Establishment Total Cost

• Variable	\$235
• Fixed	17
• Labor (2.31 hrs @\$8.50)	<u>20</u>
• Total Cost Per Acre	\$272
• Pro-rated 6 years	\$45.33

Grass/Clover Hay Production Variable Cost - 2 Cuttings/Year

• Fertilizer (60-30-30)	81.00
• Overseeding	6.00
• Weed Control	3.50
• Twine	1.25
• Fuel & Oil	26.00
• Repairs	28.00
• Operating Interest	<u>6.00</u>
• Total	151.75

Grass/Clover Hay Production Variable Cost - 2 Cuttings/Year

• Pro-rated Establishment	45.33
• Machinery	
– Depreciation	9.63
– Interest	12.58
– Housing & Insurance	<u>1.21</u>
• Total	68.75

Grass/Clover Hay Production

Variable Cost - 2 Cuttings/Year

• Variable	\$152
• Fixed	69
• Labor (4 hrs @\$8.50)	<u>34</u>
• Total Cost Per Acre	\$255

Grass/ Clover Hay Production Costs Per Ton

Yield/Acre	Cash/Ton	Fixed/Ton	Labor/Ton	Total/Ton
1.5	\$101.33	\$46.00	\$22.67	\$170.00
2.0	76.00	34.50	17.00	127.50
2.5	60.80	27.60	13.60	102.00
3.0	50.67	23.00	11.33	85.00
3.5	43.43	19.71	9.71	72.86

Grass/Clover Hay

Cash Cost Only

Yield	Price Per Ton								
	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00
0.5	-163	-161	-158	-156	-153	-151	-148	-146	-143
1	-133	-128	-123	-118	-113	-108	-103	-98	-93
1.5	-103	-96	-88	-81	-73	-66	-58	-51	-43
2	-73	-63	-53	-43	-33	-23	-13	-3	7
2.5	-43	-31	-18	-6	7	20	32	45	57
3	-13	2	17	32	47	62	77	92	107
3.5	17	35	52	70	87	105	122	140	157
4	47	67	87	107	127	147	167	187	207
4.5	77	100	122	145	167	190	212	235	257

Grass/Clover Hay

Cash and Fixed Cost

Yield	Price Per Ton								
	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00
0.5	-232	-230	-227	-225	-222	-220	-217	-215	-212
1	-202	-197	-192	-187	-182	-177	-172	-167	-162
1.5	-172	-165	-157	-150	-142	-135	-127	-120	-112
2	-142	-132	-122	-112	-102	-92	-82	-72	-62
2.5	-112	-100	-87	-75	-62	-50	-37	-25	-12
3	-82	-67	-52	-37	-22	-7	8	23	38
3.5	-52	-35	-17	1	18	36	53	71	88
4	-22	-2	18	38	58	78	98	118	138
4.5	8	31	53	76	98	121	143	166	188

Grass/Clover Hay

Total Cost

Yield	Price Per Ton								
	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00
0.5	-266	-264	-261	-259	-256	-254	-251	-249	-246
1	-236	-231	-226	-221	-216	-211	-206	-201	-196
1.5	-206	-199	-191	-184	-176	-169	-161	-154	-146
2	-176	-166	-156	-146	-136	-126	-116	-106	-96
2.5	-146	-134	-121	-109	-96	-84	-71	-59	-46
3	-116	-101	-86	-71	-56	-41	-26	-11	4
3.5	-86	-69	-51	-34	-16	2	19	37	54
4	-56	-36	-16	4	24	44	64	84	104
4.5	-26	-4	19	42	64	87	109	132	154

Production Assumptions

- 50 cow herd
- 1.70 tons hay consumed per cow
- 2.5 tons per acre yield
- 2 cuttings per year of grass/clover hay



Initial Storage Cost

- 48' X 48' barn for 210 bales - \$13,824
- 25' X 48' tarp for 60 bales - \$418
- 20' X 54' X 5" rock pad - \$630 (\$20/ton)



Hay Requirements 50 Cow Herd

Storage Method	Percent Loss*	Tons Hay Used	Acres	Total Cost
Barn	14.5	100	40	\$10,200
Tarped on Rock Pad	20.7	108	42	\$10,710
Tarped on Tires/Pallets	22.6	110	44	\$11,220
Tarped on Ground	28.0	119	48	\$12,240
Uncovered on Ground	37.3	137	55	\$14,025

*Loss is storage plus feeding loss.

Annual Storage Costs

	Initial Cost	Life/ Years	Depr	Int. 6%	Repair Cost	Total Cost
Barn	13,824	20	691	415	346	1,452
Tarp	1,672	4	418	50		468
Rock Pad	2,520	20	126	76	13	214

Production + Storage Costs

50 Cow Herd

Storage Method	Annual Prod. Cost	Annual Storage Cost	Production + Storage Cost	Comparison to Barn
Barn	\$10,200	\$1,452	\$11,652	0
Tarped on Rock Pad	\$10,710	682	11,392	-259
Tarped on Tires/Pallets	\$11,220	468	11,688	37
Tarped on Ground	\$12,240	468	12,708	1,057
Uncovered on Ground	\$14,025	0	14,025	2,373

Add Land Cost

Storage Method	Comparison to Barn	Add Land @ \$25/Acre	Net Difference
Barn	0	0	0
Tarped on Rock Pad	-259	50	-209
Tarped on Tires/Pallets	37	100	137
Tarped on Ground	1,057	200	1,257
Uncovered on Ground	2,373	375	2,748

Hay Cost Per Cow

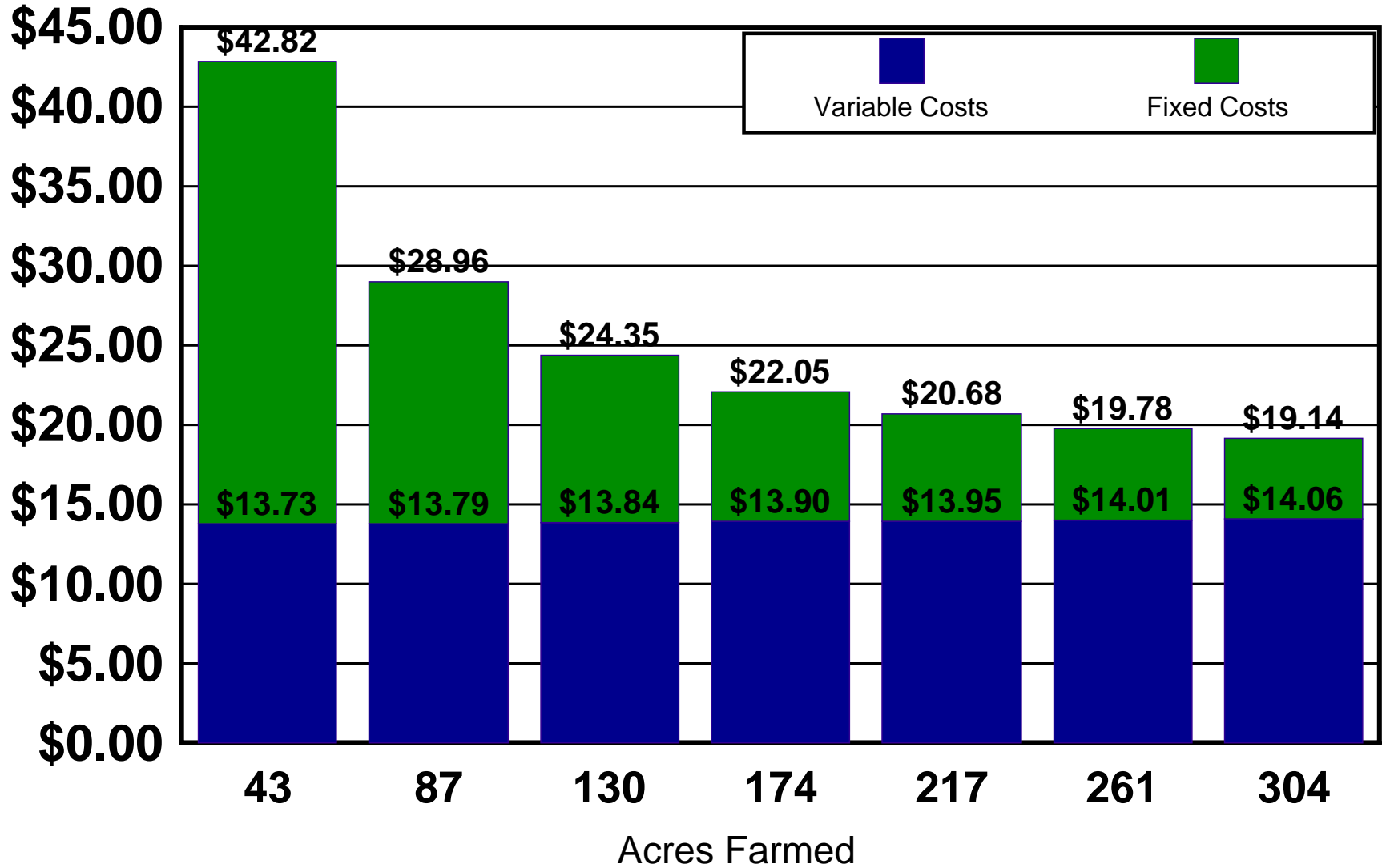
Storage Method	Tons/Hay Per Cow	Acres Hay Per Cow	Total Cost Per Cow
Barn	2.00	.80	\$204.00
Tarped on Rock Pad	2.14	.86	218.28
Tarped on Tires/Pallets	2.20	.88	224.40
Tarped on Ground	2.36	.95	240.72
Uncovered on Ground	2.71	1.09	276.42

Hay Price/Ton Per Bale Weight

Weight	\$40/Bale	\$45/Bale	\$50/Bale	\$55/Bale	\$60/Bale
800	\$100.00	\$112.50	\$125.00	\$137.50	\$150.00
1,000	80.00	90.00	100.00	110.00	120.00
1,200	66.80	75.15	83.33	91.67	100.00
1,400	57.14	64.35	71.43	78.57	85.71
1,600	50.00	56.25	62.50	68.75	75.00

Cost \$/acre at Varying Levels of Annual Use

Tractor, 70 hp & Round baler, pto, small



Power Unit 4 years old; Implement 4 years old

Round Baler Purchase Scenario

- 5 X 4 Baler
- \$24,000 new cost
- Financed – 5 yrs.; 8%;
 - Payment \$6,011
- 5 bales per acre @ 1,000 lbs. (2.5 tons)
- 1.7 tons hay per cow needed

Baler Payment Per Bale

Acres	Bales	Tons	Cows	Payment Per Bale
25	125	62.5	37	48.09
50	250	125.0	74	24.04
75	375	187.5	110	16.02

Summary

- No single answer for every producer
- Compile cost data for your farm
- Measure and record yields
- Compare your cost of producing hay with hay purchase options
- Study the economics of hay storage options on your farm
- Base decisions on your specific situation

Where am I?

Where do I want to be?

How do I get there?

FINPACK™

At A Glance



All information is confidential.

No cost to participating farm families.

FINPACK Components

- Balance Sheet
- Enterprise Budgets
- Long-range planning
- Cash flow planning
- Year-end analysis

Questions

THE UNIVERSITY of TENNESSEE Extension

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