

ECONOMICS  
OF  
ALFALFA HAYLAGE  
V S.

BALED HAY



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OR

THIS



AGRICULTURAL EXTENSION SERVICE  
UNIVERSITY OF CALIFORNIA  
MADERA COUNTY

ECONOMICS OF ALFALFA HAYLAGE VS. BALED HAY  
\* Prepared by  
William B. Hight, Madera County Farm Advisor

Recent developments in large capacity airtight steel storage has lent increased interest to the use of alfalfa "haylage" on some of our livestock and dairy operations. This interest, in turn, has led to the following analysis of two types of forage handling on one Madera County dairy.

Advantages of Haylage Over Baled Hay

1. Slightly lower feed losses from field to feed.
2. Very convenient method of material handling.
3. Easier to put up higher quality feed because of less leaf matter.
4. Forage removal time from field is much more rapid.
5. Less weather hazard to early and late cuttings.

Disadvantages of Haylage Operation

1. High initial investment.
2. More mechanical difficulties to surmount.
- \*\*3. Lifetime and maintenance cost are yet undetermined on this structure.

Some of the figures in the following cost analysis are actual, some are arbitrarily taken from standard cost data input-output relationships developed by the University of California Agricultural Extension Service and others are estimated.

\* Note: Grateful acknowledgement is made to Mr. Philip Parsons, extension economist, UC, and Mr. Clem Pelissier, dairy extension specialist, for editing and offering suggested revisions to this publication.

\*\*Note: The haylage structures in this analysis are the Herd King Silos.

To simplify information, some trade names or manufacturer's names have been used. No endorsement of named products or organizations is intended or criticism implied of similar products not named.

INVESTMENT FOR BALED HAY

<u>Item</u>	<u>Cost</u>	<u>Years Life</u>	<u>Depreciation</u>	<u>Interest 6%</u>	<u>Cash Overhead 2%</u>
Swather 16'	\$6,000	8	\$750	\$180	\$120
Baler - 3 wire	6,400	8	800	192	128
Tractor - 30 HP	5,000	10	500	150	100
Truck	2,000	10	200	60	40
Rake	<u>700</u>	10	<u>70</u>	<u>21</u>	<u>14</u>
	\$20,100		\$2,320	\$603	\$402

TOTAL ANNUAL OVERHEAD COSTS.....\$3,325

OPERATING COST TO HARVEST AND FEED BALED HAY

<u>Harvesting</u>	<u>Cost Per Hour</u>				<u>Tons Per Hour</u>	<u>Cost Per Ton (15% Moisture)</u>
	<u>Labor</u>	<u>Fuel</u>	<u>Repairs</u>	<u>Total</u>		
Swath	\$1.50	.30	\$3.65	\$5.45	5.1	\$1.0
Bale	1.50	.70	1.40	3.60	10.0	.46
Tractor	----	.60	.40	1.00		
Rake	1.50	---	.20	1.70	12.0	.14
Wire @ 75¢ 1 ton						.75
Haul - contract \$2 per ton plus 50¢ extra on ¼						2.13
<u>Miscellaneous Overhead</u>						
Cover						1.00
Insurance						.70
Loss from field to feed bunk 15% @ \$20. (Shrink, spoilage, etc.)						3.00
<u>Feeding</u>						
Truck	----	.20	.15	.35	5	.07
Load - 2 men	\$3.00	---	---	3.00	6	.50
Unload - clean mangers	3.00	.20	.15	3.35	4	<u>.84</u>
TOTAL OPERATING COST.....						<u>\$10.66</u>

INVESTMENT FOR HAYLAGE

<u>Item</u>	<u>Cost</u>	<u>Years Life</u>	<u>Depreciation</u>	<u>Interest 6%</u>	<u>Cash Overhead 2%</u>
Swather 16'	\$6,000	8	\$750	\$180	\$120
806 Farmall Diesel	10,000 @½	8	625	150	100
Small Tractor	2,000 @½	8	125	30	20
Gehl Chopper PTO	3,000	6	500	90	60
3 Trucks - with boxes	8,100	6	1,350	243	162
3 Feed Wagons	2,750	6	458	83	55
Blower	1,000	7	143	30	20
*Herd King Silo & Unloader 500 Tons DM Capacity	30,000	15	2,000	900	600
*Cement Slab	600	15	40	18	12
*Conveyor	1,800	10	180	54	36
**Electric Box & Wiring	500	10	50	15	10
	<u>\$59,750</u>		<u>\$6,221</u>	<u>\$1,793</u>	<u>\$1,197</u>
TOTAL ANNUAL OVERHEAD COST (1 Tank)..... <u>\$9,209.</u> (2 Tanks)..... <u>\$13,049.</u>					

OPERATING COST FOR HARVESTING AND FEEDING HAYLAGE

<u>Harvesting</u>	<u>Cost Per Hour</u>				<u>Tons Dry Matter Per Hr.</u>	<u>Cost Per Ton 100% Dry Matter</u>
	<u>Labor</u>	<u>Power or Fuel</u>	<u>Repairs</u>	<u>Total</u>		
Swather	\$1.50	.30	\$3.65	\$5.45	5.1	\$1.07
Tractor	1.50		\$2.00	3.50	3.0	1.17
Chopper	----	---	.80	.80	3.0	.27
Haul - 2 men	3.00	1.35	1.00	5.35	3.0	1.78
Blow	1.50	2.40	.10	4.00	6.0	.67
<u>Feeding</u>						
Load & Feed	1.50	----	----	1.50	1.5	1.00
Motors	----	.30	.10	.40	6.0	.07
Truck	----	2.00		2.00	3.0	.67
<u>Miscellaneous Overhead</u> --- Loss from field to feed 5% of Dry Matter - \$23.52 <u>1.18</u>						
TOTAL OPERATING COST.....						<u>\$7.88</u>

\* These investment items double with a 2 tank installation.

\*\* This figure can be quite variable depending on existing service at installation site.

HARVESTING, STORAGE AND FEEDING COST OF BALED HAY VS. HAYLAGE

COST OF BALED HAY

Cost Per Ton (15% Moisture)

<u>Tons</u>	<u>Overhead</u>	<u>Operating</u>	<u>Total</u>	<u>Total Cost Per Ton of Dry Matter</u>
100	\$33.25	\$10.66	\$43.91	\$51.66
300	11.08	10.66	21.74	25.58
500	6.65	10.66	17.31	20.36
700	4.75	10.66	15.41	18.13
900	3.69	10.66	14.35	16.88
1000	3.33	10.66	13.99	16.46
1500	2.22	10.66	12.88	15.15
1800	1.85	10.66	12.51	14.72
2000	1.66	0.66	12.32	14.49

COST OF HAYLAGE

Cost Per Ton 100% Dry Matter

<u>1 Tank</u>	<u>Tons</u>	<u>Overhead</u>	<u>Operating</u>	<u>Total Cost Per Ton of Dry Matter</u>
1 Partial Fill	100	\$92.09	\$7.88	\$99.97
1 Partial Fill	300	30.70	7.88	38.58
1 Fill	500	18.42	7.88	26.30
1.4 Fills	700	13.16	7.88	21.04
1.8 Fills	900	10.23	7.88	18.11
<u>2.0 Fills</u>	<u>1000</u>	9.20	7.88	17.08
2 Tanks	1500	8.70	7.88	16.58
2 Tanks	1800	7.25	7.88	15.13
2 Fills	2000	6.52	7.88	14.40

### Summary

From page four it can be seen that the major differences in the cost of these two systems lies in the high initial investment and a relatively low operating cost of the haylage program versus a low initial investment and a relatively high operating cost on the baled hay program. These characteristics of the two explain the fact that as the tonnage handled is increased the two systems level out at about the same cost per ton of dry matter delivered to the feed bunks when about 2000 tons of dry matter is handled through each.

The haylage cost per ton of dry matter continues to decrease when the second tank is added due to the fact that all of the high cost of the machinery required to handle the first tank can be used on the second tank with only an additional tank, conveyor and concrete slab being added to the original investment.

Naturally, as the tank usefulness or capacity is increased in terms of "fills" the overhead cost per ton of dry matter will decrease.

It might be well to point out that no attempt has been made in this study to assign a monetary value to any salvage hay purchases that the haylage system might afford under inclement weather conditions early and late in the season.

128 Madera Avenue  
Madera, California 93637

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