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Hay for Pleasure or Profit?

Many cow-calf producers feel strongly about producing their own hay. Most will insist that they need to have the machinery and equipment necessary to harvest their own hay to ensure that a quality feedstuff is produced. However, the economic justification to own hay machinery and equipment for the average cow-calf producer in Alabama is somewhat questionable. The five-year average market price for hay in Alabama is about \$55 per ton. So, the question that each hay producer should want to answer is, "Can I grow and harvest hay for less than \$55 per ton?"

A review of your cow-calf cost of production will help you determine if you can grow and harvest hay for less than \$55 per ton. The largest cost in the cow-calf budget is generally associated with feeding the cowherd (grazing, hay, supplements, mineral, etc.). These feeding costs often account for more than 50 percent of the total cost of the cow-calf enterprise. And the single largest cost of the feed inputs for most cow-calf operations is hay (whether it is raised or purchased). Hay is usually fed during the winter months when no grazing is available and ranges from about 60 days in extreme south Alabama to as long as 120+ days for some areas of the state. Granted, hay or some comparable feedstuff is needed during this time period. However, the issue to be decided here is "Is it more economical to produce hay or to purchase hay?"

Let's estimate the hay requirements of the average Alabama cattleman. The average cow-herd in Alabama is about thirty cows. If you assume each cow consumes 1.5 tons annually (30 pounds/day * 100 days), the total tons necessary would be 45 tons per year for the average Alabama cow-herd. Thus, the average cow-calf producer that purchases their hay would spend about \$2,475 per year (45 tons * \$55/ton) on purchased hay. Now let's take a look at what it costs to produce hay.

The total cost of hay production includes the cost to grow and harvest hay. The total cost to grow and harvest hay varies widely due to the cost of the machinery and equipment, tons harvested annually, and the weather. Hay-growing costs are cash costs and will generally range between \$20 and \$40 per ton. The cost to harvest hay includes cash costs (labor, fuel, wrapping material, lubricants, etc.) and fixed costs (annual depreciation, interest, repairs, insurance, and taxes). The cash costs of harvesting hay commonly range between \$6 and \$10 per ton. However, the fixed cost per ton to harvest hay is extremely sensitive to the level of annual fixed costs and the amount of hay harvested annually (tons harvested per year). The annual fixed cost (annual depreciation, interest, repairs, insurance, and taxes) associated with owning hay machinery and equipment will usually range between \$4,000 to about \$12,000 per year. Let's assume your annual fixed costs are \$8,000 per year and you harvest 45 tons annually. The annual fixed cost per ton would be \$178 per ton (\$8,000/45 tons). Alternatively, if the hay producer harvests 100, 250, or 500 tons annually, the annual fixed cost would be \$80, \$32, and \$16 per ton, respectively. So you can easily see that the level of production significantly reduces the annual fixed cost per ton.

Let's look at an evaluation of what it costs the average cow-calf producer to grow and harvest hay. The average cost of growing hay is about \$30 per ton and the average cash cost for harvesting hay is \$8 per ton. If we assume the average cow-calf producer harvests 45 tons per year (1.5 tons * 30 cows), the annual fixed cost per ton is about \$178 per ton (\$8,000 per year / 45 tons). Thus, the total cost of the hay produced would be about \$218 per ton (\$30 growing cost, \$8 cash harvesting cost, and \$178 fixed cost) or \$9,810 per year (\$218/ton * 45 tons). This may seem exorbitantly large, but the cost of new hay machinery and equipment is very expensive. Even if we assume the cow-calf producer purchases used hay machinery and equipment at about half of the new cost, the annual fixed cost would be about \$4000 per year. As a result, the annual fixed cost per ton would be \$89 per ton, assuming 45 tons harvested annually (\$4,000 / 45 tons). In this case, the total cost per ton of hay would be about \$127 per ton (\$30 growing cost, \$8 cash harvesting cost, and \$89 fixed cost) or \$5,715 per year (\$127/ton * 45 tons). When comparing these costs of producing hay to the Alabama five-year average hay price received by farmers, it is difficult for the average cow-calf producer to economically justify owning hay machinery and equipment.

In order for most hay producers to be competitive with the Alabama five-year average hay price received by farmers, they need to produce at least 500 tons annually. The total cost to grow and harvest 500 tons annually is approximately \$54 per ton (\$30 growing cost, \$8 cash harvesting cost, and \$16 fixed cost), as shown in Table 1.

Table 1. Total cost per ton to grow and harvest hay based various levels of fixed costs and tons harvested annually.*

Tons Harvested Annually	Level of Annual Fixed Costs -----				
	\$4,000	\$6,000	\$8,000	\$10,000	\$12,000
	-----Total Cost, \$ / Ton -----				
50	\$118	\$158	\$198	\$238	\$278
100	\$78	\$98	\$118	\$138	\$158
150	\$65	\$78	\$91	\$105	\$118
200	\$58	\$68	\$78	\$88	\$98
250	\$54	\$62	\$70	\$78	\$86
300	\$51	\$58	\$65	\$71	\$78
350	\$49	\$55	\$61	\$67	\$72
400	\$48	\$53	\$58	\$63	\$68
450	\$47	\$51	\$56	\$60	\$65
500	\$46	\$50	\$54	\$58	\$62

* Assumes a cash cost for growing and harvesting hay of \$38 per ton. Costs for the use of land and the operator's labor and management were not included in the calculations above. Add between \$5 to \$10 per ton to cover the costs of land and the operator's labor and management.

So why do so many cow-calf producers own hay machinery and equipment? The simple answer is that many cow-calf producers gain some pleasure or “level of satisfaction” from: producing a quality product, a sense of accomplishment from the fruits of their labor (at the end of the day looking across a field dotted with large rolls of hay), a sense of pride of owning, driving, and maintaining machinery and equipment, spending time with family and friends, the recognition of being a farmer, and probably many other motives.

Another reason that a farmer might decide to produce his own hay is that he may have never actually evaluated the cost of owning and operating hay machinery and equipment versus purchasing hay from others. For those who have not penciled the total cost of growing and harvesting their own hay, the total cost to grow and harvest your own hay may come as quite a surprise. For those of you who have already done the economic evaluations of producing your own hay and have chosen to purchase hay, then you are well on your way to becoming a low-cost cow-calf producer.

Regardless of the satisfaction that may come from producing your own hay, you should take the time to determine the cost per ton to grow and harvest hay. A simple comparison of your cost per ton to grow and harvest hay with the Alabama five-year average price received by hay farmers will help you answer the question, “Are you producing hay for pleasure or profit?”

This article was prepared by Walt Prevatt, Extension Economist and Mike Davis, Regional Extension Agronomist, Alabama Cooperative Extension System, Auburn University, September 10, 2004.