

Hay Calculator

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Hay is a major crop in the state of Tennessee, and many producers are gearing up for hay season as we march into the month of May. Since 2006, Tennessee hay producers have averaged harvesting 1.86 million acres of hay a year resulting in an average hay harvest of 3.9 million tons of hay each year. A large portion of this hay is harvested by cattle producers for winter feeding needs while other portions of the hay crop are produced for other livestock such as horses. Many producers harvest and store hay out of necessity and habit. Meaning, it is often necessary to feed hay to cattle at some point during the year, but the method in which hay needs are met is out of habit.

Feed cost is often the largest variable expense in a cow-calf operation. Additionally, mechanically harvested feed cost is often times a large portion of total feed cost. What does it cost to produce a ton of hay? What factors should be considered in calculating the cost of producing hay? Can hay be economically produced given the resources of the operation or should it be purchased?

Whether growing and producing hay to sell, feed to cows, or doing custom hay work, it is imperative a producer know their cost of production to understand the value of the product being produced and packaged. Similar to other enterprises, hay production is comprised of variable and fixed costs. Variable costs include fertilizer, chemicals, fuel and oil, labor, repairs, operating interest, baling twine, etc. and are usually similar across producers. Fixed costs are cost incurred regardless of the amount of hay produced and harvested and include depreciation, taxes, interest on investment, and overhead. Fixed costs generally explain the variation in hay production costs across producers and this is mainly due to different levels of investment on equipment and the volume of hay produced. For instance, the fixed costs associated with a baler are the same regardless if it bales 20 acres of hay or 200 acres of hay. However, when the total fixed cost is divided by the larger production then the cost per ton is reduced.

After harvesting hay in May, most producers will store the hay for a minimum of five months before feeding. There are a number of methods to store hay including outside on the ground with no cover, on gravel and covered with a tarp, in the fence row under the trees, in a hay barn or shed, and many other variations. The cost of hay production is significant regardless of how much volume any one producer harvests. On top of production and harvest cost are costs associated with hay storage. Each method of hay storage has different costs associated with it and one of the major costs is associated with storage loss. Research has shown leaving bales outside and uncovered for six months results in 30 percent storage loss while net wrapped bales left outside result in 23 percent storage loss. Alternatively, hay stored in a barn averages 5 percent storage loss. The more hay lost to storage means the more hay that must be harvested to meet winter feeding demands.

Similar to losses of hay due to storage method are losses associated with feeding method. Feeding methods may include unrolling hay on the ground or feeding in a cradle, ring, cone, or trailer. Losses experienced from feeding in a cone, ring, trailer and cradle averaged 3.5, 5.5, 11.5, and 17.5 percent respectively. Losses from unrolling hay on the ground averaged 25 percent but the range of losses was as low as 5 percent and as high as 45 percent. If cattle were limit fed using the unrolling method, losses were similar to feeding in a cone or ring feeder.

Storage and feeding losses can significantly increase the cost associated with feeding cattle. If total storage and feeding losses are 40 percent then a producer will either have to produce more hay or purchase more hay to meet the needs of the operation. How much more you may ask? Well there is an app for that. Maybe there is not an app, but there is a Microsoft Excel based "Hay Calculator" developed by a group of UT Extension employees including Kevin Ferguson, Rebekah Norman and Tammy McKinley. The "Hay Calculator" as it is aptly named can help producers calculate the quantity of hay necessary to feed cattle over a certain time period as well as help calculate the cost of feeding.

The more information a producer can input into the calculator, the better the information it will provide back the producer. Some of the necessary information includes number of head to be fed, average weight of cattle, number of days to be fed, bale weight, and bale size. The calculator also allows the producer to select storage and feeding method in order to calculate hay needs and cost. In addition, the calculator also has the capability to calculate cost associated with the quality of the hay. It is necessary to have a forage test conducted to receive a useful quality analysis. The “Hay Calculator” can be found at <http://economics.ag.utk.edu/haycalculator.html> or by contacting your county agent.