What is Standing Hay Worth?

This question comes up every spring as we head into harvest of first crop hay. There are many factors that impact the value of standing hay. The value of hay will fluctuate depending on the local supply and demand, along with the amount of winterkill that occurs. The crop quality, size and location of the stand, forage mixture, and local land rental rates also impact the value. Recently major droughts over the past two years in the U.S. along with widespread winter kill in central Wisconsin in 2013 have increased the value of all types of forages.

Renting bare crop land is obviously different than renting a field of standing hay. In the latter case, you’re really buying a product that is already established, but not yet harvested. When renting standing hay ground the landowner should get, at minimum, a bare land rental price plus the cost of alfalfa establishment prorated over four years, plus the value of nutrients removed by the alfalfa crop. If he or she can’t get that minimum, then there is more value in just renting bare land without the cost associated with establishing an alfalfa crop.

Because land rental rates, fertilizer and seed costs have increased over the past few years, the base value needed for the landowner has also increased. In some cases these costs have resulted in a scenario where potential buyers can’t afford to pay the full amount that the landowner needs to replenish their fertilizer, land & establishment costs.

Even though the cost of Potassium (K) fertilizers has declined some recently, the cost to replenish the amount of Phosphorous (P) and K that’s removed from an alfalfa field still represents approximately half of the total cost for renting established alfalfa hay ground. Each ton of alfalfa forage dry mater that’s removed from a field removes 13 lbs. of Phosphorous (P2O5) and 60 lbs. of Potassium (K2O) fertilizer and smaller amounts of sulfur and boron. Using the county’s average hay yield of 4.5 tons D.M./acre that equals 60 lbs. of Phosphorous and 270 pounds of Potassium that needs to be replaced to maintain soil fertility annually.

The value of P and K nutrients removed by alfalfa is a major consideration when pricing hay ground and standing hay. Potassium is the primary nutrient removed by alfalfa. With a current value of $0.36 per pound the replacement cost of K for each ton of dry matter alfalfa is $21.60. With a 4.5 ton annual per acre yield, that adds up to a value of $97.20/acre (4.5 tons x $21.60/ton) of K that needs to be purchased to replace what was removed by the crop if all 4 cuttings are sold.

If we assume the prevailing bare land cash rent value is $160/acre (2013 USDA average for Green County) and prorated alfalfa seeding costs (planting and seed cost) are $35 per acre per year. The minimum price needed for standing alfalfa is then $195 per acre plus the value of potassium that is removed ($97/acre) we come up with a value of $292/acre that the owner needs for all 4 cuttings of alfalfa. Add to this amount another $28/acre to replace the 60 pounds of phosphorous (P2O5) that is also removed in a 4.5 ton yield and the total cost is $320/acre. This is the amount the landowner needs to cover all their land, establishment and maintenance fertilizer costs for the alfalfa stand. This price will usually need to be adjusted downward by about 15% to account for the fact that the seller will not be taking any of the weather risk in getting the hay crop harvested in a timely manner. If we subtract another 15% ($48/acre) in this example we end up with a final minimal rental cost of $272/acre.

What about the buyer’s perspective? On average, it costs about $40 to harvest a ton of forage dry matter (DM). The actual cost will fluctuate depending upon the equipment and method used for harvest, and how far the forage needs to be hauled. The buyer needs to compare the maximum amount he can pay for a standing hay crop vs. what it would cost to buy hay already harvested by another party out of the field or storage. If we project the local hay price to be at $160/ton for top quality hay at harvest time and that an acre of alfalfa will yield 4.5 tons of hay at 85% D.M. this put the maximum potential gross value of an acre of alfalfa at $720/acre (4.5 tons x 160= $720).

From this amount we need to subtract harvesting cost of $180/acre (4.5 tons x $40/ton). We also need to adjust for weather risk taken by the buyer for both harvesting a high quality and a high quantity hay crop if rented by the acre for all four cuttings. This value is usually 15-25%. If we use a discount of 20% for weather risks assumed by the buyer that deducts another $144 ($720 x .20) from the maximum potential gross value of the hay ground. The final adjustment that should be taken is to account for the amount of dry matter losses that will occur during harvest. It’s common to have a feed loss of 10% from harvest and in this example it would adjust the final price down by another $72/acre.
If we take all the deductions away from the maximum potential gross value of the acre of alfalfa hay we end up with a final value of $324/acre ($720 - $180 harvest costs - $144 risk cost - $72 feed loss = $324). This represents a maximum breakeven price for the buyer vs. purchasing hay on the market for $160/ton. The buyer would obviously want to pay something less than this amount to account for his time and labor.

It’s always more equitable to both the buyer and the seller to sell standing hay by the ton vs. by the acre. If sold by the acre one party will usually benefit over the other as yields and quality will vary a great deal due weather factors. If possible it’s best to weigh wagons, trucks or bales to get the most accurate accounting of what was actually harvested and set a per ton price. If scales are not available standard silo and silo bag charts can be used to determine final yields if both parties agree.

**Converting Hay to Haylage Price**

If the crop is chopped for haylage, the moisture content of the haylage will need to be determined to convert haylage yields to hay equivalent by the formula:

$$\text{Hay Yield} = \frac{\text{Haylage Yield} \times \% \text{ Dry Matter(DM)} \text{ at harvest}}{\% \text{ Dry Matter of Hay}}$$

For example, if 1st crop yield is 4 tons/acre of haylage at 45% dry matter, this haylage could be converted to hay equivalent as follows:

$$\frac{4 \text{ tons haylage} \times 45 \% \text{ DM}}{.87 \% \text{ DM of Hay}} = 2.06 \text{ tons of Hay}$$

Determining the dry matter content of the haylage is very important as the moisture adjustment can have a great impact on the price as buyers will not want to pay for water. To illustrate this difference below is the same example of haylage that was chopped at 34% DM. These two 4 ton yields of haylage have a difference of 1/2 ton per acre of hay equivalent.

$$\frac{4 \text{ tons haylage} \times 34 \% \text{ DM}}{.87 \% \text{ DM of Hay}} = 1.56 \text{ tons of Hay}$$

When pricing standing hay we need to consider the process from both the buyer’s and the seller’s perspective and hopefully the final numbers for each party overlap at a point that a final price can be set. From the buyer’s perspective they need to determine if they can pay local asking prices for standing hay or can they buy hay already harvested cheaper out of the field? From the sellers perspective they will need to consider fertilizer replacement costs along with local demand in setting final prices for established hay ground. The other important factor for the seller is the time of the year that the agreement is being established. Alfalfa is a time sensitive crop and many times I’ve witnessed first cutting being sold at fire sale prices due to rain delays in getting the crop harvested because they did not establish an agreement ahead of time with a buyer. Generally the seller loses more bargaining power the later it gets into the first crop harvest season without a purchase and price agreement.

Price agreements for established hay ground should always be in writing and should not be finalized until we know how the crop has come through winter. The final prices for standing forages are ultimately set by local markets based on what buyers are willing to pay since we have no futures markets for hay. The price will also vary for each farm and situation. Keep in mind that the process is more important than the actual numbers, as cash rent values, harvest costs, and fertilizer values will vary with each situation.

For example, some fields with soils that test excessively high in phosphorus will not require any to be added for several years and reducing the P levels may free up more land to spread manure on. The base cost is also going to differ by location, yield and quality of the hay. Even at today’s prices, renting or buying standing alfalfa may still be a good deal...just not quite as good as it’s been in the past. If you need hay you need to compare the cost of buying standing hay and incurring the harvest costs vs. buying hay already baled or chopped out of the field at harvest time when prices are historically at the lowest point.

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