

Valuing standing hay by plant nutrient content

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Each summer farmers and landowners have questions about the value of standing hay that they'd like to sell or buy. The question about what this hay is worth can be answered from a number of angles, but the bottom line is usually a disappointment to the person who asks the question: Standing hay is worth whatever price the buyer and seller agree is fair!

There are a lot of factors to consider when trying to arrive at a fair price for harvesting an established crop of forage. From the perspective of the owner, there are a lot of costs incurred while establishing a hay crop, including the value of the seed, fertilizer, lime, herbicides (if used), and the machinery costs to prepare the ground and plant the crop. There are also costs associated with owning the land, such as property taxes and opportunity costs (the cost of having money invested in land that could be used in a different investment such as mutual funds, certificates of deposit, etc.).

From the perspective of the buyer, there are a number of things to consider when deciding how much to pay for standing hay. Among these are the value of the crop to be harvested, the distance from the farm, the cost of being able to use land through a different means (owning or renting more land), and the cost of harvesting the crop.

It's good to consider all these factors when deciding about either buying or selling established forage. If you're the landowner, you need to consider what you would do with this crop if you didn't sell it. Is there another potential buyer for the crop, or can you use the crop yourself if the person who is interested in buying decides not to? If no one makes the hay, are you prepared to pay the additional property taxes when the land is assessed at a rate different than agricultural use value?

If you're the person who wants to buy the hay, there are also a number of things to keep in mind. Is this forage of good enough quality for you to be able to make good use of it? Can you buy forage from elsewhere at less cost than what you would have to pay to buy the standing forage and make it yourself?

There are so many variables involved in establishing a fair price for standing forage that it can sometimes seem overwhelming. One way of establishing a fair "baseline level" price for standing hay is to set aside all the variables that only affect one party or the other (property taxes, ownership costs, feed value, harvesting costs, etc.) and consider only the value of the nutrients removed in the crop. For example, a ton (dry matter basis) of typical forage removes about 12 to 15 pounds of phosphate (P_2O_5) and about 50 to 60 pounds of potash (K_2O). If the crop is mostly legumes (alfalfa, clover, or trefoil) you don't need to worry about nitrogen, but legumes will generally require periodic liming to stay productive, and (except for trefoil) generally require reestablishment every few years. Many grassy stands can stay productive for many years with minimal lime

additions, but each ton of dry matter harvested will also remove about 40 to 60 pounds of nitrogen.

Regardless of the other considerations involved (even though they are real and can be important in negotiating a final price), the value of the nutrients in the crop can be established without argument. They are definitely being removed from the land, and they are definitely being imported onto the farm that receives them--someone is losing them, and someone is gaining them. If we consider the value of these nutrients at today's prices, here's an example of what the cost of replacing them would be:

Potash: 60 lb K ₂ O (100 lb 0-0-60 at \$160/ton) =	\$ 8
Phosphorus: 15 lb P ₂ O ₅ (33 lb 18-46-0 at \$255/ton) =	\$ 4
Nitrogen (grass stands) ^a : 50 lb N (109 lb 46-0-0 at \$260/ton) =	\$14
Secondary and micronutrients	<u>\$ 3</u>

Total nutrient/lime cost (per ton of dry matter) = \$ 29

- a) Although legume stands don't require nitrogen, they typically do need periodic liming. The cost estimate for the lime will vary, but it is probably reasonable to estimate that around one-half to two-thirds of a ton of lime per acre per year is necessary to maintain pH. Based on a three ton/acre dry matter yield and lime cost of \$27/ton, this would equate to about \$4.50 to \$6 per ton of dry matter yield.

If you consider these costs in conjunction with the yield of hay taken off the land, you can calculate a fair value for the nutrients being removed. Knowing the number of bales or loads of forage removed and the weight of each will allow you to get a good idea of the yield. (Since the figures in this example are based on dry matter yields, remember to adjust for moisture when you do your calculations. For dry hay, a harvest moisture between 10 and 20% is typical, and for haylage the moisture will vary between 35 and 50%.)

To summarize, there are a lot of factors that owners and buyers should consider when calculating the price of standing hay, but most of these factors only affect one party. The value of the nutrients in the hay can be calculated quite reasonably, and should form the starting point for negotiating a price that's fair to both the buyer and seller.

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