PRICING STANDING OAT/SPRING TRITICALE HAYLAGE

Question: How do I set a price to buy a oat/spring triticale forage crop still growing in the field?

Answer: How to value a standing oat/triticale summer seeded forage crop is challenging. Assigning an appropriate value includes the buyer and seller agreeing on the market value for the forage and then adjusting for harvest costs and other factors that contribute to the price of forage sold in the open market, some of which are challenging to quantify.

In this discussion we are considering just the single crop of forage that is ready to harvest in the fall from a summer seeding (late July to early August). We assume the forage will have to be either wet wrapped as bales or stored in a silo. An accompanying Excel spreadsheet tool ("2019 Pricing Standing Oat/Spring Triticale Haylage Worksheet) simplifies the calculations described in this factsheet.

Market value of the forage

To value the standing forage in the field, one must agree on a market price for the stored forage in the marketplace. There are really no market reports available for autumn harvested oat or triticale forage. We used the SESAME™ software program to estimate the average recent range in nutrient prices across a variety of feedstuffs used in dairy rations and took that cost x the amount of the key nutrients in the oat/triticale forage. Based on oat forage containing 50% dry matter content, 18% crude protein, 50% neutral detergent fiber, and net energy lactation (NEL) of 0.6 Mcal/lb, the SESAME software had a calculated value of about $100 per ton. Forage of higher quality than this may be worth as much as $120 per ton and lower quality could be $90 to $95 per ton Forage of higher quality can be harvested at earlier stages of maturity, but that also would result in lower yield. For purposes of an example, we used $100 per ton at 50% dry matter (i.e. $200 per ton at 100% dry matter) as our base price. Adjustments should be made based on the actual dry matter content of the forage.

Adjusting price for dry matter

We assume a haylage or silage DM of 50% if actual DM is not known. If actual DM is assayed (after it is wrapped or ensiled), that value should be used to adjust the price relative to 50% dry matter.

Formula:

DM adjustment = [(actual %DM ÷ 50) x Market price] – Market price

Example: For forage stored at 55% dry matter, the price adjustment would be:

DM Adjustment = [(55 ÷ 50) x 100] - 100 = $10.00/ton.

So adjusted price for DM is $100 + $10 = $110 per wet ton at 55% DM.

Discounting for risk

A farmer purchasing the standing forage crop is assuming risk. Will it rain after it is cut and before baling or chopping? If chopped, will it ferment properly if not at the ideal moisture content? Can it be harvested at exactly the right time? What will the final nutrient content be? Risk associated with rain damage or poor fermentation because the forage had to be baled too wet because of rain is hard to quantify. Our recommended estimate is 20% for haylage or silage. This adjustment should be made to the market price.

Formula:

Risk+shrink adjustment = Market price of wet forage x (20/100)

Example: Risk plus shrink discount is 20% of market value

Risk+shrink adjustment = $110 x (20/100) = $22

This should be subtracted from the market price adjusted for dry matter. Therefore, the market price in this example, adjusted for dry matter and risk+shrink is $110-$22 = $88/wet ton.

Adjusting for feed value

As long as the nutrient composition does not vary tremendously from the assumed values mentioned above, any change in composition would have a very small impact on the price of this oat forage. The nutrient composition described above was for oat or spring triticale forage in the heading stage in October to early November. This is the most likely time that this forage would be harvested for haylage or silage. Nutrient value would begin to deteriorate after the first week of November, and then the value of the forage should be adjusted downward.

Grower's (Seller's) perspective

The grower's (seller's) base price equals the price they could receive for the crop from the hay market less harvesting/storage/marketing costs, since those costs are being assumed by the buyer. Hopefully, this price covers production costs and generates a profit. The seller's variable costs include land preparation

(burndown herbicides, tillage), seed, planting, and any fertilizer applied. Normally with a single harvest crop like oat or spring triticale, the grower is likely to only apply nitrogen fertilizer. But the value of the phosphorus and potassium removed in the forage is also a cost to the grower, and those can be calculated. One can assume each dry ton of forage removes about 13 lb of P_2O_5 and 50 lbs K_20. The current price per lb of P_2O_5 is $0.505 and for K_20 it is $0.317, based on our current enterprise budgets.

Formulas:
$/acre value of P_2O_5 = *forage tons/acre x (%DM/100) x 13 lbs/ton x $0.505*

$/acre value of K_2O = *forage tons/acre x (%DM/100) x 50 lbs/ton x $0.317*

Example: Oat balage harvested was 5 tons per acre at 55% DM,

$/acre value of P_2O_5 = 5 x (55/100) x 13 x 0.505 = $18.05
$/acre value of K_2O = 5 x (55/100) x 50 x 0.317 = $43.59

Buyer's Perspective

The market value of a harvested crop includes the cost of harvesting. When a crop is sold standing in the field, the cost of harvesting transfers from the seller to the buyer and should be deducted from the market price that the buyer can pay. If a farmer does not know their costs for harvesting a ton of hay, it is possible to rely on reasonable estimates. OSU Extension and Extension services in other states survey and publish agriculture custom rates. These provide a reasonable estimate of harvest costs. The most recent "Ohio Farm Custom Rates 2018" publication is found here:
https://farmoffice.osu.edu/farm-management-tools/custom-rates-and-machinery-costs

Custom rates for mowing plus conditioning, and raking are reported on a per-acre basis. When setting a price before yield is known, one approach is to calculate the cost of mowing and preparing the haylage for harvest per acre times the number of acres and deduct this total cost from the final invoice. Another alternative is to divide the total harvest cost by the final yield in tons per acre once harvest is complete and deduct that cost from the market price per ton before payment is made.

If wet wrapping bales, the cost of baling different sizes and types of bales are broken down on a per-bale basis with references to the weight of the bales. With this information, cost of baling can be calculated per ton and deducted from the market price per ton. For instance, the 2018 average reported custom rate for baling 600 to 1,000 pound round bales with wet wrap is $14.10 per bale. If we assume an 800 pound bale, the per ton cost of baling is (2,000/800) x $14.10 = $35.25 per ton. This is deducted from the market price.

Hauling the hay from the field a reasonable distance to storage is the final cost that is transferred from the seller to the buyer. While Ohio does not have data for this

activity in our Custom Rates publication, the University of Iowa reports in their 2019 Iowa Farm Custom Rate Survey an average cost of $2.65 per large round bale (8 farms reporting) or $0.24 /bale/loaded mile by truck or trailer (6 farms reporting). Translating this to a per ton price requires knowing the average weight per bale. Assuming the same 800 pound bales that we baled above, at $2.65 per bale, the cost to haul is (2,000/800) x $2.65 = $6.62 per ton which should also be deducted from the market price.

Alternately to wet wrapping and transporting to the storage location, the buyer might put up the forage in a silo. Using enterprise budgets from several other states, a good average value was $50 per acre for chopping, hauling, and silo filling. The operations might be each charged separately on either a per ton or per acre basis, so calculate the total cost and convert to a per acre basis for use in the accompanying Excel spreadsheet tool.

To summarize:

1) Assume a market price near $100 per ton for 50% dry matter for oat or spring triticale forage. That value can be adjusted between $90 and $120 per ton at 50% dry matter depending on value relative to the nutrient parameters described above.
2) Calculate and apply adjustments to the market price for actual dry matter content of harvested forage (if known) and for risk and shrink assumed by the buyer.
3) Determine seller variable costs and calculate the lowest price the seller can accept (to cover cost of growing the forage)
4) Determine harvesting costs and calculate the ceiling (breakeven) price that the grower can pay without losing money on the deal.

Pricing a standing hay crop spreadsheet tool

A spreadsheet tool is available to assist with calculating a buyer's breakeven price for a standing crop. That price is the ceiling, or highest price a buyer could pay in order to breakeven with the assumed costs and risks. The spreadsheet is available at http://go.osu.edu/standing_oat_forage_price-tool .

Setting the final price

Setting the final, fair price for a hay crop rests on an understanding of the needs of both the buyer. It is critical that both parties agree on price, payment method and timing, crop yield measurement, restrictions, and similar details ***before the crop is harvested!*** Ideally, the agreement should be in writing and signed by both parties. These agreements are especially important when large quantities of crops (and money!) are involved. While this type of contracting may be uncomfortable for some producers, mainly because they are not used to

conducting business on more than a handshake, it forces the parties to discuss issues up front and minimizes troubling misunderstandings after harvest.

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