



## Grass Sensitivity to Cutting Height

Cool-season perennial forage grasses are generally more sensitive to cutting height than alfalfa, but grass species and cutting frequencies vary. Alfalfa stores most of its energy reserves for regrowth underground in its crown and taproot. For alfalfa, we generally recommend cutting as low as possible to capture maximum yield regardless of cutting frequency. Grasses, however, store most of their energy reserves for regrowth in the lower stem bases (when stems are present). Residual leaf area below cutting height, can also be a powerful source of grass regrowth energy via immediate photosynthetic capacity.

Grasses cut infrequently (2-3 cuttings/year) have relatively less basal leaf area, and are more dependent on lower stem energy reserves for regrowth and should not be cut too short (leave about 4" of residual). Grasses cut more frequently (4 or more cuttings/year) should be cut at a height that leaves some residual leaf area. The impact of cutting frequency and height on grasses mixed with alfalfa was demonstrated in classic Wisconsin research conducted over 35 years ago (Table 1).

*Table 1.* Spring stands of several grasses grown in rows with alfalfa and harvested with different schedules and stubble heights the previous two years at Arlington, WI (Source: Smith et al., 1973)

Grass Species	4 cuts/year (%)		3 cuts/year (%)	
	1½"	4"	1½"	4"
Orchardgrass	100	100	97	100
Reed canarygrass	87	100	95	99
Tall fescue	99	100	89	100
Smooth brome	36	91	10	70
Early timothy	39	91	22	80
Late timothy	75	96	2	55

Grass sensitivity to cutting height can be used as a tool to balance mixtures with alfalfa. For example, frequently cut

orchardgrass or tall fescue tend to have an abundance of basal leaf area below cutting height that results in rapid regrowth. If conditions are dry, alfalfa's superior drought tolerance will enable it to compete; but under moist conditions that favor cool-season grass growth, these grasses can outcompete alfalfa due to their rapid regrowth at taller residual heights. Under dry summer conditions, a somewhat taller residual height (~4") will favor a more balanced mixture. Under relatively cool and moist conditions, a shorter residual (~2") will slow down grass regrowth and enable alfalfa, with its slow initial regrowth after cutting, to compete.

Another advantage to summer cutting schedules and heights that leave more residual grass leaf area is better soil shading; thus reducing soil temperatures, moisture evaporation, and weed seedling emergence opportunities.

Grass cutting height can also be used to manipulate the forage stand. In a 2007 greenhouse trial (conducted at Miner Agricultural Research Institute) cutting first-year reed canarygrass 2" high killed every plant, but plants cut at 4" regrew to 16" in 21 days. Some researchers attribute recent orchardgrass stand loss problems to cutting the grass about 2" high, and now recommend leaving 3-4" of orchardgrass stubble in an attempt to limit winter injury.

The decision on alfalfa-grass mixed stand cutting height should be made based on field conditions, the needs for acreage, and the grass species planted. If alfalfa is the predominant forage, treat the field like an alfalfa field and cut a 2" (unless it is the last cutting in the fall, then cut at 5"). If the field is mostly grass, then raise your cutting height to 4".

*Authors: Paul Peterson, UM Extension; and Ev Thomas, Miner Agricultural Research Institute.*

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### Programs and Events

**Central MN Forage Council Field Day**  
John Traut Farm  
Sartell, MN  
**August 19**  
Contact Dan Martens  
800-964-4929

**Beef and Forage Day**  
Grand Rapids, MN  
**August 20**  
Contact Ryan Walker  
888-241-0719

**Corn Silage Plot Tour**  
Dan Dryer Farm  
Ottertail City, MN  
**August 29**  
Contact Doug Holen  
888-241-0843

**IAP Forage Day**  
UMore Park  
Rosemount, MN  
**September 10**  
Contact Dave Nicolai  
612-625-2778

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# Summer Seeding For Forage Crops

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Establishment of a productive stand is a major hurdle for many forage producers. Weed control is usually a major problem for those who seed in the spring. Late summer seeding is an option that may improve the probability of achieving a productive stand.

**Timing.** Alfalfa seedlings need six to eight weeks of growth before a first killing frost. In northern Minnesota, the recommended window for conventionally tilled legume summer seeding is between July 20<sup>th</sup> and August 1<sup>st</sup>. In southern Minnesota, seeding between August

1<sup>st</sup> and 15<sup>th</sup> is recommended. No-till forage seedings in northern MN can be done as late as August 15<sup>th</sup> and as late at September 1<sup>st</sup> in southern MN.

**Lime.** A soil pH above 6.5 improves the probability of establishing forage legumes. Apply lime, if needed, before seeding. The lime should be incorporated to a depth of 4 to 6 inches. Improved nodulation is a benefit of lime use. Lime has little or no value if top dressed on the surface of established stands.

**Fertilizer.** An adequate, but not excessive, supply of plant nutrients in

the top 6 inches of the root zone can improve the probability of a successful establishment. The rates needed are determined from the results of a soil test.

**Seed Bed.** Forage producers who seed into a firm seedbed have a higher percentage of successful establishment.

More information can be found at [www.nwroc.umn.edu/Cropping\\_issues/CroppingIssues.htm](http://www.nwroc.umn.edu/Cropping_issues/CroppingIssues.htm) and <http://www.extension.umn.edu/cropenews/2007/07MNCN33.htm>.  
*Author: Will Yliniemi, UM Extension.*

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## Hay Prices and Pricing Hay

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Sorry, I'm not going to calculate a hay price for you here. My goal is to identify a couple of things I think people should consider and a couple of resources that might be useful.

First, know YOUR numbers and plug into YOUR brain. As a buyer or seller, what works for you? In the end, the buyer and seller are working toward a price that gives both a reasonable chance to make a living - a return for their share in labor, management, capital, and risk. Here are a couple of resources that might be helpful to you:

Wisconsin Extension, spring 2008 "Pricing Standing Hay" outlines factors to consider as the buyer or seller and provides an Excel spreadsheet for plugging in your own numbers. [http://www.uwex.edu/ces/forage/pubs/price\\_standing\\_forage.pdf](http://www.uwex.edu/ces/forage/pubs/price_standing_forage.pdf).

For the landowner, many articles suggest an investment return on the value of the land as one factor. This is valid. Keep in mind - there are situations where the price someone can afford to pay for harvesting hay from the land will not cover a targeted return on the land value because of other factors affecting land values.

Rory Lewandowski, Ohio State Extension Educator, posted an article recently calculating hay value based on

the value of nutrients removed with the crop plus the cost of harvesting. This is posted at <http://ohioagmanager.osu.edu/news/7-08.php>. I'd make two points. Don't translate this into endorsement of making fertilizer decisions based on crop removal rates - that's a different discussion. Sometimes supply and demand in the market place means the price might be more or less than this.

Comparing markets. USDA provides market information for a variety of feeds, including hay. Go to <http://www.ams.usda.gov/AMSV1.0>. On the left side of the page pick "Market News and Transportation Data." Then in the middle of the page pick "Livestock, Meats, Grain and Hay." Then you'll see a listing for "Hay." For the week ending July 25, 2008, the price for large square bales of alfalfa listed as "Premium Grade" (RFV 150-180) was listed as \$130/Ton for 1 load at Pipestone MN, at Rock Valley IA \$115-120, East River area of South Dakota at \$160-170; in Nebraska \$180-200, and in Idaho \$210-235. It may be good to ask, "Are the dynamics in a different market area relevant for where you're buying or selling hay?" You can also track MN hay prices at Sauk Center

(September - May) at <http://www.extension.umn.edu/cropenews/hay/index.html>.

Price based on other commodities. There are formulas for calculating hay and other feed prices based on the price of other sources for fiber, protein, and energy - commonly soybean meal for protein and corn for energy. What if distiller products or another feed material is a cheaper source of energy or protein? Would you use that as a base for comparisons? Availability, feasibility, and convenience in using alternative feeds might be factors in what gets used for a comparative value for individual farms.

The MnSCU Farm Business Management programs provide excellent tools for learning how to get at your numbers. Go to <http://www.mgt.org>. FINBIN is a web database of farm management analysis information in Minnesota at <http://www.finbin.umn.edu>.

Consider what's important to you in the market place. Know your needs and your numbers related to income, expenses, and goals. Your voice should be part of "what the market says." *Author: Dan Martens, UM Extension.*

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# What Should I Be Paying For Corn Silage?

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“What is a fair price for corn silage?” is a question I have received often over the past summer. The best answer is: “Whatever price the buyer and seller can agree on.” But that is sometimes easier said than done. With the ever changing cost environment, it can seem hard to come up with a “fair” price for both parties. Does the traditional method of pricing corn silage – multiplying the price of a bushel of corn by 7 to 8 still hold true in today’s market with much higher crop values and higher harvesting costs?

This traditional formula was simply based on the average amount of corn grain that a ton of corn silage contains. With more dairy producers purchasing standing corn silage, they are looking for a more accurate way to determine a value based on its feed value. Fortunately, with today’s more sophisticated forage tests it is easier to estimate the feeding value of corn silage. It is important that both buyer and seller approach the negotiation with a good faith effort and an attitude that both parties need to win for a successful long term relationship. For the seller, a starting point is to value standing corn silage based on the value of the corn minus the cost of harvesting, drying and hauling to market. For the buyer, a starting point should be the value of nutrients compared to alternatives. Since corn silage is a combination of corn grain and stover

(leaf and stem material) it makes sense to determine the monetary value based on the nutritional value of corn grain and a similar stover forage like straw or grass hay minus the harvesting cost and storage shrink. These two values provides a window to begin negotiation between the buyer and seller.

University of Minnesota dairy nutritionist Jim Linn developed a formula taking into account the nutritional content of corn silage. This formula is based on the starch content of the corn silage and places a value on the stover portion as well. It also includes an adjustment for NDF digestibility if that is known. Sterry, Milligan, and Lauer at the University of Wisconsin developed an easy to use spreadsheet and further refined the formula to adjust for harvesting costs, shrink, quality adjustment and the fertilizer value of the harvested stover. The results are two different values per ton. One is the minimum value for the seller based on the value of the corn and stover adjusted for harvesting costs. The other is the maximum value that the buyer should pay based on feeding value and the cost of harvesting. This provides an excellent starting point for negotiating a fair price. The spreadsheet is titled “Corn Silage Pricing Decision Aid” and is

available at: <http://www.uwex.edu/ces/crops/uwforage/Silage.htm>

Using typical corn silage values along with current grain prices and estimating the other costs, the current value of standing corn silage was between \$38 and \$49 per ton, according to the spreadsheet. Surprisingly the old tried and true equation that a ton of standing corn silage is worth about 7-8 times the price of a bushel of corn is very close to this number. There are other factors that may affect the final agreed upon price. If the dairy producer provides manure back to harvested fields the price should be adjusted. This is currently not part of the spreadsheet. What will the payment terms be – cash up front, or monthly payments made during the year? When will the value of corn be determined?

To develop a successful long term relationship between buyers and sellers, it must be a win-win situation for both. The seller’s corn crop will be harvested earlier and harvesting, drying, and hauling costs will be eliminated. The buyer will acquire a consistent supply of high quality feed at a fair price. If you need more help in determining a fair price, work with your nutritionist or call your local extension office.

*Author: Jim Salfer, UM Extension.*

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## Update on CRP Hay and Grazing

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The USDA recently released 24 million acres of Conservation Reserve Program (CRP) land for haying and grazing in drought stricken areas.

A temporary restraining order against grazing CRP lands was recently lifted. Farmers who had signed up for the Critical Feed Use (CFU) Program by July 8 will be allowed to hay or graze CRP lands. Farmers who can prove they had spent \$4,500 or more with the expectation they would be allowed to participate in the program can also

hay or graze CRP lands.

The Farm Service Agency (FSA), the federal agency charged with administering CFU, can continue processing applications received before July 8. There is no cap on the number of CRP acres that can be hayed or grazed nationally.

How that haying and grazing on CRP lands can begin, livestock owners should be cautious if they are purchasing CRP hay. CRP land can contain poisonous plants and small trees. The hay will also likely be low in

quality, but may be less expensive. Grazing CRP lands is less of a concern as most livestock will avoid (unless very hungry) most poisonous plants and other weeds.

If purchasing hay from CRP land for livestock use, inspect the bales carefully for poisonous plants, and have the hay tested for nutritional quality.

Contact your local FSA office for more information.

*Author: Krishona Martinson, UM Extension.*

Lisa Behnken  
Crops Extension Educator

Neil Broadwater  
Dairy Extension Educator

Vince Crary  
Otter Tail Co. Extension Educator

Jeff Coulter  
Extension Corn Specialist

Doug Holen  
Crops Extension Educator

Dan Martens  
Benton Co. Extension Educator

Krishona Martinson  
Crops Extension Educator

Russ Mathison  
NCROC Forage Agronomist

Dave Nicolai  
Crops Extension Educator

Jim Paulson  
Dairy Extension Educator

Paul Peterson  
Extension Forage Agronomist

Jim Salfer  
Dairy Extension Educator

Troy Salzer  
Carlton Co. Extension Educator

Jim Stordahl  
Polk Co. Extension Educator

Ryon Walker  
Beef Extension Educator

Will Yliniemi  
Becker Co. Extension Educator

## Newsletter Editors

Krishona Martinson  
bjork026@umn.edu  
763-767-3842

Paul Peterson  
peter072@umn.edu  
612-625-3747

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# Beef Forage Research Update

The livestock industry has been faced with many challenges over the last several years. Cost of production has increased 25% for the cow/calf producer and 56% for the cow/calf through the feedlot phase since 2005. This rise in production cost is directly due to high feed, fuel, and fertilizer prices.

With the rise in production cost, forages have become a more valuable commodity. Researchers at the North Central Research and Outreach Center in Grand Rapids, MN has been looking at ways to extend the grazing season so that cattle spend fewer months on feed in the winter.

Since 2005, work in Grand Rapids has focused on grazing stockpiled forages in the fall with swath (cut into windrows) grazing showing the most promise. Researchers have been able to extend the grazing season from 30 to 60 days. Windrow grazing has been initiated in early November, and cattle graze the forage (through as much as 18 inches of snow) with little effect on performance (Figure 1).

Figure 1. Swath grazing cattle



In 2006, researchers compared swath grazing to feeding haylage and reported that cows grazing annual ryegrass windrows gained 2.0 vs 1.9 pounds/head/day, grazed for 35 days vs 27 days, and cost/head/day was \$0.35 vs \$1.26. In 2007, researchers compared swath grazing to stockpile (standing forage) grazing and reported cows grazing annual ryegrass windrows gained 0.4 vs -0.4 pounds/head/day, grazed for 31 days vs 38.5 days, and cost/head/day was \$0.14 vs \$0.08.

In terms of forage type and quality, annual ryegrass has worked the best with crude protein and total digestible nutrient averages over three years being 16% and 63% respectively. With the focus to provide more forage throughout the year, future research in Grand Rapids will look at establishing annual forages and turnips in early spring in winter feeding areas. This concept will take advantage of the nutrients left from cattle wintered in these areas to provide additional grazing, particularly during the mid-summer slump. These systems will in turn provide longer rest periods for cool-season forage pastures.

For more information on beef related research and information, visit the Beef Team website at [www.extension.umn.edu/beef/](http://www.extension.umn.edu/beef/).  
Author: Ryon Walker, UM Extension.

## Forage Day at Rosemount on September 10

The University of Minnesota Extension Forage Team and Institute for Agricultural Professionals (IAP) are hosting an educational event for Ag Professionals September 10 at UMore Park in Rosemount. UMore Park is the primary site of University of Minnesota forage research. The day will feature interactive classroom and outdoor learning activities and will run from 9:00 am to 4:00 pm. CCA CEU credits will be available.

Topics will include forage fertilization and manure management, forages for bio-energy, forage quality and nutrition, rotational grazing, winter feeding area

management, alfalfa variety trials, alfalfa harvest scheduling and its effect on nitrogen credits for corn, legume/grass mixtures, forage identification, pest management, and forage seeding with small grains. The University of Minnesota Extension staff, scientists, and USDA-ARS scientists will lead the program. Program details will be available on the U of M Forage Website at [www.extension.umn.edu/forage](http://www.extension.umn.edu/forage) and on the IAP Website at <http://iap.umn.edu/>. Contact Dave Nicolai at 612-625-2778 for further information or with questions.  
Author: Paul Peterson, UM Extension.