

What Hay Is Right For Your Livestock

Tom Gallagher

Capital Area Agriculture Horticulture Program
Livestock Specialist

What Have We Learned So Far?

- Renovate fields
- Establish new stands
- Maintain existing stands

Harvesting

- Haying equipment needed
- Dry hay making large round & square bales
- Making balage

Storage

- Round bales wrapped or stacked dry
- Round bales wrapped or ensiled balage
- Square bales in a barn
- Knowing what you have

Determining Forage Quality

- Forage testing
- Forage quality
- Reading forage test results
- Feed value terms

Forage Quality

- Determines feeding value and price
- Determines Dry matter Intake (DMI)
- Determines what livestock you will feed it to and when
- Determines who you will sell it to or who will buy it

Feeding Hay To Livestock

- Horses
- Cattle
- Goats
- Sheep
- Alpacas

Factors To Consider When Choosing A Hay To Feed

- Clean hay
- Nutrient value
- Type of animal being fed
- Maturity

Clean Hay Free Of Mold And Dust

Causes of Moldy or Dusty Hay

- Rained on after it was cut
- Baled too green (over 15% moisture)
- Baled too dry
- Improper storage
- Weeds
- Feeding on the ground
- Floods

How To Determine If Hay Is Moldy Or Dusty

- See the mold on the outside of the bale
- Smell the mold
- See the mold or dust when feeding
- The bale feels wet or hot
- Heavy bales

Nutrient Value Of Hay

Legumes-

- High in protein 15-20%
- High in energy (ton) 48-55%
- High in calcium 0.9-1.5%

Grasses-

- Protein 7-11%
- Energy 42-50%
- Calcium .3-.5%

Why the wide ranges legume to legume or grass to grass.

Matching Hay Type To The Horse

Not all horses have the same nutrient needs

- High nutrient requirements
 - Growing horses
 - Lactating mares
 - Working draft breeds
 - Racing horses

Early-maturity alfalfa, alfalfa grass or grass hay are more palatable and higher in nutrients. A grain supplement may also be needed.

Matching Hay Type To The Horse

- Low nutrient requirements
 - Pleasure horses only ridden weekly
 - Draft horses not used for work
 - Barren mares

Mid to late maturity hay is all that is needed

*Note- Clovers and Fescue are a problem with horses

Feeding Hay To Beef Cattle

- Moldy hay
 - Nutrient value can be reduced by 15-20%
 - Moldy hay should not make up more than 30% of the ration
 - Animal will eat less
 - Mycotoxins not a problem in cattle

What Can A Beef Cow Eat

- 2%-2.5% of their body weight in dry matter
- 1000lb cow x .025=25lb dm/day
- 25lb dm=about 30lb dry hay

High Nutrient Requirement From Hay

- cows nursing calves
Growing heifers
- Pregnant heifers and cows last 60 days of pregnancy
- Bulls after breeding season
- Steers under 850lbs

Low Nutrient Requirements From Hay

- Dry Cows
- Bulls maintenance
- Feedlot cattle over 850lbs

Other Factors That Affect Nutrient Requirement

- Breed
- Sex
- Age
- Hide
- Weather conditions
- Physical activities
- *Note- Selenium deficiency is a problem

Nutrient	Requirement (g/day)
Water	10-15
Protein	10-15
Energy	10-15
Minerals	10-15
Vitamins	10-15

Body Weight (lb)	Daily Gain (lb)	Dry Matter Intake (lb)	Crude Protein		TDN		Ca (%)	P (%)
			lb/day	% of DM	lb/day	% of DM		
Heifer calves								
400	1.5	10.2	1.17	11.4	7.0	68.5	0.45	0.24
500	1.5	12.1	1.25	10.3	8.3	68.5	0.38	0.22
600	1.5	13.8	1.32	9.5	9.4	68.5	0.32	0.21
Pregnant yearling heifers-last third of pregnancy								
750	1.4	16.6	1.5	8.9	10.0	59.9	0.32	0.21
850	0.9	17.6	1.4	8.2	9.6	54.5	0.26	0.20
950	0.9	19.0	1.5	8.0	10.3	54.1	0.27	0.20
Dry pregnant mature cows-middle third of pregnancy								
1000	-	18.1	1.3	7.0	8.8	48.8	0.18	0.18
1100	-	19.5	1.4	7.0	9.5	48.8	0.19	0.19
1200	-	20.8	1.4	6.9	10.1	48.8	0.19	0.19
Dry pregnant mature cows-last third of pregnancy								
1000	0.9	19.6	1.6	7.9	10.5	53.6	0.26	0.21
1100	0.9	21.0	1.6	7.8	11.2	53.2	0.26	0.21
1200	0.9	22.3	1.7	7.8	11.8	52.9	0.26	0.21
Two-year-old heifers nursing calves-first 3 to 4 months postpartum; 10 lb milk per day								
800	0.5	17.6	1.9	10.8	11.2	63.8	0.34	0.24
900	0.5	19.2	2.0	10.4	12.0	62.7	0.32	0.23
1000	0.5	20.8	2.1	10.0	12.9	61.9	0.31	0.23
Cows nursing calves-first 3 to 4 months postpartum; average milking (10 lb/day)								
1000	-	20.2	2.0	9.6	11.0	56.6	0.28	0.22
1100	-	21.6	2.0	9.4	11.5	56.0	0.27	0.22
1200	-	23.0	2.1	9.3	12.1	55.5	0.27	0.22
Cows nursing calves-first 3 to 4 months postpartum; superior milking (20 lb/day)								
1000	-	20.6	2.5	12.3	13.8	67.0	0.39	0.27
1100	-	22.3	2.6	11.9	14.5	65.2	0.38	0.27
1200	-	23.8	2.7	11.5	15.2	63.7	0.36	0.26
Bulls-maintenance and slow rate of growth (regain condition)								
1400	2.0	27.7	2.2	8.0	17.8	64.0	0.25	0.20
1600	1.0	29.7	2.2	7.3	16.6	55.8	0.22	0.19
1800	0.5	30.9	2.2	7.0	16.1	52.0	0.20	0.20

Vitamin A requirement for (1) pregnant heifers and cows = 1270 IU per lb dry feed; (2) lactating cows and breeding bulls = 1770 IU per lb dry feed.

Source: NRC. 1984. Nutrition Requirements of Beef Cattle (6th Ed). National Academy Press, Washington, D.C.

Feeding The Right Hay To Sheep At The Right Time

- Feed a medium quality grass hay to ewes during maintenance and early gestation
- A mixed grass-legume hay should be fed to ewes in late gestation (limit feed)
- Lactating ewes should be fed a pure alfalfa or mixed grass mostly alfalfa hay to meet protein and calcium needs
- Lambs being raised for replacement or for sale should receive mixed mostly legume hay for growth
- Ewes 2 weeks before breeding should be fed a mixed grass mostly legume hay

Feeding Hay To Your Goats

- Goats, both dairy and meat goats, prefer hay that is highly digestible. NDF below 35%
- Feed mixed mostly legume hay to:
 - Kids
 - Pregnant does
 - Lactating does
- Feed a medium quality grass hay to:
 - Mature goats

Goats prefer browse and forbes which are highly digestible

Stretching Your Hay Supply With Corn Grain

1 pound of corn can replace 2lb of medium quality hay on a TDN basis

Corn- \$4.50 bushel \$.08lb

Medium quality hay- \$145-\$210. ton \$.08lb

Ruminants should be fed at least 1lb of hay per 100lb body weight

Comparative value for hay (\$/ton) based on TDN level of a hay sample for a range of corn prices (\$/bu) assuming similar dry matter percentages and corn having 88% TDN

TDN%	\$4.40	\$4.80	\$5.20	\$5.60
50	\$89.28	\$97.40	\$105.52	\$113.64
54	\$96.42	\$105.20	\$113.96	\$122.72
58	\$103.58	\$112.98	\$122.40	\$131.82
62	\$110.72	\$120.78	\$130.84	\$140.90

Questions?

Tom Gallagher, CAAHP, Livestock Specialist

tjg3@cornell.edu

Office-518-765-3500

Cell- 518-577-0958