

Do you have enough forage this year?

Frequently we experience very challenging years in terms of hay harvesting and corn silage production. Not only are yields down but the quality of the forage are low for the most part. Many years livestock producers will ask, “Will I have enough forage this year for my livestock?”

This factsheet helps you find the answer to that question.

First you need to determine how much forage you will need this year. This depends on the type of livestock you keep, number of head, age, weight, level of production, etc. Then you need to determine how much forage you have on hand. You need to know the volume of your storage and the density of the forage.

These tables detail forage needs on a hay equivalent basis of 88-90% dry matter; conversion to 35% dry matter silage can be done by multiplying the table contents by 2.6 (90% dry matter hay/35% dry matter silage). Please note Table 1 details TONS of forage required per month and accounts for feeding losses in dry matter. Table 2 details POUNDS of hay per day / month / number of bales per month. An additional 5-15% loss in forage dry matter will occur during storage depending on forage management.

Determine How Much You Need.

Table 1. Average Amount of Forage Needed Per Month for Dairy Cows (Ave. 1,350 lbs.)			
	Low Quality 0.47 – 0.54 Mcal/lb.	Medium Quality 0.55 – 0.59 Mcal/lb.	High Quality Over 60 Mcal/lb.
	Forage Needed (Tons)		
Lbs. 3.5 Fat Corrected Milk			
19,000	0.38	0.42	0.44
15,000	0.41	0.44	0.46
11,000	0.44	0.46	0.48
Dry	0.39	0.39	0.39
Heifers			
Birth – 6 months	0.08	0.09	0.1
6 – 14 months	0.19	0.21	0.22
14 – 24 months	0.29	0.31	0.33
Av./ Heifer / month	0.2	0.22	0.23
Source: 1992 Interactive Television Dairy Nutrition Course Notebook, UMCE.			

Table 2. Approximate Amount of Hay Needed By Animal Unit for all other livestock			
Animal Unit	Pounds of Hay per Day	Pounds of Hay per Month	No. of 40 pound bales per month
1	20	600	15
2	40	1200	30
3	60	1800	45

Table 3. Animal Units	
It is assumed that one mature cow represents an animal unit or 1,000 pounds. The comparative feed consumption of other age groups or species of animals determines the proportion of an animal unit that they represent.	
Type of Livestock	Animal Unit
Beef Cattle:	
Cow, with or without unweaned calf at side	1.0
Heifer, 2 years old or older	1.0
Bull, 2 years old or older	1.3
Young Cattle, 1 to 2 years	0.8
Weaned calves to yearling	0.6
Horses:	
Draft Horse	1.7
Light Horse, mature	1.3
Light Horse, yearling	1.0
Weanling colt or filly	0.75
Sheep:	
5 Mature ewes, with or without lambs at side	1.0
5 Rams, 2 years old or older	1.3
5 Yearlings	0.8
5 Weaned lambs or yearlings	0.6
Source: Feeds and Nutrition, M.E. Ensminger, J.E. Oldfield, W.W. Heinemann, Ensminger Publishing Co., 1990.	

Determine How Much You Have:

Table 4. Hay Shed Capacity With 20' High Sidewalls		
Width, Feet	Baled Hay Tons/Foot of Length	
24	2.0	
30	2.6	
36	3.1	
40	3.4	
48	4.0	
Density Values		
	Cu. Ft./ Ton	Lbs./ Cu. Ft.
Alfalfa	200 – 330	6 – 10
Non- legume	250 - 330	6 – 8
Straw	400 – 500	4 – 5
Source: Dairy Housing Handbook, MWPS – 7		

Table 5. Bunker Silo Capacities				
Average Width	Average Depth of Silage in Bunker			
	8 ft.	12 ft.	16 ft.	20 ft.
	Tons Dry Matter per One Foot of Length			
12 ft	0.53	0.78	1.1	1.3
15 ft	0.66	1.0	1.3	1.7
20 ft	0.90	1.3	1.8	2.2
30 ft	1.3	2.0	2.6	3.3
40 ft	1.8	2.6	3.5	4.4
50 ft	2.2	3.3	4.4	5.5
Source: Managing Dairy Feed Inventory, University of Wisconsin, W. T. Howard, V. Wagner, and H. Larsen.				

Table 6 Round Bale vs. Square Bale			
Size of Round Bale	Equivalent Number of Square Bales		
	40 lb. Bale	50 lb. Bale	60 lb. Bale
4' Diameter (600 lb.)	15	12	10
5' Diameter (1,000 lb.)	25	20	16-2/3
6' Diameter (1,400 lb.)	35	28	23 -1/3
Note: Losses due to weathering can vary from 11% to 44% for round bales left outside			

Table 7. Approximate Dry Matter Capacities of Tower Silos (Tons)					
Silo Height (ft)	Silo Diameter (ft)				
	12	16	20	24	28
24	15	27	43	61	83
32	23	41	65	93	127
40	32	57	89	127	173
48	42	74	115	166	226
56		93	144	207	282
64			174	250	340
72				293	400
80				334	455
*Capacities allow one foot unused depth for settling in silo up to 30 ft high, and one additional foot for each 10 ft beyond 30 ft height.					
Source: ASAE (1985) as presented in, Silage and Hay Preservation, NRAES – 5.					

Plan for this Year:

Consider a late harvest on some fields
Purchase forage from other farmers (purchase now, don't wait until late spring)
Feed more grain and less hay
Cull low producing animals
Reduce herd size
Feed high fiber byproduct feeds to extend forage supplies

Plan for Next Year:**Fertility Management**

Soil test hay fields now
Maintain soil pH at 6.0
Top dress with phosphorus and potash as required
Apply potash this fall to legume fields
Apply nitrogen in early spring to fields with over 75% grass
Apply nitrogen fertilizer to grass fields after first cutting, if cut before July 1st.

Harvest Management

Plan to start harvest the first week in June (have supplies and equipment ready June 1st)
Plan to harvest second cutting
Consider implementing an intensive grazing program and extend the grazing season into late fall and early spring to reduce stored forage needs.

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