



Forage Management

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INVENTORYING FORAGE

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With low forage yields, knowing what you have in inventory is critical to plan for how to best manage this feed to get through the coming year. It will affect decisions such as:

- Do I have enough feed for the milking herd and young stock?
- Do I need to look at fillers for the ration to stretch forage inventories?
- Should I cull unproductive animals?
- Do I have more youngstock than I need?

First, you can calculate just how much forage you need by calculating what you are feeding each day, and how many days you will need to feed prior to next year's harvest. Helpful tools to calculate inventory needs are at: <http://www.ansci.cornell.edu/dm/factsheets.html>

If you have a fixed structure such as an upright silo, you likely know in general how long a full silo will last, though the dry matter (DM) content of forage can have a large impact on just how much feed is there and how long it will last.

Upright Silos

For tower silos, Table 1 shown here is from the Cornell Dairy Nutrition Factsheet series "Determining your current forage inventory" located on the web at:

<http://www.ansci.cornell.edu/dm/factsheets.html>. This website offers a number of other helpful factsheets related to forages and feeding, as well as worksheets to print and fill in your own numbers to help make calculations for your herd.

	Silo Diameter, (feet)				
Silo Height, feet	12	16	20	24	28
20	12	21	33	47	65
24	15	27	43	61	83
28	19	35	53	76	104
32	23	41	65	93	127
36	28	48	76	109	150
40	32	57	89	127	173
44	37	65	102	147	200
48	42	74	115	166	226
52		83	129	186	254
56		93	144	207	282
60		102	159	228	309
64			174	250	340
68			190	272	370
72				293	400
76				314	427
80				334	455

^A Source: Silage and Hay Preservation – NRAES-5 - 1990

Ag Bags

The Miller Ag Bag Company <http://www.agbagplastic.com/pdf/Bag%20Information.pdf> has a factsheet with the approximate capacities of Ag Bags. Below is a table from their factsheet.

Bag Information

Bag Size	Ton/Bag 65% Alfalfa	Tons/Bag 35% Earlage	Tons/Bag 28-30% Shelled Corn	Approx Bushels Per Bag (Based on 56# Bushel
8' x 100'	80-90	70	80	---
8' x 150'	120-140	120	130	3,825
8' x 200'	170-190	164	180	5,294
9' x 135'	140-160	134	150	4,411
9' x 150'	160-180	162	175	6,125
9' x 200'	200-225	205	230	6,765
10' x 150'	200-220	180	202	5,940
10' x 200'	270-300	247	278	8,175
10' x 250'	340-360	324	350	12,250

NOTE: The tons per bag are approximate and will vary based on moisture and length of chop and crop types. High moisture shelled corn totals are figured from bagging with a regular Ag-Bag machine. If using an Ag-Bag Grain Bagger, totals will be approximately 20% less, due to density. Also when using the Master Seal sealing strip you can get approximately 2-4 more loads in the bag, depending on the size of the bag.

Bunkers and Drive-over Piles

Horizontal silos can be the most difficult to determine inventories for, but that shouldn't stop you from determining them. There are two main factors to determine how much silage is in a pile; total cubic feet of silage in the storage and the density (pounds per cubic feet) of the feed. We have discussed several times the importance of achieving high densities to reduce storage and quality losses, but regardless of what density you were able to achieve, the most important factor when determining inventories is to use the most realistic estimate you can as to not over or under estimate the amount of forage in storage.

There are a few ways to determine density. Samples can be taken from the bunk face, using a tool such as the Dairy One Master Forage probe. Care needs to be taken with this method as working around the face of the bunk can be dangerous. A second approach is to use a density calculation tool from the University of Wisconsin Team Forage. This tool can be found at: <http://www.uwex.edu/ces/crops/uwforage/storage.htm> or contact CCE to work through the spreadsheet with you. The spreadsheet can be very accurate, but it depends on the accuracy of the numbers you put into the spreadsheet. To use the spreadsheet you need information such as weight of packing tractors, delivery rate of forage to the bunk, size of the bunk, and layer thickness of silage while packing.

Determining the cubic footage comes down to a math problem (cubic feet = lengths x width x height). Since most bunks are not nice even sided boxes, it is best to tackle the storage by

breaking it into squares, rectangles and triangles. Here is an example of a bunk with side walls and a back wall, a ramp on the front and a sloping top. Though the top may be a little more rounded, in reality you can do the best to measure it as a triangle. Since a right triangle is one half of a square or rectangle, the calculation for the cubic footage of a triangle = $\frac{1}{2}$ (length x width x height). So, for this example the total is:

Rectangle = length x width x height

plus

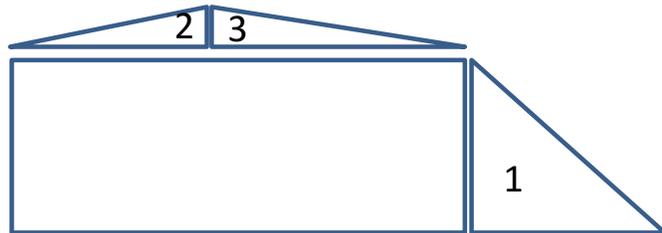
Triangle 1 = $\frac{1}{2}$ (length x width x height)

plus

Triangle 2 = $\frac{1}{2}$ (length x width x height)

plus

Triangle 3 = $\frac{1}{2}$ (length x width x height)



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