Determining Your Current Forage Inventory

One component of determining how much forage may need to be purchased is determining the current quantities of forage available on the farm. The attached Forage Inventory worksheet should assist in doing this. The following points should be helpful in filling out the inventory form.

1. Capacity of upright silos – Table 1.
2. Quantity of feed remaining in an upright silo – This needs to be calculated using the information in Figure 1. The calculations are slightly different for top and bottom unloading silos due to differences in packing density associated with the height of the silage in the silo. These calculations are different due to:
   a. The density of the silage increases as you go from top to bottom in an upright silo.
   b. In a top unloading silo, the silage already fed has a lower density than the silage remaining.
   c. In a bottom unloading silo, the silage already fed has a higher density than the silage remaining.
3. Example calculations are:
   a. Top unloading silo –
      i. 20’ by 60’ silo – Capacity = 159 tons dry matter (Table 1)
      ii. The silo currently has 40’ of silage remaining
      iii. 20 feet of silage has been fed
      iv. Capacity of a 20’ by 22’ silo = 33 tons of dry matter (Table 1)
      v. Tons of silage dry matter remaining = 159 – 33 = 126
   b. Bottom unloading silo –
      i. 20’ by 60’ silo – Capacity = 159 tons dry matter (Table 1)
      ii. The silo has 40’ of silage remaining
      iii. 20 feet of silage has been fed
      iv. Tons of dry matter in a 20’ by 40’ silo = 89 tons (Table 1)
      v. This is the tons remaining to be fed
4. Bunker silos –
   a. The quantity of silage in a bunker silo varies with the packing density (lbs. of silage dry matter per cubic foot).
   b. An estimate of packing density is needed to do the calculations for bunker silo capacity in the attached worksheet. The following general inputs can be used:
      i. Low packing density = 12 lbs. DM/cubic foot.
      ii. Average packing density = 15 lbs. DM/cubic foot.
iii. High packing density = 18 lbs. DM/cubic foot.

   c. Example bunker silo calculation:
      i. Silage remaining = 12' high by 40' width by 100' length.
      ii. Cubic feet remaining are 12' x 40' x 100' = 48,000.
      iii. Tons of silage remaining with an average packing density (15 lbs. 
           DM/cubic foot) = 48,000 \times 15 = 720,000 lbs. DM (Tons = 720,000/2,000) = 
           360 tons DM.
      iv. If the silage is 35% DM, then there is 1,028 tons of wet silage in the silo 
           (360/0.35).

   Table 1. Approximate Dry Matter Capacities of Tower Silos (Tons)\(^a\)
   
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\(^a\) Source: Silage and Hay Preservation – NRAES-5 - 1990

Computer based worksheets are available to assist in determining your current forage inventory from the Miner Institute. These can be accessed at:

[www.whminer.com/mineroutreach.html](http://www.whminer.com/mineroutreach.html)

Scroll down to Dairy Management Tools and select: Miner Feeder Tools Version 2.1
Source: Managing Feed Inventory, Bulletin A2945, University of Wisconsin, 1978

Source:
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