

Help Prevent Feed Loss by Using a Simple Assessment Equation

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Dry matter losses can differ substantially between silages sampled at deep and top locations of bunker and pit silos. Differences in dry matter can come from not covering or improperly covering horizontal silos, insufficient packing, and low ensiling harvest moistures. Ash measurement for a sample with excessive spoilage will have a higher ash content compared to a well-preserved sample from the same silo. Ash values are used in an "Organic Matter Loss Assessment Equation" that was developed by Dr. Keith Bolsen at Kansas State University, that predicts the increased percent organic dry matter loss that exists. Organic dry matter is total dry matter minus percent ash (e.g.: 1-%ash). The equation and an example of its use are shown at the right. This example is typical of corn silage bunkers where the silo is not properly sealed with tarp and tires. Insertion of the ash values into the equation shows that an increase of 13% in organic dry matter losses exists at the top of the silo. This figure converts to 11.6% actual dry matter loss when accounting for 12% ash (e.g.: 13%, 1.12). Bolsen research indicates this increased loss can exist down 4 feet from the top of the silo. Therefore, a 10,000 ton corn silage bunker silo that is 500 ft. long and 55 ft. wide with an additional 11.6% dry matter loss in the top 4 feet would amount to a loss of approximately 295 tons of as fed corn silage. This loss amounts to an additional \$8,850 loss in the top four feet of the bunker silo if valuing corn silage at \$30.00/ton.

$$\text{Increased Organic Dry Matter Loss} = 1 - \left[\frac{\text{AD} \times (1 - \text{AD})}{\text{AT} \times (1 - \text{AT})} \right] \times 100$$

AD = % "Ash Deep" within the silo
1-AD = % "Organic Matter Deep" within the silo
AT = % "Ash Top" from top of silo
1-AT = % "Organic Matter Top" from top of silo

Example:
% Ash Deep = 10.4
% Ash Top = 12.2
Increased organic dry matter loss at top = 13%

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