



Forage Management

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WHEN MORE IS BETTER

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The approach of harvest is a good time to make preparations to ensure the season is as successful as possible. There are lots of rules and sayings regarding quantity: too much of a good thing, point of diminishing return, optimum range, and the list goes on. Often in crop production close attention is paid to these rules as data can show the point of diminishing return on fertilizer applications, seeding rates, and forage quality versus yield.

In other cases, guidelines offer a minimum value or goal to shoot for, but there is not a proven point of diminishing return. Sometimes these minimum guidelines give a false sense of accomplishment. There are a few examples of this relative to forage harvest.

This example addresses bunk silo density, and while not new, remains an opportunity for many. A benchmark of 14 lbs. dry matter (DM)/ cubic foot for minimum density of silage was set based on research Curt Ruppel conducted at Cornell in the mid 1990's. At some point, observation of this recommendation as a minimum was lost and many began to think of 14 lbs. as their goal. As a guideline to achieve this density, the rule of thumb of a minimum of 800 lbs. of packing weight per ton of forage per hour was developed.

In reality, we have yet to see a bunk packed too much or any negative outcomes from extra resources committed to packing during silo fill. Silo filling is a very dynamic process and parameters can change from hour to hour. There is a high risk to end up with a density lower than 14 lbs. DM if you calculate for a goal of 14 lbs. DM and the assumptions used in your calculation are incorrect. Investing in "packing power" to get the highest density possible assures that even when events don't go exactly as planned, there is a better chance to keep the density at 14 lbs. DM or above. A higher density will improve forage quality, reduce dry matter losses and increase the efficiency of the storage footprint.

Calculate storage strategies to meet bunk silo density goals, including for bunks with wall or drive over piles. For example, a modest sized bunk that is 40' wide by 100' long with 10' sidewalls provides 40,000 cubic feet of storage. With a density of 14 lbs. DM per cubic feet, storage capacity is 280 tons of DM and expected DM losses (shrink) of approximately 16.8% (Ruppel, 1992).

Now let's take that same storage space and increase the density by 4 lbs. DM to 18 lbs. DM per cubic foot. This increases bunk capacity to 360 tons DM, an increase of 80 tons DM, or approximately 36%. Additionally, DM losses are expected to drop by 3.4% to approximately 13.4% (Ruppel, 1992).

Increasing current storage capacity by this amount could eliminate the need to invest capital into more storage space, and could also reduce the necessity to pile forage above the walls in the case of bunk silos. Staying with the walls alone can drastically reduce spoilage and improve safety around the feed storage.

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