



ADVANCED AG SYSTEMS'

# Crop Soil News

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**"It is the crops that feed the cows that make the milk which creates the money."**

**Advanced Ag Systems  
Research, Education, Consulting**

## Minimum till haylage.

Minimum till haylage is a new process where we optimize the forage planted, carefully watch to harvest at the peak of quality, and then use the mower to mix a pile of dirt, dead bugs, half rotten plant residue into the forage to make sure your feed will have limited milk producing ability.

Looking at the table at the right, the range of ash is considerable. The worst offenders are legume and winter forage (triticale). There are two key points this occurs.

First is the setup of the mower. Most farmers drop the pin in and go without looking at the manual or making any adjustments. Most are set to mow much to close for the good of the forage produced, the regrowth of the stubble left behind, and the rapid drying of the crop for same day haylage. Fields are not table top flat. They are filled with little dips, rises, and bumps plus rodent burrow mounds. The closer you mow the more the mower flattens the field by incorporating the soil into the forage.

There is approximately 250 lbs. of dry matter in every bottom inch of an alfalfa field. Most of it has no leaves and is very poorly digested by animals. Cutting higher than the soil level is critical to leaving soil and poor forage behind. In addition, if you are late on harvest (for first cutting straight alfalfa stand, the target is 33 inches tall) and your plant height is above target, you can raise the cutter bar and move the harvest date back to where it was good forage simply by leaving the bottom of the stem in the field.

Note in the table that the grass and mostly grass fields have much less ash both on average and as a minimum. This is because grass farmers have learned that if they scalp their fields, the grass portion of the stand will disappear. Numerous studies have shown that grass regrows from the leaf tissue left. The more left, the faster it regrows for increased total yearly yield. Those who scalped their fields have little or no grass regardless of the variety planted. Successful farmers of grass leave a 3.5+ inch stubble.

Silage Crop	Minimum ash	Maximum ash	Average Ash
Legume	9	13.1	11
Mixed mostly Legume	8.4	12.1	10.3
Mixed mostly Grass	7.1	10.9	8.99
Grass	6.7	11.9	9.3
Triticale	7.48	14.2	10.8
Source: <a href="http://dairyone.com/analytical-services/feed-and-forage/feed-composition-library/interactive-feed-composition-library/">http://dairyone.com/analytical-services/feed-and-forage/feed-composition-library/interactive-feed-composition-library/</a>			

For those capturing extra yield and the highest forage quality by growing winter forages such as triticale, harvest can be problematic as can be seen in the tables range and high average ash content. As on farm yields move over 8 – 12 tons of silage/acre, how you mow becomes more important. Wide swath is critical for any chance of same day haylage. To dry this much forage you need air movement around and under it. More importantly, for triticale and for first cut red clover, you will need to move the swath to allow drying of the lower layers. This means utilizing a tedder. If you scalped the field, the tedder and the subsequent rake/merger will need to root in the dirt in order to pick up the crop and move it to a windrow. Tipping the disk mower back or putting on extended skid plates will leave a taller stubble to allow for tedding plus raking/merging without skyrocketing ash levels. This is very do-able as can be seen in the very low minimum levels of some of the triticale samples sent to the lab. (hand harvested triticale is 6.5—7)



For heavy, high quality crops such as winter forage or first cut red clover; tedding is key for rapid dry down same day haylage. Sufficient stubble is critical to allow tedding and raking without rooting in the soil to get the crop up.

The second key point is at the mower knife itself. Many use twisted knives that act as propellers to create an up draft so downed material is sucked off of the soil surface and cut. Yes, you are a “good” farmer because your field is clean. Why you want this incorporated forage with no leaves (all stem) and a significant amount of rot and mold into your forage is beyond me. Unfortunately, having clean fields and feeding rotten forage is not the prescription for profitable livestock farming. This updraft sucks loose soil and debris off of the soil surface and into your forage, increasing the ash level. A flat knife and flat disk mower drums will cut uniformly without sucking up soil nor leaving small windrows. As you can see in the picture at the right, the left side of the picture was mowed uniformly and is drying rapidly. The right side has several small windrows that are shaded, losing nutrients, and drying much slower than a true wide swath due to the twisted knife vortex and drum actions.



Many wide swath same day haylage efforts are frustrated by mowers that leave small windrows (on right) instead of a uniform wide swath (on left). Twisted knives contribute to the vortex that creates the windrows that inhibit drying.

So, what is a little dirt in the tons of forage? For starters you have just inoculated a highly digestible, high sugar forage with a range of wild and not so beneficial bacteria. They are not good for your cows or for making silage. Second, Dr. Sniffen of Fencrest LLC found that going from **9 to 11 % ash will knock 1.9 lbs of milk off per cow per day**. On a 100 cow dairy this is **loss of over \$11,590** in a 305 day lactation of a high forage diet of 50% legume. Yes, you can rebalance the ration at the cost of more grain in order to reach the same milk. Even this has its limits as Dr. Sniffen clearly points out: “the NDF concentration will go up; they balance on the presumed analysis and the fact is that the NDF is not really the higher NDF but the lower NDF. Thus they end up with inadequate effective NDF, and the cows get metabolic consequences.”

**Bottom line: flat knives, higher stubble for maximum forage quality.**

Sincerely,

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Hand  
to Better  
Agriculture**

