

Fall Alfalfa Stand Evaluation

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Stresses from the growing season such as drought, flooding, or heavy cutting can reduce the productivity of a mixed legume or legume stand. The fall is a good time to start evaluating the health of your stands to plan for spring management. Keeping a stand that has been depleted from a stressful growing season will result in lower yields and quality, and increased weeds in the stand.

When evaluating a stand for rotation, you should look at stand health, soil fertility levels, manure applications, drainage, slope and planned crop rotation.

Stand Health – walk the field to count plants and stems in a few locations. A stand that should be kept in alfalfa will have 6 healthy plants or 55 stems per square foot of alfalfa. A way to assess this is to make a 1 foot by 1 foot square and toss it out into the field in a few places then count what is in the area. Another indication of stand health is amount of dandelions or other weeds observed as walking the field, they fill in as the desired species die out. Also while walking the field look for evidence of disease in leaves and stems.

Soil Fertility – Soil pH and potassium (K) levels are very important for good alfalfa stands. Soil pH needs to be maintained above 6.5 for good alfalfa health. In a field with low pH and decreased stand, rotating will allow for a lime application that is incorporated and has time to react before seeding to alfalfa or alfalfa grass mix again. Applying lime in the fall and incorporating it will give it the most time to react with the soil before the next crop is planted.

Alfalfa and some grasses will take up high levels of K, depleting the soil reserves and decreasing the productivity of the stand. Low soil phosphorus (P) levels will also decrease stand life. It is best to consult your soil testing lab and your state guidelines for P and K soil test levels that are optimum for alfalfa or alfalfa grass mixes. University of Vermont: <http://www.uvm.edu/pss/vtcrops/> and Cornell University: <http://nmsp.cals.cornell.edu/guidelines/index.html> are good resources.

Drainage – When selecting fields for seeding alfalfa, it will always do best in your best drained fields. Alfalfa stands will not last as long in a wet field. If you have observed water problems in the field, a rotation year is a good time to modify the field through grading or the installation of tile drainage. Improving drainage in a field will improve the yield of all the crops you grow.

Manure Applications – This is directly related to the soil fertility levels. Manure applications are good at maintaining soil test levels of P and K. Often in the first few years after seeding alfalfa, producers will avoid applying manure. Knowing when and how much manure was applied will help you interpret soil testing results. Additionally, if manure has not been applied during the life of the stand, using the soil test and needs of the rotated crop can allow for higher rates of manure application.



Slope – Some of the fields you have in alfalfa or alfalfa grass mixes may be your fields with steeper slopes. Slopes can limit your ability to rotate to different crops and the length of the crop rotation. This can be tackled a few ways, for example, frost seeding with a grass and clover mix to boost the yield and quality of the stand, or consider the addition of cover crops or strip cropping. On the steepest slopes of the farm, letting the alfalfa die out and going to an all grass stand might be the best option.

Planned Crop Rotation – If you are working with a nutrient management planner or your local NRCS office on a conservation plan, make sure you check with them before making a rotation change. Changing a rotation too soon without considering the impact of that change on your soil loss can affect your ability to participate in NRCS programs or may be in violation of your state permits.

If you decide it is time to rotate the field, what should or can you plant next? Alfalfa will not do well when planted right after alfalfa is killed due to autotoxicity. Corn is the best choice for 2 years to make sure the new stand will not be affected by the autotoxicity. If you have time after deciding to rotate the field out of an alfalfa stand, planning a winter cover crop until the spring crop is planted will help keep the soil in place.

Using Corn Silage Processing Score

With corn silage season completed in the Northeast, a review of Corn Silage Processing Score may be useful for those interested in assessing kernel size. The Corn Silage Processing Score (CSPS) is a measure of the amount of particle size reduction of corn kernels in a corn silage sample from processing to harvest. It is measured on a dry whole corn silage sample. CSPS was developed by Dave Mertens at the US Forage Lab and is determined by drying about 160 grams of a corn silage sample and shaking the dried sample for ten minutes on a series of sieves.

The percentage of starch that passes through the coarse sieves (particles <4.75 mm) are the adequately processed kernels. The percentage of starch passing through the 4.75 mm sieve is determined by subtracting the amount of starch that did not pass through the 4.75 mm sieve from the total starch in the sample. The percentage of starch that passed through the 4.75 mm sieve is the CSPS. The guidelines for interpreting results are:

- Greater than 70% - Optimum
- 50-70% - Adequate
- Less than 50% - Inadequate

The concept is similar to that of the Penn State shaker box in that it attempts to quantify particle size distribution. Properly processed silage should achieve a balance between coarse particles to stimulate chewing and rumination, and fine particles to enhance digestibility. The CSPS specifically targets starch. Starch in the coarse fraction will be less digested than in the fine.

In contrast, particles passing through 1.18 mm sieve are more readily digestible, but rapid fermentation may cause problems when rations low in effective fiber are fed.

Use the CSPS to ensure that the kernels in your silage are properly processed to promote starch digestibility and enhance the feeding value of your silage.

For more information contact the Dairy One Forage Lab at 1-800-344-2697 ext. 3 or email: forage@dairyone.com