

# FORAGER



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## Evaluating Alfalfa Stands in Spring: When & How to Evaluate an Alfalfa Stand

There are two basic methods that can be used to determine the viability of an alfalfa stand. A producer should not only use one of these methods, but also consider the vigor of the particular stand being evaluated and the production history of that field. Here are brief descriptions of the two basic methods of stand evaluation.

1. The first method consists of counting the number of plants per square foot. Current research suggests that when stand counts fall below 3 to 5 plants per square foot, it's time to either rotate out of pure alfalfa or inter-seed a grass crop such as festulolium, tetraploid ryegrass, orchardgrass or annual ryegrass, or inter-seed another legume not hurt by the autotoxicity seen in year old or older alfalfa stands. Red clover is a legume of choice and should be planted at 6 to 8 lbs. (pure live) seed per acre either by broadcasting it on in the very early spring or seeding it with a no-till drill (plant in very early spring or in early to mid-Sept after the last harvest of the season).

2. The second evaluation method comes from research out of Wisconsin (Dr. Dennis Cosgrove) that indicates that stem number rather than plant number is a more accurate determination of when to plow down or inter-seed an alfalfa stand. Cosgrove suggests using a value of 55 or more stems per square foot to indicate that the stand will produce maximum yield. A reduction in stem number per square foot to 40 stems or less will result in a 25 percent yield reduction. At this critical level, alfalfa fields begin to lose profitability and should be rotated to another crop for one or two years.

Although you can get some idea on the potential of your alfalfa stand by counting either the number of plants or the number of



tillers per square foot, you will also need to consider checking on the health of those plants, giving you a more accurate basis for a decision on keeping or destroying an alfalfa stand. If done in the spring, when new growth is about 4 to 6 inches tall, check a random

one square foot site for each 5 to 10 acres of alfalfa (or at least 4 to 5 sites on small fields). Dig up several plants at each site and slice open the crown and root (longitudinally) with a sharp knife to determine the health of the crown and tap root. Healthy roots and crowns will be firm and white to slightly yellow in color. Diseased roots will have dark brown areas extending down the center, especially if crown rot is a problem. Reduce your counts of plants per square foot or tillers per square foot so only the healthy plants present are counted. Plants with roots that are mushy or soft are likely to die. And although those

with a few brown spots may survive, the overall vigor of the stand will be compromised by the presence of disease.

If you must decide on whether or not to reseed before growth begins in the spring (and you do not plan to take a first cutting of alfalfa before planting another crop) or after a very hard winter with significant heaving or winter injury, base your decision [to reseed] on the number of plants per square foot (see Table). If a decision to reseed can be made during the growing season or after about 4-6 inches of growth has occurred in the spring, either evaluation method can be used. The table below shows modified estimates for good, marginal, and poor stands, giving producers possible guidelines to consider when making a decision on keeping the stand or inter-seeding a grass or other legume.

| Suggested plants/square foot or tillers/square foot (plts) ( ) criteria for evaluating alfalfa stands |                   |                   |  |
|---|-------------------|-------------------|--|
| Age of stand  | Good stand        | Marginal stand    | Consider replacement or renovation ** w/inter-seeded grass or red clover |
| Plants/square foot with spring tillers/square foot in parentheses                                     |                   |                   |  |
| New   | 25-40 plts (> 75) | 15-25 plts (< 55) | < 15 plts (< 50)   |
| 1 year  | > 12 plts (> 60)  | 8-12 plts (< 55)  | < 8 plts (< 45)  |
| 2 years   | > 8 plts (> 55)   | 5-7 plts (< 50)   | < 5 plts (< 40)  |
| 3 years   | > 6 plts (> 50)   | 4-6 plts (< 45)   | < 4 plts (< 40)  |
| 4 years+  | > 4 plts (> 50)   | 3-4 plts (< 40)   | < 3 plts (< 40)  |

\* If stand is to be plowed for replacement, producers often find it economically favorable to take a first cutting and then plow and plant a rotational crop that can use nitrogen from the decomposing alfalfa plants. Rotate out of alfalfa at least until the next fall (14-18 months), but preferably for 2-4 years, allowing time for a reduction in the potential for alfalfa diseases and providing the producer an opportunity to correct soil nutrient and pH (acidity) problems, as well as making use of the residual N mineralization potential that exists in a field following an alfalfa crop.

\*\* If considering renovation or extending the stand life, try no-tilling a grass crop such as orchardgrass, tetraploid annual or perennial ryegrass, or a variety of festulolium (cross between meadow fescue and a ryegrass). The grass will increase tonnage, especially if fertilizing the grass with nitrogen fertilizer. This also has the effect of driving out alfalfa at the same time as production levels are maintained for an additional year or two. Another option for extending an alfalfa stand's life for 1-2 years is to seed in 6-8 lbs of red clover per acre. This option will maintain the higher protein production from the field.

(edited from an article by Richard W. Taylor, Extension Agronomist, University of Delaware)

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