

Replant Decision-Making For Alfalfa

Alfalfa growers often must deal with the difficult decision of when to replant a field. Since alfalfa is a very expensive crop to establish, growers frequently agonize over how many plants per square foot constitute an economically viable stand. Current recommendations suggest that when stand counts for alfalfa fall below 4 to 5 plants per square foot, it's time to rotate out of alfalfa.

Rotation to another crop can sometimes be delayed for one or more years by no-till interseeding tetraploid ryegrass or orchardgrass into the weak alfalfa stand (See Agronomy fact sheet PASTURE RENOVATION for information on renovation techniques). Interseeding grasses in a stand of alfalfa helps maintain hay yields, excellent hay quality, and for pastures reduces the chance for bloat.

Farmer experience has shown that if soil fertility levels are adequate or high and weed problems are minimal, alfalfa stands of 5 plants per square foot can yield as much as a stand with 10 to 15 plants per square foot. This is a result of an individual alfalfa plant's response to decreasing stand density. Decreasing stand density effects an increase in the number of stems produced per plant compensating for fewer plants and maintaining yield potential.

New research from Wisconsin by Dr. Dennis Cosgrove indicates that stem number rather than plant number is a more accurate determination of when to plow down or interseed an alfalfa stand. Cosgrove suggests using a value of 55 or more stems per square foot for production of maximum yields. A reduction in stem number per square foot to 40 stems or less will result in a 25 percent yield reduction. Cosgrove further suggests that this level is the critical point when alfalfa fields begin to lose profitability and should be rotated out of alfalfa. Again, interseeding a very high-quality productive grass should add one or more additional production years.

The number of stem or stand counts you make depends on the size of the field and the uniformity of stand reduction. In general, the larger or less uniform a field, the greater the number of counts. For uniform fields 20 to 30 acres in size, count about 20 randomly chosen square foot areas and average the results.

If you must decide on whether to reseed early in the spring after a hard winter, base your decision on the 4 to 5 plants per square foot threshold level. If a decision to reseed can be made during the growing season, use below 40 stems per square foot as the threshold value.

Replant Considerations

Established alfalfa fields over 1 year old are thought to be autotoxic to new seedling alfalfa plants. New research indicated that only a short period is required between herbicide application and reseeding to prevent autotoxicity. However, for long-established alfalfa stands, a rest period of 12 to 18 months is still recommended. The rest period helps reduce the incidence of diseases and pests before alfalfa is reestablished and allows for rebuilding depleted soil nutrients.

When alfalfa stands indicate renovation is needed, two options are considered ideal. The first option is the destruction of the old stand in the fall, either with a herbicide or tillage. The field can then be limed and fertilized according to soil test recommendations and then the ground worked. A fall cover crop of cereal rye should be planted. The following spring, a short-season corn hybrid can be no-tilled into the rye. No nitrogen fertilizer will be needed for the rye or corn crops. In late August or early September following corn harvest, alfalfa is seeded back into the field.

In the second option, a spring alfalfa harvest is removed from the field. Following the alfalfa harvest, a short-season corn hybrid is planted. A rye cover crop should be seeded following the corn crop. The next spring a short-season corn hybrid can be no-tilled into the rye cover crop. By changing tillage methods, lime and fertilizer according to a soil test can be applied and worked into the field either the first spring before corn, the first fall before rye, or the second spring before corn. Again, generally no nitrogen fertilizer will be needed for either the corn crop or the rye cover crop. Reseed alfalfa following corn as early in the fall as possible but before Sept. 20, if possible.

If there is a preference for seeding alfalfa in early spring, growers should consider the use of a herbicide such as Eptam to reduce weed competition. Since herbicide labels change and new herbicides are registered and old herbicides are reregistered sometimes with different uses, growers should contact their county agricultural Extension agent for available herbicide options for new alfalfa seedings.

Another option for spring alfalfa seedings is the use of a companion crop such as spring oats. Oats at a light seeding rate are seeded with the alfalfa either within the same row or between the alfalfa rows. The oat crop is removed as soon as it ripens to allow light to reach the alfalfa seedings.

For alfalfa seedings less than a year old, thin stands can be thickened by using a no-till drill. If small areas are weak and weedy, the area can be killed using glyphosate, two to three weeks before seeding. If possible, seed in early fall/late summer (Aug. 20 to Sept. 20) or very early in the spring (March).

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