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WHAT TO DO WITH FAILED SEEDINGS OF ALFALFA

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Because of the wet and cloudy conditions in 1993, many alfalfa seedings either had excessive seedling death to result in thin stands or remained stunted with little growth and forage yield.

Thinned Stands

When we seed alfalfa at 15 lbs/acre we are seeding about 90 seeds/sq foot. From this we expect to have 40 to 60 seeds germinate. The low field germination is due to the shallow seeding depth where exact placement is difficult and the thin soil layer covering the seed which can dry rapidly. Under favorable conditions, 25 to 30 plants/sq foot remain at the end the seeding year, the remaining plants having died from seedling diseases shortly after germination or from competition during the growing season. In years when the weather is cool (or cloudy) and soil is extremely wet, seedling diseases may thin the stand much more than usual.

The major seedling diseases are pythium, phytophthora, and aphanomyces. Plants that have died from pythium or phytophthora immediately turn brown and lay flat on the ground. Plants that have died from aphanomyces, if the field is examined before the first trifoliate leaf has formed, turn brown but remain standing.

The first question is how thin must a stands be before action is required. The general recommendation has been that 15 to 20 plants per square foot should remain in the spring to provide sufficient plant density for maximum yield and to allow for a long stand life that is high yielding in spite of the gradual thinning that normally occurs. However, we should be quick to point out that high yields can be attained the year after seeding with much thinner stands. In studies we have conducted, we have achieved up to 7 t/a yields with as few as 6 plants/sq foot the year after seeding. The key is to have a vigorously growing stand. Young stands with low plant counts next spring may have good yields in 1994 but will have increased weed pressure and, likely, shortened stand life.

A field that is generally too thin to keep may be disked to kill the few remaining plants and immediately reseeded. Killing remnants of the previous seeding is important because interseeding is seldom successful. The interseedings germinate but then many die over summer from competition for the older plants to result in a less than desirable stand.
A farmer may reseed into a tilled field that had a stand failure the previous year without concern about autotoxicity because the alfalfa stand was not thick enough or in the field long enough to build up levels of compounds that would be toxic to new seedings. Also, the seedlings diseases that caused thinning in 1993 are no more likely to be a problem in a field with a failed 1993 alfalfa seeding than in any other field. In all cases the disease organisms are always present and will be problem whenever conditions are right (cool/wet).

Most often thinning has occurred in spots throughout fields and does not affect the entire field. The thinned spots may be tilled and reseeded to alfalfa and the remainder of the field harvested for hay. Normally the entire field will be ready for second cutting. In all cases, when reseeding alfalfa, Apron treated seed should be used to reduce potential for seedling diseases and the variety should have an HR level of resistance to phytophthora. Additionally, consideration should be given to aphanomyces resistance if it was identified as a cause of death in the field in 1993.

An additional option for seeding the thin spots is to notill in either ryegrass, orchardgrass or red clover into the thinned spots to improve yield potential. Ryegrass is our highest quality grass forage, easy to establish and high-yielding in the seedling year. Orchardgrass is similarly easy to establish and has good yield potential. Both would need manure or nitrogen applications for good yield if the legume stand were very thin. Red clover can be interseeded into alfalfa to improve stand and yield. It establishes rapidly and has good yield potential in the seedling year. Newer varieties can be expected to last 3 to 4 years. However, it does not dry down as quickly as alfalfa or the grasses for harvesting.

1993 Seedings That Were Stunted

Many farmers had new seedings of alfalfa that achieved good stands initially but then did not grow normally. In some cases the entire field remained short and yellow, often with leaf burn, late into the growing season and in other fields many plants showed these symptoms while others within the same field grew normally. Often the stunting and lack of growth was due to aphanomyces. This disease results in root pruning causing the plants to have reduced growth and symptoms similar to nitrogen deficiency (yellowish and with some leaf burn).

Aphanomyces infected plants are likely to have restricted growth next whenever conditions are less than optimal (i.e. water or nutrients are limiting). Thus, first cutting yield could be high but later cuttings in the season may have reduced yield because of the disease.

Fields that had plants with mixed height (growth) in 1993 indicate some degree of disease resistance in the variety (or at least lack of infection). To the extent that plants indicated resistance or lack of infection, yield will be less affected in 1994 and future years.
In summary, many farmers are going to have to make decisions next year about thinned or poor growing 1993 seedings. Consideration should be given to both short-term and long-term yield. While remedial action can be taken, many fields may best be put on a short rotation and planned for future reseeding to result in high yielding long-term stands.