

ALFALFA ESTABLISHMENT

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Alfalfa "Queen of the Forage Crops" is the most important forage legume grown in the United States. It is grown over a wide range of soil and climatic conditions. Alfalfa has the highest yield potential and the highest feeding value of all adapted perennial forage legumes. It is a versatile crop which can be used for pasture, hay, silage, green-chop, soil improvements and soil conservation. As a result of this crops many merits; especially yield, quality and versatile use, it can be used successfully in many animal feeding programs.

Successful alfalfa production requires attention to details, advanced planning and timely operations. Four general objectives should be considered:

- 1) attention to details prior to and during establishment that will result in a dense weedfree stand,
- 2) fertility and pest control during the production phase that will result in high yields,
- 3) timely harvest that results in high quality,
- 4) marketing the product through livestock or as a cash crop for profit.

Establishment of a dense weedfree stand is a first and very important step in successful alfalfa production. The cost of stand establishment is equal to 1 to 2 tons of production. It is important that everything possible be done to ensure success, because a stand failure can nearly double the establishment cost in addition to losing a year of production. Several factors which are of importance in the establishment of alfalfa include:

Soil - Alfalfa requires a well-drained soil for optimum production and stand persistence. Deep soils are best, since the alfalfa plant is capable of developing a deep root system. This enables the plant to obtain water and nutrients from a large volume of soil. Soils in which rooting depth is limited by a shallow hardpan, a high water table, bedrock or a low subsoil pH are not well suited for optimum alfalfa production and long stand life. Winter heaving damage is greater on poorly drained than on well-drained soils. A soil map is useful in locating fields suitable for growing alfalfa. Level land is not a requirement for alfalfa. It can be grown on any slope which is suitable for machinery operation.

Soil Test and Fertilize - A soil test is the most economical investment in an alfalfa fertility program. A soil test should be

used as a guide to determine rates of lime, phosphorus and potash to apply. Boron is also recommended for establishment at a rate to supply 1.5 - 2.0 pounds of elemental boron per acre.

Variety Selection - Proper variety selection can have a dramatic impact on yield, quality and stand longevity. Select adapted, high yielding, disease- and pest-resistant varieties.

Inoculation - Poor nodulation is a frequent alfalfa seeding problem. Possible reasons for poor nodulation are: low soil pH, low molybdenum levels, failure to inoculate seed, use of the wrong kind of bacteria, use of inoculants in which the bacteria are dead and/or improper application of bacteria to the seed. Alfalfa seed should always be inoculated with the proper bacteria immediately prior to seeding. For those buying pre-inoculated seed, always check the tag for date of inoculation. Seed carried over for six months or longer should be reinoculated before seeding. Be sure the word "alfalfa" is listed on the inoculant container. Make sure the seal or the bag has not been broken. Check expiration date on inoculum bag. After purchase, store in a cool, dry place. Use a commercially available adhesive or some type of sticking agent to insure that sufficient inoculant is stuck to each seed. Do not use so much sticker that the seed stick to each other or problems may occur with seed flow in the drill.

Weed Control - Unless controlled, weeds can drastically reduce alfalfa stands. The alfalfa stand is especially susceptible to weed competition during establishment. Herbicides are available for weed control during establishment. A discussion on herbicide options will be presented later in the program.

Seeding Dates - Alfalfa can be successfully established over a wide range of seeding dates assuming adequate moisture and weed control. Recommendations are for both spring and late summer establishment. Risk are involved regardless of seeding dates. Research had shown over the years that mid-March through mid-April are usually most desirable for spring seeding; with mid-August through mid-September most desirable for late summer seedings.

Seeding Rates and Depth - Rates of 12 to 20 pounds per acre have been recommended for many years. Rates of 15-18 pounds per acre are usually sufficient to give dense vigorous stands. In mixtures with grass, alfalfa at 15 pounds with orchardgrass at 6 pounds provides a good mix. Alfalfa at 15 pounds and timothy at 4 pounds is also used widely.

Alfalfa should be seeded at 1/4 to 1/2 inches deep. The seed should be in good seed to soil contact for rapid germination and emergence.

Seeding Methods - Alfalfa can be successfully established using a variety of methods and machinery. The objective regardless of method is to place seed at the correct rate uniformly on the field at the right depth and in good seed to soil contact. A billion seeder is ideal in a prepared seedbed. No-

till drills are available for seeding in a non-prepared seedbed environment.

Alfalfa is a high-yielding, high quality crop. Establishing a dense weed-free stand is the first objective in achieving high yields. Principles concerning establishment have been obtained through research and farmer experience that when followed will increase chances of successful establishment. Additional information on establishment is available through county extension offices. The following publications provide additional information on establishment:

- AGR-76 Alfalfa - "The Queen of Forage Crops"
- AGR-18 Grain and Forage Crop Guide for Kentucky
- AGR-107 Alfalfa in Kentucky
- AGR-64 Establishing Forage Crops
- AGR-6 Chemical Control of Weeds in Kentucky Farm Crops
- AGR-1 Lime and Fertilizer Recommendations