ESTABLISHING ALFALFA STANDS
INCLUDING METHODS, RATES, AND DATES OF SEEDING

Seeding Methods, Rates, and Dates is so interrelated, it is impossible to discuss one without alluding to the others. Most alfalfa hay producing areas in California are similar in respect to my topic, therefore, my comments will apply to most areas of production in the State.

It is generally accepted that fall plantings of alfalfa will out produce spring plantings the first year. When the soil temperature is down to 40°F., it takes alfalfa 6 days to germinate, whereas, when the soil temperature is 66°F., alfalfa will germinate in 2 days.

Alfalfa stops growing when the temperature is below 34°F., therefore, it is necessary to have enough growing days to allow for development of the third trifoliate leaf before the first frost. The last few days of September through the first half of November are usually acceptable fall dates for most hay producing areas of California. Many times cotton isn't picked, the ground is too wet to be worked, or weeds are a serious problem; making spring plantings more desirable. Mid-February and early March are usually the best time for spring plantings.

To better discuss methods of seeding, I think it important to review Bob Sheesley's work on emergence percentage in relation to depth of seed placement. Only 2% of the seed 2-1/2" deep will emerge whereas 70% of the seed will come through when planting 1/4" to 1/2" deep.

There are various methods of planting alfalfa seed at the depth which will insure maximum emergence. The Brillion Seeder does an excellent job of planting alfalfa seed since it has a roller in front to firm the soil and a roller following behind the seed drop which presses the seed into the soil at an optimum depth. Firming the seed into the soil gives it a greater contact with the moisture and assures rapid germination. This seeder actually does three jobs in one.

Another common piece of equipment for planting is a grain drill. This allows the seed to be placed at a uniform depth and also allows for good control of the amount of seed planted per acre. One disadvantage is the rows are usually 8" to 12" apart. This leaves a good place for weeds to start. John Deere makes a drill used in vineyards which has a 4" spacing. These drills are hard to find and are quite narrow, making them impractical for large acreage.

A third method of seeding alfalfa, is the broadcast method. This is accomplished in several ways. One of the original methods is the Cyclone Seeder. This has obvious limitations. The end-gate seeder is the mechanized version of the Cyclone Seeder. When it is necessary to cover large acreage or when soil is too wet to support ground equipment, applying alfalfa seed by airplane can work well to the farmers advantage. Remembering the importance of depth of planting, we must be careful in covering the seed following broadcasting. A Cultipacker or ring roller is an excellent tool for this purpose. The spike tooth harrow will usually incorporate the seed as low as 3" deep. Considering the fact that most seed placed below 2-1/2" will not emerge, this tool is usually not recommended.

It is well, at this time, to look at the problem of reseeding established alfalfa stands. The main reason for loss of stands is from over irrigation and lack of drainage; pooling up at end of check. Another major cause of stand depletion is soil born diseased organisms. It is all but impossible to alter these conditions in established alfalfa fields. For this reason, reseeding of established fields is usually not successful.

Some growers follow the practice of planting small grain as a companion crop with alfalfa to add to the tonnage of their first hay cutting. Oats or other companion crops are in direct competition with the small seedling alfalfa plants for light, moisture and nutriants. Growers should strongly consider the gamble they are making in planting the two crops together. They are actually gambling the increase in yield from one cutting with the possible reduced yield and weedy field of alfalfa for 3 to 5 years. There are some advantages to companion crops in areas that have high winds and very sandy soils. Here the grass roots help to keep the soil held down and prevents sand from burying the small alfalfa plants.

Since it is necessary to plant alfalfa seed shallow, maintaining moisture through emergence can be a problem. The use of sprinklers to irrigate alfalfa up is most satisfactory. Where sprinklers are not available, some growers flood irrigate the newly seeded fields. This, however, can cause problems of crusting, particularly on heavy soils. If Mother Nature will cooperate, a good rain is best.

Bob Sheesley, Fresno County Farm Advisor has done some work with bed planting alfalfa hay. Beds ranged in width from 40 to 80 inches with furrows about 5" deep and 10" wide. Low profile irrigation borders are necessary only if sidefall grade dictates this. Fields with only slight sidefall grades require the first 20 feet to direct the water for flood irrigation after the stand is established. The big advantage to this system is being able to irrigate up. The seed is drilled or broadcast and rolled in the direction of irrigation. Water is then trickled down the furrows and allowed to sub across the beds from both sides. A slow irrigation of this kind can provide the moisture needed for surface germination and early root development during the fall and spring months.

Planting rates vary considerably over different parts of the country. Some dryland farmers plant as little as 4 pounds per acre as opposed to a high of 40 pounds per acre on some of the irrigated fields of California. The general recommendation for most of the irrigated alfalfa areas of California is 20 pounds per acre. There are approximately 220,000 alfalfa seeds per pound. With 100% even distribution and emergence of seed planted, 20 pounds per acre would produce a stand of approximately 100 plants per square foot. This brings up the questions; why plant so heavy?

On well prepared land with good moisture holding capacity, alfalfa seed drilled at the lower rates, 10-15 pounds per acre, will do a satisfactory job. At the other extreme, when seed is flown on and the seed bed is rough, rates of up to 40 pounds per acre are recommended. Vern Marble, Extension Agronomist at the University of California, Davis, published the results of three experiments done at three different locations in California. Dr. Marble stated in his summary that seeding rates of between 20 to 30 pounds per acre should provide an adequate stand of alfalfa. Lower rates could be utilized if seed beds were near optimum, properly prepared and adequate moisture provided.

Under good management practices, as outlined above, and with proper varieties, growers can expect excellent yields of alfalfa over a 3 to 4 year term.