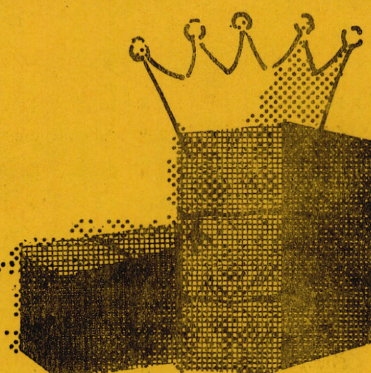


Forage Queen



October 21, 1974

 * SOIL COMPACTION LIMITS ALFALFA ROOT GROWTH *
 * FALL PLANTING ADVANTAGES *
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SOIL COMPACTION LIMITS ALFALFA ROOT GROWTH

Improper root development and poor water penetration are two major causes of alfalfa plant death and poor hay yields in the San Joaquin Valley. A compacted soil layer, resulting from a plow pan (or disc pan) or from wheel traffic can restrict water movement and root development of alfalfa plants.

Ripping or deep plowing the soil prior to planting alfalfa can greatly enhance both root development and water penetration in most soils where hay is grown in the central valley. When only a disc and harrow are used on sandy and sandy loam soils for alfalfa preparation, a compacted layer of soil will restrict root development at the discing depth, normally between 6 and 8 inches deep. Ripping or deep plowing should not be attempted in wet soil, since that would only cause more serious compaction and soil structure problems.

The plants shown in figure 1 illustrate what happens to alfalfa roots on a sandy loam soil with and without ripping through the compacted plow pan.

These plants were dug near the end of the first year's growth. The root development and top growth are much greater where the compacted layer of soil was broken up prior to planting.



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Where the ripper was not used, plant roots were restricted at the six-inch depth, which corresponds to normal discing depth in this soil.

The picture labeled figure 2 shows alfalfa roots have developed normally where ripper shanks loosened the soil. In this field the shanks were spaced too far apart to obtain thorough breaking of the compacted soil between the shanks.



figure 2

Alfalfa roots midway between the two shanks are only six inches deep due to the compacted soil layer at the plow pan level.

Ripping on 20-inch centers in one direction will give more shattering effect in dry soil than will ripping on 40-inch centers in two directions. Deep plowing would perform a similar function. Ripping or deep plowing should not be attempted in wet soil.

FALL PLANTING ADVANTAGES

Fall planting of alfalfa hay is preferred over late winter or spring planting in Fresno County. If previous crops have been removed early enough to allow for adequate seedbed preparation, fall plantings will

yield up to 30% more hay during the first year. If seedbeds can be prepared in the fall, while soils are still dry, this will allow winter development of the alfalfa root system. Increased root size and vigor will encourage quick growing alfalfa which will limit weed competition.

Growers should avoid planting alfalfa hay between November 15th and January 30th. The cold temperatures during that period make alfalfa seeding a hazardous gamble. Broadleaf weeds are sometimes abundant in fall planted alfalfa. These can be controlled with pre-plant herbicides or with 2,4-DB applied at the early stages of weed growth.

Seeding of winter cereal crops with alfalfa is not usually recommended in Fresno County. Alfalfa seedlings are poor competitors with winter cereals during the cold winter months. Winter cereals are normally ready for harvest for hay several weeks prior to a new alfalfa planting. Harvest of alfalfa plants at this early date will result in starving young alfalfa plants by depleting their small stores of food in the root system. After investing your money in preparation for a perennial crop, it would be costly to raise only a winter cereal hay crop and have a poor stand of alfalfa remaining.

Ten pounds of winter cereal seed per acre can help save alfalfa plantings on extremely sandy soil in areas with high winds. In this case, the cereal crop protects the alfalfa plants from wind erosion. In these plantings, the first spring cutting should be made above the height of the young alfalfa plants to allow their roots time to get well established. The first harvest of new alfalfa fields should be made after three to four mature alfalfa stems are developed on each plant (above knee height).

Spring planting of alfalfa hay is most successful after February 1st and before March 15th. Spring rains can assist in stand establishment during this period. Pre-plant herbicides should be used with spring plantings if spring and summer grasses are anticipated. The first cutting of spring-planted alfalfa should be taken only after three to four mature stems are developed per plant.

CALIFORNIA ALFALFA SYMPOSIUM PROGRAM
DECEMBER 4 & 5

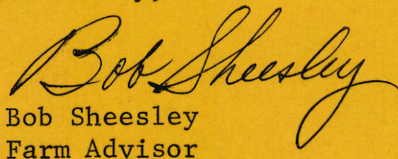
The 4th Statewide Alfalfa Hay Symposium will be held at the Sheraton Inn in Fresno on December 4 & 5, 1974. Primary emphasis of the program this year is on systems of handling alfalfa. Speakers and panel discussions will deal with the topics of equipment, methods of packaging hay, economics and the effects of equipment on alfalfa yield and stand persistence. Please mark your calendars. This program should be well worth your time and attendance. Pre-registration for the Symposium can be accomplished by writing the organizing committee, c/o Vern L. Marble, Extension Agronomist, 132 Hunt Hall, University of California, Davis, Ca. 95616.

A pre-registration fee of \$8 will go toward paying for one copy of the Symposium proceedings and lunch on December 4th. A program will be sent to you in a later issue of Forage Queen.

IRRIGATED PASTURE COST SHEET

Enclosed is your copy of an irrigated pasture cost analysis worksheet. This example uses the current prices and can be used as a guide in comparing irrigated pasture expenses in the Fresno County area. Additional copies are available at this office.

Sincerely,


Bob Sheesley
Farm Advisor

Enclosure