March 1969

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RANGE IMPROVEMENT

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The goal of any planned system of range improvement and management is the highest possible yield of palatable and nutritious feed over the longest possible part of the year.

This goal becomes even more important as the economic pressure on the users of range vegetation becomes increasingly critical.

One method of range improvement which is receiving increasing interest among the livestock industry is the potential of converting native range and marginal cropland to improved species of annual clovers.

The economic advantages from increased production on improved range is an established fact, but the initial cash costs of proper establishment of such a system and the management involved require thorough evaluation on the part of anyone considering this technique.

Steps essential for establishment and management of improved re-seeded annual legume pastures:

I. Suitable site selection for non-irrigated range improvement

A. Native range on reasonably open and rolling foothills

B. Cropland where returns are uneconomical but is satisfactory for a permanent sod for livestock.

Soils with limited potential should be avoided, and always start with best sites first.

II. Seedbed preparation

The seedbed should provide sufficient loose material to allow the seed contact with the soil and reduce competition.

A. Limited experience on native range has indicated shallow disking in the spring or summer has proven satisfactory.

B. Shallow discing, once over and not more than 1½ inches deep, of grainland stubble without excessive cloddiness is desirable.

III. Selecting Varieties, Seeding Rates, Pellet Inoculation, and Seeding

A. Always plant a mixture of Rose and Subterranean clovers. These annual plants need to reseed themselves, and there is an advantage in having a mixture of plants with a wide growth and maturity range. This compensates for the many soil and rainfall conditions in California and can provide earlier and later utilization.

B. A standard seeding rate of 10 pounds of seed per acre should include approximately seven pounds of three or four Subterranean clover varieties and approximately three pounds of three to four Rose clover varieties.

C. Pellet inoculation is a process developed to provide an adequate supply of nitrogen-fixing bacteria to legume seeds. This process, using four times the normal rate of bacteria, involves a gum arabic sticker and a calcium carbonate coating. Inadequate inoculation will result in poor stand establishment or failure. Poorly inoculated clovers are worthless.

D. Broadcast the pellet-inoculated seed just prior to the first good fall rains. The area planted should be ringrolled immediately. If a rain stops the ringroller operation all is not lost. The usual planting season would start after November 1 and continue through December 1.

IV. Fertilization: If soils planted to legumes do not contain adequate available phosphorus and sulfur, these nutrients must be supplied to insure maximum productivity. A soil analysis can provide valuable information for developing a range fertilizer program. Pre-plant applications of 50 to 100 pounds P_2O_5 when the seedbed is being prepared should correct most situations where phosphorus is inadequate for legumes. Many sources of phosphorus contain varying amounts of sulfur. Do not use nitrogen fertilizer on annual legume pastures.

V. Management

A. Good, healthy, properly-inoculated legumes produce nitrogen that will stimulate the growth of grasses. This grass competition must be heavily grazed or the legume population will be reduced or eliminated.

B. Graze early but only when the area is dry enough to keep soil punching to a minimum.

C. Do not graze the first year when annual legumes are blooming and setting seed (April 15 to June 1).

D. Heavy grazing during the summer is essential and should remove all the dry litter so the established annual clovers will be maintained and increase year after year.

E. The need for annual or biennial fall application of phosphorus to established legume range can be determined from soil analysis.

F. Additional fencing may be required for proper utilization of the improved range areas.

G. If rodent populations increase and reach a level of economic importance an effective control program should be initiated.

H. A higher stocking rate will be required to properly utilize the increased forage production. Do not plant clovers unless more animals are available.

When a range improvement program includes the establishment of annual legumes, omitting any one step should result in failure.

I. Site Selection

II. Seed Bed Preparation

III. Variety Selection, Seeding Rate, Pellet Inoculation & Seeding on Time

IV. Fertilization

V. Management