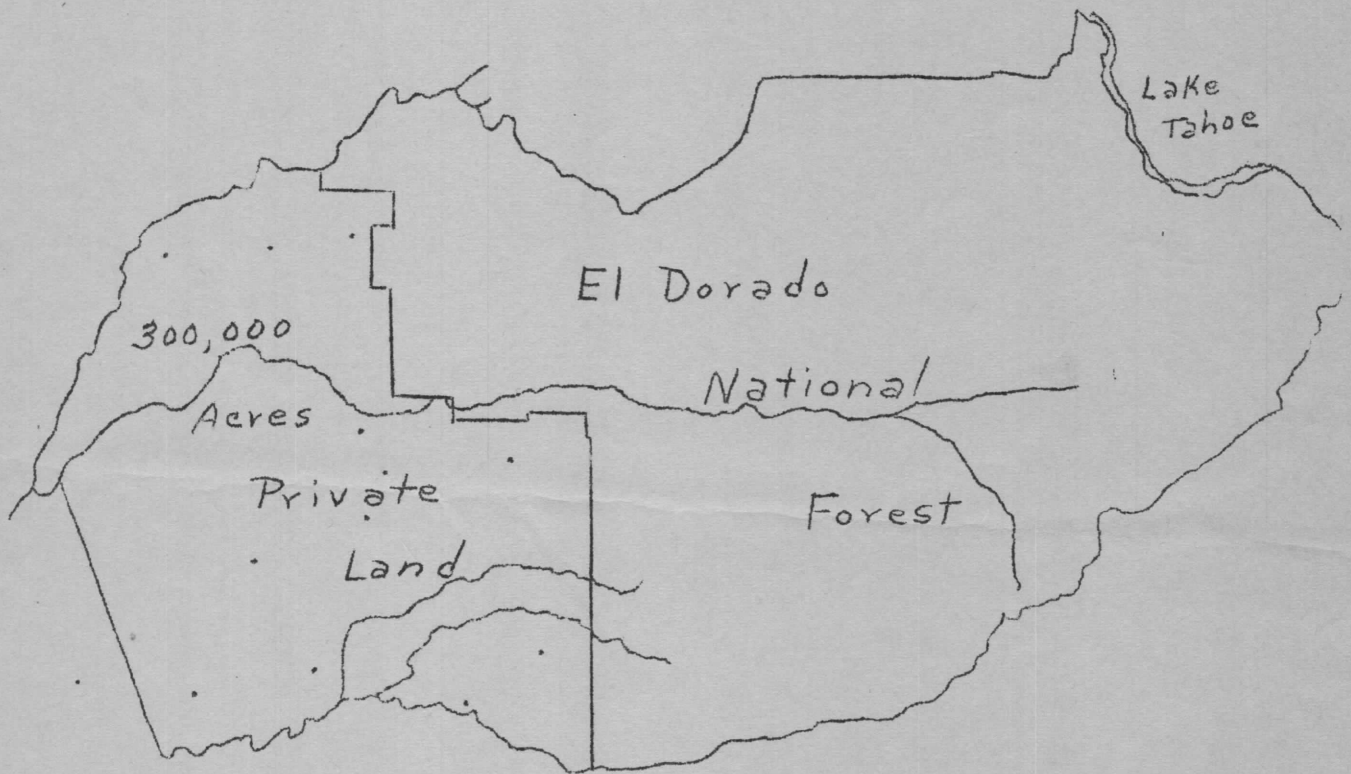


GRASSLAND FARMING IN EL DORADO COUNTY



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HOW MANY ANIMALS WILL YOUR RANGE CARRY -- ONE ANIMAL TO 5, 10, 20 ACRES OR ????????

Four factors that govern this are: (1) Type of soil (2) Amount of brush
(3) Kind of feed growing (4) Management of feed

A livestock economy must be expanded in California to make unnecessary the need of importing such great quantities of red meat. Ten million acres in California are now covered with brush, and it is this land that will contribute to a greater livestock economy for the state when it is brought into production by the removal of brush.

METHODS USED IN BRUSH REMOVAL

Mechanical - The bulldozer has been widely used in opening up the brush. The brush may be laid down in place by carrying the dozer blade about 8 to 12 inches from the ground, then later burned. It may be dozed clean and windrowed, allowed to dry, then burned. It can be railed down or crushed using some type of heavy equipment. No matter what method is used, it is advisable to disturb the top soil as little as possible. The degree of coverage of brush and the types of brush being removed will, of course, be a determining factor of which method will give the best results.

Costs of mechanical clearing of range will vary from \$10 per acre to \$30 per acre; the average being about \$17 for the initial operation. Follow-up is the most important single factor.

Fire - Permits are obtainable through the State Division of Forestry to burn during the summer months. Precautions and inspection outlined by the State Division of Forestry are laid down for the clearer's protection, as well as the protection of the public interests.

Organization is the keynote to success in the burning program.

Cost of brush removal by fire is by far the least expensive of all methods used, providing there are no escapes which are the clearer's responsibility. Costs vary from 35¢ to \$1.00 per acre. Organization and cooperation make for success in the burning program. Follow-up is the most important single factor.

Chemical - Chemical control of mixed brush on large acreages of mature stands has not as yet been successful in El Dorado County. We have much to learn on the amounts of 2-45T to use and what is the best carrier - oil, water, or oil emulsion. Time of application is important.

Tests put out on brush by the Agricultural Extension Service, Lowell Mobley, Agricultural Commissioner, and several farmers in the County have given control as follows:

| BRUSH | | MATERIAL USED | AMOUNT USED PER GALLON OF CARRIER | PER CENT KILL | WHEN APPLIED |
|--|--------|----------------|---|---------------|----------------------|
| Type | Age | | | | |
| Poison Oak | 3 yrs. | 24D | 3/4 gal. (40%) to 20 gal. Oil | 0% | Feb. 15, 1950 |
| | | 2-45T | 3/4 gal. (40%) to 20 gal. Oil | 2% | Feb. 15, 1950 |
| Mature Liveoak | | 24D and 2-45T | 3 pints to 5 gals. Diesel Oil (1 1/2 lbs. 24D per gal.) | 0% | Mar. 12, 1950 |
| Mature Chemise (Greasewood) | | 24D and 2-45T | Same as above, only in Water | 5% | Mar. 12, 1950 |
| Liveoak Sprouts | 2 yrs. | 2-45T plus 24D | 1/2 gal. each (40%) to 8 gal. Oil | 100% | Feb. 25, 1950 |
| Liveoak Sprouts | 2 yrs. | 2-45T | 1 gal. (40%) to 32 gals. Oil | 60% | Feb. 25, 1950 |
| Mature Liveoak Frilled and Basal Treatment | | 2-45T plus 24D | 1/2 gal. each (40%) to 8 gal. Oil | 100% | Feb. 25, 1950 |
| Liveoak Sprouts | 2 yrs. | 2-45T plus 24D | 3/4 pint each (40%) to 10 gal. Water | 85% | Aug. 1950 (very hot) |
| Liveoak | 3 mos. | 2-45T | 1 gal. (40%) to 100 gal. Oil | 90% | July thru Sept. |
| Scotch Brom | Mature | 24D | 1 gal. (40%) to 8 gal. Diesel Oil | 100% | May |
| Scotch Brom | Basal | 2-45T | 1 gal. (40%) to 32 gal. Diesel Oil | 25% | May |
| Blackberry | | 2-45T | 1 pint (40%) to 3 gal. Water | 100% | Aug. 19, 1950 |

Application -- Hand or power sprayer developing pressures ranging from 40 lbs./sq. in. for hand rigs to 85 lbs./sq. in. for power rigs. Complete coverage of the foliage is very important.

FOLLOW-UP

Chemicals undoubtedly will become an important part of the follow-up program. Live oak sprouts, one to three years old, have been effectively controlled with 2-45T in water and in diesel oil (1 pint 2-45T to 3 gal. of oil or water) when applied in late summer. Sprouting brush after mechanical clearing, when attacked early, show promising results.

Goats have been a very effective method of brush sprout control. Fencing adequate to hold goats is necessary. Use 12" mesh wire (not six) to prevent the goats from becoming "hung up" or entangled. The number of animals per acre is dependent on the site and degree of resprouting; however, probably not less than 3 goats per acre should be used.

Reburning will contribute to the follow-up program. This will require having adequate fuel on the range to carry a fire hot enough to destroy the sprouts. Defer grazing. Reburn in the second or third year after the original clearing. If the area cleared was 80% to 100% brush covered, a program of reseeding will be necessary to provide fuel for succeeding burns. Annual ryegrass sown at 10 to 15 lbs. per acre, or a cereal such as barley at 20 to 30 lbs. per acre, fall sown, should give good cover. (See section on Revegetation).

Follow-up will protect the original investment for clearing.

REVEGETATION

Under some circumstances, reseeding of the range will materially improve the forage value of the range and its consequent carrying capacity.

If the percentage of brush is not great, natural vegetation will take place without reseeding. The important thing is whether or not the desirable species are present. Bur clover, Fillaree and Soft Chess make up the principal desirable species and are the grasses upon which we are most dependent in El Dorado County.

Trashy annuals, such as Ripgut, Medusa Head, Red Brome, Goat Grass and Foxtails may be replaced by more desirable species by grazing them early when stock will eat them and thus prevent them from reseeding. Likewise, stock should be removed from the desirable annuals before the surface soil moisture is exhausted to enable them to come on and set seed and crowd out the trashy annuals.

RESEEDING

Any reseeding program, to be successful, will require a well prepared seed bed. Land preparation will consist of discing followed by harrowing to reduce clod size. After broadcasting the seed, a ring roller or float is necessary to compact the soil around the seed. Reduce the stand of competing grasses and weeds as much as possible.

Deep white ash of a good brush burn makes an excellent seed bed. Ash of grass burns is of little value as a seed bed.

Fall seeding is recommended. Late September to the middle of October is most satisfactory in order to take full advantage of the first fall rains, and to enable the young plants to reach a growth whereby they are able to resist damage from frost heaving. It is advisable to inoculate the legume seeds with a commercial bacteria inoculant.

WHAT TO PLANT

To prevent erosion on steep exposed slopes, annual Ryegrass or a cereal such as Barley to establish a fibrous root system to minimize soil washing, is desirable.

Rates

Annual Ryegrass 15 lbs. per acre
Barley 25 lbs. per acre

To Reseed Annual Grasses

Bur Clover 2 lbs. per acre
Filaree 2 lbs. per acre
Annual Rye 1 lb. per acre
(Rose Clover) .. 1 lb. per acre

Rose Clover is an early growing winter annual but will grow on soil too poor for Bur Clover.

To Reseed Perennial Grasses

Harding Grass 1 1/2 lbs. per acre
Alfalfa 1 lb. per acre
Annual Rye Grass 1 lb. per acre
Perennial Rye Grass 1 1/2 lbs. per acre
Burnet 1 lb. per acre
Annual Clover 1 lb. per acre

MANAGEMENT OF RESEEDED AREAS

If a good growth of the seeded grasses is obtained the first year, light spring grazing may be practiced; however, the stock must be removed before the surface soil moisture is exhausted to permit plants to set seed. The perennials, in particular, must be allowed to become established to enable them to get through the critical summer months and to perpetuate themselves.

Control of gophers and squirrels is a good investment. Dyeing seed yellow tends to prevent birds from eating the seed.

FERTILIZATION OF RANGE

The large percentage of El Dorado County soils are of such a nature that phosphorus is rendered somewhat unavailable to plants. To stimulate legume growth requires heavy applications of treble superphosphate. This varies with soil type. Tests within the county have shown the greatest response where rates of 600 lbs. of Superphosphate and 200 lbs. of Ammonium Sulfate (nitrogen) per acre have been used. Apparently, this heavy application of phosphorus carries over for a period of about three years. Yields in these plots over natural vegetation are tripled. Responses to lime applied at rates up to 1800 lbs. per acre have been negligible on four principal soil types.

Gypsum applied on Sierra clay loam at the rate of 250 lbs. per acre showed a response in two plots.

Tests are currently being conducted on phosphorus placement, that is, placing the phosphorus in the plant root zone rather than broadcast.

In general, grasses respond to applications of nitrogen (ammonium sulfate), ammonium nitrate, or ammonium phosphate), legumes respond to applications of phosphorous (treble superphosphate or ammonium phosphate in sufficient quantities).

To date, we have no figures that show range fertilization to be economically feasible. Tests are continuing.