

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA

GLENN AND COLUSA COUNTIES



RANGE ROUNDUP

COUNTY BUILDING

ORLAND, CALIFORNIA 95963

865-4487

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SEEDING AND FERTILIZING RANGELAND

There is a continuing interest in seeding and fertilizing Glenn and Colusa rangeland. New varieties, new seeding equipment, new technology and renewed effort of dealers are contributing to the interest.

Success in seeding rangeland is like any other dryland farming operation -- dependent upon the weather. First year stands are highly variable and there is risk of failure. Unlike dry farming, however, seeding range is a long term proposition, and even poor first year seedings have developed into excellent stands during future years. There are very few areas in Glenn and Colusa Counties where seedings were made, even as far back as the 1950's, where we can't find some of the seeded species persisting.

Establishing improved plant species on rangeland is deemed a natural resource conservation practice by County ASCS offices.

Seeding and fertilizing rangeland increases the plant community diversification, improves the water and mineral cycles, decreases soil erosion and provides feed or cover for wildlife. To encourage this, they provide 50% of the seeding cost up to \$3500 per farm, per year. No additional cost sharing may be made on the same land for a period of five years.

Increased carrying capacity, extending the grazing season, and more efficient livestock gains are, of course, the livestockman's reasons for improving range. Hard data based on livestock production are difficult to come by because few ranchers keep accurate production records of each paddock. One Glenn County rancher reported a 300 lb gain/steer on seeded land compared to 250 lbs on unseeded. Test plots with results evaluated by clipping at the end of the growing season showed 2 to 3

times more feed per acre containing twice the protein where annual legumes were established compared to the unseeded control. As much as 200 lbs per acre of nitrogen is produced by the rhizobium bacteria on legume roots.

Range seeding should be planned and implemented on an annual basis. In this way the cost in any one year is not great, the overall effect of weather is reduced, and livestock management changes are minimized.

Most annual legume seeds come from Australia so it is important to arrange for seed from your dealer well before planting.

My recommendations for annual legume seeding are outlined below:

Preparation

1. Think through and write down your ranch (and lifestyle) goals. Then push the pencil some more to see if seeding is the best use of your time and money.
2. Graze to leave about 400 lbs. per acre of dry stubble residue (whether the ground had been dry farmed or not). Do not seed in a dense mat of dry litter. It's better to burn it off first if grazing is impossible.
3. Have a soil sample analyzed for pH, phosphorous, sulfur and potassium. If the soil is very acid - pH below 5.5, fertilize with two tons sugar-beet lime per acre. (We have measured a 1 point pH increase in top 2" of soil after 7 years.) Fertilize with phosphorus, sulfur and potassium based on soil test as shown in Table 1.

Seeding and Fertilizing

1. During October, rain or no rain, drill seed and fertilizer with a Duncan-type triple disc opener drill. If the ground is so hard the drill won't penetrate 1/2" deep, wait for a rain.
2. The next best method is to disc lightly to make 1" grooves in the soil. Broadcast seed and fertilizer, then ring roll.
3. Don't put seed in loose fluffy soil, roll it first if necessary.
4. Use pellet inoculated seed. The fresher the inoculation the better. Seed at a rate of 10 lbs. (raw seed basis) per acre. The annual legume variety mix depends upon soils and climate (Table 2).

Management of New Stands

1. Graze to encourage the clover. Short duration grazing periods to reduce competition is recommended during winter except don't punch up wet, soft recently farmed ground.
2. Do not graze continuously during flowering and seed set the first spring.
3. Remove livestock before soil moisture is lost to allow completion of seed set (April 1 - June 1).
4. Graze heavily during the dry season to shatter seed and reduce residue feed.

Management of Established Stands

1. Fertilize based on soil test. Applications of 100 lbs single super phosphate equivalent every year will maximize

clover production. A visual test may be made by applying a high rate of phosphorous and sulfur in a strip across the field. If you can see a difference, it's time to consider fertilizing.

2. It is best to hold off grazing until 4 weeks after opening fall rains.
3. High stocking rates during the entire season will favor sub clover. Heavy grazing, except during May, will favor rose clover. Very light grazing will depress sub clover.
4. During 29 years of observation I have not seen a subclover stand grazed out, but several stands have been greatly reduced from under grazing.

The cost of range seeding will run \$40 to \$65 per acre. It pays to shop for seed and fertilizer.

Pelleted seed	\$10.00 - 15.00
Fertilizer	20.00 - 25.00
Drill rental	5.00 - 10.00
Tractor and labor	5.00 - 10.00
Miscellaneous	1.00 - 5.00
TOTAL	\$40.00 - 65.00

If 2 tons of sugarbeet lime are applied add \$20.00 to \$40.00 per acre depending on distance from Hamilton City.

Special Situations

For set aside, deep soils, controlled grazing, wildlife, etc., other legumes and perennial grasses may have a place.

VETCH

This annual legume produces best when established on recently farmed pH 6 to pH 8 loam soils and where it is allowed to set seed (ungrazed March 15 through June 15) at least every third year. Seed 15 lbs. inoculated seed per acre and fertilize the same as for other annual legumes. Management of the stand is the same as for perennials.

MEDICS

These annual legumes include our resident bur clover. New varieties from Mediterranean climates around the world are presently being tested in Glenn and Colusa counties. They are adapted to pH 6.0 to pH 8.5 loam soils. They have a high percent hard seed which aids in survival but we have not yet found a cultivar resistant to the alfalfa weevil. Seeding, fertilizing and management is the same as for other annual legumes.

PERENNIAL GRASSES

Deep soils or sites with late sub soil moisture will support perennial grass. The critical factors, in addition to soil moisture, are "no" competition during the first summer and control of grazing.

1. Four (4) lbs seed per acre should be drilled during fall or winter into cleared brushland, or summer fallowed ground, or sudan stubble. If annual grasses germinate with opening fall rains, they must be sprayed or harrowed out. Broadleaf weeds or brush seedlings and sprouts should be sprayed during late winter or early spring. Seeding can be as

late as February 1st in a clean seedbed.

2. Annual legumes at half rate may be seeded with perennials only if the seedbed is weed free. If the seedbed is weedy, the annual legumes should be direct drilled into the perennial grass the following fall.

3. Do not graze during the first year. In subsequent years grazing must be controlled to allow adequate growth for perennials.

4. There are a limited number of adapted species.

A. Perlagrass - best all around species.

B. Berber - (2nd choice Palestine) orchardgrass - most palatable.

C. Tall Fescue - not as drought tolerant as #1 & #2.

D. Tall Wheatgrass - not as drought tolerant as #1 & #2. Least palatable, later growing season, most alkali tolerant.

PERENNIAL LEGUMES

Requirements are similar to perennial grasses except they must be planted earlier in the fall before cold weather. Preplant or post emergence herbicides may be required.

Table 1. Nutrient Amounts to Apply Based on Soil Test

Soil Test ^a Phosphorus	lbs per Acre ^b P ₂ O ₅		lbs per Acre ^b Sulfur
<5ppm	120	+	100
5-10ppm	60	+	100
>10ppm	30	+	100

^a If pH is less than 5.5, apply 2 ton/acre sugarbeet lime. The test for sulfur is not accurate, but sulfur is deficient on most Glenn and Colusa County soils.

^b Various blends of fertilizer may be used to approximate these levels of P₂O₅ and S.

Table 2.

1987 RANGE SEEDING RECOMMENDATIONS

(for soils pH 5.5 - 7.0)

GLENN AND COLUSA COUNTIES

By Monte Bell, Farm Advisor

	<u>Flowering Date</u>	<u>Hard Seed Content</u>	<u>Heavy/Deep Soil Mix₂ lbs. (%)</u>	<u>Light/Shallow Soil Mix₂ lbs. (%)</u>
SUBTERRANEAN (SUB) CLOVERS ₁				
<u>Early Season</u>				
Northam	Early Mar.	High	- -	2.0 (20)
<u>Early Mid Season</u>				
Daliak	Mid Mar.	Medium	1.0 (10)	2.0 (20)
Seaton Park	Mid Mar.	Medium	1.0 (10)	2.0 (20)
Trikkala ₄	Mid Mar.	Low	1.0 (10)	1.0 (10)
<u>Mid Season</u>				
Esperance	Early April	Medium	1.5 (15)	1.0 (10)
Woogenellup	Early April	Low	1.5 (15)	- -
Clare ₅	Early April	Very Low	1.5 (15)	- -
<u>Late Season</u>				
Mt. Barker	Late April	Very Low	0.5 (5)	- -
ROSE CLOVERS				
Hykon	February	Very High	1.0 (10)	1.0 (10)
Wilton	February	Very High	1.0 (10)	1.0 (10)
TOTAL /AC			10 lbs. 100%	10 lbs. 100%

₁These legume varieties are low in estrogen content. Do not substitute with high estrogen varieties. High estrogen may cause infertility in sheep.

₂Use a combination of the two mixes for highly variable soil types.

₃Raw seed basis. Must be inoculated. 100 lbs. RHIZO-COTE seed contains about 67 lbs. raw seed. 100 lbs. PELINOC seed contains about 95 lbs. raw seed.

₄Trikkala is adapted to water logged soils.

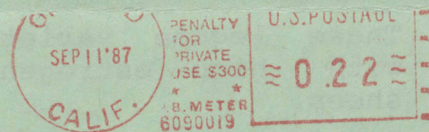
₅Clare will grow better than other varieties on soils with pH 7.

Monte Bell

Monte Bell
Farm Advisor

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

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