

COOPERATIVE EXTENSION
UNIVERSITY OF CALIFORNIA

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To: Seed and Fertilizer Dealers

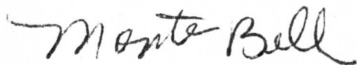
Re: RANGE SEEDING AND FERTILIZING

Range livestock operators in Glenn, Colusa and Tehama Counties often have questions on seeding and fertilizing rangeland. A group of us, including the field people of the various land management agencies and the universities in consultation with commercial dealers and ranchers, have developed these recommendations.

We tried to make the recommendations as soil-site-objective specific as possible. Naturally, you will have to make some changes as dictated by availability of seed and fertilizer. Varieties within the same species and maturity group may be substituted for each other. However, we don't think varieties high in estrogens should be seeded in our area. These varieties have caused infertility in ewes in Australia.

Range seeding and fertilizing are approved practices for cost sharing with the county ASCS offices. The sign-up period for 1985 will be this fall. Call ASCS Glenn County, 934-4669; ASCS Colusa County, 458-5131; and ASCS Tehama County, 527-3013 to receive announcements. The sign-up period is so short and so far in advance many of your customers may miss it.

Attached are example recommendations for fertilizing or seeding and fertilizing. The locations of the soil groups are shown on the enclosed maps. If you or your customer want more details or recommendations for different site-objectives contact one of us: Monte Bell, Farm Advisor, Glenn County, County Road 200 East, Orland, 865-4487; Colusa County, 741 Fremont Street, Colusa, 458-2105; Ron Knight, Farm Advisor, Tehama County, 1135 Lincoln Street, Red Bluff, 527-3101 or Soil Conservation Offices located at: 1413 Solano, Corning (for Glenn County), 824-2491; 220 12th Street, Colusa, 458-2931; or Field Office, 2 Sutter, Red Bluff, 527-4231.


Monte Bell
Farm Advisor
Glenn/Colusa Counties


Ron Knight
Farm Advisor
Tehama County

Range Fertilization Recommendation

Range Site Soil Group C with less than 50% brush or tree canopy.

Objective 1

Increase growth, total production and quality of resident feed.

Recommendations

Fertilize with 300 pounds ammonium sulfate per acre.

- a. Fertilize during October.
- b. If possible, allow four inches of grass growth before grazing.
- c. Fertilize a field every three to five years or 20% to 30% of a field each year.
- d. Fertilize all areas, not just the swales.
- e. It may be desirable to windrow and graze or bale surplus growth.

Results

Expect twice as much feed compared to unfertilized the first year and 30% increase during one of the next three years. Growth of nitrogen fertilized grass is two to four weeks ahead of non-fertilized grass.

- a. Clover must be present to obtain a carry-over response. Some areas and some years do not produce clover. The alfalfa weevil is capable of destroying bur clover.
- b. Bloat is a hazard in excellent bur clover years.
- c. Dry legumes contain adequate protein for animal growth; dry grass may not.

Range Seeding and Fertilization Recommendation

Range Site Soil Group C level and free enough of rocks, brush and trees to pull a drill.

Objective 1

Establish new species of annual legumes in order to increase feed quantity and quality over a wider range of environmental conditions. Grazing is not restricted to any particular season.

Recommendations

Direct drill 16 pounds pellet inoculated seed and 200 pounds single superphosphate per acre into stubble or undisturbed range.

- a. Stubble or range must be heavily grazed to reduce straw or residual feed.
- b. Order seed and Duncan type triple disc drill early.
- c. Plant during October.
- d. Drill to depth of 1/2 inch. Seed should be barely covered with soil. A drag behind the drill may be needed. (Second best method is to disc lightly making one inch grooves, broadcast seed and fertilizer then ring roll. Very powdery or very cloddy ground should be rolled before and after seeding.)
- e. Graze during early spring.
- f. Graze lightly from April 15 to June 1 in first year. Heavier grazing may be necessary if clover is overtopped by other plants.
- g. General seed mix:*

<u>Seed Set</u>	<u>Variety</u>	<u>% in Mix</u>	<u>Lbs. in Mix</u>
Early Season	Sub Clover		
	Nungarin	15	2.4
	Northam	10	1.6
Early-mid Season	Trikkala	15	2.4
	Seaton Park	15	2.4
Mid Season	Woogenellup	15	2.4
	Clare*	10	1.6
Late Season	Mt. Barker	10	1.6
Early-mid Season	Medic		
	Jemalong*		
Early Season	Rose clover		
	Hykon	5	.8
Mid Season	Wilton	5	.8
		100%	16 lbs/Ac

*Modified Seed Mix

Very droughty sites
Neutral (pH 7) soils

Add or Increase
Rose clover+Early subs
Clare, Jemalong

Reduce
Mid & late subs
Early season subs

Results

Expect a twofold increase in high quality feed where a clover stand has been established. Additional fertilizing will increase this to fourfold. Reasonably managed stands will last indefinitely at 30 to 60% clover -- grass mix.

- a. Grain yields will be increased following clover but if plowed (turned over) and sprayed for broadleaf weeds sub clover will need to be reseeded.
- b. Fertilizing every year or two with 100 or 200 pounds per acre single super will increase the percent stand, winter growth and total growth.
- c. Excellent stands of clover fix about 100 pounds of nitrogen per year.
- d. Close grazing during the entire season will favor sub clover. Grazing all year except April 15 to June 1 will favor rose clover. Undergrazing will depress sub clover.
- e. Bloat has not been a problem with sub or rose clover.
- f. In mixed stands, a heavy infestation of alfalfa weevil will destroy the medics (bur and Jemalong), moderately damage the subs and barely touch the rose clover varieties. Where the medics are not present, sub shows little damage.

If a perennial grass is desired, add two pounds Perlagrass and two pounds Palestine Orchardgrass per acre provided:

1. The rancher does not plan to farm the ground for at least five years.
2. The ground has been summer fallowed.
3. The pasture will not be grazed the first growing season, or livestock will be fenced out of the grass seeded area.

Soil Group A

Main soil series and complexes in this group include:

<u>Soil Series-Complexes</u>	<u>Approximate Rangeland Acreage</u>			<u>Total</u>
	<u>Colusa</u>	<u>Glenn</u>	<u>Tehama</u>	
Newville	---	38,000	194,000	232,000
Corning	7,000	15,000	70,000	92,000
Red Bluff	---	---	12,000	12,000
Dibble	---	---	12,000	12,000
Perkins	---	2,000	9,000	11,000
Redding	---	300	10,300	10,600
Pleasanton	---	1,700	700	2,400
Chamisal	1,700	---	---	1,700
Total	8,700	57,000	308,000	373,700

Associated soils include Hillgate and Kimball.

Most of the acreage in this group lies in the first foothills west of the Sacramento River in an 8 to 20 mile wide dissected terrace running from French Creek in Glenn County north to the Tehama-Shasta line.

In the south region these soils are located on small terraces in a broken belt along the foothills west of Arbuckle, Williams and Maxwell and another narrow broken strip runs from Stonyford to Newville in the Stony Creek Valley.

These are brown or red gravelly terrace soils, well drained on the surface but have a clay pan 8-22" deep. They are chiefly hilly to steep but are nearly level in a few places. Elevation ranges between 250 and 2,000 feet and the rainfall from 17 to 30 inches.

The poor soil structure makes it extremely hard when dry and soft when wet (consistency of concrete wet or dry). Water may stand in low spots during the winter but the surface dries quickly with warm north winds during the spring.

Dry feed quality is poor because there are no effective legumes. The characteristic vegetation consists of:

- 5-10% desirable grass, soft chess, slender wild oats.
- 10-20% less desirable grass, medusa-head, fescue, red brome ripgut.
- 20-50% desirable forbs, broadleaf filaree, native lotus.
- 25-55% undesirable forbs, plantain, lupine, tarweed.
- Some sites have dense tree and brush clover, blue oak, manzanita, buck-brush, live oak and differ pine.

Feed production is low:

- 800-1,800 pounds per acre dryland barley where farmable with 5-7 year rotation.
- 300-1,500 pounds dry matter per acre of open land.
- 0.4 - 1.9 animal unit months (AUM) per acre.
- 2.7 - 0.5 acres per AUM.
- Ranchers figure 20 acres per head for a 4-6 month season running from November through May.

Soil Group B

Main soil series and complexes in the group include:

<u>Soil Series-Complex</u>	<u>Approximate Rangeland Acreage</u>			<u>Total</u>
	<u>Colusa</u>	<u>Glenn</u>	<u>Tehama</u>	
Altamont	88,400	26,600	6,500	121,500
Nacimiento	---	25,400	42,300	67,700
Ayar	25,900	1,700	---	27,600
Myers	<u>10,100</u>	<u>8,000</u>	<u>100</u>	<u>18,200</u>
Total	124,400	61,700	48,900	235,000

Associated soils include Antone, Forgeus, Rumsey, Shedd, Yolo, Zamora, Tehama and Maywood

The soils of this group comprise the bulk of the first foothills from the Yolo-Colusa line north to French Creek in Glenn County where they are interrupted by Group A soils. Group B starts again at the Glenn-Tehama line and runs in a wide belt just west of Group A soils north to Red Bank Creek.

This area known as the bald hills is among the best valley rangelands in California.

Other soils in this group lie in narrow flood plains along the many creeks that dissect the terraces. These are heavy, deep, brown soils with mostly calcareous subsoils. Moisture-holding capacity is high; however, cracks to bedrock develop when dry. These soils are rolling to very steep and lie between 150' and 2,000' in elevation and rainfall ranges between 15 and 25 inches.

The alfalfa weevil has drastically reduced the traditionally excellent stand of bur clover on these soils.

Summer weeds such as star thistle, bull thistle and tarweed are often problems.

Characteristic Vegetation Consists of:

- a. 30-70% desirable annual grass, mostly wild oats, slender wild oats, ryegrass, soft chess.
- b. 10-20% undesirable annual grass, mostly medusa-head with some fescues.
- c. 10-20% desirable annual forbs, mostly bur clover and some annual trifoliums.
- d. 10-20% undesirable annual forbs, mostly star thistle with some bull thistle and tarweed.

Feed Production is High:

- a. 1,600-2,500 pounds per acre dryland barley in 5-7 year rotation.
- b. 1,500-3,500 pounds dry matter per acre.
- c. 1.9 - 4.4 animal unit months (AUM) per acre.
- d. 0.5 - 0.2 acres per AUM.
- e. Ranchers figure 5 acres per head for a 5-7 month season.

Soil Group C

Main soil series and complexes in this group include:

<u>Soil Series-Complexes</u>	<u>Approximate Rangeland Acreage</u>			<u>Total</u>
	<u>Colusa</u>	<u>Glenn</u>	<u>Tehama</u>	
Millsholm	---	29,900	60,800	90,700
Sehorn	---	56,800	30,800	87,600
Contra Costa	56,900	9,100	---	66,000
Millsap	---	<u>1,400</u>	<u>12,500</u>	<u>13,900</u>
Total	56,900	97,200	104,100	258,200

Associated soils include Polebar.

Soils in this group are located on the taller foothills in a 2-10 mile wide band between the lower foothills (soil Groups A and B) and the western valley trough running from Bear Valley north through Indian Valley, Stony Creek Valley and north to the Tehama-Shasta line. Elevation ranges from 300 to 2,000 feet and average annual rainfall is 20 to 35 inches.

These soils are brown in color, acidic, fine to medium textured, shallow to moderately deep, moderately steep and underlaid by hard sandstone and shale. Occasional soil slips occur on steep sties when the soil is saturated. They have an oak-grass cover. Millsholm is usually on south facing slopes; shallow (6-17") and free of brush and trees. Sehorn developed from the same parent material, but on north slopes, and deeper (12-27") and may have heavy tree cover.

Major problems which cause low forage yields are low fertility and water-holding capacity. The alfalfa weevil has greatly reduced the bur clover stand in recent years.

Characterteristic vegetation consists of:

- a. 10-25% desirable annual grass, mostly soft chess and slender wild oats.
- b. 10-25% less desirable annual grass, mostly fescue and red brome with some ripgut and medusa-head.
- c. 10-50% desirable forbs, mostly broadleaf filaree with some bur clover.
- d. 15-30% undesirable forbs, mostly star thistle and tarweed.

Feed production is moderate:

- a. 1,200-1,800 pounds per acre dryland barley in 5-7 year rotation.
- b. 1,000-2,500 pounds dry matter per acre of open land.
- c. 1.3 - 3.1 animal unit months (AUM) per acre.
- d. 0.8 - 0.3 acres per AUM.
- e. Ranchers figure 10 acres per head for a 6-7 month season.