NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

RANGELAND FERTILIZATION

(acre)
CODE 721 CA INTERIM

DEFINITION

Adding natural or manufactured plant nutrients, other than lime or gypsum, to the soil.

PURPOSES

To aid in the initial establishment of desirable plant species or improve plant cover for erosion control, forage production and wildlife habitat.

CONDITIONS WHERE PRACTICE APPLIES

On rangeland, forests and wildlife land where vegetative cover is poor condition, and is in need of some form of plant nutrients to increase the health of the plants.

The most profitable results from Range Fertilization will be on the best and most productive soils. Good results from Range Fertilization require that:

1. The site receives an average annual rainfall of 12 to 20 inches, and the soils are greater than 20 inches in depth.

2. The rainfall is greater than 20 inches, and the soils are greater than 12 inches in depth.

3. The area is readily accessible for use of equipment, and fenced so that the time and amount of grazing can be controlled.

CRITERIA

From an on site observations of the plants, and the current health conditions of the plants, a determination can be made of the nutrients needed to restore the health and growth of the plants.

Select the most economical type of fertilizer available in the vicinity, and determine the quality needed, and the time of application.

Fertilizing of rangeland should be well defined and based on Technical facts and economic data.

When used as a single practice, fertilize one acre for each mature cow. This will provide for the herd for 4 to 6 weeks while the unfertilized range is reaching grazing readiness.

When used in conjunction with seeded and fertilized perennial, and unfertilized annuals, fertilize an area equal to one-half the acreage that has been seeded to the perennial.

CONSIDERATIONS

Fertilization may be needed to establish seedings, improve cover for erosion control, increase forage production and quality or extend the green forage season.

Rates of fertilization should be determined by soil or plant tissue tests or by local experience. Ranch trails may be needed to determine fertilizer kinds and rates.

Compare costs to expected returns (economic evaluation).

When fertilizing for increase of forage the producer needs to have livestock on hand to take advantage of the investment in fertilizer.

Fertilization of perennial grazing lands is usually not recommended.

Fertilize those sites that are capable of high forage production

The most profitable use of nitrogen fertilizer has been in areas having between 13 to 25 inches of precipitation.

The nutrient requirements of California rangeland have been determined by Univ. of Calif. and USDA researchers to be:

- nitrogen
- nitrogen + phosphorus
- nitrogen + sulphur
- nitrogen + phosphorus + sulphur

Water Quantity

Minimal effects on water quantity are expected from this practice. The increased plant growth will increase water infiltration and decrease overland flow.

Water Quality

Properly applied fertilizers will not decrease water quality. Should increased rates or untimely intense rainfall occur, water transported nutrients may reach drainage ways. Buffer or filter strips below treatment area should be planned to reduce this hazard.

Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that critical periods, such as spawning, eggs in gravels, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

PLANS AND SPECIFICATIONS

Specification will be prepared in keeping with the purposes of the practice, and further specifies the kind of fertilizer, amounts, and time of application.

Kind of Fertilizer:

Ammonium Sulfate	(21-0-0)
Ammonium Phosphate	(16-20-0)
Triple Superphosphate	(0-36-0)
+ Sulphur	(0-36-0-20)
Urea	(40-0-0)
Manure	(---)

Time of Application:

Fertilizer response varies depending on inherent fertility of the soil.

1. To insure early growth, apply fertilizer prior to the first fall rains, and when the average temperatures are 50 degrees F or more; or use a combination of nitrogen and phosphorus.

2. Fertilizer containing sulphur may be necessary on some soils to increase growth of the clovers. This will add to total production and improve the quality.

3. The first year apply 60-80 lbs of N/ac and about equal amounts of phosphoric acid to overcome soil deficiencies and supply the elements to the plants. After the initial year apply 30 to 40 pounds of N/ac and about equal amounts of phosphoric acid annually to maintain high production.

Application Rate:

1. Nitrogen - 40-80 lbs/ac

2. Phosphorus - when soil or plant tissue tests show,

- less than 5 ppm, use triple superphosphate,
- 100-200 lbs/ac.
- 5 to 10 ppm, use superphosphate, 50
-100 lbs/ac.

3. Potassium (K)

When soil or plant tissue tests show:

- 0-75 ppm, use 50-80 lbs/ac
- 75-150 ppm, use 30-50 lbs/ac
- greater than 150 ppm, no application

Method of application:

Fertilizer can be applied from ground equipment or by aircraft depending on form.

OPERATION AND MAINTENANCE

In order to achieve the most for the fertilizer dollar, the area treated should:

1. Be fenced to control grazing

2. Be protected until the grasses are 4 to 6 inches in height.

3. When grazing is allowed, after 2 above, adequate residues should be left at the end of the grazing period for ground protection and for quick growth response the following year.