NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

GRAZING LAND MECHANICAL TREATMENT (ACRE)

CODE 548

DEFINITION

Modifying physical soil and/or plant conditions with mechanical tools by treatments such as: pitting, contour furrowing, and ripping or sub-soiling.

PURPOSES

This practice should be applied as part of a conservation management system to support one or more of the following purposes:

- Fracture compacted soil layers and improve soil permeability.
- Reduce water runoff and increase infiltration.
- Break up sod bound conditions and thatch to increase plant vigor.
- Renovate and stimulate plant community for greater productivity and yield.

CONDITIONS WHERE PRACTICE APPLIES

This standard may be applied on native grazing land where an increase in desirable perennial plants can be achieved by reducing competition from aggressive weedy species, and/or improving soil moisture conditions;

Where grazing deferment alone will not improve the overall condition of the rangeland;

Where soil types and slope are suitable for each method and type of equipment needed;

Where livestock grazing is managed to allow plants to respond to this treatment.

CRITERIA

General Criteria Applicable To All Purposes

Mechanical treatments such as chiseling, contour furrowing, scalping, pitting, ripping, or disking shall be designed and applied in a manner to accomplish the desired objectives and address the natural resource concerns. These treatments shall be limited to soils and slopes where surface disturbances will not result in unacceptable levels of soil erosion and/or sedimentation.

Apply this practice on fine and medium textured soils having few or no stones in the upper profile, or on soils with a claypan present. Do not apply on soils extremely high in sodium, as puddling and soil erosion will result.

Chiseling, contour furrowing, scalping, and deep ripping should not be applied on slopes greater than 15 percent. Disking or other renovation should not be applied on slopes greater than 10 percent.

Desirable forage species shall be of sufficient quantity and have a distribution pattern that allows the plants to take advantage of the improved moisture and to spread into disturbed areas.

Areas to be treated shall be relatively free of undesirable or noxious plants that are likely to increase because of surface disturbance.

Following treatment, desirable forage species shall have adequate recovery periods from grazing to improve plant vigor. The treated area must be deferred from grazing from the date of application until October 1 the first year, and from May 1 to October 1 the following year.

NRCS, MT
June 2002

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard contact the Natural Resources Conservation Service.

NOTE: This type of font **(AaBbCcDdEe 123..)** indicates NRCS National Standards.
This type of font (AaBbCcDdEe 123..) indicates Montana Supplement.

This practice is generally applied in the spring or fall of the year when soil moisture conditions ensure adequate penetration of equipment and destruction of existing vegetation.

All treatments should be planned on the contour when conditions warrant.

CONSIDERATIONS

This practice will not alleviate the negative effects of poor grazing management unless a prescribed grazing plan is initiated at the time of practice installation.

Drought following treatment, low vigor plants, or other conditions may require extended recovery periods for the desirable forage species. The cooperator will be encouraged to extend the grazing deferment period whenever the situation warrants.

If the treated area is used for dormant season grazing, or as a feeding area, care must be taken not to compact the soil or damage desired plants, especially during the first two years following treatment.

Resident wildlife needs should be considered when planning the treatment. Small birds often use treated areas for nesting sites.

Apply the selected treatment to as many acres as possible within a given field or range unit to achieve uniform grazing utilization.

The value of the expected improvement in forage production must be sufficient to justify the costs of mechanical treatment and grazing deferment.

Contour furrowing and chiseling will result in the stimulation of western wheatgrass and other rhizomatous grasses.

Mechanical treatments should not be considered in watersheds where run-off is captured to be stored in a reservoir.

Contour furrowing results in excessively rough ground for several years and may not be acceptable to some landowners.

Chiseling can be confined to a shallow depth to break up dense stands of blue grama, dense clubmoss, and dryland sedges without leaving the land too rough.

When chiseling for dense clubmoss control, pulling large-sized tires filled with soil behind the equipment can be effective to smooth soil roughness. This also is effective in burying the clubmoss plants and helps it to decompose.

Mechanical treatment may not be desirable on areas to be used for recreation due to enhanced surface roughness of the site.

Range seeding is generally not recommended with this practice. However if certain areas need to be seeded, refer to the **Field Office Technical Guide (FOTG), Section IV–Practice Standards and Specifications 550–Range Planting Specification.**

Specifications for installation of this practice shall be prepared for each site or planning unit according to the **FOTG, Section IV–Practice Standards and Specifications 548–Grazing Land Mechanical Treatment Specification.**

OPERATION AND MAINTENANCE

Operation: Implementation of a plan is essential. Without a prescribed grazing plan the desired effects of this practice will not be achieved, and the practice may need to be repeated.

<u>Maintenance</u>: The manager will use FOTG, Section IV–Practice Standards and Specifications 528A–Prescribed Grazing on the treated acres to insure longevity of the practice. Mechanical or chemical control of weeds or other undesirable species may be needed following treatment.

REFERENCES

***Clubmoss on Montana Rangelands*, Montana State University, Bulletin 645, 1970.**

***Range Developments and Improvements*, John Vallentine, Brigham Young University, 1977.**

***Montana Sage Grouse Conservation Plan (Draft)*, 2002, Montana Sage Grouse Working Group.**

USDA-Natural Resources Conservation Service, Field Office Technical Guide, Section IV: Practice Standards and Specifications:

528A–Prescribed Grazing, 2002.

550–Range Planting, 2000.

595–Pest Management, 2000.

644–Wetland Wildlife Habitat Management, 2000.

645–Upland Wildlife Habitat Management, 2000.