FORAGE SUITABILITY GROUP

Clayey, Dry-Acid"LRU G"

10 – 14" ppt & 90 – 120 Freeze Free Days (AWC 3-6")

FSG No.: GO60AG004WY

Major Land Resource Area (MLRA) : 60A – Pierre Shale Plains and Badlands

Physiographic Features

This area is considered the Pierre Shale Plains and badlands with practically all of the area being in farms and ranches. The elevation ranges from 2,624 to 3,609 feet but may range as high as 4,265 feet (800 to 1,100 meters but may range as high as 1,300 meters). The area is mostly in native grasses and is used for grazing livestock. There are some small areas of nearly level to moderately sloping tracts that are farmed to winter wheat or are used for producing feed crops for the livestock. The shale plains have long, smooth slopes and are mostly gently sloping to strongly sloping. Along drainages and streams the slopes are moderately steep to steep. The badlands consist of eroded walls and escarpments, small grass-covered tableland and mesas and basins in which there are scattered buttes. This area is cut by many drainages and gullies.

Climatic Features

The annual precipitation ranges from 12 - 16 inches per year. Most of the precipitation occurs falls during the growing season. Precipitation in the winter is mainly snow that usually is accompanied by high winds that may cause much drifting. Average snowfall is from 24 – 35 inches (60 to 90 cm).

Temperatures are subject to wide ranges, both seasonal and day to night. Sunshine is quite abundant with few days during the year without some sunshine. Because of the limited precipitation, production of cultivated crops is marginal. Most soils are moist or wet in the spring and are deficient of moisture during much of the growing season. Water for livestock comes mainly from runoff that flows into dams.

This is in Land Resource Area "G". The precipitation in this LRU is 10 – 14 inches and has a freeze free period of 90 to 120 days.

There is a wide variation in freeze free days and precipitation in this MLRA. Please be sure and visit with the local field office for site specific climatic information that is available in the Field Office Technical Guide, Section I, Climatic Data, http://www.nrcs.usda.gov/technical/efotg/ or refer to the National Water and Climate Center web page at http://www.wcc.nrcs.usda.gov.

Soil Interpretations

This group consists of deep, moderately fine textured soils. These soils have a low water holding capacity (AWC) of 3 to 6 inches in 60 inches of root depth. The major limiting factor of this soil is the pH. The pH will range from approximately 4.5 to 5.5. The permeability class ranges from slow to moderately slow.

The soil survey maps were completed for the purposes of developing plans for tracts of land and can not be used to determine the soils on or the suitability of a specific site. Consequently, small areas of significantly different soils are not identified on the maps and may occur in any map unit.

Refer to Appendix A, Forage Suitability Group Rules in Section II, of the Field Office Technical Guide, Pastureland and Hayland Interpretations for the parameters used in grouping the soils.

Soil Map Unit List

For a complete listing of soil components and what Forage Suitability Group the soil is in, refer to Appendix B, Section II of the Field Office Technical Guide, Pastureland and Hayland Interpretations.

Adapted Species List

Refer to Appendix C, Adapted Species for Forage Suitability Groups in Section II of the Field Office Technical Guide, Pastureland and Hayland Interpretations Interpretations or access the electronic adapted species list at http://efotg.nrcs.usda.gov/references/public/WY/10-14_INCH_PRECIPITATION_ZONE_ADAPTED_SPECIES_MATRIX_60A_APPENDIX_C.pdf. Additional information concerning plant characteristics of a number of the listed species as well as individual cultivars of many of those species can be accessed on the web at http://plants.usda.gov.

Production Estimates

Production estimates are based on management intensity (fertility regime, irrigation water management, harvest timing, etc.) and should be considered as estimates only. The estimates should only be used for making general management recommendations. On site production information should always be used for making detailed planning and management recommendations when available.

The high forage production estimates listed below are based on dense, vigorous stands of climatically adapted, superior performing cultivars. They are properly fertilized for high yields, and pest infestations are kept below economic thresholds. Mechanical harvests are managed to maintain stand life by cutting at appropriate stages of maturity and harvest intervals. If grazed, optimum beginning and ending grazing heights are adhered to. Adequate time is allowed for plant recovery before entering winter dormancy under both uses.

The production estimates listed below represent total annual above ground plant production on an air-dry-matter basis. Production on pastures in many instances is species dependent and depends if the pasture is a single species pasture or a mixture of grass species. To convert the information below to AUM's (Animal Unit Months), multiply the pounds per acre by 35 per cent and then divide by 790 (example: assume 2,800 pounds per acre: 2,800 X .35 ÷ 790 = 1¼ AUM's).

Irrigation: The expected production for grass would be from 2,000 to 4,000 pounds per acre. The expected production for legumes would range from 4 to 6 tons per acre.

Dryland: The expected production for grass would be from 400 to 700 pounds per acre. The expected production for legumes would range from 2 to 3 tons per acre.

Forage Growth Curves

LRU G

Growth Curve Number: WY0012
Growth Curve Name: Cool Season Grass
Growth Curve Description: Dryland (10 – 14" precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	35	40	10	5	5	0	0	0

Growth Curve Number: WY0013
Growth Curve Name: Cool Season Grass
Growth Curve Description: Irrigated (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	30	25	15	5	0	0	0

Growth Curve Number: WY0008
Growth Curve Name: Legumes
Growth Curve Description: Irrigated (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	25	20	20	20	10	0	0	0

Growth Curve Number: WY0009
Growth Curve Name: Legumes/Cool Season Grass
Growth Curve Description: Irrigated (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	30	20	15	15	10	0	0	0

Growth Curve Number: WY0003
Growth Curve Name: Legumes
Growth Curve Description: Dryland (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	20	25	20	25	5	0	0	0

Growth Curve Number: WY0004
Growth Curve Name: Legumes/Cool Season Grass
Growth Curve Description: Dryland (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	30	30	15	5	10	0	0	0

Growth Curve Number: WY0005
Growth Curve Name: Warm Season Grass
Growth Curve Description: Dryland (10 – 14” precipitation)

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0		10	40	35	15		0	0	0

Management

The soils in this group can be quite acidic. Acid soils often contain soluble forms of aluminum and manganese. As soil acidity increases (pH decreases), soluble aluminum and manganese increase to toxic levels. Aluminum toxicity restricts root growth and phosphorus uptake. Manganese toxicity causes black necrotic or streaks on leaves of cereals and chlorosis on leaf margins. Soil acidity also has a direct effect on the survival and growth of rhizobium bacteria which fix nitrogen in association with legumes. The rhizobium bacteria associated with alfalfa and sweet-clover are especially sensitive to acidity. Well-drained, productive soils under good management will slowly become more acidic because acidity is a natural result of high production.

The first step in the management of acid soils is to identify the extent and severity of the problem. Poor yields of acid sensitive crops may indicate an acid soil condition, but soil tests are the only sure method of identifying an acidity problem. With careful sampling of fields, soil tests can determine the extent and severity of soil acidity, the rate of lime required, and provide an estimate of crop response to lime (UW tests do NOT provide an estimate of crop response). An estimate of crop response along with the cost of lime provides a basis for assessing the economics of liming. A lime requirement test should be requested in order to determine the amount of lime required to bring the soil to a pH of 6.5. The rate of lime required depends on the amount of pH change that is required and the buffering capacity of the soil. Buffering capacity refers to the amount of lime required to change the pH a given amount. In addition, the amount of lime required will depend upon the Calcium Carbonate Equivalency (CCE) of the lime source. This is a function of the purity and particle size of the material. Soils low in organic matter have low buffering capacities while soils high in organic matter have a high buffering capacity. Forage plants grown on these soils may require special treatment. In many cases the treatment may consist of the application of lime. Depending on soil tests as to what the pH of the soil is, the amount of lime required can be minimal to very large amounts.

The relationship between soils, vegetation and climate on any given site is historically driven by the ability of the plants to grow and change as conditions warrant and has allowed various species to express themselves naturally. Under agronomic conditions, production-enhancing practices have altered the original limits of the biomass production. The modification of growth factors, customized selection of species and wise use of a variety of management practices have the potential to produce yields and quality far superior to those found in the native state.

These soils when in forage management system should see organic matter at a steady or a slowly climbing state. If erosion from either wind or water is a concern, the current erosion prediction tool should be used to ensure that the erosion concern is addressed properly. Refer to the pasture and hayland planting standard or the forage harvest standard in the Field Office Technical Guide, Section IV for further management information.

FSG Documentation

Data References:

Agriculture Handbook 296 - Land Resource Regions and Major Land Resource Areas
Natural Resources Conservation Service, National Water and Climate Center (NWCC)
National Soil Survey Center, National Soil Information System (NASIS)
National Range and Pasture Handbook
Natural Resources Conservation Service, Field Office Technical Guide (FOTG)
Various Agriculture Research Service (ARS), Cooperative Extension Service (CES), and Natural Resources Conservation Service (NRCS) information on plant trials for adaptation and production.
"Dryland Pastures in Montana and Wyoming" Species and Cultivars, Seeding Techniques and Grazing Management, Montana State University, EB19

State Correlation:

Similar FSG's:

Similar FSG's in South Dakota would be:

This site has been correlated with the following states:
SD

Forage Suitability Group Approval:

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