

FORAGE SUITABILITY GROUP

Loamy, Sodic (AWC > 6")

FSG No.: GO34XA009WY

GO34XB009WY

Major Land Resource Area (MLRA) : 34 - Central Desertic Basins, Mountains, and Plateaus

Physiographic Features

This area is considered the Central Desert Basins, Mountains and Plateaus with slightly more than half of the area being federally owned. The remainder of the area is privately owned. The elevation ranges from 6,234 to 7,218 feet (1,900 to 2,200 meters). The area spreads from alluvial fans and slopes to surrounding mountains with broad intermountain basins. Water is scarce and ground water supplies are meager and little developed. Most of the area is used for cattle and sheep grazing with some hay and pasture along the streams.

Climatic Features

This area is classified as semi-arid. Annual precipitation ranges from 7 - 14 inches per year. Maximum precipitation occurs in the spring and fall. Relative humidity is low. The prevailing winds on the high plains are from the southwest during the fall and winter and from the southeast during the spring and summer with the highest average wind velocities during the fall and winter.

Temperatures are subject to wide ranges, both seasonal and day to night. The high elevation of the plains and the dry air in this area permit large amounts of incoming and outgoing radiation, giving rise to warm days and cool nights. Late spring and early fall freezes are common, because of the cold air outbreaks from Canada, high elevation and rapid nighttime cooling. Sunshine is quite abundant with few days during the year without some sunshine.

For further climatic information look in the Field Office Technical Guide, Section I, Climatic Data, 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, medium textured soils. The loam soils tend to be mellow and are easily worked, and have a pore-size distribution that results in good water retention and aeration. These soils have a water holding capacity (AWC) of greater than 6 inches in 60 inches of root depth.

Sodicity refers to soil exchange capacity and the degree to which sites are occupied by sodium ions, as compared to more preferred calcium and magnesium ions. The soils have an Electrical Conductivity (EC) of less than 4 mmhos/cm and a pH of greater than 8.5. The permeability class ranges from slow to moderately rapid.

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.

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.

7 - 9 Precipitation Zone

Irrigation: The expected production for grass would be from 1,000 to 2,000 pounds per acre. Legumes are not suited.

Dryland: The expected production for grass would be from 300 to 500 pounds per acre. Legumes are not suited.

10 - 14 Precipitation Zone

Irrigation: The expected production for grass would be from 1,000 to 2,000 pounds per acre. Legumes are not suited.

Dryland: The expected production for grass would be from 400 to 700 pounds per acre. Legumes are not suited.

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.

Forage Growth Curves

Refer to Appendix D, Section II of the Field Office Technical Guide, Pasture and Hayland Interpretations.

Management

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.

Plant growth is adversely affected in sodic soils due to one or more factors. Soil sodicity problems can cause dense, impermeable surface crusts that hinder emergence of seedlings. Excess exchangeable sodium in sodic soils has a marked influence on the physical soil properties. As the proportion of exchangeable sodium increases, the soil tends to become more dispersed which results in the breakdown of soil aggregates and lowers the permeability of the soil to air and water.

Soils saturated with sodium tend to be very difficult to work with. These soils are sometimes consolidated, blocky and poorly drained. These soils we often refer to as "gumbo". Sodic soils are treated by replacing adsorbed sodium with a soluble source of calcium. Native gypsum, calcium in irrigation water or commercial amendments can supply the calcium. Adequate drainage also must be present.

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:

This site has been correlated with the following states:
Colorado

Forage Suitability Group Approval:

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