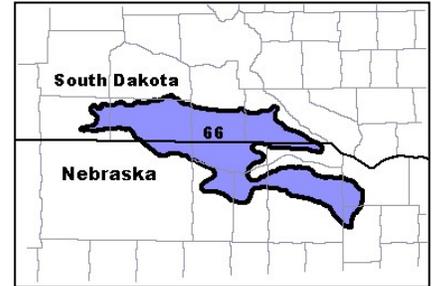


FORAGE SUITABILITY GROUP Wet

FSG No.: G066XY900NE

Major Land Resource Area: 66 - Dakota-Nebraska Eroded Tableland



Physiographic Features

The soils in this group are found on flood plains, terraces, interdunal areas of sandhills, and upland basins and depressions.

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1970	2950
Slope (percent):	0	3
Flooding:		
Frequency:	None	Frequent
Duration:	None	Brief
Ponding:		
Depth (inches):	0	6
Frequency:		
Duration:	None	Long
Runoff Class:	Negligible	Low

Climatic Features

This group occurs in a mid-continental climate characterized by wide seasonal temperature and precipitation fluctuations and extremes.

Annual precipitation varies widely from year to year in MLRA 66. Average annual precipitation for all climate stations listed below is about 21 inches. About 77 percent of the annual precipitation occurs during the months of April through September. On average there are about 29 days with greater than .1 inches of precipitation during that same time period.

Average annual snowfall ranges from 33 inches at O'Neill, NE to 43 inches at Harrington, SD. Snow cover at depths greater than 1 inch range from 43 days at Springview, NE to 64 days at Harrington, SD.

Average July temperatures across the MLRA are about 74 degrees F., and average January temperatures are about 20 degrees F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -38 at Harrington and a high of 110 both recorded at Mission, Springview, and O'Neill. The MLRA lies in USDA Plant Hardiness Zones 4b and 5a.

The climate data listed in the tables below represent high and low ranges and averages for the climate stations and dates listed. For additional climate data access the National Water and Climate Center at www.wcc.nrcs.usda.gov

	From	To
Freeze-free period (28 deg)(days): (9 years in 10 at least)	120	150
Last Killing Freeze in Spring (28 deg): (1 year in 10 later than)	May 23	May 08
Last Frost in Spring (32 deg): (1 year in 10 later than)	Jun 01	May 20
First Frost in Fall (32 deg): (1 year in 10 earlier than)	Sep 07	Sep 17

First Killing Freeze in Fall (28 deg): (1 year in 10 earlier than)	From Sep 11	To Sep 26
Length of Growing Season (32 deg)(days): (9 years in 10 at least)	104	130
Growing Degree Days (40 deg):	4580	5148
Growing Degree Days (50 deg):	2615	3038
Annual Minimum Temperature:	-25	-15
Mean annual precipitation (inches):	18	25

Monthly precipitation (inches) and temperature (F):

2 years in 10:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip. Less Than	0.08	0.11	0.33	0.62	1.70	1.51	1.54	0.91	0.65	0.53	0.15	0.16
Precip. More Than	0.54	1.24	2.70	3.97	5.70	5.65	4.96	3.94	4.34	2.64	1.49	0.85
Monthly Average:	0.34	0.49	1.42	2.16	3.40	3.46	3.07	2.22	2.15	1.32	0.71	0.52
Temp. Min.	7.1	12.4	20.8	31.7	42.4	52.3	58.5	55.8	45.2	33.5	20.7	10.0
Temp. Max.	30.3	36.2	46.8	62.1	72.9	82.8	88.7	86.5	76.2	64.5	46.4	33.3
Temp. Avg.	19.7	24.8	34.1	47.1	57.9	68.0	74.2	72.1	61.8	49.8	34.7	22.9

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
SD3574	Harrington SD	1961	1990
SD5620	Mission SD	1966	1990
SD5638	Mission SD	1961	1990
SD0778	Bonesteel SD	1961	1990
NE8090	Springview NE	1961	1990
NE6290	O'Neill NE	1961	1990

Soil Interpretations

This group consists of poorly drained, coarse to fine textured soils. They are ponded during a portion of the year or have a seasonal watertable at or near the surface during part of the growing season.

Drainage Class:	Poorly drained	To	Poorly drained
Permeability Class: (0 - 40 inches)	Very slow	To	Rapid
Frost Action Class:	Moderate	To	High

	<u>Minimum</u>	<u>Maximum</u>
Depth:	72	
Surface Fragments >3" (% Cover):	0	3
Organic Matter (percent): (surface layer)	0.5	8.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	0	4
Sodium Absorption Ratio: (0 - 12 inches)	0	5
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	5.6	9
Available Water Capacity (inches): (0 - 60 inches)	5	9
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	12

Soil Component List (Some phases of these soils may also occur in other FSGs)

Albaton variant	Bigwinder	Kolls	Scott
Almeria	Fedora	Loup	

Adapted Species List

The following forage species are considered adapted to grow on the soils in this group. 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/>.

<u>Cool Season Grasses</u>	<u>Symbol</u>		<u>Warm Season Grasses</u>	<u>Symbol</u>
Creeping foxtail	ALAR	G	Switchgrass	PAVIV F
Reed canarygrass	PHAR3	G	<u>Legumes</u>	<u>Symbol</u>
Tall wheatgrass	THPO7	F	Alsike clover	TRHY F
Western wheatgrass	PASM	F		

G - Good adaptation for forage production on this group of soils in this MLRA

F - Fair adaptation but will not produce at its highest potential

Production Estimates

Production estimates listed here should only be used for making general management recommendations. On site production information should always be used for making detailed planning and management recommendations.

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. Estimates of hay and grazing yields can be calculated from these numbers by multiplying them by a harvest efficiency. A 70 percent harvest efficiency is commonly used when converting to hay yields. Pasture harvest efficiency is highly dependent on the grazing management system applied, ranging from 25 to 50 percent.

Forage Crop	Management Intensity	
	<u>High</u> (lbs/ac)	<u>Low</u> (lbs/ac)
Creeping foxtail	6900	3400
Reed canarygrass	8300	4000

Forage Growth Curves

Growth curves estimate the seasonal distribution of growth of the various forage crops. They indicate when the forages may be available for grazing or mechanical harvest.

Growth Curve Number: SD0004

Growth Curve Name: Cool season grass

Growth Curve Description: Cool season grass, state wide

<u>Percent Production by Month</u>											
<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	10	40	30	10	5	5	0	0	0

Growth Curve Number: SD0005

Growth Curve Name: Warm season grass

Growth Curve Description: Warm season grass, state wide

<u>Percent Production by Month</u>											
<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	0	10	40	35	15	0	0	0	0

Soil Limitations

The primary limitation for these soils is wetness, which may severely limit species selection, delay planting and harvesting of forage crops or result in wheeltrack ruts or livestock poach marks from hooves. The result can be soil compaction, injury to plants, poor soil aeration affecting plant growth, and problems with movement of livestock and machinery. Many of the soils in this group are subject to flooding or ponding that will adversely impact forage production when it occurs during the growing season. The time period plants are under water and the soil temperature while it occurs are important for the survival of forage crops. Dormant forages are little affected by inundation unless the water turns to ice.

Management Interpretations

When establishing new stands or renovating older stands select species that are tolerant of poorly drained soils. Exclude livestock and machinery during extended periods of soil wetness to reduce poaching, rutting, and soil compaction.

FSG Documentation

Inventory Data References:

- Agriculture Handbook 296-Land Resource Regions and Major Land Resource Areas
- Natural Resources Conservation Service (NRCS) National Water and Climate Center data
- USDA Plant Hardiness Zone Maps
- National Soil Survey Information System (NASIS) for soil surveys in South Dakota and Nebraska counties in MLRA 66
- South Dakota and Nebraska NRCS Field Office Technical Guides
- NRCS National Range and Pasture Handbook
- Various South Dakota and Nebraska Agricultural Research Service, Cooperative Extension Service, and NRCS research trials for plant adaptation and production.

State Correlation:

This site has been correlated with the following states:

- NE
- SD

Forage Suitability Group Approval:

Original Author: Tim Nordquist

Original Date: 4/4/02

Approval by: Dana Larsen

Approval Date:

NE-T.G. Notice 557

SECTION II

NRCS-SEPTEMBER 2004