

## FORAGE SUITABILITY GROUP NOT SUITED

**FSG No.:** G063BY000SD

**Major Land Resource Area:** 63B - Southern Rolling Pierre Shale Plains

### Physiographic Features

Not Suited soils are found in various landscape positions.

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	1300	2000
<b>Slope (percent):</b>	0	60
<b>Flooding:</b>		
<b>Frequency:</b>	None	Frequent
<b>Duration:</b>	None	Long
<b>Ponding:</b>		
<b>Depth (inches):</b>	0	12
<b>Frequency:</b>	None	Frequent
<b>Duration:</b>	None	Very Long
<b>Runoff Class:</b>	Negligible	Very high

### 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 63B. Average annual precipitation for all climate stations listed below is about 22 inches. About 76 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 timeframe.

Average annual snowfall ranges from 19 inches at Creighton, Nebraska, (NE,) to 44 inches at Winner, South Dakota (SD). Snow cover at depths greater than 1 inch range from 4 days at Stephan, SD, to 57 days at Winner.

Average July temperatures across the MLRA are about 76<sup>0</sup>F and average January temperatures are about 17<sup>0</sup>F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -37 and a high of 114 both recorded at Kennebec, SD. 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 <http://www.wcc.nrcs.usda.gov>.

	<b>From</b>	<b>To</b>
<b>Freeze-free period (28 deg)(days):</b> (9 years in 10 at least)	128	152
<b>Last Killing Freeze in Spring (28 deg):</b> (1 year in 10 later than)	May 20	May 08
<b>Last Frost in Spring (32 deg):</b> (1 year in 10 later than)	Jun 09	May 17
<b>First Frost in Fall (32 deg):</b> (1 year in 10 earlier than)	Sep 01	Sep 21
<b>First Killing Freeze in Fall (28 deg):</b> (1 year in 10 earlier than)	Sep 19	Sep 30
<b>Length of Growing Season (32 deg) (days):</b> (9 years in 10 at least)	92	131
<b>Growing Degree Days (40 deg):</b>	4526	5505
<b>Growing Degree Days (50 deg):</b>	2652	3257
<b>Annual Minimum Temperature:</b>	-25	-15
<b>Mean annual precipitation (inches):</b>	18	25

**Monthly precipitation (inches) and temperature (F):**

2 years in 10:	<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>
Precip. Less Than	0.06	0.09	0.27	0.66	1.18	1.80	1.24	0.73	0.65	0.55	0.12	0.13
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
<b>Monthly Average:</b>	0.41	0.55	1.56	2.36	3.34	3.54	3.08	2.45	2.13	1.45	0.77	0.56
<b>Temp. Min.</b>	1.3	7.5	18.2	31.1	42.2	52.3	58.2	55.5	44.9	32.8	18.9	6.1
<b>Temp. Max.</b>	32.4	38.6	48.5	62.8	74.0	84.0	91.1	88.9	78.7	66.0	47.7	35.2
<b>Temp. Avg.</b>	18.7	24.4	34.9	48.5	59.6	69.5	75.7	73.5	63.2	51.1	35.2	22.4

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
NE1990	Creighton, NE	1961	1990
NE1365	Butte, NE	1961	1990
SD9367	Winner, SD	1961	1990
SD0778	Bonesteel, SD	1961	1990
SD3452	Gregory, SD	1961	1990
SD7992	Stephan, SD	1961	1990
SD4516	Kennebec, SD	1961	1990

**Soil Interpretations**

The soils in this group possess one or more physical or chemical properties that make their economic use for forage production difficult or impossible.

<b>Drainage Class:</b>	Very poorly drained	To	Excessively drained
<b>Permeability Class:</b> (0 - 40 inches)	Very slow	To	Rapid
<b>Frost Action Class:</b>	Low	To	High

	<u>Minimum</u>	<u>Maximum</u>
<b>Depth:</b>	0	
<b>Surface Fragments &gt;3" (% Cover):</b>	0	
<b>Organic Matter (percent):</b> (surface layer)	0.0	8.0
<b>Electrical Conductivity (mmhos/cm):</b> (0 - 24 inches)	0	32
<b>Sodium Absorption Ratio:</b> (0 - 12 inches)	0	25
<b>Soil Reaction (1:1) Water (pH):</b> (0 - 12 inches)	5.1	9
<b>Available Water Capacity (inches):</b> (0 - 60 inches)	0	12
<b>Calcium Carbonate Equivalent (percent):</b> (0 - 12 inches)	0	70

**Adapted Species List**

Unless the severe chemical and/or physical restrictions of these soils have been corrected no forage species can be expected to be economically produced on them.

**Soil Limitations**

These soils have severe limitations that make their use for forage production impractical or impossible. They are too steep, shallow, wet, stony, or possess unfavorable chemical properties.

**Management Interpretations**

If the severe restrictions have been reduced or removed the soils should be managed the same as the group that most closely resembles them without the restrictions. For instance, if a soil has been placed in this group because of stoniness and the stones have been removed, it should be managed under the same group that the non-stony phase is managed under.

## **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 63B  
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: Nebraska and South Dakota

### **Forage Suitability Group Approval**

**Original Author:** Tim Nordquist  
**Original Date:** 4/3/02  
**Approval by:** Dave Schmidt  
**Approval Date:** 8/21/03