

## FORAGE SUITABILITY GROUP Not Suited

**FSG No.:** G102AY000SD

**Major Land Resource Area:** 102A - Rolling Till Prairie

### Physiographic Features

The soils in this group are in various landscape positions.

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	980	1970
<b>Slope (percent):</b>	0	50
<b>Flooding:</b>		
<b>Frequency:</b>	None	Frequent
<b>Duration:</b>	None	Long
<b>Ponding:</b>		
<b>Depth (inches):</b>	0	30
<b>Frequency:</b>	None	
<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 102A. Average annual precipitation for all climate stations listed below is about 23 inches. About 75 percent of that occurs during the months of April through September. On average, there are about 31 days with greater than .1 inches of precipitation during the same timeframe.

Average annual snowfall ranges from 36 inches at Britton to 48 inches at Tracy. Snow cover at depths greater than 1 inch range from 56 days at Milbank to 105 days at Morris.

Average July temperatures are about 72<sup>0</sup>F and average January temperatures are about 11<sup>0</sup>F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -40 at Brookings and a high of 108 recorded at both Britton and Milbank. The MLRA lies in USDA Plant Hardiness Zones 4a and 4b.

Average annual wind speeds range from about 8 mph in the eastern part of the MLRA to about 11 mph in the west. The highest wind speeds occur during March through May. It is cloudy about 154 days a year in the west and 166 days in the east. Average morning relative humidity in June is about 86 percent and average afternoon humidity is 59 percent.

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)	127	145
<b>Last Killing Freeze in Spring (28 deg):</b> (1 year in 10 later than)	May 22	May 11
<b>Last Frost in Spring (32 deg):</b> (1 year in 10 later than)	May 31	May 17

	<b>From</b>	<b>To</b>
<b>First Frost in Fall (32 deg):</b> (1 year in 10 earlier than)	Sep 08	Sep 19
<b>First Killing Freeze in Fall (28 deg):</b> (1 year in 10 earlier than)	Sep 17	Sep 26
<b>Length of Growing Season (32 deg)(days):</b> (9 years in 10 at least)	109	134
<b>Growing Degree Days (40 deg):</b>	4066	4515
<b>Growing Degree Days (50 deg):</b>	2441	2698
<b>Annual Minimum Temperature:</b>	-30	-20
<b>Mean annual precipitation (inches):</b>	19	26

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

<b>2 years in 10:</b>	<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	0.13	0.19	0.28	0.66	1.29	1.83	1.54	0.91	0.68	0.45	0.17	0.10
Precip. More Than	0.97	1.08	2.70	3.68	4.83	4.92	5.21	3.75	4.63	3.32	2.19	1.19
<b>Monthly Average:</b>	0.54	0.59	1.37	2.20	2.88	3.67	3.21	2.77	2.32	1.83	0.96	0.54
<b>Temp. Min.</b>	-2.8	3.1	17.6	32.8	44.6	54.6	59.3	56.2	45.7	34.2	20.5	4.6
<b>Temp. Max.</b>	21.4	26.5	39.3	56.5	70.4	80.5	85.5	82.9	73.2	61.0	42.0	26.6
<b>Temp. Avg.</b>	10.1	15.9	29.0	44.6	57.2	66.8	72.0	69.5	59.3	47.5	30.8	15.6

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
SD1049	Britton, SD	1961	1990
SD1076	Brookings, SD	1961	1990
SD1739	Clark, SD	1961	1990
SD1777	Clear Lake, SD	1961	1990
SD5536	Milbank, SD	1961	1990
MN5400	Milan, MN	1961	1990
MN5638	Morris, MN	1961	1990
MN8323	Tracy, MN	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>	Excessively drained	To	Very poorly drained
<b>Permeability Class:</b> (0 - 40 inches)	Very slow	To	Very rapid
<b>Frost Action Class:</b>	Low	To	High

	<u>Minimum</u>	<u>Maximum</u>
<b>Depth:</b>	10	
<b>Surface Fragments &gt;3" (% Cover):</b>	0	
<b>Organic Matter (percent):</b> (surface layer)	0.5	20.0
<b>Electrical Conductivity (mmhos/cm):</b> (0 - 24 inches)	0	8
<b>Sodium Absorption Ratio:</b> (0 - 12 inches)	0	5
<b>Soil Reaction (1:1) Water (pH):</b> (0 - 12 inches)	6.1	8.4
<b>Available Water Capacity (inches):</b> (0 - 60 inches)	2	12
<b>Calcium Carbonate Equivalent (percent):</b> (0 - 12 inches)	0	28

**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.

### **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 Minnesota counties in MLRA 102A  
South Dakota NRCS SDTG and Minnesota NRCS FOTG  
NRCS National Range and Pasture Handbook  
Various 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: Minnesota and South Dakota

### **Forage Suitability Group Approval**

**Original Author:** Tim Nordquist  
**Original Date:** 1/22/02  
**Approval By:** Dave Schmidt  
**Approval Date:** 1/3/03