

## FORAGE SUITABILITY GROUP

### Closed Upland Depressions

**FSG No.:** G071XY910NE

**Major Land Resource Area:** 071X -Central Nebraska Loess Hills

#### Physiographic Features

The soils in this group are found in closed depressions on uplands and terraces.

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	1640	2600
<b>Slope (percent):</b>	0	1
<b>Flooding:</b>		
<b>Frequency:</b>	None	None
<b>Duration:</b>	None	None
<b>Ponding:</b>		
<b>Depth (inches):</b>	3	6
<b>Frequency:</b>	Occasional	Frequent
<b>Duration:</b>	Brief	Long
<b>Runoff Class:</b>	Negligible	Negligible

#### Climatic Features

Average annual precipitation for all climate stations listed below is about 25 inches. About 76 percent of the precipitation received in MLRA 71 falls during the months of April through September. On average there are about 30 days during that period that receive greater than .1 inches.

Average annual snowfall ranges from 14 inches at Greeley, NE, to 36 inches at Loup City, NE. Snow cover at depths greater than 1 inch range from a just 2 days per year at Greeley to a high of 49 days per year at Central City, NE.

Average January temperatures for the listed climate stations during the years 1961 to 1990 are about 23 degree F., and average July temperatures are about 76 degrees. Recorded temperature extremes are a low of -36 at Broken Bow, NE, and a high of 106 at North Platte, NE, which lies just west of the MLRA. The MLRA lies in USDA Plant Hardiness Zones 4b and 5a.

It is cloudy an average of 140 days per year at Grand Island, and 141 days a year at North Platte. Average annual wind speeds are about 11.8 MPH at Grand Island and 10.1 at North Platte. Highest average wind speeds occur during the spring. At Grand Island average morning relative humidity in June is about 82 percent and average afternoon humidity in June is about 55 percent. At North Platte they are 84 and 57 percent respectively.

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)	129	174
<b>Last Killing Freeze in Spring (28 deg):</b> (1 year in 10 later than)	May 18	Apr 27
<b>Last Frost in Spring (32 deg):</b> (1 year in 10 later than)	May 28	May 08
<b>First Frost in Fall (32 deg):</b> (1 year in 10 earlier than)	Sep 10	Sep 26
<b>First Killing Freeze in Fall (28 deg):</b> (1 year in 10 earlier than)	Sep 14	Oct 09

	<b>From</b>	<b>To</b>
<b>Length of Growing Season (32 deg)(days):</b> (9 years in 10 at least)	113	145
<b>Growing Degree Days (40 deg):</b>	5020	5830
<b>Growing Degree Days (50 deg):</b>	2920	3590
<b>Annual Minimum Temperature:</b>	-25	-15
<b>Mean annual precipitation (inches):</b>	22	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>
<b>Precip. Less Than</b>	0.18	0.09	0.51	0.66	1.86	2.14	1.81	1.32	0.65	0.36	0.13	0.18
<b>Precip. More Than</b>	0.81	1.13	3.39	3.98	5.38	5.84	4.37	3.90	3.74	2.44	1.92	1.18
<b>Monthly Average:</b>	0.43	0.32	1.75	2.40	3.67	3.99	3.30	2.83	2.50	1.46	0.96	0.65
<b>Temp. Min.</b>	9.2	14.6	22.9	33.8	45.2	54.8	60.8	58.4	47.9	35.2	22.2	12.2
<b>Temp. Max.</b>	36.8	42.6	51.8	64.6	73.9	84.4	89.3	87.2	77.6	66.8	50.1	39.1
<b>Temp. Avg.</b>	22.5	27.9	37.4	50.2	60.5	70.3	75.5	73.1	63.5	52.1	37.1	25.5

<b><u>Climate Station</u></b>	<b><u>Location</u></b>	<b><u>From</u></b>	<b><u>To</u></b>
NE1200	Broken Bow, NE	1961	1990
NE6040	North Loup, NE	1961	1990
NE3425	Greely, NE	1961	1990
NE4985	Loup City, NE	1961	1990
NE3365	Gothengurg, NE	1961	1990
NE1560	Central City, NE	1961	1990
NE4335	Kearny, NE	1961	1990

**Soil Interpretations**

This group consists of poorly and somewhat poorly drained soils. They are ponded during a portion of the growing season.

<b>Drainage Class:</b>	Poorly drained	To	Somewhat poorly drained
<b>Permeability Class:</b> (0 - 40 inches)	Very slow	To	Moderate
<b>Frost Action Class:</b>	High	To	High

	<b><u>Minimum</u></b>	<b><u>Maximum</u></b>
<b>Depth:</b>	72	
<b>Surface Fragments &gt;3" (% Cover):</b>	0	0
<b>Organic Matter (percent):</b> (surface layer)	2.0	4.0
<b>Electrical Conductivity (mmhos/cm):</b> (0 - 24 inches)	0	0
<b>Sodium Absorption Ratio:</b> (0 - 12 inches)	0	0
<b>Soil Reaction (1:1) Water (pH):</b> (0 - 12 inches)	5.1	7.8
<b>Available Water Capacity (inches):</b> (0 - 60 inches)	9	12
<b>Calcium Carbonate Equivalent (percent):</b> (0 - 12 inches)	0	0

**Soil Series List**

Fillmore  
Scott

**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/>

<b><u>Cool Season Grasses</u></b>	<b><u>Plant Symbol</u></b>	
Creeping foxtail	ALAR	G
Reed canarygrass	PHAR3	G
Tall wheatgrass	THPO7	F
Virginia wildrye	ELVI3	F

<b><u>Warm Season Grasses</u></b>		
Switchgrass	PAVIV	F

<b><u>Legumes</u></b>		
Alsike clover	TRHY	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.

<b>Forage Crop</b>	<b>Management Intensity</b>	
	<b><u>Low</u></b> <b>(lbs/ac)</b>	<b><u>High</u></b> <b>(lbs/ac)</b>
Creeping foxtail	2900	7100
Reed canarygrass	2900	10000

**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:** NE0003  
**Growth Curve Name:** Warm-season grass  
**Growth Curve Description:** Statewide

<b><u>Percent Production by Month</u></b>											
<b><u>Jan</u></b>	<b><u>Feb</u></b>	<b><u>Mar</u></b>	<b><u>Apr</u></b>	<b><u>May</u></b>	<b><u>Jun</u></b>	<b><u>Jul</u></b>	<b><u>Aug</u></b>	<b><u>Sep</u></b>	<b><u>Oct</u></b>	<b><u>Nov</u></b>	<b><u>Dec</u></b>
0	0	0	0	15	35	30	15	5	0	0	0

**Growth Curve Number:** NE0006  
**Growth Curve Name:** Cool-season grass fertilized early  
**Growth Curve Description:** MLRAs 73, 72 dryland

<b><u>Percent Production by Month</u></b>											
<b><u>Jan</u></b>	<b><u>Feb</u></b>	<b><u>Mar</u></b>	<b><u>Apr</u></b>	<b><u>May</u></b>	<b><u>Jun</u></b>	<b><u>Jul</u></b>	<b><u>Aug</u></b>	<b><u>Sep</u></b>	<b><u>Oct</u></b>	<b><u>Nov</u></b>	<b><u>Dec</u></b>
0	0	0	10	40	35	0	5	10	0	0	0

### **Soil Limitations**

Wetness

- The over-riding limitation to this soil is wetness. It severely limits species selection.

### **Management Interpretations**

Wetness

- When establishing new stands or renovating stands select species that are highly tolerant of wet soils. To reduce compaction exclude livestock and machinery when soils are wet.

### **FSG Documentation**

#### **Similar FSGs:**

##### **FSG ID**

G071XY910NE

##### **FSG Narrative**

The soils in the Seasonally Wet group do not pond water during the growing season.

#### **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) database for soil surveys in Nebraska counties in MLRA 71  
Nebraska NRCS Field Office Technical Guide  
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:  
NE

#### **Forage Suitability Group Approval:**

**Original Author:** Tim Nordquist  
**Original Date:** 7/10/2000  
**Approval by:** Dana Larsen  
**Approval Date:**