

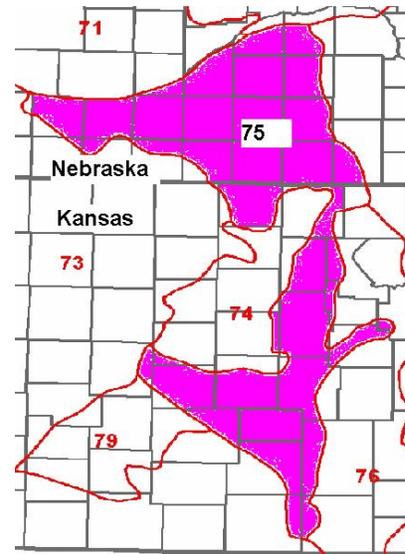
FORAGE SUITABILITY GROUP Subirrigated

FSG No.: G075XY700NE
Major Land Resource Area: 75 - Central Loess Plains

Physiographic Features

These soils are found mostly on flood plains and terraces with some occurring on upland footslopes and drainageways.

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1640	1970
Slope (percent):	0	3
Flooding:		
Frequency:	None	Frequent
Duration:	None	Brief
Ponding:		
Depth (inches):		
Frequency:	None	None
Duration:	None	None
Runoff Class:	Very low	Low



Climatic Features

Average annual precipitation for all climate stations listed below in MLRA 75 is about 30 inches. Most of the precipitation received occurs during midspring to midautumn. On average there are about 46 days a year with greater than .1 inches of precipitation.

Average annual snowfall ranges from 5.2 inches at Marion Lake, KS, to 29.4 inches at David City, NE. Snow cover at depths greater than 1 inch range from a low of just 2 days per year at Florence and Marion Lake in Kansas to a high of 44 days per year at Crete and Hebron in Nebraska.

Average daily temperatures in MLRA 75 increase from the north to the south. Average January temperatures range from the low 20s in the northern part of the MLRA to the low 30s in the south. Average July temperatures range from about 77 degrees in the north to about 81 degrees in the south. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -31 at Minden, NE and a high of 112 recorded at several locations in Kansas. The MLRA lies in USDA Plant Hardiness Zones 5a, 5b, and 6a.

Average annual wind speeds are about 12 MPH, with the highest wind speeds occurring during March and April. It is cloudy about 140 days a year. Average morning relative humidity in June is about 83 percent and average afternoon humidity in June is about 55 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>

	From	To
Freeze-free period (28 deg)(days): (9 years in 10 at least)	159	192
Last Killing Freeze in Spring (28 deg): (1 year in 10 later than)	May 02	Apr 16
Last Frost in Spring (32 deg): (1 year in 10 later than)	May 16	Apr 26

PASTURE AND HAYLAND INTERPRETATIONS

Page 2

First Frost in Fall (32 deg): (1 year in 10 earlier than)	From Sep 16	To Oct 08
First Killing Freeze in Fall (28 deg): (1 year in 10 earlier than)	Oct 02	Oct 20
Length of Growing Season (32 deg)(days): (9 years in 10 at least)	134	172
Growing Degree Days (40 deg):	5576	7337
Growing Degree Days (50 deg):	3406	4686
Annual Minimum Temperature:	-20	-5
Mean annual precipitation (inches):	25	35

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	0.17	0.18	0.54	0.95	1.63	1.69	1.74	1.07	1.12	0.53	0.22	0.21
Precip. More Than	1.43	1.76	4.11	4.58	6.18	8.64	5.15	5.18	6.11	4.88	3.21	1.96
Monthly Average:	0.64	0.86	2.27	2.67	4.29	4.58	3.38	3.40	3.44	2.36	1.46	0.98
Temp. Min.	10.4	15.3	26.0	38.5	49.8	59.6	64.9	62.1	52.6	40.5	27.5	14.9
Temp. Max.	43.6	49.7	60.7	71.7	79.2	88.1	93.9	92.6	83.9	73.6	58.3	46.6
Temp. Avg.	23.3	28.3	38.1	49.1	58.2	67.2	72.2	69.9	61.6	51.1	37.9	26.8

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
NE2020	Crete, NE	1961	1990
NE2205	David City, NE	1961	1990
NE3660	Hastings, NE	1961	1990
NE3735	Hebron, NE	1961	1990
NE5565	Minden, NE	1961	1990
KS0010	Abilene, KS	1961	1990
KS0682	Belleville, KS	1961	1990
KS2773	Florence, KS	1961	1990
KS3594	Herington, KS	1961	1990
KS5039	Marion Lake, KS	1966	1990
KS7796	Sterling, KS	1961	1990
KS8964	Winfield, KS	1961	1990

Soil Interpretations

This group consists of poorly and somewhat poorly drained, moderately fine to moderately coarse textured soils formed from alluvium and sediments. Permeability is slow to moderately rapid, and available water capacity is mostly high. This group has a watertable within 18 to 48 inches of the surface during a portion of the growing season.

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

	<u>Minimum</u>	<u>Maximum</u>
Depth:	72	
Surface Fragments >3" (% Cover):	0	0
Organic Matter (percent): (surface layer)	1	4.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	0	4
Sodium Absorption Ratio: (0 - 12 inches)	0	13
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	5.6	8.4
Available Water Capacity (inches): (0 - 60 inches)	4	12
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	8

<u>Mapunit Component</u>	(Some phases of these soils may also occur in other FSGs)		
Alda	Els	Leshara	Rusco
Boel	Elsmere	Lesho	Wann
Calco	Gibbon	Lex	
Coleridge	Kezan	Platte	
Colo	Lamo	Tryon	

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 at <http://plants.usda.gov/>

<u>Cool Season Grasses</u>	<u>Symbol</u>	<u>Adapted</u>	<u>Warm Season Grasses</u>	<u>Symbol</u>	<u>Adapted</u>
Canada wildrye	ELCA4	F	Bermudagrass	CYDA	G
Creeping foxtail	ALAR	F	Big bluestem	ANGE	G
Intermediate wheatgrass	THIN6	F	Eastern gamagrass	TRDA3	G
Meadow brome	BRBI2	F	Indiangrass	SONU2	G
Orchardgrass	DAGL	F	Switchgrass	PAVIV	G
Pubescent wheatgrass	THIN6	F	<u>Legumes</u>	<u>Symbol</u>	<u>Adapted</u>
Reed canarygrass	PHAR3	G	Alfalfa	MESA	F
Smooth brome	BRINI2	G	Alsike clover	TRHY	G
Tall fescue	LOAR10	G	Birdsfoot trefoil	LOCO6	G
Tall wheatgrass	THPO7	F	Cicer milkvetch	ASCI4	F
Virginia wildrye	ELVI3	F	Illinois bundleflower	DEIL2	F
Western Wheatgrass	PASM	F	Red clover	TRPR2	G

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.

PASTURE AND HAYLAND INTERPRETATIONS

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	
	High (lbs/ac)	Low (lbs/ac)
Alfalfa	10000	4300
Alfalfa/Cool Season Grass	8600	4300
Big bluestem	14300	3400
Eastern gamagrass	15700	3400
Smooth brome grass	12900	3400
Switchgrass	12900	3400
Tall fescue	11400	3400

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: NE0602

Growth Curve Name: Cool-season grass

Growth Curve Description: Cool-season grass fertilized early - MLRAs 107, 106, 75, irrigated 73, 72

<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	5	5	10	0	0	0

Growth Curve Number: NE0603

Growth Curve Name: Warm-season grass

Growth Curve Description: Warm-season grass - statewide

<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	15	35	30	15	5	0	0	0

Growth Curve Number: NE0604

Growth Curve Name: Eastern gamagrass

Growth Curve Description: Eastern gamagrass - statewide

<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	35	40	15	0	0	0	0	0

Growth Curve Number: NE0601

Growth Curve Name: Alfalfa

Growth Curve Description: Alfalfa - MLRAs 107, 106, 75, irrigated 73, 72

<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	30	30	20	15	5	0	0	0

Soil Limitations

Water Table

- Forage species like alfalfa that are less tolerant of high watertables for extended periods of time may suffer stand loss during wet years when watertables stay abnormally high.

Flooding

- Flooding is a potential hazard to many of these soils.

Management Interpretations

Watertable and Flooding

- When establishing new stands select species that are tolerant of high water tables or occasional flooding, and that are also capable of utilizing the additional moisture inherent to these soils.

FSG Documentation

Similar FSGs:

FSG ID

G075XY500NE

FSG Narrative

Overflow soils are found in the same landscape positions, but they do not have the elevated water tables.

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 and Kansas counties in MLRA 75

Nebraska and Kansas 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:

KS

NE

Forage Suitability Group Approval:

Original Author: Tim Nordquist

Original Date: 8/29/01

Approval by: David Kraft

Approval Date: