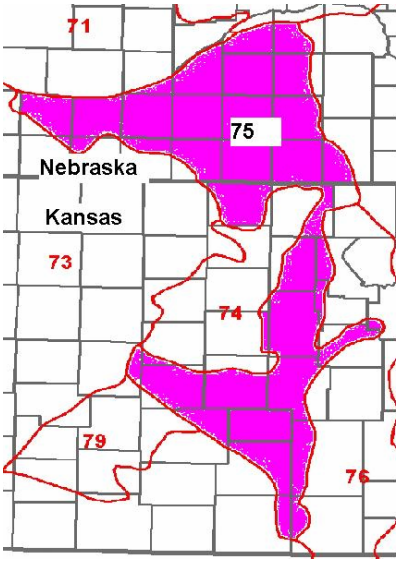
FORAGE SUITABILITY GROUP

Shallow

FSG No.: **G075XY003NE**
Major Land Resource Area: 75 - Central Loess Plains



Physiographic Features

The soils in this group are found on upland positions underlain by bedrock material.

	Minimum	Maximum
Elevation (feet):	1640	1970
Slope (percent):	0	15
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):		
Frequency:	None	None
Duration:	None	None
Runoff Class:	Low	Very high

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
First Frost in Fall (32 deg): **(1 year in 10 earlier than)**	Sep 16	Oct 08
First Killing Freeze in Fall (28 deg): **(1 year in 10 earlier than)**	Oct 02	Oct 20

	From	To
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

Climate Station	Location	From	To
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 shallow, somewhat excessively drained soils formed from residuum weathered from sandstone, limestone, or shale.

Drainage Class:	Well drained	To	Somewhat excessively drained
Permeability Class: (0 - 40 inches)	Moderate	To	Moderate
Frost Action Class:	Low	To	Moderate

	Minimum	Maximum
Depth:	4	20
Surface Fragments >3" (% Cover):	0	3
Organic Matter (percent): (surface layer)	0.5	4.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	0	0
Sodium Absorption Ratio: (0 - 12 inches)	0	0
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	5.6	8.4
Available Water Capacity (inches): (0 - 60 inches)	2	4
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	15

Mapunit Component	**(Some phases of these soils may also occur in other FSGs)**
Hedville	Sogn

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/

Cool Season Grasses	**Symbol**	
Intermediate wheatgrass	THIN6	F
Pubescent wheatgrass	THIN6	F
Smooth bromegrass	BRINI2	F
Tall fescue	LOAR10	F
Warm Season Grasses		
Big bluestem	ANGE	G
Indiangrass	SONU2	G
Little bluestem	SCSC	G
Sideoats grama	BOCU	G
Switchgrass	PAVIV	F
Legumes		
Red clover	TRPR2	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**	
	High	**Low**
	(lbs/ac)	**(lbs/ac)**
Big bluestem	8600	2300
Indiangrass	8600	2300
Little bluestem	6900	2000
Sideoats grama	5500	1800
Smooth bromegrass	6000	2600
Switchgrass	6900	2000
Tall fescue	5400	2300

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

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	15	35	30	15	5	0	0	0

Soil Limitations

Available water capacity

- Shallow soils result in low available water capacity limiting species selection and plant growth during periods of moisture deficit.

Water erosion

- The shallowness of these soils results in high runoff potential. Water erosion is a potential problem during establishment, and in thin, open established stands

Livestock trail erosion

- A potential problem in established stands.

Wind erosion

- A potential problem during stand establishment and in heavy use areas on moderately coarse textured soils.

Management Interpretations

Available water capacity

- When establishing new stands select forage species that are highly tolerant to periods of drought and inadequate soil moisture.

Wind and water erosion

- Include sod forming grass species in new seedings on steeper slopes to reduce sheet and rill erosion . Incorporate both wind and water erosion control practices during the establishment period.

Livestock trail erosion

- Locate fences, lanes, water developments, and mineral areas to reduce livestock trailing perpendicular to steeper slopes.

FSG Documentation

Similar FSGs:

FSG ID	FSG Narrative
G075XY400NE	Limy Upland soils have higher available water capacity and production potential due to greater soil depth.

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:	8/28/2001
Approval by:	Dana Larson
Approval Date:	