

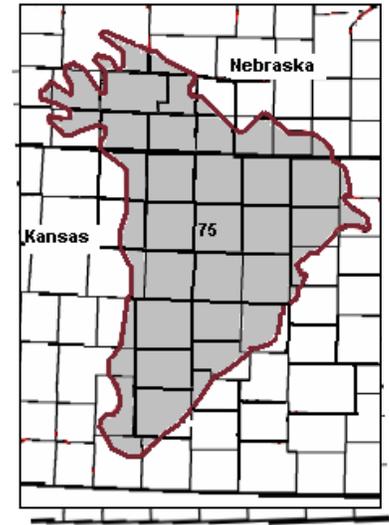
FORAGE SUITABILITY GROUP Subirrigated

FSG No.: G073XY700KS
Major Land Resource Area: 073X -Rolling Plains and Breaks

Physiographic Features

These soils are mostly found on flood plains.

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1600	3000
Slope (percent):	0	3
Flooding:		
Frequency:	None	Occasional
Duration:	None	Brief
Ponding:		
Depth (inches):		
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Low



Climatic Features

Average annual precipitation for all climate stations listed below in MLRA 73 is about 24 inches. About 75 percent of that precipitation falls during the months of April through September. On average there are about 28 days during that period that receive greater than .1 inches. Precipitation is less than needed for optimum forage production and is the single largest factor limiting production from this group on non-irrigated lands.

Average annual snowfall ranges from 12 inches at Ness City, KS, to 28 inches at Culbertson, NE. Snow cover at depths greater than 1 inch range from a low of 5 days per year at Ness City to a high of 38 days at Culbertson.

Average January temperatures are about 26 degree F., and average July temperatures are about 79 degrees. Recorded temperature extremes for the listed climate stations during the years 1961 to 1990 are a low of -35 at Medicine Creek Dam in Nebraska and a high of 114 at Ness City, KS. The MLRA lies in USDA Plant Hardiness Zones 5a, 5b, and 6a.

It is cloudy an average of 124 days a year at Dodge City, KS, and 141 days at North Platte, NE. Average annual wind speeds are about 14 MPH at Dodge City and 10 at North Platte. At Dodge City in June average morning relative humidity is about 80 percent and average afternoon relative humidity is about 52 percent. At North Platte they are 84 percent 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>

	From	To
Freeze-free period (28 deg)(days): (9 years in 10 at least)	143	196
Last Killing Freeze in Spring (28 deg): (1 year in 10 later than)	May 10	Apr 15
Last Frost in Spring (32 deg): (1 year in 10 later than)	May 21	Apr 29

First Frost in Fall (32 deg): (1 year in 10 earlier than)	From Sep 13	To Oct 07
First Killing Freeze in Fall (28 deg): (1 year in 10 earlier than)	Sep 24	Oct 20
Length of Growing Season (32 deg)(days): (9 years in 10 at least)	122	170
Growing Degree Days (40 deg):	5276	6985
Growing Degree Days (50 deg):	3183	4392
Annual Minimum Temperature:	-20	-5
Mean annual precipitation (inches):	21	28

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	0.11	0.12	0.37	0.99	1.77	1.48	1.58	1.54	0.80	0.50	0.21	0.20
Precip. More Than	0.80	1.27	3.10	3.51	5.56	5.22	5.44	5.14	5.37	3.13	1.81	1.16
Monthly Average:	0.45	0.59	1.78	2.14	3.63	3.59	3.22	2.90	2.49	1.57	0.96	0.60
Temp. Min.	9.9	15.3	23.2	33.9	44.9	55.1	61.2	58.6	48.0	34.1	22.2	13.0
Temp. Max.	41.8	48.0	57.9	69.6	78.4	88.6	94.3	91.9	82.8	72.5	56.1	44.4
Temp. Avg.	25.9	31.1	40.9	52.7	62.5	72.8	78.7	76.1	66.6	54.8	40.5	29.5

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
KS0693	Beliot, KS	1961	1990
KS2164	Dodge City, KS	1961	1990
KS3100	Glen Elder Lake, KS	1961	1990
KS3218	Great Bend, KS	1961	1990
KS3527	Hays, KS	1961	1990
KS4357	Kirwin, KS	1961	1990
KS4857	Lovel Lake, KS	1961	1990
KS4982	Mankato, KS	1961	1990
KS5692	Ness City, KS	1961	1990
KS6374	Phillipsburg, KS	1961	1990
KS6435	Plainville, KS	1961	1990
KS8648	Webster Dam, KS	1961	1990
NE2065	Culbertson, NE	1961	1990
NE3035	Franklin, NE	1961	1990
NE5388	Medicine Creek Dam, NE	1961	1990

Soil Interpretations

The subirrigated group predominately consists of very deep, somewhat poorly drained, coarse to moderately fine textured soils. They have a seasonal water table within 12 to 48 inches of the surface during part of the growing season.

Drainage Class:	Somewhat poorly drained	To	Somewhat poorly drained
Permeability Class: (0 - 40 inches)	Moderately slow	To	Moderately 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)	0.4	4.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	0	4
Sodium Absorption Ratio: (0 - 12 inches)	0	10
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	6.1	8.4
Available Water Capacity (inches): (0 - 60 inches)	4	12
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	15

Mapunit Component List (Some phases of these soils may also occur in other FSGs)

Alda	Las animas	Platte	Zenda
Boel	Leshara	Sweetwater	
Caruso	Lesho	Voda	
Gibbon	Lex	Wann	

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/>

<u>Cool Season Grasses</u>	<u>Plant Symbol</u>	<u>Adaptation</u>	<u>Note</u>
Canada wildrye	ELCA4	F	
Creeping foxtail	ALAR	F	
Intermediate	THIN6	G	
Meadow brome	BRBI2	F	North of NE/KS border only
Pubescent wheatgrass	THIN6	G	
Reed canarygrass	PHAR3	G	
Smooth brome	BRINI2	G	
Tall fescue	LOAR10	G	
Tall wheatgrass	THPO7	G	
Western Wheatgrass	PASM	F	
<u>Warm Season Grasses</u>			
Bermudagrass	CYDA	G	South of Smokey Hill river only
Big bluestem	ANGE	G	
Eastern gamagrass	TRDA3	G	
Indiangrass	SONU2	G	
Sideoats grama	BOCU	F	
Switchgrass	PAVIV	G	
<u>Legumes</u>			
Alfalfa	MESA	F	
Alsike clover	TRHY	G	North of NE/KS border only
Birdsfoot trefoil	LOCO6	F	North of NE/KS border only
Cicer milkvetch	ASCI4	G	
Red clover	TRPR2	F	North of NE/KS border only

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	
	<u>Low</u> (lbs/ac)	<u>High</u> (lbs/ac)
Alfalfa	1400	12900
Alfalfa/Cool Season Grass	2900	14300
Big bluestem	2900	7100
Smooth brome grass	2900	7100
Switchgrass	2600	6300

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: KS0003
Growth Curve Name: Warm-season grass
Growth Curve Description: 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: KS0004
Growth Curve Name: Eastern Gamagrass
Growth Curve Description: 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: KS0005
Growth Curve Name: Alfalfa
Growth Curve Description: MLRAs 73, 72 dryland

<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	35	35	20	10	0	0	0	0

Growth Curve Number: KS0006
Growth Curve Name: Cool-season grass fertilized early
Growth Curve Description: MLRAs 73, 72 dryland

<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	35	0	5	10	0	0	0

Growth Curve Number: KS0007
Growth Curve Name: Bermudagrass
Growth Curve Description: South of Smokey Hill River

<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	30	20	15	20	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

G073XY500KS

FSG Narrative

Loamy Bottomland 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 Kansas and Nebraska counties in MLRA 73

Kansas and 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:

KS

NE

Forage Suitability Group Approval:

Original Author: Tim Nordquist

Original Date: 6/29/2002

Approval by: David Kraft

Approval Date: