

FORAGE SUITABILITY GROUP

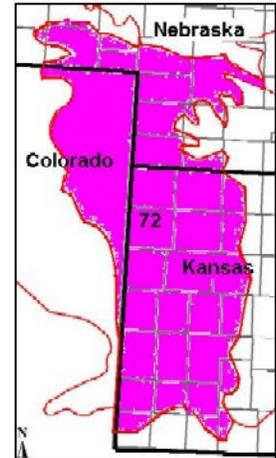
Saline/Sodic

FSG No.: G072XY895KS

Major Land Resource Area: 072X -Central High Tableland

Physiographic Features

These soils typically are found on flood plains and low stream terraces, or surrounding large enclosed basins. They may also be found on fans, and in sandhill valley swales.



	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	2600	3900
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 72 is about 19 inches. About 77 percent of that precipitation falls during the months of April through September. On average there are about 24 days during that period that receive greater than .1 inches.

Average annual snowfall ranges from 17 inches at Syracuse, KS, to 37 inches at Lodgepole, NE. Snow cover at depths greater than 1 inch range from a low of 6 days per year at Burlington, CO to a high of 41 days at North Platte, NE.

Average January temperatures are about 28 degree F., and average July temperatures are about 77 degrees. Recorded temperature extremes for the listed climate stations during the years 1961 to 1990 are a low of -34 recorded at three Nebraska and one Kansas locations and a high of 113 recorded at Healy, KS. The MLRA lies in USDA Plant Hardiness Zones 5a, 5b, and 6a.

It is cloudy an average of 143 days a year at Goodland, KS. Average annual wind speeds are about 12.5 MPH with the highest averages occurring during the spring. Average morning relative humidity in June is about 82 percent and average afternoon humidity in June is about 42 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)	134	176
Last Killing Freeze in Spring (28 deg): (1 year in 10 later than)	May 14	Apr 28
Last Frost in Spring (32 deg): (1 year in 10 later than)	May 24	May 08

First Frost in Fall (32 deg): (1 year in 10 earlier than)	From Sep 11	To Oct 01
First Killing Freeze in Fall (28 deg): (1 year in 10 earlier than)	Sep 16	Oct 12
Length of Growing Season (32 deg)(days): (9 years in 10 at least)	118	152
Growing Degree Days (40 deg):	4880	6530
Growing Degree Days (50 deg):	2850	4420
Annual Minimum Temperature:	-20	-5
Mean annual precipitation (inches):	15	22

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	0.07	0.24	0.41	1.22	1.27	1.03	1.00	0.56	0.14	0.14	0.14
Precip. More Than	0.90	0.97	2.53	2.91	5.47	4.80	4.49	3.13	3.10	2.01	1.43	0.97
Monthly Average:	0.42	0.46	1.29	1.66	3.32	3.07	2.78	2.14	1.64	1.01	0.72	0.45
Temp. Min.	8.6	14.2	23.1	34.0	44.7	54.4	60.6	57.8	46.5	33.6	21.2	11.2
Temp. Max.	45.5	51.3	60.4	70.8	78.7	88.7	93.6	91.2	83.2	73.2	57.7	47.1
Temp. Avg.	27.9	33.2	40.8	51.4	61.0	71.2	77.2	74.8	65.4	53.8	39.7	30.1

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
KS8038	Syracuse, KS	1961	1990
NE6065	North Platte, NE	1961	1990
KS0439	Atwood, KS	1961	1990
KS5127	McDonald, KS	1961	1990
CO4082	Holyoke, CO	1961	1990
NE4110	Imperial, NE	1961	1990
NE4900	Lodgepole, NE	1961	1990
KS3554	Healy, KS	1961	1990
KS3837	Hoxie, KS	1961	1990
KS7397	Sharon Springs, KS	1961	1990
CO1121	Burlington, CO	1961	1990
KS7922	Sublette, KS	1961	1990

Soil Interpretations

This group consists of somewhat poorly to well drained soils with elevated salinity and/or sodicity.

Drainage Class:	Somewhat poorly drained	To	Well drained
Permeability Class: (0 - 40 inches)	Very slow	To	Moderate
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)	0.0	4.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	0	16
Sodium Absorption Ratio: (0 - 12 inches)	0	99

	<u>Minimum</u>	<u>Maximum</u>
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	7.4	9.6
Available Water Capacity (inches): (0 - 60 inches)	4	12
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	12

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

Arvada	Drummond	Las animas	Lex
Bridgeport	Haigler	Las	Mosher
Caruso	Jankosh	Lebsack	Saltine
Church	Laird	Lesho	Sanborn

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/>

Cool Season Grasses

	<u>Plant Symbol</u>	<u>Adaptation</u>	<u>Note</u>
Beardless wildrye	LETR5	G	
Creeping foxtail	ALAR	F	
Crested wheatgrass	AGCR	F	
Intermediate wheatgrass	THIN6	F	
Newhy hybrid wheatgrass		G	
Nuttall's alkaligrass	PUNU2	G	
Pubescent wheatgrass	THIN6	F	
Russian wildrye	PSJU3	F	
Slender wheatgrass	ELTR7	F	
Tall wheatgrass	THPO7	G	
Western wheatgrass	PASM	G	

Warm Season Grasses

	<u>Plant Symbol</u>	<u>Adaptation</u>	
Alkali sacaton	SPAI	F	
Bermudagrass	CYDA	G	South of Smokey Hill river only
Switchgrass	PAVIV	F	

Legumes

	<u>Plant Symbol</u>	<u>Adaptation</u>
Alfalfa	MESA	F
Alsike clover	TRHY	F
Cicer milkvetch	ASCI4	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	
	<u>Low</u>	<u>High</u>
	(lbs/ac)	(lbs/ac)
Tall wheatgrass	1400	4600

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: 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

Salinity/Sodicity

- Species selection and productivity are severely limited by the salinity and/or sodicity levels of these soils.

Drainage

- The somewhat poorly and moderately well drained soils will experience periods when trafficability will be difficult. They are also subject to compaction.

Management Interpretations

Salinity/Sodicity

- When establishing new stands or renovating stands select species that are tolerant of the elevated salinity and/or sodicity levels of these soils.

Drainage

- Exclude livestock and machinery during extended periods of soil wetness to reduce soil compaction. Select species that are tolerant of somewhat poorly drained soils.

FSG Documentation

Similar FSGs:

FSG ID

G072XY700KS

FSG Narrative

Subirrigated soils do not have the high salinity levels and are more productive.

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, Nebraska, and Colorado counties in MLRA 72
 Kansas, Nebraska, and Colorado NRCS Field Office Technical Guides
 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:

CO
KS
NE

Forage Suitability Group Approval:

Original Author: Tim Nordquist

Original Date:

Approval by:

State Range Management Specialist

Date

State Range Management Specialist

Date