FORAGE SUITABILITY GROUP
Saline

FSG No.: **G064XY895NE**
Major Land Resource Area: 64 - Mixed Sandy and Silty Tableland

Physiographic Features
The soils in this group are found on flood plains and terraces.

	Minimum	Maximum
Elevation (feet):	2950	3940
Slope (percent):	0	2
Flooding:		
Frequency:	Occasional	Occasional
Duration:	Brief	Brief
Ponding:		
Depth (inches):		
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Low

Climatic Features
This group occurs in a mid-continental climate characterized by wide seasonal temperature and precipitation fluctuations and extremes.

Annual precipitation varies widely from year to year in MLRA 64. Average annual precipitation for all climate stations listed below is about 16 inches. About 79 percent of the annual precipitation occurs during the months of April through September. On average there are about 26 days with greater than .1 inches of precipitation during that same time period.

Average annual snowfall ranges from 20 inches at Interior, SD to 60 inches at Harrison, NE. Snow cover at depths greater than 1 inch range from 28 days at Interior, SD to 60 days at Long Valley, SD.

Average July temperatures across the MLRA are about 74 degrees F., and average January temperatures are about 22 degrees F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -45 and a high of 114 both recorded at Porcupine, SD. The MLRA lies mostly in USDA Plant Hardiness Zones 4a and 4b, with a small area of warmer 5a around Alliance, NE.

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)**	111	158
Last Killing Freeze in Spring (28 deg): **(1 year in 10 later than)**	Jun 01	May 05
Last Frost in Spring (32 deg): **(1 year in 10 later than)**	Jun 12	May 14
First Frost in Fall (32 deg): **(1 year in 10 earlier than)**	Sep 06	Sep 19
First Killing Freeze in Fall (28 deg): **(1 year in 10 earlier than)**	Sep 11	Sep 28

	From	To
Length of Growing Season (32 deg)(days): (9 years in 10 at least)	94	135
Growing Degree Days (40 deg):	3867	4974
Growing Degree Days (50 deg):	2128	2913
Annual Minimum Temperature:	-30	-15
Mean annual precipitation (inches):	15	18

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	0.07	0.10	0.32	0.71	1.22	1.19	1.43	0.66	0.34	0.47	0.12	0.15
Precip. More Than	0.37	0.61	1.87	3.10	4.14	5.14	3.84	2.61	2.02	1.57	0.81	0.50
Monthly Average:	0.33	0.38	0.97	1.88	2.89	2.90	2.32	1.50	1.33	0.97	0.47	0.38
Temp. Min.	8.5	13.4	19.6	28.9	38.8	48.6	55.1	52.7	42.0	31.1	19.8	11.0
Temp. Max.	35.1	40.2	49.7	63.0	73.1	83.6	92.0	91.0	79.9	67.9	48.9	37.1
Temp. Avg.	22.4	27.4	35.2	46.2	56.8	66.7	74.2	72.2	61.3	49.4	35.1	24.5

Climate Station	Location	From	To
SD4184	Interior, SD	1961	1990
SD4983	Long Valley, SD	1961	1990
SD6736	Porcupine, SD	1963	1990
NE1575	Chadron, NE	1961	1990
NE0130	Alliance, NE	1961	1990
NE3615	Harrison, NE	1961	1990

Soil Interpretations

This group consists of somewhat poorly and poorly drained soils with elevated salinity.

Drainage Class:	Poorly drained	To	Somewhat poorly drained
Permeability Class: (0 - 40 inches)	Moderate	To	Moderately rapid
Frost Action Class:	Moderate	To	Moderate

	Minimum	Maximum
Depth:	72	
Surface Fragments >3" (% Cover):	0	3
Organic Matter (percent): (surface layer)	0.5	2.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	4	16
Sodium Absorption Ratio: (0 - 12 inches)	0	10
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	8.5	9.6
Available Water Capacity (inches): (0 - 60 inches)	7	9
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	6

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

Lisco

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://www.plants.usda.gov

Cool Season Grasses	Symbol	
Altai wildrye	LEAN3	F
Basin wildrye	LECI4	F
Beardless wildrye	LETR5	G
Intermediate wheatgrass	THIN	F
Newhy hybrid wheatgrass		G
Nuttall's alkaligrass	PUNU2	G
Pubescent wheatgrass	THIN	F
Russian wildrye	PSJU3	F
Slender wheatgrass	ELTR7	G
Streambank wheatgrass	ELLAL	F
Tall wheatgrass	THPO7	G
Thickspike wheatgrass	ELM	F
Western wheatgrass	PASM	G

Warm Season Grasses	Symbol	
Alkali sacaton	SPAI	F
Legumes	**Symbol**	
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	
	High	Low
	(lbs/ac)	(lbs/ac)
Tall wheatgrass	2900	1700
Western wheatgrass	1700	1100

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: SD0002
Growth Curve Name: Alfalfa
Growth Curve Description: Alfalfa, MLRAs 65, 64, 60A

Percent Production by Month

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

Growth Curve Number: SD0004
Growth Curve Name: Cool season grass
Growth Curve Description: Cool season grass, state wide

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	40	30	10	5	5	0	0	0

Growth Curve Number: SD0005
Growth Curve Name: Warm season grass
Growth Curve Description: Warm season grass, state wide

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	10	40	35	15	0	0	0	0

Soil Limitations

These soils have severe limitations to the production of climatically adapted forage species. Species selection and productivity are severely limited by the high salinity levels. Also, these soils are somewhat poorly and poorly drained and will experience periods when trafficability will be difficult or impossible. These soils are subject to compaction if grazed or machinery is operated on them when wet. Drainage also limits species selection.

Management Interpretations

When establishing new stands or renovating stands select species that are tolerant of elevated salinity levels, and that are tolerant of somewhat poorly and poorly drained soils. Exclude livestock and machinery during extended periods of soil wetness to reduce soil compaction.

FSG Documentation

Similar FSGs:

FSG ID	FSG Narrative
G064XY700N	Subirrigated soils do not have restrictive levels of salinity.
G064XY900N	Wet soils do not have restrictive levels of salinity.

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) for soil surveys in South Dakota, Nebraska, and Wyoming counties in MLRA 64
South Dakota and Nebraska and Wyoming NRCS Field Office Technical Guides
NRCS National Range and Pasture Handbook
Various South Dakota and Nebraska 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
SD
WY

Forage Suitability Group Approval:

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Original Date:	4/15/02
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