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South Dakota Rangeland and Pasture Grazing Records

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SOUTH DAKOTA RANGELAND AND PASTURE GRAZING RECORDS





College of Agriculture and Biological Sciences
South Dakota Cooperative Extension Service

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SOUTH DAKOTA RANGELAND AND PASTURE GRAZING RECORDS

The South Dakota Rangeland and Pasture Grazing Records book is designed to help ranchers and grassland managers keep accurate records of grazing use and range and pasture conditions. Monitoring and recording range and pasture condition response to grazing will allow you to evaluate the short-term and long-term effect of management on the forage resource and enable you to make management adjustments if conditions warrant.

Figure 1. Carrying Capacity of Ranges and Pastures in South Dakota.

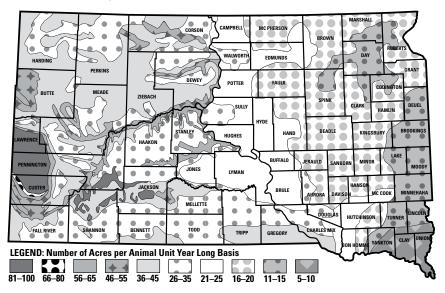


Table 1. Animal unit equivalents (AUE).	Animal unit	Forage consumed in pounds (air dry)	
Species/classes of animals	equivalent (AUE)	day	month
1,000 lb cow, dry 1,000 lb cow with calf <4 months old 1,000 lb cow with calf >4 months old (.3) 1,200 lb cow, dry 1,200 lb cow, with calf <4 months old 1,200 lb cow, with calf >4 months old 750 lb yearling steer 1,750 lb bull, mature	1.00 1.15 1.30 1.20 1.35 1.50 .75	26 30 34 31 35 39 19.5 45.5	780 900 1020 930 1050 1170 585 1365
Ewe, mature Lamb (weanling to yearling) Lamb (yearling) Ram	.20	5	150
	.12	3	90
	.15	4	120
	.25	6.5	195
Bison cow, mature Bison bull, mature	.85	22	660
	1.50	39	1170
Yearlings Two-year old horses Mature light horses	.75	19.5	585
	1.00	26	780
	1.25	32	960

Table 2. Approximate stubble heights of different forage species following grazing to achieve 50% utilization (by weight).

Species	Stubble height (inches)
Tall cool-season grasses (introduced) smooth bromegrass, intermediate wheatgrass, reed canarygrass, orchardgrass	4 – 6
Short cool-season grasses (introduced) Kentucky bluegrass, crested wheatgrass	2 – 3
Tall cool-season grasses (native) western wheatgrass, green needlegrass, needleandthread	4
Short cool-season grasses (native) prairie junegrass	2 – 3
Tall warm-season grasses (native) big bluestem, indiangrass, little bluestem, tall dropseed, switchgrass	4 – 6
Short warm-season grasses (native) hairy grama, blue grama, buffalograss	2

Monitoring 50% utilization by measuring stubble heights of key forage species.

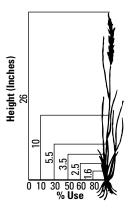


Figure 2. Percent utilization of green needlegrass at different stubble heights.

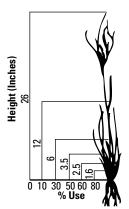


Figure 3. Percent utilization of needle – and – thread at different stubble heights.

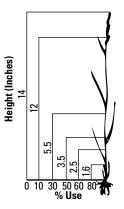


Figure 4. Percent utilization of western wheatgrass at different stubble heights.

Taylor and Lacey, 1987

Precipitation Record Sheet (for Pasture Use Index)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TOTAL												

MONITORING PASTURE RESPONSE

The Pasture Use Index (use with Tables 3 & 4)

Grazing date

Record the index value that corresponds with the month the pasture was grazed. If grazing covers more than one month, add the index values of those months together.

Pasture stubble height

Record the index value that corresponds with the stubble height of key forage species after the final grazing period.

Moisture

Record the index value that corresponds with the precipitation levels that occurred through the calendar year.

Calculating the Index Score

Add up the index values from each of the 4 categories to get a pasture score. Pasture scores can range from -9 to +10.

Management Adjustments

The objective is to avoid management practices that result in negative pasture scores.

- (-) If pasture score is negative, the time that the pasture is grazed next year should be changed. If pasture score is negative two years in a row, the time that the pasture is grazed next year should be changed and stocking rate should be reduced to aid in recovery.
- (0) If pasture score is zero, the time that the pasture is grazed next year should be changed, but no stocking rate adjustments will likely be necessary.
- (+) If pasture score is positive, the time that the pasture is grazed next year should be changed, but overall, management practices are sufficient to sustain long-term forage production and animal performance.

Table 3. Pasture use index for smooth bromegrass dominated pastures (Modified from Reece et al., 2003 by A.J. Smart and E.M. Mousel).

Grazing Date	Index
April: spring greenup	0
May: early rapid growth phase	-3
June: late rapid growth phase	-2
July: seed set	1
August: summer dormancy	2
Continuous grazing May – October	-3
Fall: September – October (new tiller initiation for next year)	-2
Precipitation	Index
Well above average (grater than 25% above normal)	2
Near normal	0
Drought (Less than 75% of normal	-2
Stubble Height (of key forage species)	Index
Excellent: Greater than 8 inches of stubble	2
Adequate: 4 to 8 inches of stubble	0
Poor: Less than 4 inches of stubble	-2
Fertilization	Index
Fertilized	2
Not fertilized	0

Table 4. Pasture use index for western wheatgrass-green needlegrass dominated rangeland (Modified from Reece et al., 2003 by A.J. Smart and E.M. Mousel).

Grazing Date	Index
April: spring green-up	0
May: early rapid growth	-1
June: late rapid growth	-3
July: seed set	0
August: summer dormancy	1
Fall: September – October (new tiller initiation)	-1
Winter: November – March (true dormancy)	+3
Precipitation (April – June)	Index
Well above average (greater than 25% above normal)	2
Near normal	0
Drought (less than 75% of normal)	-2
Stubble Height (of key forage species)	Index
Excellent: 4 to 8 inches of stubble	+2
Adequate: 2 to 4 inches of stubble	0
Poor: Less than 2 inches of stubble	-2

Pastu	ire		Livestock			
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		
North	1000	1.3	340	442	6/15/07	8/1/07

	Grazing Records									
Н	I	J	K	L	М					
AU Days	Grazing Date	Precipitation	Stubble Height	Fertilization	Pasture					
Grazing	Score	Score	Score	Score	Score					
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L					
19,890	-1	-2	0	2	-1					

Pastı	Pasture Livestock					
Α	В	С	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		

Grazing Records									
Н	I	J	K	L	М				
AU Days	Grazing Date	Precipitation	Stubble Height	Fertilization	Pasture				
Grazing	Score	Score	Score	Score	Score				
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L				

Pasture		Livestock				
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		

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Pasture			Livestock			
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
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		Table 1		ExF		
-						
-						

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		Table 1		ExF		
-						
-						

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Grazing	Score	Score	Score	Score	Score			
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Pasture			Livestock			
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		
-						
-						

	Grazing Records							
Н	I	J	K	L	М			
AU Days	Grazing Date	Precipitation	Stubble Height	Fertilization	Pasture			
Grazing	Score	Score	Score	Score	Score			
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L			

Pasture			Livestock			
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		
-						
-						

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Н	I	J	K	L	М			
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Grazing	Score	Score	Score	Score	Score			
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L			

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Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		

	Grazing Records							
Н	I	J	K	L	М			
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Grazing	Score	Score	Score	Score	Score			
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Pasture			Livestock			
Α	В	C	D	E	F	G
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		AU	#	Total	Date	Date
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		Table 1		ExF		
-						
-						

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Grazing	Score	Score	Score	Score	Score			
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L			

Pasti	ıre		Livestock			
Α	В	C	D	F	G	
			Animal Units	Pas	ture	
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		

Grazing Records										
Н	I	J	K	L	М					
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Α	В	C	D	F	G	
			Animal Units	Pas	ture	
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		

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Н	I	J	K	L	М					
AU Days	Grazing Date	Precipitation	Stubble Height	Fertilization	Pasture					
Grazing	Score	Score	Score	Score	Score					
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L					

Pasti	ire		Livestock			
Α	В	C	D	E	F	G
			Animal Units		Pas	ture
		AU	#	Total	Date	Date
Pasture	Acres	Value	Animals	AU	In	Out
		Table 1		ExF		
-						
		l	1			

Grazing Records										
Н	I	J	K	L	М					
AU Days	Grazing Date	Precipitation	Stubble Height	Fertilization	Pasture					
Grazing	Score	Score	Score	Score	Score					
E x (G - F)	Table 3 or 4	Table 3 or 4	Table 3 or 4	Table 4	I + J + K + L					

Ranch name	 	 	 	 	 		 	 	
Address	 	 	 	 	 		 	 	
Phone	 	 	 	 	 		 	 	
Year	 	 	 	 	 		 	 	

SDSU Animal and Range Science Web Site: http://ars.sdstate.edu