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Rangeland Leasing Markets in South Dakota



Agricultural Experiment Station
South Dakota State University
U.S. Department of Agriculture

Rangeland Leasing Markets in South Dakota

John Cole, Larry Janssen,
and Martin Beutler*

To the Reader:

This bulletin reports an investigation of rangeland leasing arrangements in central and western South Dakota, where 90% of the state's rangeland is located.

Different types of rangeland leases from private landlords and from state, federal, and tribal agencies are explained. Differences in rental rates and major factors explaining those differences are presented and evaluated.

This report is written for agricultural professionals (lenders, professional farm managers, government agency personnel, and educators), ranchers, landowners, and policymakers who are interested in rangeland leasing topics. The report includes major findings from the 1988 SDSU South Dakota rangeland leasing survey and updated (1991 and 1992) information on rental rates. It summarizes and extends information from John Cole's thesis and from various Economics Department publications.

We wish to thank the reviewers for their constructive criticisms and comments on an earlier draft of this report. The reviewers are Dr. Richard Shane and Dr. Dillon Feuz of the Economics Department and Mary Brashier, Agricultural Communications Department, SDSU.

Finally, we wish to thank all of the ranchers who participated in the survey. Without their support, this report would not be possible. Financial support for this research publication is from the SDSU Agricultural Experiment Station.

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Contents

Summary	3	Conclusions and implications	17
Rangeland leasing arrangements	3	Bibliography	19
Results from South Dakota rangeland leasing survey	3	Appendix A: 1988 South Dakota rangeland leasing survey.....	20
Rangeland leasing rate determination	3		
Conclusion	4		
Introduction.....	4		
Importance of leasing rangeland in South Dakota	4	Figures	
Different types of rangeland leases in South Dakota	5	Fig 1. Distribution of rangeland by county, South Dakota, 1987.....	5
Private leases, cash or share	5	Fig 2. Total land ownership in South Dakota	6
Public and tribal rangeland leases	6	Fig 3. Regional distribution of rangeland owned and leased by respondents	9
South Dakota school and public lands leases.....	6	Fig 4. Average number of rangeland acres leased per respondent by region, 1988.....	11
Federal rangeland leases and grazing permits	6	Fig 5. Average private lease rates in dollars per acre and dollars per Animal Unit Month (AUM) by region, 1988.....	12
Tribal trust (Bureau of Indian Affairs) leases	7	Fig 6. Average private lease rates in dollars per acre and dollars per Animal Unit Month (AUM) by South Dakota region, 1991 and 1992.....	13
Key management considerations in determining rangeland rental rates	7	Fig 7. Average public/tribal agency lease rate in dollars per acre and dollars per Animal Unit Month (AUM) by region, 1988.	14
Acre or head basis	7		
Stocking rate	7	Tables	
Location.....	7	Table 1. Tenure classes of respondents, average number of acres owned and leased, and average number of leases per respondent, South Dakota, 1988.....	9
Water availability	7	Table 2. Age of respondents by tenure class and sex, South Dakota, 1988.....	10
Method of payment.....	7	Table 3. Size distribution of leased tracts and length of time tract has been leased, South Dakota, 1988.....	10
Rangeland leasing arrangements in South Dakota: selected results from the 1988 SDSU rangeland leasing survey.....	8	Table 4. Tenant and landlord management responsibilities in private, public agency, and tribal trust rangeland leases, South Dakota, 1988	11
Survey procedures and response rates	8	Table 5. South Dakota private rangeland lease rates per acre and Animal Unit Month (AUM) by region, 1986-1988.....	12
Characteristics of respondent ranchers and ranches	8	Table 6. South Dakota private rangeland rent-to-value ratios by region, 1988, 1991, and 1992	14
Location	8	Table 7. Results of the lease rate per acre model for South Dakota, pooled data, 1986-1988.....	16
Land tenure (acres owned and leased)	8		
Age and sex of respondents	9		
Dependence on grazing livestock enterprise	9		
Characteristics of rangeland leasing agreements	10		
Water availability.....	10		
Major differences by type of rangeland lease.....	11		
Landlord and tenant responsibilities	12		
Rangeland lease rates	12		
Private rangeland leases	12		
Gross rent-to-value ratios on privately owned and leased rangeland.....	13		
Public/tribal agency leases	14		
Rangeland leasing rate determination	15		
Model specification	15		
Tract size variables.....	15		
Productivity and location variables	15		
Lease agreement management variables.....	15		
Type of lease variables	15		
Model results	16		
Tract size, productivity, and regional location variables	16		
Lease agreement variables.....	17		
Type of lease.....	17		

Summary

Rangeland is a major natural resource in South Dakota. Together with tame pasture, rangeland accounts for 52% of all land acres in South Dakota and 58% (25.5 million acres) of the state's 44.1 million acres of land in farms.

Rangeland leasing arrangements

Nearly 6 million acres of rangeland are leased from private landlords, and another 3 million acres are leased from public (state and federal) agencies and tribal agencies. In addition, ranchers have grazing permits on nearly 2 million acres of federal lands (national forest and national grasslands) in western South Dakota. Overall, grazing use of nearly two fifths of South Dakota's rangeland acres is through leases or grazing permits.

Leasing of privately owned rangeland is usually determined by landlord-renter negotiations in a competitive market setting. Most private rangeland leases are cash leases, since landlords find it difficult to participate in management decisions and monitor tenant activities on large tracts of rangeland. In contrast, share leasing requires both landlords and tenants to be current on livestock markets and to agree on input shares and output shares.

Rangeland leases from state, federal, or tribal agencies are common in central and western regions of South Dakota. The market for public and tribal rangeland leases is an "administered" market, because the terms and conditions of the leases are established by state, federal, or tribal law and are administered by individuals working for these agencies. A detailed discussion of specific policies of the major state, federal, and tribal agencies leasing rangeland in South Dakota is presented in this report.

Major management considerations in determining rangeland rental rates include: (1) the lease rate basis, per-acre or per-head (Animal Unit Month

or cow-calf); (2) allowable stocking rates; (3) location and accessibility of the rangeland tract; (4) water availability and quality; (5) method of payment; and (6) specific landlord and tenant responsibilities.

Results from South Dakota rangeland leasing survey

Detailed information was obtained from 413 rancher respondents to a 1988 SDSU rangeland leasing survey. These ranchers leased rangeland in 39 counties of central and western South Dakota, where leasing rangeland from private landlords and from state, federal, or tribal agencies is common.

Almost all respondents (98%) owned and leased all of their rangeland in their home county (county of residence) and/or adjacent counties. Most respondent ranchers leased several rangeland tracts. On average, respondents operated about 6,000 acres of rangeland, which was almost equally divided between owned and leased. The average size of a leased rangeland tract was 1,684 acres, with nearly one fourth of leased tracts less than 500 acres in size and another fourth exceeding 2,000 acres.

Most respondents (94%) were males and their median age was 53 years. Ranch operators and their families were primarily responsible for the care and maintenance of livestock herds and provided most of the labor. Most respondents received a majority of their gross farm incomes from livestock sales. Respondent ranchers relied on leased rangeland for over 40% of their grazing season forage needs.

Ranchers reported that they were primarily responsible for most tasks associated with leasing rangeland. Ranchers with private leases reported greater landlord participation in making rangeland and fencing improvements than ranchers leasing from public or tribal agencies. Major characteristics of different types of rangeland cash lease agreements (private, state, federal,

and tribal trust leases) in central and western South Dakota were examined. A majority of private leases were annually renewable, verbal agreements, while most public agency and tribal trust leases were written, multi-year agreements. The median length of time that ranchers have leased rangeland from a specific private landlord is 5 years, compared to 15-20 years of leasing from state, federal, or tribal agencies. There also were major differences in average tract size and water availability by type of lease.

Rangeland leasing rate determination

The major regional differences in per-acre lease rates reflected rangeland productivity differences, with higher lease rates in central and north-central South Dakota and lower per-acre lease rates in northwestern and southwestern South Dakota. Private rangeland lease rates per AUM (Animal Unit Month) were similar in most regions of South Dakota and increased considerably between 1988 and 1991.

Per-acre and per-AUM average lease rates of public/tribal agency rangeland are lower than private rangeland lease rates in each region.

An econometric model was developed to explain variation in leasing rates per acre during the 1986-1988 period. Four major types of variables were included in the model: (1) size of tract, (2) productivity and location, (3) lease agreement characteristics, and (4) type of lease (private, state, federal, or tribal agency). Coefficients for each type of variable were statistically significant at the 0.05 probability level, and the overall R^2 was 0.656.

Higher lease rates were associated with: (1) smaller tract size, (2) increases in AUMs per acre, (3) regional location in central and north-central South Dakota, (4) more frequent lease payments, (5) presence of water sources, (6) greater attention to fencing maintenance and use of

fertilizers/herbicides, and (7) private leases. Significant differences in leasing rates per acre by type of lease remained, after accounting for differences in tract size, productivity, location, and other lease characteristics. Private rangeland leases have the highest lease rates, followed by tribal (BIA), state, and federal leases.

Conclusions

Most of the differences in leasing rates between private, tribal, and public rangelands are due to: (1) differences in tract characteristics (size, location, productivity); (2) management expenses associated with water development, fencing, fertilization, and weed control; and (3) differences in use rights by type of lease. Ranchers leasing private rangeland usually have a greater "bundle of rights," greater management flexibility and control over the rangeland tracts, and fewer administrative difficulties than ranchers leasing public/tribal agency lands. Furthermore, management input and extent of long-term improvements are usually greater on private rangelands. Consequently, private rangeland leases usually command higher lease rates.

We conclude that the amount of "net subsidy" often said to characterize public rangeland leases is much less than the lower lease rates appear to indicate.

Introduction

Rangeland and tame pasture¹ account for 52% of all land acres

¹ Rangeland (according to the glossary of terms published by the Society for Range Management) is land where native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing and browsing use. Rangeland also includes land which is revegetated naturally or artificially to provide a forage cover which can be managed like native vegetation. The definition implies that rangeland includes both native range pastures and tame pastures and is the definition used throughout this report.

and 58% of land in farms in the state (Daugherty, 1991; USDC, 1989). In 1987, South Dakota's farmers and ranchers operated 44.1 million acres, including 23.1 million acres of native rangeland and 2.4 million acres of cropland used for pasture (tame pasture).

The predominant use of South Dakota rangeland is for livestock grazing. Other uses include wildlife habitat, water production, recreation, and as a "seedbank" for renewing native and improving varieties of grasses (Beutler, 1987).

Rangeland supplies much of the forage used by cattle and sheep in South Dakota. An estimated 90% of South Dakota's beef cow herd feed intake and 82% of sheep herd feed intake come from grazing rangeland (Womack and Traub, 1987; Beutler, 1987).

Most (90%) of South Dakota's rangeland acres are located in the central and western regions of South Dakota. In the northwest and southwest regions, rangeland is more than 80% of agricultural land acres. In the eastern regions, rangeland (including tame pasture) is one third or less of agricultural land acres (Fig 1).

South Dakota is one of very few states where: (1) private ownership and leasing of rangeland is dominant, and (2) rangeland leasing or grazing permits from federal, state, or tribal trust lands are also common. Approximately 80% of South Dakota's rangeland acres are privately owned; 12% are federal or state agency lands; and 8% of rangeland acres are in tribal trusts.

Almost all rangeland managed by public and tribal agencies is located in the central and western regions of the state.

Importance of leasing rangeland in South Dakota

Leasing of rangeland is widespread in South Dakota. Nearly six million

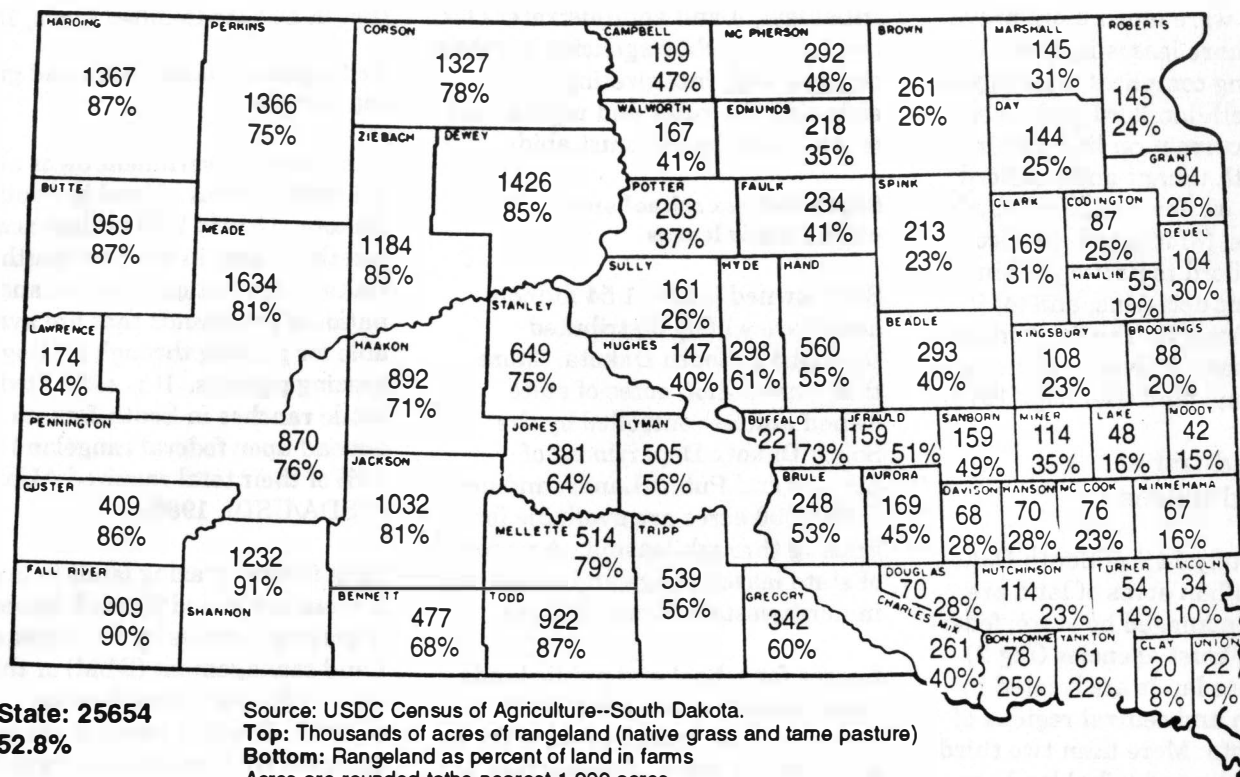
acres are leased from private landlords, and another three million acres are leased from public landlords.^{2,3} In addition, ranchers have grazing permits on nearly 2 million acres of federal lands (national forests and national grasslands) in western South Dakota (Beutler, 1989a). Overall, nearly two fifths of South Dakota's rangeland acres are put to grazing use by leases or grazing permits.

Rangeland leasing is the primary focus of this report. First, different types of rangeland leasing arrangements are outlined, including leases from private and public landlords. Second, major considerations that farmers and ranchers should consider in negotiating rangeland lease rates are covered. The remaining sections of this report are a discussion of empirical findings about the major characteristics of the range-

² The number of leased rangeland acres is estimated from several data sources, as this information is not available from a single source. The total number of rangeland acres leased (excluding federal grazing permits) is estimated from land use and land tenure data from the 1987 U.S. Census of Agriculture. Rangeland acres leased from tribal trusts are estimated in the U.S. Census of Agriculture 1988 Agricultural Economics and Land Ownership Survey. State public land leasing data are furnished by the South Dakota School and Public Lands Commission. Federal grazing permit acreage is estimated by the U.S. Forest Service and Bureau of Land Management.

³ Public landlords include: (1) federal agencies, including the U.S. Forest Service and Bureau of Land Management, (2) South Dakota School and Public Lands Commission and other state agencies, and (3) tribal trust lands administered by the Bureau of Indian Affairs. It is recognized that tribal trust lands are not "public lands" in the same manner that federal or state agency lands are public lands. However, tribal trust lands were grouped with other public lands in this report, because tribal land leases are maintained and administered in very similar ways.

Figure 1. Distribution of rangeland by county, South Dakota, 1987.



State: 25654
52.8%

Source: USDC Census of Agriculture--South Dakota.
Top: Thousands of acres of rangeland (native grass and tame pasture)
Bottom: Rangeland as percent of land in farms
Acres are rounded to the nearest 1,000 acres
Percents are rounded to the nearest whole percent

land leasing market in South Dakota, including:

- (1) major characteristics of rangeland leasing agreements made by ranchers in central and western South Dakota;
- (2) lease rates for private and public rangeland in different regions; and
- (3) investigation of major factors influencing rangeland leasing rates.

The major sources of empirical data were the 1988 SDSU rangeland leasing survey which was sent to ranchers leasing rangeland in central and western South Dakota. Additional sources, including the 1991 South Dakota farm real estate market survey, were used to obtain information on recent changes in rangeland rental rates.

Different types of rangeland leases in South Dakota

Leasing arrangements for privately owned land are usually determined by landlord-renter negotiations in a competitive market setting in which

each party has reasonable knowledge about the condition and potential use of the rangeland tract and awareness of other options available. The two major types of private leases are cash leases and share leases.

Private leases: cash or share

In a cash lease, the tenant (renter) pays an agreed fixed cash payment for the land and any other items furnished by the landlord. There are many advantages of a cash lease to both the landlord and tenant. They include: (1) the landlord is guaranteed a fixed return on his investment, (2) the tenant has more flexibility in production and management decisions, (3) the tenant receives the benefit of good production and management practices, and (4) rental rates can be put on items such as corrals, etc. Disadvantages are: (1) the tenant must pay a fixed rent even if prices are low or grass production is poor (drought), (2) agreements are usually short term, and (3) uncertainty of prices and yields may result in a rental rate that is considered "fair" at one time and "unfair" later (Malazrewicz, 1982).

Share leases involve situations in which the landowner and tenant share production costs and output. In principle, production should be shared according to how much each party contributes to the share arrangement. Advantages to share leases are: (1) the landlord and tenant share risk and uncertainty, (2) rental payments vary directly with production, and (3) the landlord may share in some of the production expenses. There are also disadvantages, however: (1) the landlord must agree with management decisions, (2) gains from superior abilities of the tenant are shared with the landowner, and (3) the landowner has no short-term guarantee of covering investment costs.

Cash leases for rangeland are prevalent in South Dakota (Peterson and Janssen, 1988). In the 1988 SDSU pasture/rangeland leasing survey, all respondents were involved in cash leases of private, tribal, or public rangeland. Less than 2% of respondents reported any involvement in share leases, and most respondents (76.5%) did not expect to in the future.

The major reasons that rangeland cash leases were much more prevalent than share leases include: (1) share leasing complicates lease payments as both landlord and tenant must keep current on livestock markets, (2) both tenant and landlord must agree on how to share inputs and outputs, (3) it may be difficult for the landlord to participate in management decisions, and (4) it may be difficult for the landlord to monitor tenant activities on huge tracts of rangeland (Bennett, 1979).

Public and tribal rangeland leases

Approximately 14% of South Dakota's 49.3 million acres of land are owned and managed by state, federal, or tribal trust agencies (Fig 2). Most of these lands are located in the western and central regions of South Dakota. More than two thirds of these public and tribal lands are used by ranchers with grazing permits or leases.

The market for public rangeland leases is an "administered" market. Thus, lease rates for public lands are not as sensitive to basic supply and demand considerations as are private market lease rates.

Public rangeland leasing markets are "administered" because the terms and conditions of the leases are administered by individuals working for various governmental agencies. In many cases, all or part of the terms and conditions of public

leases are set by state, federal, or tribal law. Land administrators for the various public agencies are then charged with interpreting and enforcing the rules and regulations to which the lessee must abide.

South Dakota school and public lands leases

State owned lands (1.54 million acres) are widely distributed throughout South Dakota. More than one million acres of state owned land is controlled by the South Dakota Department of Schools and Public Lands, and nearly 851,000 acres are available for grazing through leasing. A majority of state leased rangeland is located in northwestern South Dakota.

Leases for school and public lands (state leases) usually last for 5 years, with an option to lease for an additional 5 years. Information on state rangeland tracts available for leasing can be obtained at county courthouses. These leases are subject to an open bidding process, but bids must exceed the established minimum price. Lease payments are annual and must be paid in advance.

Specific times for putting livestock on or taking them off the tracts are not stipulated. However, there are designated stocking rates, stated in Animal Unit Months⁴ (AUMs), set by a land agent and approved by the commissioner. When the stated AUMs available on a tract are used

up, the animals must be removed (South Dakota Codified Laws, 1985).

Federal rangeland leases and grazing permits

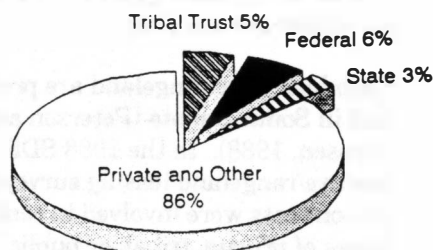
The federal government owns about 3.1 million acres of land in South Dakota. Nearly 2.25 million acres, mostly located in western South Dakota, are national forests and national grasslands that are available for grazing through leasing or grazing permits. It is estimated that cattle ranches in South Dakota depend upon federal rangeland for 12% of their total required AUMs (USDA/USDI, 1986).

Most federal grazing lands in South Dakota are leased through issuance of grazing permits by the Bureau of Land Management (BLM) or the United States Forest Service (USFS). Grazing permits are quite different from traditional rangeland leases. Grazing permits grant only grazing rights. The permittee cannot use the land for other purposes such as haying or timber cutting. There are no direct sales of federal grazing permits.

To obtain a federal grazing permit, an individual must own sufficient land and water rights (base property) to serve as a foundation for a livestock operation. Purchasing another individual's land or livestock to which a grazing permit is attached also makes one eligible for a permit. If a permit is acquired through the purchase of livestock, the new owner must have sufficient land and water in "base property" to be eligible for the permit. At sale of land or livestock, the seller informs the federal agency and waives the permit to the agency in favor of the purchaser. The purchaser then applies for the grazing permit, proves ownership, and if he/she meets the requirements, receives the grazing permit, holding it until the land or livestock to which the grazing permit is attached is sold.

A person may also obtain grazing rights to federal land by joining a grazing association. The grazing

Figure 2. Total land ownership in South Dakota



Total Acreage: 49,310,000

Source: Distributed at Coordinated Resource Management (CRM) Press Conference by United States Forest Service representative, January, 1988, Rapid City, South Dakota.

⁴ A standard Animal Unit (AU) is one mature beef cow (average weight of 1,000 pounds) with or without calf at side. The number of AUs for some other grazing animals are: (1) mature bull, 1.25 AU, (2) yearling steer, 0.7AU, (3) ewe, with or without lambs, 0.2 AU, and (4) ram, 0.3 AU (Doane, 1981). Animal Unit Month (AUM) is the amount of forage required to maintain one AU for one month. The AUM concept is widely used in rangeland leasing to establish stocking rates and is frequently used to establish leasing rates.

permits are still tied to land or livestock and the individual must abide by the rules and regulations of the association. Decisions concerning when livestock are to be placed on and taken off the tract and the stocking rates are determined by the federal agency or grazing association, with the federal agency maintaining final control.

The lease rate on federal land is determined by a set base rate of \$1.23 per AUM which is adjusted by indices that measure the change in private grazing land lease rates, the price of beef cattle, and the costs of livestock production. Payments are usually annual and made in advance (Code of Federal Regulations, 1987).

The federal grazing permit lease rate was \$1.54 in 1988, \$1.86 in 1989 and \$1.81 in 1990 on USFS land. Rates on national grasslands were \$1.83 in 1988, \$2.29 in 1989, and \$2.86 per AUM in 1990.

Tribal trust (Bureau of Indian Affairs) leases

Nearly two million acres of rangeland, located on tribal trust lands in South Dakota, are leased to ranchers by the USDI Bureau of Indian Affairs (BIA). Most of these lands are in western and central South Dakota.

The 1934 Indian Reorganization Act (Wheeler-Howard Act) sets the rules and regulations for grazing permits on tribal trust lands. There are two types: allocated permits and competitive bid permits. Allocated permits are available to tribal members and are not subject to the competitive bid process. Competitive bid grazing permits are on acres in excess of allocated tribal lands and are made available to both Indian and non-Indian ranchers on a competitive bid basis. Permits are advertised for 30 days. The length of lease is set by the tribal council and is generally not less than 5 years.

Rental rates on BIA allocated lands are expressed in terms of dollars per

AUM, are determined by an area director, and are based on a "fair market value" based in part on local economic conditions. Water developments and fencing are taken into consideration. Lease rates on allocated lands may be less than the accepted minimum, but such exceptions must be approved by the tribal council. Lease rates and grazing rights on the excess lands are determined by competitive sealed bids. The sealed bid must be at least equal to the acceptable minimum and is subject to the provision that a tribal member may equal the opened bid and thus obtain the grazing permit or lease (Gary Heitmanse, pers comm, 1989).

Key management considerations in determining rangeland rental rates

Settling on the rental rate for a pasture is sometimes difficult. Services, facilities, and other amenities may be greater considerations than the available forage itself (Beutler, 1989a).

Acre or head basis

Lease rates are usually determined on a per-acre or a per-head basis. A per-acre rate is convenient in that the number of acres within a pasture is known. However, a lease rate based on acres requires adjustment for the quantity and quality of forage available.

A per-head lease may not adequately recognize differences in stocking rates. Livestock owners opposed to per-acre leasing agreements may want low stocking rates which result in higher weight gains per head. Landowners may prefer higher stocking rates to increase the income from the pasture.

Rangeland lease rates are often quoted in terms of Animal Unit Months (AUMs). A per-AUM lease rate may be used when the rancher and landowner are concerned with

the long-term carrying capacity of the pasture.

Stocking rate

The stocking rate must be agreed upon at the outset of the lease. Stocking rates are usually based on: (1) condition of the pasture, (2) management goals of the landowner, (3) forage needs of the tenant, and (4) income needs of the tenant and landlord. Agreement in advance on stocking rate is necessary to avoid later disagreements and to maintain the quality of the grass stand.

Location

Location of the pasture affects lease rate. A conveniently located pasture can lower production costs for the livestock owner, since trips to check cattle and hauling or driving livestock to the pasture will be shorter. The livestock owner may be willing to pay for this convenience.

Water availability

The availability of good quality water sources for livestock must also be considered when setting lease rates. Streams, ponds, and dugouts may be seasonal and contain poor quality water. Wells, pipelines, and rural water systems are likely to provide a more stable supply of better quality water for the grazing animals. Inadequate or poor quality water on a tract may create a situation where a tract cannot be grazed because: (1) animals would have to travel too far for water, (2) the cost of hauling water would be prohibitive, or (3) the only available water is on an adjacent tract owned or leased by others.

Method of payment

Lump sum payments at the beginning of the grazing season may be at lower rates than monthly payments or a lump sum payment at the end of the grazing season.

Rangeland leasing arrangements in South Dakota: selected results from the 1988 SDSU rangeland leasing survey

More than two fifths of South Dakota's rangeland and tame pasture acreage is leased to ranchers. South Dakota is one of very few states where ranchers lease substantial acreages of privately owned, public agency, and tribal trust rangeland.

Survey procedures and response rates

Detailed information on rangeland leasing arrangements was obtained from rancher respondents to the 1988 SDSU rangeland leasing survey (Cole, 1989). The data provide a statistical profile of contemporary rangeland leasing arrangements and some key characteristics of the ranches and ranchers involved. The survey also provides data on leasing rates and the factors involved in rangeland leasing rate determination. A copy of the survey instrument is shown in Appendix A.

Copies of the survey were mailed to 1,515 South Dakota producers listed in directories of state, federal, and tribal trust agencies involved in leasing rangeland.⁵ Respondents were asked to provide detailed management information on their most

⁵ The following directory sources were used to compile a list of potential respondents: (1) individuals who leased rangeland from the School and Public Lands Commission of South Dakota; (2) individuals who leased rangeland from tribal trust organizations (BIA), including the Rosebud Agency, Cheyenne River Agency, Crow Creek Agency, and Standing Rock Agency; (3) the officers of the grazing associations in South Dakota and individuals involved in the White River Cooperative Grazing District and the Eastern Pennington Cooperative District; and (4) direct permittees of national forests. Names of individuals were also obtained from the National Grasslands Association.

important or most typical rangeland leasing arrangements for private, public agency, and tribal lands.

Survey returns totaled 521, and 413 (27%) were usable. Most of the 108 unusable responses were from individuals that indicated no remaining involvement in rangeland leasing agreements.

Information was examined in two different data sets. The first covered general characteristics of the 413 respondents, their ranching operations, and extent of their involvement in rangeland leasing. Detailed management information on specific rangeland leases was provided by 319 of the 413 respondents. This second data set included 174 private cash leases and 270 leases or grazing permits from public agencies or tribal trusts.

Ranchers that leased only private rangeland were excluded from the sampling process. Consequently, some results of this study cannot be used to make inferences for the entire state. However, the study is representative of conditions in the central and western regions of the state where both private and public rangeland leasing occur.

Characteristics of respondent ranchers and ranches

Location

The 413 respondents operated ranches and leased rangeland in 39 counties of western and central South Dakota. For reporting purposes, these 39 counties were classed into seven regions: west-northwest, east-northwest, west-central, southwest, south-central, central and north-central.⁶ The remaining 27

⁶ The regional boundaries were determined by: (1) established boundaries of Crop Reporting Districts; (2) the extent of leased public and tribal lands in each region; and (3) number of usable responses from each region.

counties are located in eastern South Dakota (Fig 3).

Approximately 90% of the state's total rangeland is located in the seven regions of western and central South Dakota. The 413 respondent ranchers own and lease 2.3 million acres of rangeland for 10% of the 23.1 million acres of total rangeland in the seven regions covered by the survey. Respondents operated a higher percentage of total rangeland in some regions of western South Dakota where public agency and tribal rangelands are prevalent (Fig 3).

Most respondent ranchers (76%) owned and leased all of their rangeland in their county of residence. Another 22% owned or leased rangeland in their home county and in adjacent counties. The remaining 2% of respondents operated ranches that were not located in their home county or in an adjacent county (Cole, 1989).

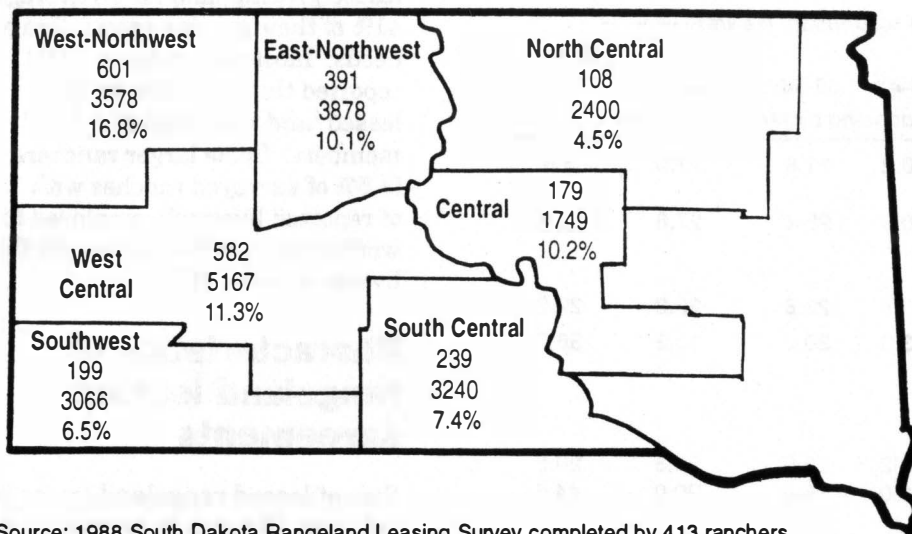
Land tenure (acres owned and leased)

Most respondent ranchers leased several rangeland tracts. A majority leased from both (1) private landlords, and (2) public agencies or tribal trusts. On average, these respondents operated about 6,000 acres of rangeland almost equally divided between owned and leased rangeland.

Respondents belonged to one of four land tenure categories, based on the nature of their participation in the market as landowners or renters. The tenure classifications were: (1) landlords, who rent out all owned rangeland, (2) partowner-operator landlords, who operate a ranch while leasing rangeland to and from others, (3) partowner operators, who own and operate a ranch while leasing some of their rangeland from others, and (4) tenant ranchers, who own no rangeland and lease all of their rangeland from others.

Partowner operators and partowner-operator landlords were the dom-

Figure 3. Regional distribution of rangeland owned and leased by respondents.



Source: 1988 South Dakota Rangeland Leasing Survey completed by 413 ranchers.

Top: Thousands of rangeland acres owned and leased by respondents.

Middle: Thousands of rangeland acres in each region.

Bottom: Percent of rangeland owned and leased by respondents of region.

Partowner operators tended to be at least 35 years of age. There was a gradual increase in the number of partowner operators up to 65 years and over, where it began to taper off, suggesting these individuals may be looking toward retirement and thus decreasing the size of their operation. This finding was partially confirmed after examining landlord ages, in which over one third were at least 65 years old and half were over 55.

Dependence on grazing livestock enterprise

Most respondents operated small- to moderate-size ranches, the average ranch size (excluding cropland) being nearly 6,000 acres of owned and leased rangeland. The average size of the grazing livestock enterprise was 217 AUs.

Livestock sales (calves, cull cows, or sheep) were a major source of gross income for most respondent ranchers. One third of the ranchers reported receiving 80% or more of their gross farm income from sale of grazing livestock. The average size of the livestock enterprise was 337 AUs. These ranchers owned a majority (52%) of the 77,530 AUs reported in the survey.

inant land tenure groups. Landlords and tenant ranchers were only 15.5% of respondents surveyed (Table 1). Partowner-operator landlords reported owning and leasing the largest tracts (an average of 3,370 acres owned and 3,731 leased). Partowner operators owned an average of 3,244 acres and leased another 2,725 acres.

Partowner operators were involved in the most leases, with an average of 3.0 rangeland leases per grazing season per individual. This was followed by partowner-operator landlords and tenants. Landlords were involved in the fewest number of leases, averaging 1.9 leases per respondent.

Age and sex of respondents

Most respondents (94%) were males, and most (92%) were 35 years of age or older. Median age was 53 years, which is 3.3 years older than the average age of all South Dakota farmers (USDC, 1989). This age distribution might be expected because of the large capital requirements of land, livestock, and machinery required to operate a ranch.

Age and land tenure status are inter-related (Table 2). Two thirds of the full tenants who own no rangeland were less than 45 years old. Many of these recent entrants into the ranching industry were trying to build up the necessary livestock and machinery investment before entering the rangeland purchasing market. Some full tenants were primarily interested in control of rangeland by leasing instead of ranchland ownership.

Table 1. Tenure classes of respondents, average number of acres owned and leased, and average number of leases per respondent, South Dakota, 1988.

Tenure category	Number of respondents		Average number of acres owned	Average number of acres leased	Average number of leases per respondent ^a
	no.	percent			
Tenant	34	8.2	0	3264	2.4
Part-owner operator	286	69.2	3244	2725	3.0
Part-owner operator landlord	63	15.3	3370	3731	2.7
Landlord ^b	30	7.3	1807	830	1.9
All respondents	413	100.0	3168 ^c	2881	2.8

^aAverage number of rangeland leases per year (grazing season) per respondent.

^bLandlord classification includes nonoperator landlords and full-owner operator landlords.

Table 2. Age of respondents by tenure class and sex, South Dakota, 1988.

Tenure class ^a	N	Age of respondent (years)				
		< 35	35-44	45-54	55-64	65 and over
percent responding by tenure class/sex						
Tenants	34	26.5	38.2	11.8	17.6	5.9
Part-owner operator	286	6.3	20.3	23.4	27.6	22.4
Part-owner landlord	63	8.0	23.8	23.8	22.2	22.2
Landlords ^c	30	6.7	13.3	30.0	13.3	36.7
Sex^b						
Male	388	8.5	22.2	23.5	25.3	20.5
Female	25	4.0	16.0	16.0	20.0	44.0
Totals	413	8.2	21.8	23.0	25.0	22.0

^aStatistical relationship between respondent age group and tenure class:

Chi square = $\chi^2 = 33.62$, $p \leq 0.001$, $DF = 12$

^bStatistical relationship between age and sex of respondent:

$\chi^2 = 7.64$, $p = 0.106$, $DF = 4$

^cLandlord classification includes nonoperator landlords and full-owner operator landlords

Source: 1988 South Dakota Rangeland Leasing Survey

Table 3. Size distribution of leased tract and length of time tract has been leased, South Dakota, 1988.

Size of tract in acres	Rangeland leases		Number of years tract has been leased	Rangeland leases	
	No.	Pct.		No.	Pct.
40 - 139	39	8.8	1 - 5	139	31.3
140 - 259	74	16.7	6 - 10	83	18.7
260 - 499	81	18.2	11 - 15	47	10.6
500 - 999	88	19.8	16 - 20	51	11.5
1000 - 1999	53	11.9	21 - 30	58	13.1
2000 - 3999	58	13.1	31 or more	66	14.9
4000 or more	51	11.5			
	444	100.0		444	100.0
Mean acres leased	1684		Mean number of years	15.9	

Source: 1988 SDSU Rangeland Leasing Survey

Another 45.5% of respondent ranchers received 30-79% of gross farm income from sale of grazing livestock. The average size of their livestock enterprise was 174 AUs. Only 21% of respondents received less than 30% of gross farm income from grazing livestock sales. The average size of their livestock enterprise was 117 AUs.

Ranchers in the northwest and southwest regions of South Dakota were much more likely to report receiving a majority of their gross farm incomes from sale of grazing livestock. Ranchers in the north-central region were more dependent upon grain and feeder livestock sales as their majority sources of gross farm income (Cole, 1989).

Respondent ranchers relied on their leased grazing land for an average 41% of their grazing season forage needs. Most respondents (91%) reported that livestock on their leased land was tended by family members. Some larger ranchers (4.5% of surveyed ranches with 16.5% of reported livestock) employed hired workers to handle and care for their livestock (Cole, 1989).

Characteristics of rangeland leasing agreements

Size of leased rangeland tracts varied from 40 acres to several thousand acres with an average (mean) tract size of 1,684 acres. Nearly one fourth of leased tracts are less than 500 acres; another one fourth exceed 2,000 acres (Table 3).

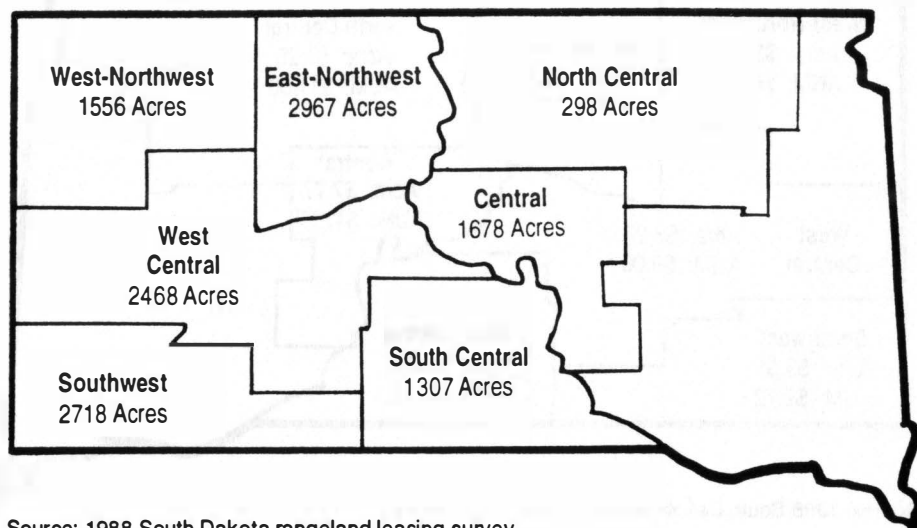
Average size of leased tracts varied significantly by region across South Dakota with the largest in the western regions and the smaller in the north-central region (Fig. 4).

Respondents leased specific rangeland tracts for varying lengths of time. Some ranchers leased tracts for less than 5 years; others had leased the same tract for over 30 years (Table 3). Nearly 60% of reported rangeland leases are written, multi-year, renewable leases; 16% are written, annual (or first-time) leases; and 24% are oral, annually renewable leases. Almost all public agency/tribal trust leases are written agreements, while a majority of private leases are verbal agreements.

Water availability

Surface waters were the only livestock water sources on half of the leased rangeland tracts. Wells or rural water systems were the only sources of water on 10% of tracts. Another 30% of leased rangeland had both sources; these tracts were much more likely to be leased from private landowners. The remaining 10% of leased tracts had no water source.

Figure 4. Average number of rangeland acres leased per respondent by region, 1988.



Source: 1988 South Dakota rangeland leasing survey.

Table 4. Tenant and landlord management responsibilities in private, public agency and tribal trust rangeland leases, South Dakota, 1988.

Responsibility	Type of lease ^a	Responsibility of		
		Tenant	Landlord	Both
		Percent of leases where practice is done		
Checking livestock*	Private	87.2	4.8	7.9
	Public/Tribal	95.0	2.3	2.7
Salt and mineral*	Private	91.5	5.5	3.0
	Public/Tribal	96.9	2.3	0.8
Fencing materials*	Private	45.4	48.5	6.1
	Public/Tribal	90.4	6.5	3.1
Fencing labor*	Private	75.7	19.3	5.0
	Public/Tribal	95.8	3.8	0.4
Water developments**	Private	38.3	59.2	2.5
	Public/Tribal	86.1	8.0	5.9
Livestock damage**	Private	94.3	4.3	1.4
	Public/Tribal	97.1	2.9	—
Liability insurance**	Private	83.3	13.7	3.0
	Public/Tribal	96.5	3.1	0.4
Fertilizer expense***	Private	85.1	12.8	2.1
	Public/Tribal	98.3	1.7	—
Spray and herbicide***	Private	81.4	15.3	3.3
	Public/Tribal	93.0	3.9	3.1

Source: The 1988 South Dakota Rangeland Leasing Survey.

^a174 respondents reported having private leases, 270 reported leasing rangeland from state agencies, federal agencies or tribal trusts.

*These practices were done in almost all of the leases reported.

**These practices were done in at least 80% of the leases reported.

***These practices were done in at least 35% of the private and public leases reported.

Major differences by type of rangeland lease

Almost all private rangeland leases were cash leases, and average (mean) size was 1,491 acres per tract. The median length of time that private leases had been in effect is 5 years, with 76% of the leases in effect for less than 10 years. Approximately 58% of private leases were verbal, annually renewable leases. The remaining 42% were written leases, and most of these were multi-year renewable leases.

Private rangeland leased tracts are often more developed than their public or tribal agency counterparts. For example, 16% of private tracts, but only 1% of public agency tracts, were seeded to tame grasses or interseeded native grasses. Tame grasses typically produce 2.0-2.5 times more forage than good-to-excellent quality native grasses (Aanderud and Madsen, 1984).

Water sources (wells, ponds, or streams) were available on 95% of privately leased tracts, with surface water and well water sources available on 38% of these tracts.

South Dakota school and public land leases (state agency leases) were cash leases on a per-acre basis. The average tract size was 490 acres. Water sources for livestock were available on only 78% of these tracts. These leases are usually written for a 5-year period, with an option to lease for additional 5-year periods. The median length of time that respondent ranchers had leased a state tract was 17 years.

The average size of federal grazing tracts leased by respondent ranchers was 2,650 acres, and the median number of years the tract had been leased was 20 years. Almost all of the tracts were native grassland with water sources. Nearly three fourths of the ranchers with federal grazing permits were members of a grazing association. In most cases, the grazing association assigned

federal grazing permits to their members on an annual, renewable basis.

The average size of tribal trust (BIA) tracts leased by ranchers was 1,850 acres, leased for a median time of 15 years. All tracts were native grassland, and 94% had water.

Landlord and tenant responsibilities

Respondent ranchers reported some differences between type of lease (private, public agency, or tribal trust) in terms of specific management activities and responsibilities of the rancher-tenant and landlord (or administrative agency).

Respondent rancher-tenants were primarily responsible for most tasks associated with leasing grazing land (Table 4). On privately leased tracts, more than half of the respondents indicated that the cost of fencing materials and water developments were the landlord's responsibility or were a shared expense. Ranchers leasing public agency or tribal trust tracts reported all improvements were usually the tenant's responsibility.

Some tasks and responsibilities (fertilizer and herbicide expenses and spraying) were not performed on a majority of rangeland tracts. If these tasks were performed, they were usually the tenant's responsibility (Cole, 1989).

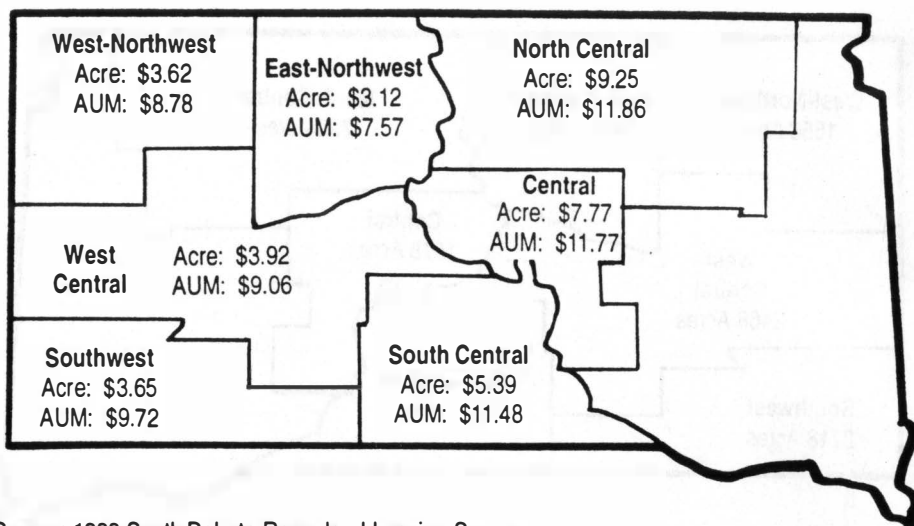
Rangeland lease rates

Private rangeland leases

Rangeland rental rates should reflect the productivity of the leased tract and other specific attributes, such as who is accountable for certain responsibilities associated with the lease.

The highest private lease rate averages for 1988, \$7.77 to \$9.25 per acre, were reported east of the Missouri River in the north-central and central regions of the state (Fig 5).

Figure 5. Average private lease rates in dollars per acre and dollars per animal unit month (AUM) by region, 1988.



Source: 1988 South Dakota Rangeland Leasing Survey.

Table 5. South Dakota private rangeland lease rates per acre and Animal Unit Month (AUM) by region, 1986-88.

Region ^a	Average dollars per acre			Average dollars per AUM		
	1986	1987	1988	1986	1987	1988
North-Central	9.42	9.32	9.25	12.55	11.75	11.86
Central	7.74	7.58	7.77	11.93	11.33	11.77
South-Central	5.97	5.39	5.39	11.57	11.30	11.48
West-Central	4.14	3.87	3.92	10.00	9.44	9.72
Southwest	3.35	3.49	3.65	8.92	9.22	9.06
West-Northwest	3.29	3.42	3.62	8.84	8.68	8.78
East-Northwest	3.22	3.14	3.11	7.92	7.84	7.57

Source: 1988 South Dakota Rangeland Leasing Survey

^aSee Figure 5 for specific location of each region.

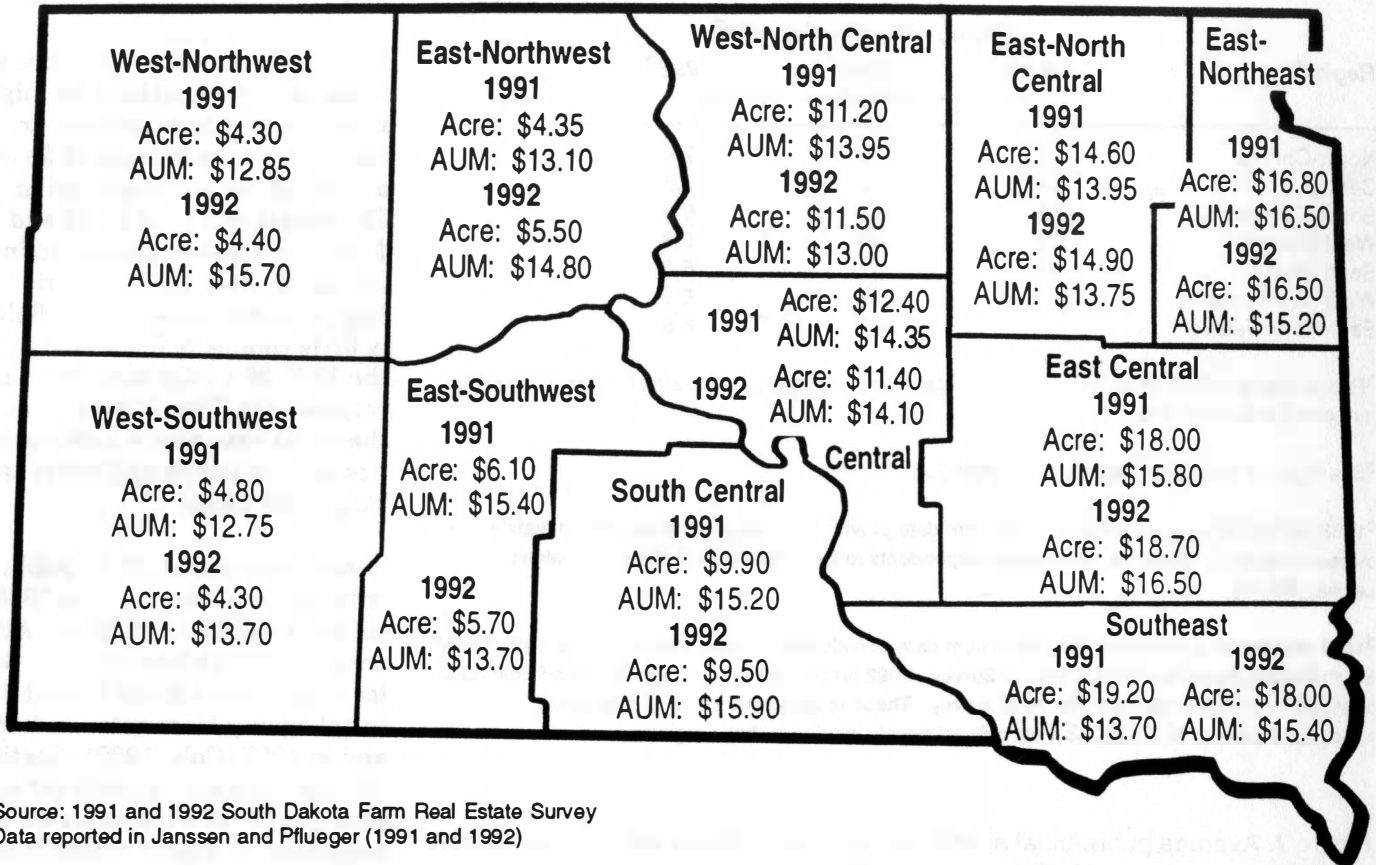
Rangeland in these regions has a higher productivity rating than rangeland in western South Dakota. The lowest private lease rates (per-acre average of \$3.12 to \$3.92) were reported in four regions west of the Missouri River, where lower rangeland productivity and lower annual precipitation are more prevalent. A similar pattern can be seen for private lease rates in 1986 and 1987 (Table 5).

Rangeland lease agreements on an AUM basis allow a livestock herd to graze similar amounts of forage per AUM regardless of location. Private

lease rates calculated in dollars per AUM should be fairly similar across South Dakota, unless there are substantial differences in water availability and quality, fencing costs, transportation costs, and other costs or amenities associated with the lease.

Private rangeland lease rates per AUM in 1988 varied from \$11.86 to \$7.57 across South Dakota (Fig 5). Similar private lease rates per AUM were reported for 1986 and 1987 (Table 5). However, these regional differences in average lease rates per AUM were not statistically sig-

Figure 6. Average private lease rates in dollars per acre and dollars per animal unit month (AUM) by region, 1991 and 1992.



Source: 1991 and 1992 South Dakota Farm Real Estate Survey
Data reported in Janssen and Pflueger (1991 and 1992)

nificant at the 5% probability level (Cole, 1989).

Lease rates were updated for privately owned rangeland by obtaining information from a 1991 and 1992 SDSU farm real estate market survey completed by South Dakota rural appraisers, agricultural lenders, and Extension agricultural agents (Janssen and Pflueger, 1991 and 1992). Regional average private rangeland lease rates per acre and per AUM for 1991 and 1992 are shown in Figure 6.

Caution should be used in making comparisons between the 1991-1992 and 1988 cash rental rates (Figs 6 and 5). A larger number of regions are reported for 1991-1992 and regional boundaries differ in some cases. Also, the 1991 and 1992 surveys are based on reports from persons whose business usually requires them to be knowledgeable of local agricultural land market conditions, while the 1988 survey of ranchers

uses information directly from actual rangeland leases.

Despite these limitations, it is easy to conclude that rangeland lease rates have increased between 1988 and 1991-1992 in all regions of South Dakota.

In western and central South Dakota, regional average rangeland lease rates in 1988 varied from \$7.57-\$11.57 per AUM; rangeland lease rates in 1992 varied from \$13.00-\$15.90 per AUM. Per-acre rangeland lease rates increased nearly \$0.80 per acre in northwestern South Dakota to about \$4 per acre in the central region of South Dakota (Figs 5 and 6).

Gross rent-to-value ratios on privately owned and leased rangeland

Rent-to-value ratios show the gross rate of return on investment of privately owned rangeland. The ratio is calculated by dividing the lease or

rental rate per acre by the estimated market value per acre. Rent-to-value ratios are affected by many items such as the price of land, demand for grazing land, and the attractiveness of alternative investments. Except for differences in risk and localized supply-demand conditions, rent-to-value ratios should be roughly equal across South Dakota at any point in time.

The rent-to-value ratios reported here were calculated using the respondents' reported per-acre cash lease rate and their estimated market value of the same rangeland.

Average rent-to-value ratios for rangeland in 1988, 1991, and 1992 varied across regions. The lowest rent-to-value ratios for rangeland are in the east-northwest and west-northwest regions and the highest rent-to-value ratios are in the north-central and central regions (Table 6).

Statistical tests indicated that there were significant differences ($p=.05$)

Table 6. South Dakota private rangeland rent-to-value ratios by region, 1988, 1991, and 1992.

Region ^b	Average rent-to-value ratio ^a		
	1988 ^c	1991 ^d	1992 ^d
	percent		
North-Central	8.6	7.4	7.9
Central	8.0	8.9	7.5
South-Central	7.5	6.8	6.9
West-Central	6.7	7.1	6.3
Southwest	6.4	7.1	6.2
West-Northwest	6.0	6.8	6.2
East-Northwest	5.2	6.1	6.6

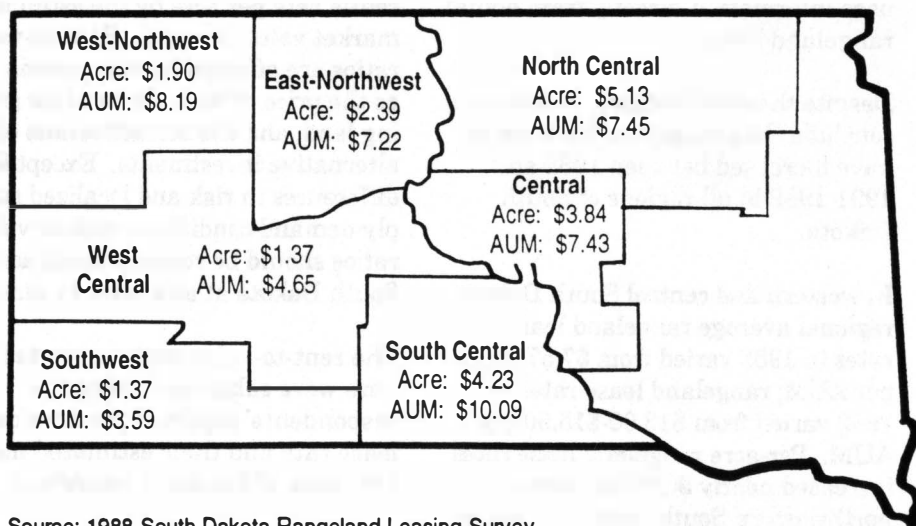
^aRent-to-value ratio is respondents' reported gross cash rent per acre divided by their estimated rangeland value per acre.

^bSee Figure 5 for specific location of each region.

^c1988 rent-to-value ratios are calculated from data provided by 122 ranchers leasing privately owned rangeland. These ranchers were respondents to the 1988 South Dakota Rangeland Leasing Survey.

^d1991 rent-to-value ratios are calculated from data provided by 111 respondents to the 1991 SDSU South Dakota Farm Real Estate Market Survey. 1992 rent-to-value ratios are calculated from data provided by 95 respondents to the 1992 survey. These respondents are rural appraisers, agricultural lenders, and Extension agricultural agents located in these regions.

Figure 7. Average public/tribal agency lease rates in dollars per acre and dollars per animal unit month (AUM) by region, 1988.



Source: 1988 South Dakota Rangeland Leasing Survey

in average rent-to-value ratios by region in South Dakota which seem to be related to rangeland productivity differences (Cole, 1989). Also, the lower rent-to-value ratios are found in the western regions where substantial amounts of public and tribal agency lands are leased.

Public and tribal agency leases

Average lease rates per acre for public and tribal agency rangeland follow a regional pattern similar to that of private rangeland. In each region, average lease rates for public and tribal agency rangeland are

lower than average lease rates for privately owned rangeland (Figs 5 and 7).

Lease rates per acre for public and tribal agency rangeland are highest in the central and north-central regions with an average of \$3.84 and \$5.13 per acre reported in 1988. The lowest values of \$1.90 and \$1.37 per acre were reported in the less productive and more arid regions of the state (Fig 7). Relatively little change in lease rates over the 1986-88 period was reported by respondents. This is partly due to the multi-year renewal characteristics of most public and tribal agency rangeland leases.

Lease rates per AUM for public and tribal agency rangeland in 1988 varied from \$10.09 to \$3.59 per AUM across South Dakota (Fig 7). Similar results were found for public and tribal agency lease rates in 1986 and in 1987 (Cole, 1989). Statistical testing revealed a significant difference ($p=.05$) in AUM rates for public rangeland by region across South Dakota for the 1986-1988 period. Statistical differences in lease rates were expected between leases which involved administered pricing (grazing permits) and leases which were competitively bid. The majority of leases involving administered pricing are on public lands administered by the USFS and the BLM. A majority of these federal rangelands are in the west-central and southwest regions of the state. Therefore, significantly lower AUM rates per acre were expected in these two regions.

This variation in average lease rates per AUM is partially explained by the differences between dollars per acre and dollars per AUM. Few respondents, other than federal grazing permit holders, reported rangeland lease rates in dollars per AUM. Therefore, lease rates in dollars per acre were converted to dollars per AUM by estimating the number of AUMs on the leased tract. The method of conversion was to multiply the number of cow-calf pairs (or

equivalent number of grazing animals) by the number of months the animals were on the tract, divided into the total lease payment (dollars per acre times total acres). Considerable efforts were made to eliminate extreme values of overgrazing and undergrazing in calculating AUM usage (Cole, 1989).

Another reason for regional variation in lease rates per AUM may be due to substantial differences in the number of AUMs per acre across regions and to some management costs, such as fencing, water development, and spraying, which are related to tract size and not to the amount of forage obtained. Thus, a lower number of AUMs of forage per acre is often related to higher management costs per AUM. A final reason for possible variation in lease rates per AUM is a regional difference in the supply and demand conditions for leased rangeland.

Rangeland leasing rate determination

The highest lease rates per acre occur in the north-central and central regions of the state, and the lowest rates are in the more arid western regions of South Dakota. Federal, state, and tribal trust (BIA) lease rates are lower than private lease rates in all regions. In this section, we attempt to explain variation in per-acre lease rates that are related to key management considerations and to the political economy of rangeland lease rates in South Dakota.

Model specification

A single-equation econometric model was developed to examine the relationship between per-acre lease rates and selected explanatory variables. The general form of the model was $Y=f(x_{1j}, x_{2j}, x_{3j}, x_{4j})$ where: Y = lease rate per acre, x_{1j} = productivity and location variables, x_{2j} = tract size variables, x_{3j} = selected lease agreement management variables, and x_{4j} = type of lease variable. An

ordinary least squares (OLS) multiple regression procedure was used to estimate the coefficients.⁷

Tract size variables

Lease rates were expected to be negatively related to the size of the leased tract, measured in hundreds of acres (ACRE), because of greater difficulty in making larger lease payments and in managing larger tracts. Since lease rates per acre may have a non-linear relationship to size of tract, a second variable (ACRE²) was used to examine this possibility.

Productivity and location variables

Productivity and location variables are AUMPERAC and REGION. AUMPERAC is an estimate of the productivity of the rangeland tract in AUMs and is derived from long-term stocking rate information supplied by the rancher. The AUMPERAC coefficient is expected to be positive.

REGION is a set of category (dummy) variables for regional location of the tract. REGION was included as a proxy variable to capture regional differences in variables that can affect rangeland lease rates, including differences in precipitation, soil fertility, local supply and demand for leased rangeland, property taxes on rangeland, and other region-specific factors. The coefficients for the regions in central South Dakota were expected to be positive relative to the base region of the west-northwest.

Lease agreement management variables

Lease rates may be affected by management practices and amenities incorporated into a lease agreement. Lease agreement management variables included in the model are PAYMENT, WATER, FENCE, and HERBFERT.

PAYMENT was included in the model to reflect how often lease payments were made. Annual up-front lease payments may be difficult for some ranchers to cash flow, placing downward pressure on lease rates.

The availability of water sources (WATER) on the leased tract is a very important management consideration. The expected coefficient sign for the absence of water source(s) is negative.

Fencing repair and maintenance is frequently a negotiating point in a rangeland lease. The variable FENCE is included to reflect which party is responsible for fencing materials and labor. If the landlord assumes some of the responsibility of fence maintenance and improvements, the expected sign of the FENCE coefficient is positive. A negative sign is expected if no fencing maintenance is reported.

The use of herbicides or fertilizers to improve range condition is reflected in the HERBFERT variable. If these practices are the landlord's responsibility, the expected coefficient sign is positive. If no fertilizer or herbicide is used, the expected coefficient sign is negative.

Type of lease variables

The category variable LEASE indicates the type of landlord and lease (private, state, federal, or tribal trust (BIA)) involved in the leasing agreement. In private leasing markets, leasing rate differentials are expected to reflect tract productivity and location, tract size, and selected amenities of specific leases. These same factors are also expected to

⁷ The PROC GLM statistical procedure in SAS (Statistical Analysis System) was used to estimate the coefficients for each variable and to obtain the type III partial sums of squares and resultant F-tests which allow for testing the significance of added subsets of categorical variables in the model. In particular, we wanted to test the added impact of the "type of lease" categorical variables.

have considerable influence on competitive bid state leases and BIA leases. These factors may have less influence on federal grazing permit rates which are calculated by formula and are not subject to a bidding process.

Model results

The model developed to explain variation in per-acre rangeland lease rates used a pooled data set of leasing agreements from 1986 - 1988. Preliminary statistical tests indicated that rangeland lease rates had not significantly changed over the 3-year period. The coefficients of the model are reported in cents per acre.

Summary statistics from the model show an R^2 of 0.656, indicating 65.6% of the variation in per acre lease rates is explained by the coefficients in the model (Table 7). The mean (average) lease rate is about \$4.30 per acre.

The overall F-value of 98.76 indicates that the model is highly significant at the 0.001 probability level. Additional test statistics reveal that each set of explanatory variables is statistically significant at the 0.01 probability level. These statistical results confirm that each set of explanatory variables included in the model contributes toward an explanation of differences in rangeland leasing rates per acre.

The base lease examined is a state-agency lease in the west-northwest region on a tract where water sources are present and the rancher assumes expenses for fencing and fertilizer. The remaining values in the table indicate how per-acre lease rates change as different factors are considered. Major findings are discussed by groups of variables.

Tract size, productivity, and regional location variables

Coefficients for tract size, productivity, and regional location were statistically significant at the 0.05 or 0.01 probability level. The tract size

Table 7. Results of the lease rate per acre model for South Dakota, pooled data, 1986-1988.

Variable	Beta coefficient ^a	Standard error	Summary statistics		
Intercept	282.26 ^d	27.14 ^c	R^2	=	0.656
<u>Productivity variables</u>			F-value	=	98.76 ^c
REGION			Dep. Mean	=	429.64
Central	231.39	24.09 ^c	N	=	949
East-Northwest	-38.79	25.98	Type III		
North-Central	337.40	21.97 ^c	DF	sum of	
South-Central	160.78	25.12 ^c	Region	squares ^b	F-value
Southwest	-59.08	27.73 ^d	Fence	67.2	11.49 ^c
West-Central	-51.84	21.25 ^d	Herbfert	30.2	5.17 ^c
West-Northwest	0.00	—	Type of lease	809.2	92.27 ^c
AUMPERAC	54.74	13.38 ^c			
<u>Size of tract variables</u>					
ACRE (hundreds)	-1.57	0.47 ^c			
ACRE ²	3.57E-05	1.51E-05 ^d			
<u>Lease agreement characteristics</u>					
PAYMENT					
Annual	-72.90	15.55 ^c			
Not annual	0.00	—			
FENCE					
Landlord	73.41	15.46 ^c			
Not done	-15.67	39.81			
Tenant	0.00	—			
HERBFERT					
Landlord	9.44	26.28			
Not done	-37.41	12.95 ^c			
Tenant	0.00	—			
WATER					
None	-52.21	17.86 ^c			
Present	0.00	—			
TYPE OF LEASE					
Tribal(BIA)	74.03	27.40 ^c			
Federal	-107.70	25.19 ^c			
Private	194.77	16.07 ^c			
State	0.00	—			

^aBeta coefficients and Standard error reported in cents per acre.

^bType III sum of squares are in ten thousands. Type III sum of squares are partial sums of squares that measure the impact of adding a specific set of category variable (region, fence, herbfert, type of lease) as explanatory variables to the equation.

Probability Level of Significance: c = .01; d = .05.

(ACRE) coefficient was negative and significant (p=0.01), indicating that as tract size increases, the lease rate per acre decreases. This continues until tract size reaches 22,000 acres. The average tract size is 1,491 acres

and few tracts exceeded 22,000 acres. The coefficient for ACRE² was also significant (p=0.05).

The variable AUMPERAC is a proxy for tract productivity and has a

mean (average) value of 0.62 AUMs per acre. The coefficient for this variable is positive and has a value of \$0.55 per acre.

REGION is a categorical variable with seven parameters representing the regions of South Dakota included in the model. Parameter signs and values indicated that lease rate patterns followed soil productivity and precipitation patterns with the highest positive coefficients in the north-central, central and south-central regions. The negative coefficient for lease rates in the southwest, west-central and east-northwest regions indicates lease rates are lower than in the base region (west-northwest, after accounting for the effects of other explanatory variables).

Lease agreement variables

Each of the category variables reflecting lease characteristics (PAYMENT, FENCE, HERBFERT, and WATER) were individually and collectively significant ($p=0.01$).

The coefficient for PAYMENT was negative and significant, indicating that lease rates involving annual up-front payments are expected to be lower than lease rates where payments are more frequent. Annual up-front payments were used in 73% of the leases.

FENCE was significant ($p=0.01$) and positive for the landlord parameter. This likely reflects efforts by landlords to recover some of their added expenses in leases where fencing maintenance is partly the landlord's responsibility. The shared expense is also desirable for many rancher-tenants. Landlords assumed or shared fencing maintenance expenses in 27% of the leases.

The absence of fertilizer and herbicide application was negatively related to lease rates. The application of fertilizer or herbicides would be expected to increase or maintain the carrying capacity of the tract and thus command a higher lease rate. Fertilizer and/or herbicides were

applied on 45% of the leased tracts. The lease rate is slightly higher if the landlord provides or shares these expenses.

The absence of water sources for livestock on the tract has a negative and significant impact on lease rates. The coefficient for lack of a livestock WATER source on the leased tract was $-\$0.52$. A water source for livestock was not available on 14% of the tracts.

Type of lease

Private leases were 41% of the rangeland lease agreements examined. The proportion of rangeland leases in the sample from public and tribal agencies were: state agency (South Dakota School and Public Lands) leases, 39%; tribal trust competitive bid leases, 10%; and federal grazing permits or grazing association memberships, 10%.

The coefficients for the LEASE category variable were collectively significant ($p=0.01$), indicating that lease payments per acre substantially differ by type of cash lease or grazing permit (private, state, federal, or tribal trust) after accounting for other possible factors (productivity, location, tract size, and selected amenities) that may affect lease rates.

Private leases had the largest positive coefficient ($+\$1.95$ per acre) relative to state agency leases. Lease rates for competitively bid tribal trust (BIA) tracts were also higher per acre than state lease rates. The coefficient for federal grazing permits ($-\$1.077$) was lower than coefficients for other lease types in South Dakota. Compared to private leases, federal grazing permits are about \$3.02 lower per acre after accounting for other explanatory variables in the model.

Conclusions and implications

Major characteristics of different types of rangeland cash lease agreements (private, state, federal, and

tribal trust leases) used by ranchers in central and western South Dakota were examined. A majority of private leases were annually renewable, verbal agreements, while public agency and tribal trust leases were written, multi-year agreements. The median length of time that ranchers have leased rangeland from a specific private landlord is 5 years, compared to 15-20 years of leasing from state, federal, or tribal agencies. Ranchers reported greater landlord participation in making rangeland and fencing improvements in private leases.

An econometric model was developed to explain variation in leasing rates per acre during the 1986-1988 period. Four major types of variables were included in the model: (1) size of tract, (2) productivity and location, (3) lease agreement characteristics, and (4) type of lease (private, state, federal, and tribal agency). Coefficients for each type of variable were significant at the 0.01 or 0.05 probability level, and the overall R^2 was 0.656.

Higher lease rates were associated with: (1) smaller tract size, (2) increases in AUMs per acre, (3) location in central and north-central South Dakota, (4) more frequent lease payments, (5) presence of water sources, (6) greater attention to fencing maintenance and use of fertilizers/herbicides, and (7) private leases.

Significant differences in leasing rates per acre by type of lease remain, after accounting for differences in tract size, productivity, location, and lease amenities. Private rangeland leases have the highest rates, followed by tribal (BIA), state, and federal leases.

The remaining differences in lease rates by type of lease reflect: (1) differences in value of use rights by type of lease, (2) differences in management costs and other input costs by type of lease, and (3) net subsidy associated with leasing of public lands. The relative importance of each of these three factors varies by type of lease.

For example, federal grazing permit holders only have grazing privileges on federal rangelands, cannot harvest native hay from these lands, and cannot restrict the use of these lands for other purposes. A rancher leasing federal or state lands must remove their livestock once the AUM allocation is used.

Ranchers leasing private lands usually have a greater "bundle of rights," greater control over the rangeland tract, and fewer administrative difficulties than ranchers leasing public/tribal agency lands. Finally, leased public or tribal lands are often farther away from their privately owned and leased rangeland, which increases transportation and marketing costs.

Management input per acre or per AUM may also vary by type of lease. Land administrators for state, federal, or tribal agencies are charged with making some management decisions (designation of stocking rates and/or length of grazing season) that are usually made by ranchers leasing private rangelands. Also, the management input on private rangelands may be greater if the rancher retains the benefits from long-term improvements (wells, cross-fencing, inter-seeding grasses, etc.).

Finally, results from several recent studies (including this one) indicate that average lease rates for public lands are lower than private rangeland lease rates (USDA/USDI, 1986; Torell et al, 1988; Torell and Doll, 1991; Workman, 1988). Some studies conclude that most of the differences between private and public rangeland lease rates are "subsidies" to the ranchers leasing public lands (Pope, 1989). Other studies indicate that nonfee costs per AUM of grazing public lands are higher than costs of grazing private lands (Obermiller and Lambert, 1984; Torell et al, 1986). Several studies have shown that the differential value of federal grazing permits (and some state land leases) has been capitalized into the sale value of New Mexico and Wyoming ranches that depend on

public land leasing (Torell and Doll, 1991; Collins, 1983; Fowler and Gray, 1981). Thus, if a transfer has been made the current rancher-leaseholder has implicitly purchased the grazing permit by paying a higher price for the base property ranch (Torell and Doll, 1991).

Results from this study indicate that some of the differences in leasing rates between private and public and tribal agency rangelands are due to: (1) differences in tract characteristics (size, location, productivity); (2) management expenses associated with water development, fencing, fertilization, and weed control; and (3) differences in use rights. We conclude that the amount of "subsidy" involved in leasing public rangeland is much lower than the observed differences in lease rates between private landlords and public agencies. However, the amount of "subsidy" is open to empirical investigation by direct estimation of non-fee production costs on private, tribal, and public rangelands. Complete cost of production estimates of grazing rangeland by type of lease were not attempted in this study.

Rangeland is an important multiple-use resource owned and controlled by private individuals and public institutions. This research effort provides some insights into the current structure of the rangeland market in South Dakota, including the complexity and interaction of public and tribal agency and private rangeland leasing markets. Results from this research can be used by ranchers, private landlords, and public administrators as an aid in making future decisions and as a benchmark for future research efforts.

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Appendix A

1988 SOUTH DAKOTA STATE UNIVERSITY PASTURE/RANGELAND LEASING SURVEY

Pasture and rangeland leasing is an important part of today's production agriculture. Yet, it is often difficult for tenants and landlords to gain a clear understanding of leasing practices within their locality and the state. By completing this questionnaire, you will be helping to compile that market information for 1987-1988.

This survey is being sent to a random sample of both tenants and landlords. Some sections or questions may not apply to you, but please respond as completely as possible. Your answers will be kept confidential and used only in compiling total and average responses.

GENERAL INFORMATION

1. Were you a farm or ranch operator in 1987?
 - a. yes
 - b. no

2. Were you a landowner leasing pasture or rangeland to others for grazing in 1987?
 - a. yes
 - b. no

3. Are you a tenant in any lease for permanent pasture or range?
 - a. yes
 - b. no

4. How many acres of pasture and rangeland in 1988, if any, do you:
 - a. own _____ acres
 - b. lease to others _____ acres
 - c. lease from others _____ acres

5. In what county or counties is your owned pasture and rangeland located?

<u>county</u>	<u>acres</u>
a. _____	_____
b. _____	_____
c. _____	_____

6. In what county or counties is your leased pasture or rangeland located?

<u>county</u>	<u>acres</u>
a. _____	_____
b. _____	_____
c. _____	_____

7. How many total head of range livestock do you graze?
 - a. cow/calf(pairs) _____
 - b. yearlings _____
 - c. sheep _____
 - d. buffalo _____
 - e. other(specify) _____

8. How many total head of livestock are grazed on your leased land?
 - a. cow/calf(pairs) _____
 - b. yearlings _____
 - c. sheep _____
 - d. other(specify) _____

9. How many of your pasture and rangeland leases are:

	<u>cash lease</u>	<u>livestock share lease</u>
a. written	_____	_____
b. oral	_____	_____

10. How many of your pasture/rangeland leases:

	<u>Number</u>
a. are for a tract leased for the first time	_____
b. have lasted more than one year but have been renewed each year	_____
c. are multi-year, do not have to be renewed each year	_____

11. Over the past five years, have any of your pasture/rangeland leases changed:

	<u>Yes</u>	<u>No</u>	<u>If "Yes" Number</u>
a. from written to verbal	_____	_____	_____
b. from verbal to written	_____	_____	_____
c. from annual to multi-year	_____	_____	_____
d. from multi-year to annual	_____	_____	_____

12. If you lease pasture and rangeland, do you lease from or to:

	<u>Yes</u>	<u>No</u>	<u>Number of Leases</u>	<u>How many acres</u>
a. Individuals	_____	_____	_____	_____
b. Partnerships or corporations	_____	_____	_____	_____
c. BIA	_____	_____	_____	_____
d. State	_____	_____	_____	_____
e. Federal	_____	_____	_____	_____

**PLEASE COMPLETE THIS PAGE IF YOU HAVE A PRIVATE CASH LEASE
IF NOT, PLEASE GO TO THE NEXT PAGE**

PRIVATE PASTURE/RANGELAND CASH LEASE SECTION

Please answer questions 13 to 28 for just one PRIVATE CASH pasture or rangeland lease agreement (not a state, federal or BIA government lease) - either your MOST IMPORTANT OR MOST TYPICAL private pasture or rangeland cash lease.

13. How many acres under this agreement? _____

14. How many years have you leased this land? _____

15. For this agreement (check one for each question)
 a. you are? (1) tenant (2) landlord
 b. the lease is? (1) oral (2) written

16. The lease for this tract is:
 a. new, or for the first time or year
 b. annual and renewable, or has lasted more than one year but has been renewed each year
 c. multi-year or does not need to be renewed each year

17. The rental price for this tract was/is:

		<u>1986</u>	<u>1987</u>	<u>1988</u>
a. per acre	\$	_____	_____	_____
and/or				
b. per animal unit month	\$	_____	_____	_____

18. What do you estimate to be the present per acre market value of this tract?
 \$ _____/acre

19. This tract can be described as (check one)
 a. native pasture
 b. improved or interseeded native pasture
 c. tame pasture

20. What month were grazing livestock in 1987:
 a. put on this tract _____
 b. taken off this tract _____

21. What was the 1987 stocking rate? _____ acres per animal unit

22. The primary use of this land was for grazing:

	number of head grazed
	on this tract
<input type="checkbox"/> a. cow/calf(pairs)	_____
<input type="checkbox"/> b. yearlings	_____
<input type="checkbox"/> c. sheep	_____
<input type="checkbox"/> d. other (specify)	_____

23. You are leasing this tract from or to (check one):
 a. parents or in-laws
 b. children
 c. other relative
 d. unrelated individual
 e. financial institution
 f. partnership or corporation (other than relatives)
 g. other (explain) _____

24. Which party is responsible for (check all that apply)

	<u>tenant</u>	<u>landlord</u>	<u>both</u>	<u>not done</u>	practice
a. checking livestock	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
b. salt and minerals	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
c. fencing materials	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
d. fencing labor	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
e. rural water system	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
f. water developments	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
g. livestock damage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
h. liability insurance	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
i. fertilizer expense	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
j. spraying and herbicide	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
k. other (specify) _____	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	

25. The water source(s) for livestock is(are) (check all that apply)

- a. stream
- b. pond
- c. well
- d. rural water system
- e. no water present but water on adjacent tract
- f. other (specify) _____

26. During the last five years (or the time you have leased this tract if less than five years) has:

- | | | |
|--|------------------------------|------------------------------|
| | <u>YES</u> | <u>NO</u> |
| a. landownership changed? | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> |
| b. there been a different tenant? | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> |
| c. the lease changed from share to cash? | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> |

27. Payments on this cash lease are made? (check one)

- a. annually
- b. twice yearly
- c. quarterly
- d. other (specify) _____

28. Are there lease provisions that vary the amount of cash due?

- a. Yes If YES go to question 28b.
- b. No If NO go to the next page.

28b. Reasons for adjustments in the cash rent (check all that apply)

- a. weather
- b. livestock prices
- c. fencing arrangement changed
- d. other (please specify) _____

**PLEASE COMPLETE THIS PAGE IF YOU HAVE A PUBLIC LANDS LEASE
IF NOT, PLEASE GO TO THE NEXT PAGE**

PUBLIC PASTURE/RANGE LEASE SECTION

Please answer questions 29 to 43 for just one PUBLIC (BIA, state land, federal government) CASH pasture or rangeland lease agreement - either your MOST IMPORTANT OR MOST TYPICAL pasture or rangeland lease.

29. How many acres under this agreement? _____

30. How many years have you leased this land? _____

31. For this agreement is the lease?
 (1) oral (2) written

32. The lease for this tract is:
 a. new, or for the first time or year
 b. annual and renewable, or has lasted more than one year but has been renewed each year
 c. multi-year or does not need to be renewed each year

33. The rental price for this tract was/is:

	<u>1986</u>	<u>1987</u>	<u>1988</u>
a. per acre	\$ _____	_____	_____
and/or			
b. per animal unit month	\$ _____	_____	_____

34. This tract can be described as (check one)
 a. native pasture
 b. improved or interseeded native pasture
 c. tame pasture

35. What was the 1987 stocking rate? _____ acres per animal unit

36. The primary use of this land in 1987 was for grazing:

	number of head grazed
	on this tract
<input type="checkbox"/> a. cow/calf(pairs)	_____
<input type="checkbox"/> b. yearlings	_____
<input type="checkbox"/> c. sheep	_____
<input type="checkbox"/> d. other (specify)	_____

37. What month were the grazing livestock in 1987:
a. put on this tract _____
b. taken off this tract _____

38. You are leasing this tract from (check one)
 a. tribal government (BIA)
 b. state land
 c. federal government

39. Which party is responsible for (check all that apply)

	<u>tenant</u>	<u>landlord</u>	<u>both</u>	<u>not done</u>	<u>practice</u>
a. checking livestock	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
b. salt and minerals	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
c. fencing materials	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
d. fencing labor	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
e. water developments	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
f. livestock damage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
g. liability insurance	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
h. fertilizer expense	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
i. spraying and herbicide	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	
j. other (specify)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	

40. The water source(s) for livestock is(are) (check all that apply)

- a. stream
- b. pond
- c. well
- d. no water present but water on adjacent tract
- e. other (specify) _____

41. During the last five years or the time you have leased this tract, if shorter, has:

- | | | |
|----------------------------------|------------------------------|------------------------------|
| | <u>YES</u> | <u>NO</u> |
| a. there been a different tenant | (1) <input type="checkbox"/> | (2) <input type="checkbox"/> |

42. Payments on this cash lease are made? (check one)

- a. annually
- b. twice yearly
- c. quarterly
- d. other

43. Are there lease provisions that vary the amount of cash due?

- a. Yes if YES go to question 43b.
- b. No if NO go to the next page.

43b. Reasons for adjustments in the cash rent (check all that apply)

- a. weather
- b. livestock prices
- c. fencing arrangement changed
- d. other (please specify) _____

PLEASE COMPLETE THIS PAGE IF YOU HAVE A SHARE LEASE
IF NOT, PLEASE GO TO THE NEXT PAGE

PASTURE/RANGELAND SHARE LEASE SECTION

Please answer question 44 to 58 for just one pasture or rangeland SHARE LEASE agreement - either your MOST IMPORTANT OR MOST TYPICAL share agreement.

44. How many acres under this agreement? _____

55. Which party is responsible for (check all that apply)

45. How many years have you leased this pasture or rangeland tract? _____

46. For this agreement, (check one for each question)
a. you are? (1) tenant (2) landlord
b. the lease is? (1) oral (2) written

47. The lease for this tract is:
 a. new, or for the first time or year
 b. annual and renewable, or has lasted more than one year but has been renewed each year
 c. multi-year or does not need to renewed each year

48. This tract can be described as (check one)
 a. native pasture
 b. improved or interseeded native pasture
 c. tame pasture

49. The primary use of this land was for grazing:
number of head grazed on this tract _____
 a. cow/calf(pairs) _____
 b. yearlings _____
 c. sheep _____
 d. other (specify) _____

50. What month were grazing livestock:
a. put on this tract _____
b. taken off this tract _____

51. What was the 1987 stocking rate? _____ acres per animal unit

52. You are leasing this tract from or to (check one)
 a. parent or in-laws
 b. children
 c. other relative
 d. unrelated individual
 e. other (specify) _____

53. What do you estimate the present per acre market value of this tract to be?
\$ _____/acre

54. What is the sharing arrangement of your lease?
(renter/landlord)
 a. 60/40
 b. 50/50
 c. other (specify) _____

	<u>tenant</u>	<u>landlord</u>	<u>both</u>	<u>practice not done</u>
a. checking livestock	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
b. salt and minerals	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
c. supplemental feed	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
d. livestock labor	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
f. fencing materials	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
g. fencing labor	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
h. water developments	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
i. livestock damage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
j. liability insurance	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
k. fertilizer cost	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
l. spraying and herbicide	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
m. other (specify)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>

56. Is there cash payment in addition to this share rent?
 a. Yes If YES go to question 56b. and 56c.
 b. No If NO go to question 57.

56b. How much is that added rent?
\$ _____ total lump sum

56c. What is that added cash payment for? (check all that apply)
 a. checking livestock
 b. salt and minerals
 c. fencing materials
 d. fencing labor
 e. water developments
 f. livestock damage
 g. liability insurance
 h. fertilizer cost
 i. spraying and herbicide
 j. other (specify) _____

57. The water source(s) for livestock is(are) (check all that apply)
 a. stream
 b. pond
 c. well
 d. rural water system
 e. no water present but water on adjacent tract
 f. other (specify) _____

58. During the five years (or time you have leased this tract, if shorter) has:
Yes No
a. landownership changed (1) (2)
b. there been a different tenant (1) (2)
c. the share of inputs changed (1) (2)
d. the share of outputs changed (1) (2)
e. the lease changed from cash to shares (1) (2)

PLEASE COMPLETE THIS PAGE

GENERAL-ALL RESPONDENTS

59. Do you expect to be involved in share leases in the future?
 a. yes
 b. no
60. Are there oil or mineral rights associated with your pasture or rangeland lease(s)?
 a. yes and it: increases, decreases lease payment
 b. yes, but no effect on lease payment
 c. no oil or mineral rights associated
61. Do you charge hunters to hunt upon your leased pasture or rangeland?
 a. yes
 b. no
62. Do you lease primarily to obtain (check one):
 a. grazingland
 b. hayland
 c. cropland
63. From the standpoint of fairness, how would you classify your leasing arrangement(s)? (circle one)
1 2 3 4 5
poor fair adequate good excellent
64. How did you typically first learn your leased land was available to rent? (check one)
 a. from the landowner directly
 b. from a relative
 c. from a neighbor or other individual
 d. from a newspaper or other media ad.
 e. other (explain) _____
55. Who mainly tends grazing land and herds? (check one only)
 a. self
 b. family
 c. hired help
 d. landlord
 e. other
66. On average, gross income from grazing cattle and/or sheep production contributes what percentage of your gross farm income? (check one)
 a. less than 30%
 b. 30% to 49%
 c. 50% to 80%
 d. more than 80%
67. Your age is? (check one)
 a. less than 25 years
 b. 25 to 34 years
 c. 35 to 44 years
 d. 45 to 54 years
 e. 55 to 64 years
 f. 65 or more
68. You are?
 a. male
 b. female
69. Your residence is?
a. _____ county
b. _____ state
70. Your household residence is?
 a. rural
 b. town
71. Are you willing to cooperate in future research concerning pasture and rangeland in S.D.?
 a. yes
 b. no
72. We thank you for completing this questionnaire. If you have any additional comments, please provide them below.
