

## **Lease Rates for Privately Owned, Non-Irrigated Pasture in 2021 and 2022 <sup>1</sup>**

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Leasing is a valuable strategy for farmers and ranchers to gain access to pasture without the high capital investment needed to purchase the land. For the landowner, lease payments serve as an added source of income. A lease does not transfer ownership nor an equity interest in the asset. The fee is typically based on the number of acres in the arrangement (\$/acre) or the number of animals allowed to graze the land (\$/AUM). An animal unit month (AUM) is considered to be the number of acres needed for one beef cow to graze for one month. A yearling beef animal is generally 0.74 AUM, and one ewe sheep is 0.20 AUM.

The Colorado Board of Land Commissioners (or State Land Board) “was established in 1876 to manage the land and mineral rights given by the federal government to Colorado to generate revenue for public education and some of the state’s institutions.” The State Land Board leases 98 percent of the approximately 2.8 million acres it owns in Colorado for grazing, non-irrigated crop production, and irrigated farming.<sup>3</sup>

### **Methodology**

Agricultural and Business Management Economists at Colorado State University, in collaboration with professional staff members of the State Land Board, designed a questionnaire to collect data about leases of non-irrigated, privately owned pasture in Colorado. Similar surveys were conducted in 2010, 2013, 2015, 2016, and 2019.

In June 2022, landowners and tenants throughout Colorado were invited to complete an online survey pertaining to leases of privately owned non-irrigated pastures in 2021 and 2022. To encourage participation, follow-up emails were sent to the list of about 1,850 landowners and tenants and the researchers requested that agricultural organizations encourage their members to participate in the survey.

Survey data were collected, analyzed, and reported for five State Land Board grazing regions.

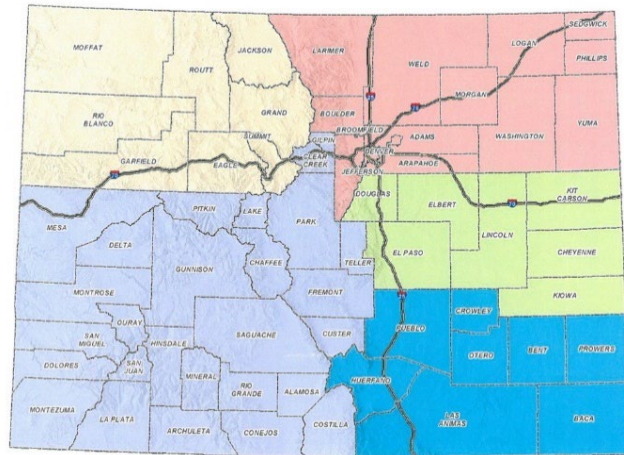
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<sup>1</sup> A survey of ranchers, landowners, and others was conducted with the financial support of the Colorado State Board of Land Commissioners (State Land Board). This summary report and other information pertaining to myriad farm and ranch management issues are available at the Colorado State University’s ABM web site <https://abm.extension.colostate.edu>.

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<sup>3</sup> Colorado State University and State Land Board programs and activities are conducted without discrimination.

- Northwest – Eagle, Garfield, Grand, Jackson, Moffat, Rio Blanco, Routt, and Summit Counties.
- Northeast – Adams, Arapahoe, Boulder, Broomfield, Denver, Jefferson, Larimer, Logan, Morgan, Phillips, Sedgwick, Washington, Weld, and Yuma Counties.
- East Central – Cheyenne, Douglas, El Paso, Elbert, Kiowa, Kit Carson, and Lincoln.
- Southeast – Baca, Bent, Crowley, Huerfano, Las Animas, Otero, Prowers, and Pueblo.
- Southwest – Alamosa, Archuleta, Chaffee, Clear Creek, Conejos, Costilla, Delta, Dolores, Fremont, Gilpin, Gunnison, Hinsdale, La Plata, Lake, Mesa, Mineral, Montezuma, Ouray, Park, Pitkin, Rio Grande, Saguache, San Juan, San Miguel Counties, and Teller Counties.



## Survey Results

Data from leases as reported by landowners and livestock owners were analyzed to determine the purpose of the lease, lease size, carrying capacities, and lease rates in 2021 and 2022. Responses with incomplete information and data outside normal bounds were excluded from the analysis. One lease, reported for the Southeast Grazing Region, consisted of 50,000 acres was not included in the analysis. There were sufficient data to report results for each grazing region and the state. All leases used in the analysis pertained to privately owned, non-irrigated pastureland. Further, any seemingly large differences of numbers reported for 2021 and 2022 are the result of differences in survey participants from one year to the next. Not all participants reported leases in both years and/or may have reported information for different leases. Table 1.

State Land Board Grazing Regions	2021	2022
Colorado	82	89
Northwest	9	12
Northeast	21	27
East Central	13	14
Southeast	13	14
Southwest	26	22

**Written Leases:** Approximately two-thirds of leases in 2021 and sixty percent in 2022 were written contracts as opposed to verbal or handshake agreements. Leases in the Northwest grazing region were more likely to be written, while leases in the Northeast grazing region were least likely to be in written format. Table 2.

Table 2. Leases in 2021 and 2022 of Privately Owned Non-Irrigated Pastureland Which Were Written.

	Colorado	Northwest	Northeast	East Central	Southeast	Southwest
2021	68%	89%	52%	62%	84%	69%
2022	61%	83%	33%	64%	64%	59%

**Lease Purpose:** Survey participants had five specific options and “other” to report the type of animals allowed to graze on leased pasture: cows/cow-calf pairs, yearlings, pairs or yearlings, sheep/goats, and “the lease does not specify animal type. Examples of “other” included bees, horses, bison, and alpacas.

Most leases of pastureland in Colorado pertain to grazing of cattle, as was the case in all previous studies. All cattle accounted for more than 80 percent of all leases in both 2021 and 2022. Approximately 17 percent of reported leases did not specify nor limit the type of animal allowed to graze the pastureland. Almost no reported leases were specifically for sheep and goats. Table 3.

Table 3. Type of Animals Specified to Graze Privately Owned, Non-Irrigated Pastures in Colorado in 2021 and 2022 by State Land Board Grazing Region. <sup>1</sup>

	Cows & Pairs	Yearlings	Pairs or Yearlings	Sheep / Goats	Not Specified or No Limits	All Other Combinations
State-wide						
2021	54%	5%	21%	1%	16%	4%
2022	59%	12%	12%	1%	20%	4%
Northwest						
2021	56%	11%	11%	0%	22%	0%
2022	55%	9%	18%	0%	18%	0%
Northeast						
2021	33%	14%	33%	0%	19%	0%
2022	41%	22%	11%	4%	19%	4%
East Central						
2021	77%	n/a	0%	0%	15%	8%
2022	43%	7%	14%	0%	36%	0%
Southeast						
2021	46%	n/a	8%	0%	31%	15%
2022	64%	7%	0%	0%	29%	0%
Southwest						
2021	62%	n/a	31%	4%	4%	0%
2022	73%	5%	14%	0%	0%	9%

<sup>1</sup> Data from survey of Colorado landowners and tenant livestock owners conducted by Colorado State University in the summer of 2022.

**Length of Leases:** The highest percentage of leases in 2021 and 2022 for privately owned, non-irrigated pasture in Colorado was reported as being leased for one year. One third of reported leases were for multiple years. Conversely, few pasture leases are for periods of less than one month. It is not uncommon for annual leases to be renewed. Table 4.

**Lease Size:** There was significant variation in the size of pastures leased in 2021 and 2022. The largest lease consisted of 26,100 acres in the Southeast grazing region, while the smallest parcel 2021 was 30 acres in the Southeast and Southwest grazing regions and 5 acres in the Northeast grazing region in 2022. The state-wide average number of acres in a lease was just more than 2,155 acres in 2021 and 1,812 acres in 2022. The median (middle of a set of numbers) number of acres per lease was 765 in 2021 and 500 in 2022. The most common (mode) number of acres in a lease was too variable to provide any reliable information. Table 5.

Table 4. Length of Leases in 2021 and 2022 Pertaining to Privately Owned, Non-irrigated Pastureland in Colorado by State Land Board Grazing Region. <sup>1</sup>

	Colorado	Northwest	Northeast	East Central	Southeast	Southwest
Multiple Years						
• 2021	34%	n/a	38%	20%	53%	39%
• 2022	35%	42%	19%	29%	38%	41%
Annually						
• 2021	42%	45%	54%	40%	41%	32%
• 2022	36%	8%	52%	29%	31%	31%
Monthly						
• 2021	17%	36%	4%	27%	5%	41%
• 2022	25%	33%	26%	18%	25%	21%
Daily/Other						
• 2021	7%	18%	4%	13%	n/a	7%
• 2022	2%	2%	n/a	n/a	n/a	3%

<sup>1</sup> Data from survey of Colorado landowners and tenant livestock owners conducted by Colorado State University in the summer of 2022.

Table 5. Acres in Leases of Colorado Pasture in 2021 and 2022 by State Land Board Grazing Region. <sup>1</sup>

	Colorado	Northwest	Northeast	East Central	Southeast	Southwest
Range						
2021	26,100 – 30	2,500 – 200	12,700 – 45	6,980 – 130	26,100 – 30	8,000 – 30
2022	26,100 – 5	2,000 – 80	12,700 – 5	6,980 – 160	26,100 – 30	8,000 – 60
Average <sup>2</sup>						
2021	2,155	928	2,539	1,994	4,549	1,153
2022	1,812	640	1,714	1,243	4,172	1,198
Median <sup>3</sup>						
2021	765	640	1,150	780	2,900	600
2022	500	900	400	640	650	300
Mode <sup>4</sup>						
2021	2,000	n/a	4,600	n/a	3,000	300
2022	160	900	4,000	n/a	160	300

<sup>1</sup> Data from survey of Colorado landowners and tenant livestock owners conducted by Colorado State University in the summer of 2022.

<sup>2</sup> Average equals the sum of all responses divided by the total number of responses.

<sup>3</sup> Median equals the midpoint of all responses such that there is an equal probability of falling above or below it.

<sup>4</sup> Mode equals the number most commonly reported or most frequently occurs in the data set.

**Lease Carrying Capacity:** The “carrying capacity” of privately owned, non-irrigated pastures pertains to the number of acres required to produce the forage needed to graze 1.0 animal unit (AU) for a 6-month grazing period. The range of reported acres per AU varied significantly across the state. The large range could be due to several factors, including drought conditions, limits to the number of animals allowed to graze the leased land, soil types, historical grazing use, and topography.

The average carrying capacity of privately owned, non-irrigated pastures throughout Colorado was 24 acres per animal unit month according in both 2021 and 2022. The median carrying capacity across the state was 20 acres per AU. The Northwest and East Central grazing regions reported the lowest carrying capacities (50 acres per animal), and the Northeast and Southeast grazing regions reported the highest carrying capacities in 2021 and 2022. Table 6.

Table 6. Carrying Capacities (Acres Per AU) of Leases of Colorado Pastureland in 2021 and 2022 by State Land Board Grazing Region. <sup>1</sup>

	Colorado	Northwest	Northeast	East Central	Southeast	Southwest
Range						
2021	85 – 1	50 – 5	56 – 1	50 – 3	52 – 5	85 – 2
2022	90 – 1	50 – 15	90 – 1	50 – 4	52 – 5	50 – 1
Average <sup>2</sup>						
2021	24	31	19	32	24	21
2022	24	32	23	31	23	17
Median <sup>3</sup>						
2021	20	35	18	35	20	12
2022	20	27	20	35	12	11
Mode <sup>4</sup>						
2021	50	50	20	50	10	50
2022	50	50	20	50	5	6

<sup>1</sup> Data from survey of Colorado landowners and tenant livestock owners conducted by Colorado State University in the summer of 2022.

<sup>2</sup> Average equals the sum of all responses divided by the total number of responses.

<sup>3</sup> Median equals the midpoint of all responses such that there is an equal probability of falling above or below it.

<sup>4</sup> Mode equals the number most commonly reported or most frequently occurs in the data set.

**Lease Rates:** Survey participants were asked to report the rate paid or received for privately owned, non-irrigated pasture in Colorado in 2021 and 2022 on a dollars per “acre”, “animal unit month”, “head per month”, or “head per day”. Participants also could report the total dollars associated with the lease agreement. Leases based on a dollar per head per month usually disregard animal size, whereas leases based on dollars per animal unit month, by definition, consider animal size. State-wide, 30 percent of all reported leases were computed on a per animal unit month (AUM) or per head per month basis. The number of leases paid on a “dollar per acre” increase from 18 percent in 2021 to 85 percent in 2022. Anecdotal data (conversations between the researchers and producers and lenders) support this change.

Leases reported for 2021 ranged from \$35.00 to \$10.00 per head per month, while the range in lease rates reported for 2022 was \$27.50 to \$10.00 per head per month. The average and median prices paid per acre were \$6.69 and \$6.00 in 2021 and \$14.00 and \$10.00 in 2022. There were an insufficient number of reported leases in the Northwest and Southeast grazing regions based on dollars per acre and dollars per head per day. Other survey and anecdotal data suggest drought conditions reduced grass production and caused prices to be higher in 2022. Table 7.

Table 7. Lease Rates for Privately Owned, Non-Irrigated Pastures in Colorado in 2021 and 2022 by State Land Board Districts.<sup>1, 2, 3, 4</sup>

	Colorado	Northwest	Northeast	East Central	Southeast	Southwest
<i>Lease Rates on a "dollar per head per month" basis.</i>						
<u>2021</u>						
Range	35 - 10	30 - 15	35 - 13	25 - 16	22 - 16	35 - 10
Average	22.52	22.00	23.14	21.67	19.00	23.71
Median	22.00	21.50	22.00	24.00	19.00	25.00
Mode	30.00	15.00	30.00	n/a	n/a	n/a
<u>2022</u>						
Range	50 - 10	22 - 15	40 - 15	30 - 18	24 - 16	50 - 10
Average	22.83	18.75	23.89	24.00	20.00	23.83
Median	20.00	19.00	20.00	24.00	20.00	20.00
Mode	20.00	n/a	30.00	n/a	n/a	10.00
<i>Lease Rates on a "dollar per animal unit month" basis.</i>						
<u>2021</u>						
Range	30 - 10	28 - 25	30 - 18	25 - 16	22 - 16	26 - 10
Average	22.06	26.25	24.88	21.67	19.00	21.50
Median	22.00	26.25	25.75	24.00	19.00	23.50
Mode	25.00	n/a	30.00	n/a	n/a	25.00
<u>2022</u>						
Range	28 - 10	28 - 25	22 - 10	n/a	14 - 12	25 - 20
Average	20.33	26.75	17.67	n/a	13.00	22.50
Median	21.50	27.25	21.00	24.00	13.00	22.50
Mode	27.50	27.50	n/a	n/a	n/a	n/a
<i>Lease Rates on a "dollar per acre" basis.</i>						
<u>2021</u>						
Range	20.00 – 1.00	n/a	12.50 – 6.50	20.00 – 5.00	6.00 – 2.50	n/a
Average	6.69	n/a	9.25	9.02	4.06	n/a
Median	6.00	n/a	9.00	6.59	3.88	n/a
Mode	6.00	n/a	n/a	n/a	2.50	n/a
<u>2022</u>						
Range	50.00 – 1.00	n/a	50.00 – 8.00	15.00 – 5.00	25.00 – 4.00	30.00 – 1.00
Average	14.00	n/a	18.57	10.00	9.56	17.67
Median	10.00	n/a	12.33	8.75	4.63	22.00
Mode	30.00	n/a	n/a	15.00	4.00	n/a
<i>Lease Rates on a "dollar per head per day" basis.</i>						
<u>2021</u>						
Range	30.00 - 0.80	n/a	30.00 - 1.00	1.00 - 0.80	n/a	30.00 – 1.00
Average	7.57	n/a	8.63	0.87	n/a	15.50
Median	1.00	n/a	1.75	0.80	n/a	15.50
Mode	1.00	n/a	n/a	0.80	n/a	n/a
<u>2022</u>						
Range	10.00 – 0.25	n/a	2.00 – 0.25	1.00 - 0.80	n/a	10.00 – 0.60
Average	1.59	n/a	1.00	0.90	n/a	3.87
Median	1.00	n/a	1.00	0.90	n/a	1.00
Mode	1.00	n/a	1.00	n/a	n/a	n/a

<sup>1</sup> Data from Colorado State University's survey of farmers, ranchers, and landowners in June 2022.

<sup>2</sup> Averages are simple averages rather than weighted averages.

<sup>3</sup> Median is the number in the middle of all numbers in the data set.

<sup>4</sup> Mode is the most commonly occurring number in the data set.

**Provider of Services/Activities:** Within many leases of privately owned, non-irrigated pasture is language regarding whether the landowner or the tenant bears the cost of maintaining infrastructure (e.g., fences and watering systems), providing water, animal care, and providing salt and mineral. Survey participants were given the options of marking whether the costs of the service or activity was paid by the landowner or the tenant, the costs were shared by the landowner and tenant, or by some other person or entity.

For leases in 2021 and 2022, the labor to repair and maintain existing fences was provided by the tenant. Materials for new fence construction and water supply construction was provided by the landowner in about than seventy percent (70%) of the reported lease agreements. For longer-term leases, tenants were reported as paying a higher percentage of the costs associated with constructing new fences and water supplies. Tenants paid for salt and minerals and animal oversight is approximately ninety percent (90%) of reported lease agreements. Table 8.

Table 8. Landowners and Tenants Paying for Selected Services and Activities When Leasing Privately Owned, Non-Irrigated Pastures in Colorado in 2021 and 2022 by State Land Board Grazing Regions. <sup>1, 2</sup>

Who Paid the Costs of:	2021			2022		
	Tenant	Land Owner	Shared	Tenant	Land Owner	Shared
• Labor for repairing existing fences	67%	16%	17%	62%	30%	8%
• Materials for repairing existing fences	44%	40%	16%	46%	45%	8%
• Labor for building new fences	40%	53%	7%	29%	65%	5%
• Materials for building new fences	23%	70%	7%	20%	77%	3%
• Supplying water to grazing animals	41%	51%	8%	33%	63%	4%
• Installing pipelines	31%	67%	2%	28%	71%	2%
• Constructing earthen water “tanks”	26%	72%	3%	24%	69%	6%
• Materials for constructing non-earthen water “tanks”	35%	56%	9%	24%	71%	5%
• Construction of non-earthen water “tanks”	38%	58%	4%	26%	68%	5%
• Maintenance and oversight of grazing animals	89%	6%	4%	83%	12%	5%
• Salt and minerals for grazing animals	93%	4%	3%	93%	6%	1%

<sup>1</sup> Data from Colorado State University’s survey of farmers, ranchers, and landowners in June 2022.

<sup>2</sup> Survey results are reported only for state-wide summaries.

**Other Marketable Rights:** Some pasture lease agreements for privately owned non-irrigated pastureland allow the tenant to use or sell hunting, fishing, and other rights to the land. Survey responses suggest that most leases (93% in 2021 and 100% in 2022) do not allow the tenant any marketable rights beyond grazing. These high percentages are consistent with the results of past surveys.

## Comparison Across Years

Colorado State University has conducted, on behalf of the Colorado Land Board, a survey of lease rates and attributes of privately owned non-irrigated pastureland since 2010. Survey results were analyzed and

shared with the Colorado Land Board, agricultural lenders throughout Colorado, landowners, and land tenants. The results are available at <https://abm.extension.colostate.edu>.

Lease rates have tended to increase from 2010 to 2022, regardless of the basis for computing lease rates. Drought conditions in a particular area of Colorado will cause annual increases (and/or larger than normal increases) to lease rates. Additionally, both survey data and anecdotal data suggest that pastures near urban areas tend to be smaller in acreage and higher in price.

Table 9. Comparison of Lease Rates for Privately Owned Non-Irrigated Pasture as Reported in Surveys Conducted by Colorado State University and the Colorado Land Board. <sup>1</sup>

Grazing Region	2010	2013	2016	2019	2021	2022
<b>Lease Rates on a "Dollar Per Acre" Basis</b>						
Colorado						
○ Average	3.73	4.96	6.29	4.59	6.69	14.00
○ Median	5.00	4.00	5.00	4.00	6.00	10.00
Northwest						
○ Average	4.07	4.39	3.22	4.01	n/a	30.00
○ Median	3.00	3.00	3.00	3.00	n/a	30.00
Northeast						
○ Average	3.80	6.73	7.43	3.82	9.25	18.57
○ Median	2.00	7.00	7.50	3.88	9.00	12.33
East Central						
○ Average	4.89	5.79	5.19	6.78	9.02	10.00
○ Median	5.00	5.00	5.00	6.50	6.59	8.75
Southeast						
○ Average	3.07	4.34	4.01	5.10	4.06	9.59
○ Median	4.00	3.67	4.00	5.00	3.88	4.63
Southwest						
○ Average	3.05	4.96	11.72	1.73	1.00	17.67
○ Median	1.00	4.00	2.57	1.00	1.00	22.00
<b>Lease Rates on a "Dollar Per AUM" Basis</b>						
Colorado						
○ Average	14.82	16.49	17.53	21.00	22.06	20.33
○ Median	n/a	15.00	17.00	20.00	22.00	21.50
Northwest						
○ Average	14.22	15.12	17.62	17.86	26.25	26.75
○ Median	13.25	15.00	18.00	16.25	26.25	27.25
Northeast						
○ Average	17.84	21.18	20.25	24.64	24.88	17.67
○ Median	18.00	20.00	18.00	27.00	25.75	21.00
East Central						
○ Average	14.76	15.16	17.64	21.78	21.67	n/a
○ Median	13.00	15.00	17.50	20.00	24.00	24.00
Southeast						
○ Average	17.72	15.82	16.40	21.78	19.00	13.00
○ Median	15.00	15.00	18.00	20.00	19.00	13.00
Southwest						
○ Average	13.77	14.67	15.80	21.95	21.50	22.50
○ Median	n/a	14.00	15.00	20.00	23.50	22.50

<sup>1</sup> Lease rates are as reported in the summary report from Colorado State University to the Colorado Land Board for each year.



## NASS Survey Results

USDA’s National Agricultural Statistics Service (NASS) conducts county level surveys of pasture lease rates. Pasture consists of permanent pasture and grassland that is normally grazed by livestock, regardless of whether the pasture is irrigated or not irrigated. The “per acre” cash rental rate for each county, according to the NASS surveys for 2021 and 2022 are provided as references.

Table 10. Annual Lease Rates (Dollars Per Acre) by District and County for 2020 and 2021, according to National Agricultural Statistics Service Survey Data.<sup>1</sup>

NASS District, County	\$/Acre		NASS District, County	\$/Acre	
	2020	2021		2020	2021
<b>Northwest &amp; Mountain</b>			<b>East Central</b>		
Chaffee	7.70	n/a	Adams	16.00	6.20
Clear Creek	n/a	n/a	Arapahoe	5.50	6.80
Eagle	n/a	n/a	Cheyenne	8.60	6.20
Gilpin	n/a	n/a	Denver	n/a	n/a
Grand	8.80	11.50	Douglas	n/a	9.70
Gunnison	5.90	9.50	El Paso	6.60	6.80
Jackson	5.60	n/a	Elbert	6.00	6.00
Lake	n/a	n/a	Kiowa	7.50	7.30
Moffat	4.00	3.80	Kit Carson	12.50	12.50
Park	1.30	1.80	Lincoln	5.00	6.50
Pitkin	n/a	n/a	Phillips	n/a	12.00
Rio Blanco	1.80	1.50	Washington	10.50	8.90
Routt	n/a	5.00	Yuma	14.00	14.00
Summit	n/a	n/a	Other (Combined) Counties	10.50	n/a
Teller	1.90	1.70			
Other (Combined) Counties	11.50	n/a			
<b>Northeast</b>			<b>San Luis Valley</b>		
Boulder	3.10	n/a	Alamosa	8.90	9.70
Broomfield	n/a	n/a	Conejos	9.70	11.50
Jefferson	1.90	2.00	Costilla	4.80	2.70
Larimer	8.40	7.90	Mineral	n/a	n/a
Logan	7.30	8.40	Rio Grande	n/a	10.00
Morgan	11.00	8.60	Saguache	7.50	10.50
Sedgwick	15.50	12.50	Other (Combined) Counties	13.50	n/a
Weld	7.50	5.50			
Other (Combined) Counties	n/a	n/a			
<b>Southeast</b>			<b>Southwest</b>		
Baca	5.00	4.60	Archuleta	3.00	3.10
Bent	5.30	4.00	Delta	5.50	5.40
Crowley	4.90	4.20	Dolores	n/a	n/a
Custer	3.80	5.90	Garfield	2.70	2.10
Fremont	1.70	4.60	Hinsdale	n/a	n/a
Huerfano	2.90	3.90	La Plata	11.00	10.00
Las Animas	4.30	3.60	Mesa	2.70	2.20
Otero	4.30	3.00	Montezuma	6.40	7.50
Prowers	5.70	5.40	Montrose	8.30	7.00
Pueblo	3.50	3.70	Ouray	n/a	n/a
Other (Combined) Counties	n/a	n/a	San Juan	n/a	n/a
			San Miguel	3.10	3.10
			Other (Combined) Counties	3.00	n/a

<sup>1</sup> United States Department of Agriculture – National Agricultural Statistics Service annual survey of rental rates for all privately owned pasture in Colorado. Data for counties in which there were insufficient survey responses were combined into a category titled “Other (Combined) Counties”.