

# Alberta Public Land Grazing Lease 2021 Cost Survey Results

Prepared For  
Alberta Environment and Parks

Prepared By  
Serecon Inc.  
&  
Associates

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Dear Mr. Alexander:

**RE: ALBERTA PUBLIC LAND GRAZING LEASE - 2021 COST SURVEY RESULTS  
FILE #442A21.2**

We are pleased to submit the following final report of our work to capture the economic costs for cattle grazed on Alberta's public land grazing leases. Annual, capital, and operating costs for grazing on public land leases were last reviewed in 2015, and the 2021 review provides an update to costs that can be directly input into the public land grazing rental rate formula.

We look forward to discussing the final report once you and your team have had the chance to review the work. If you have any questions about any element of this report, please do not hesitate to get in touch directly.

Yours truly,  
SERECON INC.



Harvey Bradford, M.Sc., B.Ed.

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# Introduction

Public lands in Alberta used for grazing includes over 8 million acres under various forms of dispositions, managed by approximately 5,700 disposition holders. Grazing lands provided forage resources for livestock and provide a wide range of ecological goods and services to the Albertan public, from wildlife habitat and biodiversity, to buffering extreme weather events and regulating water quality and quantity.

In 2019 the *Public Lands Modernization (Grazing Leases and Obsolete Provisions) Amendment Act* (2019, SA 2019, c 12) was passed in legislature, and provided a new framework to calculate public land grazing disposition rental rates and fees. The new rental framework uses a combination of direct and in-kind operating costs, capital costs, and current market prices to formulate a fair rental rate for the use of the province's public land grazing leases. The current market prices are gathered using actual market reports from Canfax, while the costs are calculated from periodic cost surveys that are adjusted for inflation on an annual basis. To keep the operating and capital costs relevant, the survey conducted in 2015 required updating.

The Government of Alberta contracted Serecon to perform an independent update of financial and in-kind costs incurred by Alberta's farming and ranching industry in respect to their operations on public lands grazing leases for fiscal years that ended in 2021. These lease agreements, along with the supporting Acts and Regulations, management plans, and operating guidelines, result in land management activities that would be the responsibility of a private owner. Costs that the leaseholder undertakes on behalf of the province due to such agreements are termed "in-kind" costs.

# Survey Approach and Methodology

## Survey Scope

To effectively update cost data, a comprehensive cost study was developed to capture the actual and in-kind costs of holding grazing leases and specifically to identify the "in-kind" costs borne by industry grazing cattle on public lands.

It listed common cost categories for investments and operating expenses incurred by farmers and ranchers that graze cattle, horses, or bison on grazing leases and for each category sought information on the direct and indirect costs. The survey also collected information of interest on related production and operational data, such as average weight gain for animals while on the lease. The range in cost data collected are summarized in Table 1 (following page). The survey forms sent to individuals and associations holding leases indicate the complete breadth of information collected and can be found in Appendix A and B, respectively. This survey was conducted through the mail, email, online, and fax with follow-up telephone calls to clarify issues of interpretation and respondents' questions.

## Direct and Indirect Costs

Leaseholders were requested to provide an accounting of expenditures by activity for "in-kind" work they undertook to graze cattle on public lands in 2021.

Direct costs were defined as those labour, service or contract costs that could be fully attributed to an activity. Indirect costs included owner/operator, family or paid labour from the farm or ranch that was not accounted for in the direct costs. All costs were divided by the number of Animal Unit Months ("AUMs")<sup>1</sup> available to the leaseholder to arrive at a per AUM cost. The combination of indirect or allocated farm labour and direct lease costs provides a reasonable representation of the sector's in-kind activities and costs.

A further breakdown of costs definitions includes:

- Direct operating expenditures were those annual costs that could be solely attributed to managing the lease, maintaining the grazing capacity and infrastructure, and tending the cattle. Typical operating expenditures incurred by leaseholders include rent, taxes, direct labour, road, fence, and corral maintenance; range maintenance; fire protection; and the costs of managing multiple uses and multiple users of the land.
  - Rent includes amounts provided to the province of Alberta for the use of the lands for grazing.
  - Fence building and maintenance costs were determined using the reported miles of fence built/maintained in a period and the current costs of fence construction.

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<sup>1</sup> An Animal Unit Month is defined as the amount of forage needed by an "animal unit" (AU) grazing for one month. The quantity of forage needed is based on the cow's metabolic weight, and the animal unit is defined as one mature 1,000 pound cow with or without calf at foot.

- Multiple use costs refer to costs that may incur liaising with, managing and responding to the requirements of other users on the leased lands (i.e. grazing lease administration activities, seismic, oil & gas, recreation, hunters, research, etc.). This may be the time and cost of managing these interests or of mitigating the impact on the grazing lease operation.
- Indirect expenditures were annual costs associated with total farm data that was allocated from the overall farm or ranch operations to the lease operations and included fuel costs, utilities, insurance, veterinarian, interest, marketing, and labour. The final average cost allocation was based on:
  - First the proportion of costs related to grazing cattle on all farm or ranch operations. In the case of mixed farming, cattle costs were separated from other farm costs.
  - Second, the livestock days per year spent on the lease were used to allocate cattle costs to the grazing lease.

The average of four years (2013, 2015, 2017, 2019) of family wages and net cash farm income for Alberta beef cattle ranching and mixed farming operations reported by Statistics Canada<sup>2</sup> was used to arrive at labour costs. Each year was inflated using the Canada CPI published by Statistics Canada. This total farm income was divided by the average number of person years worked on the farm as reported by the individual farmers or ranchers to arrive at a cost per person year. It is important to note that allocating the labour or any other costs to lease operations is an approximation.

**Table 1: In-Kind Costs**

Item	Direct	Indirect	Other <sup>3</sup>
Capital Costs (20 Year Cumulative Investment)	<ul style="list-style-type: none"> <li>- Fence building/rebuilding</li> <li>- Range improvement</li> <li>- Building/corral construction</li> <li>- Road construction</li> <li>- Fire protection</li> <li>- Dugout development</li> <li>- Watering system development</li> </ul>		

<sup>2</sup> Table 32-10-0102-01 Farm financial survey, financial structure by farm type, average per farm (gross farm revenue equal to or greater than \$25,000)

<sup>3</sup> Other<sup>3</sup> describes operating and development costs that support farm and ranch operations, including operations on public grazing leases, but that have not been allocated as indirect in-kind grazing lease costs in this report.

Item	Direct	Indirect	Other <sup>4</sup>
Annual Operating Costs	<ul style="list-style-type: none"> <li>- Property taxes</li> <li>- Direct labour</li> <li>- Supplemental feed costs</li> <li>- Road maintenance</li> <li>- Fence maintenance</li> <li>- Range maintenance</li> <li>- Fire protection</li> <li>- Multiple use costs</li> <li>- Grazing fees</li> </ul>	<ul style="list-style-type: none"> <li>- Veterinarian</li> <li>- Total Labour</li> <li>- Marketing</li> <li>- Repair and maintenance of buildings, corrals, equipment</li> <li>- Fuel, utility, and insurance costs</li> <li>- Leasing Costs</li> <li>- Interest costs</li> </ul>	<ul style="list-style-type: none"> <li>- Depreciation/amortization of equipment, buildings, and corrals</li> </ul>

<sup>4</sup>Other<sup>4</sup> describes operating and development costs that support farm and ranch operations, including operations on public grazing leases, but that have not been allocated as indirect in-kind grazing lease costs in this report.



# Public Grazing Lease Population and Sample Characteristics

Farmers, ranchers, and grazing lease associations that operate 1,701 of the public land grazing leases in Alberta were contacted. Their involvement in this survey determined the in-kind costs incurred by the industry as part of their 2021 public grazing lease costs.

One hundred and nineteen individuals and 20 associations responded, providing data for 181 leases, and reflecting the in-kind costs associated with managing 105,044 AUMs of forage capacity on 418,461 acres of leased public land. Both the sample and the response populations are representative of the provincial geographic regions. Table 2 provides a breakdown between the population, sample, and responses received from the survey. The objective of this report is to review and summarize the findings. A further breakdown of costs between regions of Alberta can be found in the section [Summary of Results, Northern and Southern Alberta](#).

**Table 2: Survey Population, Sample Size and Response Rates**

Type of Grazing Lease	Item	Number of Leases	Lease Area (acres)	Lease Capacity (AUMs)
Individual	Population	5,686	4,143,109	1,014,208
	Sample	1,701	1,175,186	280,821
	Responses	158	159,384	43,115
Association	Population	108	930,471	220,136
	Sample	108	930,471	220,136
	Responses	23	259,077	61,929

Table 3 illustrates attributes of the average lease in each subpopulation. The average size of association-held leases contained in the response group is ten times that of the average individual-held lease (11,264 vs. 1,009 acres). As a result, economies of scale might explain some of the differences between association costs and individual leaseholders due to the sheer scale of the operations.

The leases held by the association that responded to the survey are close to the average area and AUM capacity to the population (11,264 vs. 8,615 acres and 2,693 vs. 2,038 AUMs, respectively). Individually held leases in the response group are marginally larger than the sample group (1009 vs. 691 acres and 273 vs. 165 AUMs, respectively). There seems to be a slightly higher response rate from larger operations in both the 2015 and 2021 surveys. One explanation could be that larger farms are more likely to respond to cost survey requests because the rental

rate might directly affect the profit from the leaseholder more significantly than smaller operations.

On this basis, both groups of respondents appear representative of the sample and the population; however, understanding that larger firms have been more willing to provide data is still an important consideration and may represent a limitation to the survey process.

**Table 3: Average Sample Grazing Lease Size (Area and AUMs)**

Type of Grazing Lease	Item	Average Area (acres)	Average AUMs (AUMs)
Individual	Population	712	174
	Sample	691	165
	Responses	1,009	273
Association	Population	8,615	2,038
	Sample	8,615	2,038
	Responses	11,264	2,693

# Summary of Results, All Respondents

Data received on the 181 individual and association leases represented by respondents<sup>5</sup> to the survey are summarized in Tables 4, 5, and 6. All costs are calculated per AUM of lease capacity as defined by grazing lease records provided by Alberta Environment and Parks.

Table 4 summarizes the annualized average 20-year investment costs per AUM of lease capacity for leaseholders. The "Lease Investment Costs" refer to the financial investment made on the leaseholders public land grazing lease(s) and associated infrastructure that services the lease(s) to make them suitable for grazing cattle. These would be investments that typically have a useful life of greater than one year and that may require some level of ongoing maintenance. The total annualized 20-year investment cost for all leaseholders in 2021 is \$9.26 per AUM. When compared to the 2015 annualized 20-year investment costs, 2021 represents a 6% decrease from the previously reported \$9.85 per AUM. This is also reported separately by individuals and associations. The decline could signal a reduction in long-term investment on grazing leases over time as infrastructure has largely been established across public lands.

Investment costs for individual leaseholders are higher in all categories – notably for fence construction and range improvements. As noted, grazing association leases are larger in area than leases held by individuals, and this cost difference may reflect the economies of scale.

**Table 4: 2021 Annualized 20-Year Investment Costs for Individual and Association Held Public Land Grazing Leases**

Values	Association	Individual	Combined Average?
Average of Fence Built or Rebuilt	\$3.76	\$4.81	\$4.39
Range Improvements	\$0.85	\$3.77	\$2.60
Average of Building/Corral	\$0.52	\$0.66	\$0.60
Road Construction	\$0.04	\$0.19	\$0.13
Fire Protection	\$0.01	\$0.31	\$0.19
Dugout Development	\$0.36	\$0.55	\$0.47
Watering System Development	\$0.35	\$0.55	\$0.47
Other	\$0.12	\$0.59	\$0.40
<b>Total 20-year Investment Costs</b>	<b>\$6.02</b>	<b>\$11.43</b>	<b>\$9.26</b>

Table 5 shows itemized direct annual operating costs reported by individual and association lessees for 2021. As above, costs are expressed in terms of the capacity or the number of allowable AUMs on the lease as per Alberta Environment and Parks records. The total annual average operating cost for all types of leaseholders

<sup>5</sup> 139 individuals and associations responded to the survey. They reported on the 181 leases that they held.

in 2021 is \$38.17 per AUM. When compared to the 2015 itemized direct annual operating costs, 2021 represents a 27.6% increase from the previously reported \$29.92 per AUM. Compared to the CPI (Consumer Price Index) for Alberta from 2015-2021, published by Statistics Canada, food products have increased by 12.68%, and energy has increased by 37.45%. The price increases captured by the GRL survey fall within a reasonable range compared to these percentages.

Again, favourable economies of scale for the larger association grazing leases may contribute to lower unit costs, with some notable exceptions, including hired direct labour/custom work and fence maintenance.

**Table 5: 2021 Itemized Annual Operating Costs for Individual and Association Held Public Land Grazing Leases**

	Association	Individual	Combined
Cattle Operations Labour	\$2.93	\$8.49	\$6.27
Multiple-Use Labour	\$0.15	\$3.56	\$2.20
Direct Labour	\$6.49	\$3.40	\$4.64
Interest Expense	\$0.09	\$0.22	\$0.17
Utilities	\$0.21	\$0.59	\$0.44
Fuel	\$0.25	\$0.89	\$0.63
Insurance	\$0.80	\$1.03	\$0.94
Supplemental feed	\$0.34	\$3.74	\$2.38
Repairs and Maintenance <sup>6</sup>	\$3.74	\$3.23	\$3.43
Veterinarian	\$0.24	\$0.78	\$0.56
Marketing Costs	\$0.03	\$0.47	\$0.29
Road Maintenance	\$0.03	\$0.53	\$0.33
Fence Maintenance	\$8.76	\$5.28	\$6.67
Range Maintenance	\$1.87	\$1.68	\$1.76
Property Taxes	\$2.48	\$1.02	\$1.60
Multiple-Use	\$0.14	\$2.10	\$1.32
Building / Equipment Lease/Rental Cost	\$0.20	\$1.37	\$0.90
Fire Protection	\$0.08	\$0.13	\$0.11
Other <sup>7</sup>	\$4.37	\$2.98	\$3.54
<b>Total</b>	<b>\$33.20</b>	<b>\$41.49</b>	<b>\$38.17</b>

While direct labour costs on the association leases are higher (the associations' hired staff provides almost all the required labour), this is offset on individually held leases by the calculation of allocated labour based on the StatsCan numbers and the estimate of manpower, expenses, revenue and total grazing capacity provided by the owner/operator. In total, individually held leases appear to incur about 25%

<sup>6</sup> Due to a lack of available data from association the 2015 Repairs and Maintenance number was used and inflated using a Statistics Canada CPI.

<sup>7</sup> Other includes legal, accounting, banking, secretarial and administrative costs including office supplies; member meeting expenses; miscellaneous equipment expenses including solar and windmill power generators; cattle loss (wolves, poison weeds), watering fees; fence line brush control; fly control; fertilizing and spraying (weeds); and, wildlife damage (e.g. beaver dam removal).

higher average costs than association-held leases (\$33.20 versus \$41.49/AUM per year). This cost difference is again reflective of economies of scale associated with larger operations.

Finally, Table 6 summarizes the total annual investment and operating costs for individual and association that held grazing leases in 2021. The total 2021 annual investment costs, including grazing fees for individual and association held leases, and for all leases combined, are \$46.52, \$39.93, and \$42.52 per AUM respectively. When compared to the 2015 total annual investment and operating costs, 2021 represents a 19.5% Increase from the previously reported \$42.52 per AUM.

**Table 6: 2021 Total Public Land Grazing Costs (In-Kind Costs and Grazing Fees)**

Cost Item	Association	Individual	Combined
Annualized 20-Year Grazing Leases Investment Costs	\$6.02	\$11.43	\$9.26
Annual Grazing Lease Operating Costs	\$33.20	\$41.49	\$38.17
Total Annual In-kind Costs	\$39.21	\$52.92	\$47.44
Provincial Grazing Fees	3.45	3.33	\$3.38
<b>Total Public Land Grazing Costs</b>	<b>\$42.66</b>	<b>\$56.25</b>	<b>\$50.82</b>

# Summary of Results, Northern and Southern Alberta

Serecon undertook an analysis of the costs associated with operating grazing leases in Northern Alberta compared to Southern Alberta. For this Southern was defined as those grazing leases found in grazing rental Zone 1, while Northern constitutes grazing rental Zone 2 (Appendix C contains a map of the grazing rental zones). Table 7 and 8 shows the breakdown of individual held populations in terms of acres and AUMs of lease capacity. The population, sample and responses from both regions are similar in terms of numbers or individual leases. The Southern leases cover a larger area and proportionately more AUMs than the Northern leases.

***There was a low survey response rate for associations in Zone 2 and is not statistically appropriate to compare zones, however the cost data is still presented in the tables below. Only individual leases should be compared between zones.***

**Table 7: Survey Population, Sample Size and Response Rates for Individual Held Leases**

Lease Area	Item	Number of Leases	Lease Area (acres)	Lease Capacity (AUMs)
North	Population	2,768	1,571,493	342,409
	Sample	676	537,276	119,506
	Responses	76	64,500	14,065
South	Population	2,918	2,571,614	671,799
	Sample	1,025	637,910	161,315
	Responses	82	94,885	29,050
Overall	Population	5,686	4,143,107	1,014,208
	Sample	1,701	1,175,186	280,821
	Responses	158	159,385	43,115

Table 7 shows that that individual held leases from respondents in the South are 47% larger in area and 107% larger in lease capacity than Northern leases. This was consistent with the 2015 cost survey where the southern respondents were 38% larger in area and 90% higher in capacity. Additionally, the population difference in the Southern held leases is 64% higher in area and 96% larger in lease capacity when compared to Northern leases.

**Table 8: Survey Population, Sample Size and Response Rates for Association Held Leases**

Lease Area	Item	Number of Leases	Lease Area (acres)	Lease Capacity (AUMs)
North	Population	40	282,956	2,991,420
	Sample	40	282,957	2,991,420
	Responses	3	20,285	5,325
South	Population	68	647,515	150,231
	Sample	68	647,515	150,231
	Responses	21	238,792	56,604
Overall	Population	108	930,472	3,141,651
	Sample	108	930,472	3,141,651
	Responses	24	259,077	61,929

Table 8 displays the lease area and AUM capacity for the Northern association leases that were captured in our survey. The small response rate makes it difficult to draw any inferences from the northern association cost data.

**Table 9: Average Sample Grazing Lease Size for Individual & Association Held Leases (area and AUMs)**

Lease Area	Item	Individual Held Leases		Association Held Leases	
		Average Area (acres)	Average AUMs	Average Area (acres)	Average AUMs
North (Zone 2)	Population	568	124	7,074	1,748
	Sample	568	117	7,074	1,748
	Responses	849	185	6,762	1,775
South (Zone 1)	Population	881	230	9,522	2,209
	Sample	945	239	9,522	2,209
	Responses	1,157	354	11,371	2,695

Based on the survey data collected, both Southern individual and association held leases reported larger than average acres (1,157 vs 945 and 11,371 vs 9,522) and AUMs (354 vs 239 and 2,695 vs 2,209) when compared to the population. The Northern individuals reported larger than average acres and lease capacity (849 vs 568 and 785 vs 112). The North's associations reported lower than average acres and just slightly higher than the population average lease capacity (6,762 vs 7,074 and 1,775 vs 1,748).

Established with the data reported from the survey and presented in table 10, Northern individual leaseholders responding to the survey reported an average of \$15.53/AUM of total 20-year investment costs. This compares to the \$6.19/AUM

per year for the Southern leases. The most considerable difference is attributable to higher fence building and range improvement costs associated with leases in the Northern zone; this difference is consistent with findings in the 2015 cost survey. This difference is largely attributable to forest clearing and breaking/seeding required to develop pasture and fence lines in forested systems, representing higher capital and labour costs. However, the difference between range improvements has grown significantly. When compared to the difference between the Northern and Southern association held leases (\$12.05 vs \$5.09/AUM), much of the cost disparity is again under fence building costs.

**Table 10: 2021 Annualized 20-Year Investment Costs for Individual and Association Held Public Land Grazing Leases in Northern and Southern Alberta**

Values	Association		Individual		Combined	
	North	South	North	South	North	South
Average of Fence Built or Rebuilt	\$7.41	\$3.20	\$5.72	\$3.65	\$6.40	\$3.47
Range Improvements	\$1.91	\$0.69	\$6.28	\$0.56	\$4.53	\$0.61
Average of Building/Corral	\$0.96	\$0.45	\$0.58	\$0.77	\$0.73	\$0.64
Road Construction	\$0.29	\$0.00	\$0.17	\$0.21	\$0.22	\$0.13
Fire Protection	\$0.00	\$0.02	\$0.48	\$0.09	\$0.29	\$0.06
Dugout Development	\$0.87	\$0.29	\$0.55	\$0.54	\$0.68	\$0.44
Watering System Development	\$0.54	\$0.32	\$0.76	\$0.29	\$0.67	\$0.31
Other	\$0.07	\$0.13	\$1.00	\$0.07	\$0.63	\$0.09
<b>Total 20-year Investment Costs</b>	<b>\$12.05</b>	<b>\$5.09</b>	<b>\$15.53</b>	<b>\$6.19</b>	<b>\$14.14</b>	<b>\$5.75</b>

Table 11 presents the annual operating costs for leaseholders within Northern and Southern Alberta. Across both associations and individuals, the Northern regions have higher annual costs when compared to the Southern leases. The difference between north and south associations (\$35.42 vs \$32.88/AUM) is closer than the difference between individuals (\$44.48 vs \$40.85/AUM). Associations in the South use more direct labour while associations in the North have higher range maintenance costs and other costs. Individual leases are similar, with differences forming more direct labour and fence maintenance from the northern leases.

**Table 11: 2021 Itemized Annual Operating Costs for Individual and Association Held Public Land Grazing Leases in Northern and Southern Alberta**

Values	Association		Individual		Combined	
	North	South	North	South	North	South
<b>Allocated Farm/Ranch or Association Member Labour</b>						
Cattle Operations	\$2.74	\$2.96	\$8.84	\$8.04	\$6.40	\$6.01
Multiple-Use	\$0.00	\$0.18	\$3.82	\$3.22	\$2.29	\$2.00
Direct Labour	\$1.45	\$7.27	\$4.09	\$2.52	\$3.03	\$4.42
Interest Expense	\$0.00	\$0.11	\$0.21	\$0.23	\$0.13	\$0.18
Utilities	\$0.05	\$0.24	\$0.54	\$0.66	\$0.34	\$0.49



Values	Association		Individual		Combined	
	North	South	North	South	North	South
Fuel	\$0.61	\$0.19	\$0.81	\$1.00	\$0.73	\$0.68
Insurance	\$0.60	\$0.83	\$0.89	\$1.21	\$0.77	\$1.06
Supplemental feed	\$1.30	\$0.19	\$2.96	\$4.73	\$2.30	\$2.91
Repairs and Maintenance <sup>8</sup>	\$3.74	\$3.74	\$3.24	\$3.21	\$3.44	\$3.42
Veterinarian	\$0.25	\$0.24	\$0.55	\$1.07	\$0.43	\$0.74
Marketing Costs	\$0.05	\$0.03	\$0.52	\$0.41	\$0.33	\$0.26
Road Maintenance	\$0.00	\$0.04	\$0.51	\$0.56	\$0.31	\$0.35
Fence Maintenance	\$8.18	\$8.85	\$7.31	\$2.69	\$7.66	\$5.15
Range Maintenance	\$4.15	\$1.51	\$1.95	\$1.35	\$2.83	\$1.41
Property Taxes	\$1.21	\$2.68	\$0.83	\$1.26	\$0.98	\$1.83
Multiple-Use	\$0.00	\$0.16	\$2.40	\$3.13	\$1.44	\$1.94
Building / Equipment Lease/Rental Cost	\$1.15	\$0.06	\$1.09	\$1.71	\$1.12	\$1.05
Fire Protection	\$0.00	\$0.09	\$0.15	\$0.12	\$0.09	\$0.11
Other	\$9.95	\$3.52	\$3.77	\$1.98	\$6.24	\$2.59
<b>Total</b>	<b>\$35.42</b>	<b>\$32.88</b>	<b>\$44.48</b>	<b>\$39.09</b>	<b>\$40.85</b>	<b>\$36.61</b>

The total public land grazing cost in the North and South are \$57.64/AUM/year and \$45.91/AUM/Year respectively (Table 12). On this basis Northern lessees incurred 25.6% higher costs than Southern lessees. Compared to 2015 cost estimates the 2021 numbers represent increases for North and South areas of 21.3% and 17.9% respectively. Some of this difference may be driven by differences in scale between the average operations across the two zones, in combination with the different cost constraints facing lessees in Northern and Southern Alberta, such as higher range maintenance costs in the north and higher property taxes in the south.

**Table 12: 2021 Total Public Land Grazing Costs (In-Kind Costs and Grazing Fees) In Northern and Southern Alberta**

Cost Item	Association		Individual		Combined	
	North	South	North	South	North	South
Annualized 20-Year Grazing Leases Investment Costs	\$12.05	\$5.09	\$15.53	\$6.19	\$14.14	\$5.75
Annual Grazing Lease Operating Costs	\$35.42	\$32.88	\$44.48	\$39.09	\$40.85	\$36.61
Total Annual In-kind Costs	\$47.47	\$37.96	\$60.01	\$45.28	\$54.99	\$42.36
Provincial Grazing Fees	\$1.78	\$3.70	\$3.23	\$3.46	\$2.65	\$3.56
<b>Total Public Land Grazing Costs</b>	<b>\$49.25</b>	<b>\$41.67</b>	<b>\$63.24</b>	<b>\$48.74</b>	<b>\$57.64</b>	<b>\$45.91</b>

<sup>8</sup> Due to a lack of available data from association the 2015 Repairs and Maintenance number was used and inflated using a Statistics Canada CPI.

# Weight Gain and Distance to Markets

Table 13 presents the non-financial data collected through the survey. Associations and individuals had similar weight gain and distance to market. The notable exceptions are for individuals and associations that travelled long distances to market in the Fall. While the differences between the Spring and Fall are significant, the trend that more considerable distances were travelled in the Fall was consistent with the 2015 cost study.

**Table 13: Weight Gain and Distance to Markets**

Area	Variable	Association	Individual
North	Distance to Market (KM)		
	Spring	73 km	60 km
	Fall	73 km	150 km
	Average daily weight gain (lbs) while on the lease	1.6 lbs/day	1.85 lbs/day
South	Distance to Market (KM)		
	Spring	80 km	53 km
	Fall	80 km	94 km
	Average daily weight gain (lbs) while on the lease	1.9 lbs/day	1.87 lbs/day
Overall	Distance to Market (KM)		
	Spring	76.5 km	56.5 km
	Fall	76.5 km	122 km
	Average daily weight gain (lbs) while on the lease	1.75 lb/day	1.86 lb/day

# Data Testing and Statistical Interpretation

Reasonableness tests were undertaken to review the legitimacy of each individual's or association's submissions. The different tests included:

- Evaluating each line-item respondents inputted ensured the correct scale and interpretation of the question was understood.
- Communicating with respondents over the phone during the survey process ensured accurate support was provided for the survey.
- Serecon followed up with respondents where appropriate if responses needed further clarification.
- Serecon evaluated the accuracy of the total lease capacity against the number of AUM grazing as reported on the survey.

Basic statistical tests were conducted to assess the dependability of the cost estimates and provide additional insights into the data distribution. It is reasonable to expect the distribution of the sample mean to be normally distributed under the Central Limit Theorem. Many basic statistical tests rely on normally distributed data to calculate confidence intervals and sample means representing the data's central tendency. Noting that self-selected participation and self-reported survey data often contain bias, a closer look at the distribution of the data was undertaken. The results suggested a few key outliers were positively skewing the data. Without a complete population census, removing these outliers from the arithmetic means presented in the report tables above is not appropriate. Attempting to remove some of the influence the outliers had on the confidence intervals, the cost data were logarithmically transformed to normalize the results. The geometric mean was then used to calculate the confidence interval listed in table 14.

The confidence interval interpretation is that 95 percent of the time, the true population mean will lie within the calculated confidence intervals from the sample mean. For the average total public land grazing costs for all leases, not including lease costs (\$45.21 per AUM), the confidence interval is between \$40.35 and \$50.65 per AUM.

The coefficient of variation was calculated to be 4%. The coefficient of variation is a standardized or normalized form of expression that can be used to indicate the relative reliability of the estimated weighted averages presented. The coefficient of variation calculated indicates that the estimated weighted averages are a good representation of the data. Additional explanations and values of the tests are provided in Table 14.

**Table 14: Meaning, Application and Values for the Statistical Tests Used**

Test	Meaning and Application		
Variance	A measure of the extent to which data points are spread or vary from their average value in absolute terms.		
Geometric Mean	It is a product of calculating a mean from log normalized data and is most useful when data is in a series containing large variations.		
Confidence Interval	An estimated range of values that a parameter lies within given a specified probability.		
Coefficient of Variation	A measure of the spread of dispersion of a set of data as a proportion of its mean and is usually expressed as a percentage.		
Values, Total Annual In-Kind Costs			
Test	North	South	All
Variance	\$3.61	\$3.05	\$3.38
Geometric Mean	\$50.59	\$40.32	\$45.21
95% Confidence Interval	\$42.67 - \$59.97	\$34.73 - \$46.82	\$40.35 – \$50.65
Coefficient of Variation	3.75%	4.33%	4.07%

# Appendix A – Individual Grazing Lease Survey

## 2021 Fiscal Year Crown Land Grazing Lease Individual Cost Survey

### Part 1—General Background Data

Note that all data will be held in strict confidence by Serecon Inc., and no individual data will be disclosed. Thank you in advance for your participation and input.

Leaseholder name: \_\_\_\_\_ Contact phone number: \_\_\_\_\_  
Contact name: \_\_\_\_\_ Contact email address: \_\_\_\_\_  
Leasing Zone \_\_\_\_\_ Zone 1 (South) \_\_\_\_\_ Zone 2 (North) \_\_\_\_\_

### Part 2—Total Farm Information (includes owned, leased and rented areas)

This Total Farm Information section of the survey is used to report information and the expenses that you incurred in your farming activities in 2021. These costs will be allocated by Serecon Inc. to your crown grazing lease(s) based on the information that you provide. In this survey, Total Farm costs are those expenditures that relate to many activities and that cannot be easily split into or identified with a single aspect of your farm. These costs may include expenses related to the overall management, coordination, and operation of the farm.

#### (a) Total Farm Data (inclusive of Crown Grazing Lease(s)):

Total grazing AUMs operated in 2021<sup>1</sup>: \_\_\_\_\_ AUMs % of total farm revenue from cattle:<sup>2</sup> \_\_\_\_\_ %  
Kind and class of grazing animal AUMs<sup>2</sup>: \_\_\_\_\_ % of total farm expenses from cattle: \_\_\_\_\_ %  
Cow/calf: \_\_\_\_\_ Yearlings: \_\_\_\_\_  
Bulls: \_\_\_\_\_ Horses: \_\_\_\_\_  
Other: \_\_\_\_\_  
Total mortality rate as percentage of herd for 2021<sup>3</sup>: \_\_\_\_\_ % Haul rates charged for transport from spring market \$ \_\_\_\_\_  
Annual mortality<sup>3</sup> as percentage of herd for the last five years \_\_\_\_\_ % Haul rates charged for transport to fall sale market \$ \_\_\_\_\_  
Total area of farm operation in 2021: \_\_\_\_\_ Acres How far do you transport cattle from the market in the spring?<sup>5</sup> \_\_\_\_\_ Km  
Do you operate an integrated feedlot operation?<sup>4</sup> \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ How far do you transport cattle to the market in the fall?<sup>5</sup> \_\_\_\_\_ Km

<sup>1</sup> Refers to the amount of Animal Unit Months (AUMs) grazed on grass rather than provided by supplemental feed or hay. See definitions document for information on AUMs and AUM calculator.

<sup>2</sup> Cows and calves are counted separately when assessing total mortality.

<sup>3</sup> Age or sex group for a particular kind of livestock, such as cow, bull, cow-calf pair, yearling, ewe, ram, or lamb.

<sup>4</sup> If you operate an integrated feedlot operation, please provide the % of total farm revenue that you would have received from all cattle had you sold them prior to entering a feedlot.

<sup>5</sup> Average kilometers across locations if there are multiple locations cattle are transported from. If animals are not purchased at spring market then custom hauling costs from farm headquarters to lease(s) are captured in Part 4 under other direct labour.

#### (b) Total Farm data on labour and other farm costs for 2021 (information in this Section should reflect the costs attributed to the Total Farm):

Total person years<sup>6</sup> worked: \_\_\_\_\_ Years Interest costs (loans for capital equip. & farm buildings, corrals or other capital improvements only - exclude all farm land and residences): \$ \_\_\_\_\_  
Total repairs and maintenance (buildings, corrals, equipment, etc.): \$ \_\_\_\_\_ Marketing costs (costs deducted from sales proceeds to cover commission and inspection fees associated with selling cattle): \$ \_\_\_\_\_  
Total supplemental feed costs while cattle are not on Crown grazing leases (purchased or produced): \$ \_\_\_\_\_ Depreciation & amortization<sup>8</sup> of equipment costs: \$ \_\_\_\_\_  
Total fuel costs: \$ \_\_\_\_\_ Depreciation & amortization<sup>8</sup> of building and corral costs: \$ \_\_\_\_\_  
Total utilities costs: \$ \_\_\_\_\_ Building and/or equipment licensing costs \$ \_\_\_\_\_  
Veterinarian costs<sup>7</sup>: \$ \_\_\_\_\_  
Insurance costs: \$ \_\_\_\_\_

<sup>6</sup> For example the farm owner works 12 months (full-time), a paid labourer works 12 months and a child works 6 months, the total person years worked in 2021 would equal 2.5 years. One person year assumes 40 hours of work per week. If a person worked 80 hours per week, this is equivalent to 2 person years.

<sup>7</sup> Veterinary costs include total costs for veterinary services and pharmaceuticals attributable to cattle management.

<sup>8</sup> CCA (Capital Cost Allowance) may be used in lieu of Depreciation & Amortization.

**2021 Fiscal Year Crown Land Grazing Lease  
Individual Cost Survey**

**Part 3—Crown Land Grazing Lease Information**
**(a) Crown grazing lease identification, capacity and proximity to your farm:**

Lease number(s) (please list all leases held in 2021):	_____	Total lease area held in 2021:	_____ Acres
	_____	Average distance that the lease(s) is (are) from the farm headquarters:	_____ Km
	_____	Total AUMs grazed on the lease(s) in 2021:	_____ AUM
Total allowable AUMs under terms of lease(s) held in 2021:	_____ AUM		

**(b) Lease acquisition costs (choose relevant categories as appropriate)<sup>9</sup>:**

Total cost of acquiring these leases through government allocation or tender:	\$ _____
Total cost of government assignment fees paid to acquire these leases:	\$ _____

**(c) Expected weight gain for a yearling grazed on crown leases:**

Number of days that livestock are typically on the lease:	_____ Days / Year
Expected weight gain of yearlings while on the lease <sup>10</sup> (see definitions):	_____ lbs gained / day

**(d) Labour breakdown spent on crown land grazing leases:**

Total % of person years (see part 2(b)) spent on crown land grazing leases	_____ %
Of the person years spent on crown land grazing leases what percent was	
Spent on cattle operations? (i)	_____ %
Total time spent on multiple use <sup>11</sup> activities. Further broken down in categories below if applicable: (ii)	_____ %
Spent on grazing lease administration activities: (ii.1)	_____ %
Spent on industrial exploration/access management: (ii.2)	_____ %
Spent on recreational access management: (ii.3)	_____ %
Spent liaising with researchers/not for profit organizations, etc.: (ii.4)	_____ %
(i + ii) = 100%	
Or (i+ii/1-4) = 100%	

<sup>9</sup> Consider lease acquisition costs incurred over the past 25 years

<sup>10</sup> The expected weight gain in pounds per day for a yearling over the period that you use the crown lease for grazing. In order to obtain comparable answers from respondents the focus is on weight gain for yearlings. If no yearlings are grazed, please provide a best estimate for yearling or yearling equivalent weight gain or indicate 'n/a'.

<sup>11</sup> Note that the time, and direct costs spent on multiple use is intended to capture the additional cost that you may incur liaising with, managing and responding to the requirements of other users on the leased lands (i.e. grazing lease administration activities, seismic, oil & gas, recreation, hunters, research, etc.). This may be the time and cost of managing these interests or of mitigating their impact on your grazing lease operations.

**2021 Fiscal Year Crown Land Grazing Lease  
Individual Cost Survey**

**Part 4—2021 Annual Direct crown Land Grazing Lease Operating Costs**

The costs that are incurred on an annual or near annual basis in the operation of the crown grazing lease are captured in this "Annual Direct crown Land Grazing Lease Operating Costs" section of the survey. These are direct expenditures that you make each year in order to operate on your crown land grazing lease(s).

Note that the paid time and other direct costs spent on multiple use is intended to capture the additional cost that you may incur liaising with, managing and responding to the requirements of other users on the leased lands. This may be the time and cost of managing these interests or of mitigating their impact on your grazing lease operations.

Crown grazing lease rental payment:	\$ _____	Property taxes:	\$ _____
Any direct hired labour <sup>11</sup> not included in Part 2:	\$ _____	<b>Total multiple use costs<sup>12</sup>: (broken down in categories below)</b>	\$ _____
Water system maintenance	\$ _____	Grazing lease administration	\$ _____
Grazing plans/range health assessments:	\$ _____	Industrial exploration/access management	\$ _____
Invasive species/weed management:	\$ _____	Recreational access management	\$ _____
Range maintenance (seeding & brush control):	\$ _____	Liaising with researchers/not for profit organizations, etc.	\$ _____
Other range maintenance costs (Identify):	\$ _____	Other	\$ _____
Road maintenance:		Building and/or equipment rental costs:	\$ _____
Miles of fence maintained: _____ miles		Fire protection costs:	\$ _____
In recent years (eg. past 5 years), what would the average cost per mile of fence maintenance for the lease?	_____ \$ / mile		
Other costs (Identify cost type):			
(1) _____	\$ _____		
(2) _____	\$ _____		
(3) _____	\$ _____		

<sup>11</sup> Includes direct hired labour and any custom labour.

<sup>12</sup> Multiple use refers to the direct annual cost in time and dollar costs of liaising with, managing and responding to other crown land users - i.e. seismic, oil & gas, recreation, hunters, etc. This row refers to total multiple use costs, which are further broke down into the categories of grazing administration, industrial exploration/access management, recreational access management, and liaising with researchers/not for profit organizations. If there are additional multiple use costs your operation incurs, please feel free to write them in.

**Part 5—Capital Costs (Costs incurred over the last 20 years and not included in Part 2 or 3)**

The "Lease investment costs" refer to the financial investment made in your crown grazing lease(s) and associated infrastructure that services the lease(s) to make them suitable for grazing cattle. These would be investments that typically have a useful life of greater than one year and that may require some level of ongoing maintenance. Note that the ongoing maintenance costs are captured in Part 5 - Annual Direct crown Land Grazing Lease Operating Costs.

If you purchased a lease in the past 20 years, what would your estimate be of the value of the improvements at the time of purchase? \$ \_\_\_\_\_

Other improvement costs incurred within the last 20 years:

Range improvement costs <sup>13</sup> :	\$ _____	Fire protection costs:	\$ _____
Building/corral costs <sup>14</sup> :	\$ _____	Dugout development cost:	\$ _____
Road construction costs:	\$ _____	Watering system development cost:	\$ _____
Total miles of fence built or rebuilt: _____ miles			
In recent years (eg. past 5 years), what would the average cost per mile of custom fence be for the lease?	_____ \$ / mile		
Other costs (Identify cost type):			
(1) _____	\$ _____		
(2) _____	\$ _____		
(3) _____	\$ _____		

<sup>13</sup> Range improvements refer to activities such as clearing land, prescribed burns, trail development, riparian enhancements, or fence line clearing.

<sup>14</sup> For infrastructure that services the lease.

**2021 Fiscal Year Crown Land Grazing Lease  
Individual Cost Survey**

**Part 6—Survey Submission and Questions**

Should you have any questions regarding the survey, please feel free to contact Armand Roland at (778) 513-4242. If we have any questions regarding the information you provide, we will need to contact you. Please email, fax or mail your response to Serecon Inc. no later than **Feb 11, 2021**. Complete contact information for Serecon in Edmonton can be found below.

Thank you for your cooperation.

Serecon Inc.  
Attention: Armand Roland  
600 First Edmonton Place  
10665 Jasper Avenue  
Edmonton, Alberta  
T5J 3S9

Email: [aroland@serecon.ca](mailto:aroland@serecon.ca)  
Office: 780.448-7440  
Fax: 780.454.1908



## Appendix B – Association Grazing Lease Survey

### 2021 Fiscal Year Public Land Grazing Lease Association Cost Survey

#### **Part 1—General Background Data**

In order to assist in identification, grazing lease costs must be listed by grazing lease owner and crown land grazing lease number.

**Note that all data will be held in strict confidence by Serecon Inc., and no individual data will be disclosed. Thank you in advance for your participation and input.**

Leaseholder name: \_\_\_\_\_ Contact phone number: \_\_\_\_\_  
 Contact name: \_\_\_\_\_ Contact email address: \_\_\_\_\_  
 Leasing Zone \_\_\_\_\_ Zone 1 (South) \_\_\_\_\_ Zone 2 (North)

#### **Part 2—Crown Land Grazing Lease Information**

**(a) crown grazing lease identification, capacity and distance to members' farms and markets:**

Lease number(s) (please

list all leases held in

2021): \_\_\_\_\_

Total allowable AUMs under terms of lease(s) held in 2021: \_\_\_\_\_ AUM

Total AUMs grazed on the lease(s) in 2021:<sup>1</sup> \_\_\_\_\_ AUM

Cattle mortality percentage of total herd while on the lease(s) for 2021:<sup>2</sup> \_\_\_\_\_ %

Annual cattle mortality<sup>2</sup> percentage of total herd while on the lease(s) for the last five years: \_\_\_\_\_ %

Average distance that the lease(s) is (are) from the member farm headquarters: \_\_\_\_\_ KM

Total lease area: \_\_\_\_\_ Acres

To the extent that you are aware, what is the distance to most commonly used cattle market in the spring: \_\_\_\_\_ KM

To the extent that you are aware, what is the distance to most commonly used cattle market in the fall: \_\_\_\_\_ KM

Haul rates charged for transport from spring market: \$ \_\_\_\_\_ Haul rates charged for transport to fall market \$ \_\_\_\_\_

<sup>1</sup>If the area included deeded land, please allocate the total AUMs to the leased land based on the proportion of area. See definitions document for information on AUMs and AUM calculator.

<sup>2</sup>Cows and calves are counted separately when assessing total mortality.

**(b) Lease acquisition costs (choose relevant categories as appropriate)<sup>3</sup>**

Total cost of acquiring these leases through government allocation or tender: \$ \_\_\_\_\_

Total cost of government assignment fees paid to acquire these leases: \$ \_\_\_\_\_

<sup>3</sup> Consider lease acquisition costs incurred over the past 25 years

**(c) Expected weight gain for a yearling grazed on crown leases:**

Number of days that livestock are typically on the lease: \_\_\_\_\_ Days / Year

Expected weight gain of yearlings while on the lease<sup>4</sup> (see definitions): \_\_\_\_\_ lbs gain / day

<sup>4</sup> The expected weight gain in pounds per day for a yearling over the period that you use the crown lease for grazing. In order to obtain comparable answers from respondents the focus is on weight gain for yearlings. If no yearlings are grazed, please provide a best estimate for yearling or yearling equivalent weight gain or indicate 'N/A'.

#### **Part 3—Crown Land Grazing Lease Investment Costs**

The "Lease Investment Costs" refer to the financial investment made in your crown grazing lease(s) to make them suitable for grazing cattle. These would be investments that typically have a useful life of greater than one year and that may require some level of ongoing maintenance. Note that the ongoing maintenance costs are captured in Part 4 - Annual Direct Crown Land Grazing Lease Operating Costs.

If you purchased a lease in the past 20 years, what would your estimate be of the value of the improvements at the time of purchase? \$ \_\_\_\_\_

Other improvement costs incurred within the last 20 years:

Range improvement costs<sup>5</sup>: \$ \_\_\_\_\_ Fire protection costs: \$ \_\_\_\_\_

Building/corral cost<sup>6</sup>: \$ \_\_\_\_\_ Dugout development cost: \$ \_\_\_\_\_

Road construction cost: \$ \_\_\_\_\_ Watering system development cost: \$ \_\_\_\_\_

Total miles of fence built or rebuilt: \_\_\_\_\_ miles

What would the current average cost per mile of custom fence be for the lease? \_\_\_\_\_ \$ / mile

Other costs (Identify cost type):

(1) \_\_\_\_\_ \$ \_\_\_\_\_

(2) \_\_\_\_\_ \$ \_\_\_\_\_

(3) \_\_\_\_\_ \$ \_\_\_\_\_

## Part 4—2021 Annual Direct Crown Land Grazing Lease Operating Costs

Note that the paid and donated time, and direct costs spent on multiple use is intended to capture the additional cost that you may incur liaising with, managing and responding to the requirements of other users on the leased lands. This may be the time and cost of managing these interests or of mitigating their impact on your grazing lease operations.

Crown grazing lease rental payment:	\$ _____	Grazing plans/range health assessments:	\$ _____
Building and/or equipment lease costs:	\$ _____	Invasive species/weed management:	\$ _____
Donated time by association members:	_____ days	Other range maintenance costs (identify):	\$ _____
% of donated time spent on cattle operations:	(i) _____ %	Total multiple use <sup>7</sup> costs:	\$ _____
% of donated time spent on multiple use <sup>7</sup> :	(ii) _____ %	(broken down in categories below)	\$ _____
	<u>(i+ii) = 100%</u>	Grazing lease administration	\$ _____
		Industrial exploration/access management	\$ _____
		Recreational access management	\$ _____
		Liasing with researchers/not for profits, etc.	\$ _____
		Other	\$ _____
Total paid labour & benefits:	\$ _____	Interest expense (loans for capital equip. & farm buildings only):	\$ _____
% of paid labour time spent on cattle operations:	(i) _____ %	Depreciation & amortization:	\$ _____
% of paid labour time spent on multiple use <sup>8</sup> :	(ii) _____ %	Insurance costs:	\$ _____
	<u>(i+ii) = 100%</u>	Property taxes:	\$ _____
Any direct hired labour not included above (eg. custom work):	\$ _____	Marketing costs (associated with selling cattle):	\$ _____
Building/Corral maintenance:	\$ _____	Supplemental feed costs:	\$ _____
Utilities costs:	\$ _____	Veterinarian costs <sup>9</sup> :	\$ _____
Building and/or equipment rental costs:	\$ _____	Other costs (identify cost type):	
Fuel costs:	\$ _____	(1) _____	\$ _____
Road maintenance:	\$ _____	(2) _____	\$ _____
Fire protection costs:	\$ _____	(3) _____	\$ _____
Miles of fence maintained:	_____ miles	(4) _____	\$ _____

8 Veterinary costs include total costs for veterinary services and pharmaceuticals attributable to cattle management

Should you have any questions regarding the survey, please feel free to contact Armarn Roland at (778) 513-4242. If we have any questions regarding the information you provide, we will need to contact you. Please email, fax or mail your response to Serecon Inc. no later than May 31st, 2022. Complete contact information for Serecon in Edmonton can be found below.

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10665 Jasper Avenue  
Edmonton, Alberta  
T5J 3S9

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## Appendix C – Grazing Lease Rental Zones Map

