



#11 August 2024

2023 Results

Executive Summary

In 2023, the Canadian Cow-calf Cost of Production Network (COP Network) added five benchmark farms from the Alberta AgriSystems Living Labs. This brings the total to 65 cow-calf and three dairy-beef benchmark farms created with participation from over 235 producers across Canada. These benchmarks represent a variety of production systems, including variation in animal performance, economies of scale, labour productivity, feeding, and farm financials. However, some production systems remain unrepresented in the COP Network, such as farms that primarily use by-product feedstuffs, organic/regenerative farms, and grass finishing operations.

The COP Network provides detailed information to producers who have similar production systems as the benchmark farm. As such, data presented in the benchmark farms are different than other sources characterizing Canadian cow-calf production systems, such as the Farm Management Survey (FMS) and cow-calf surveys.

With the completion of the first phase of data collection, the 2023 results presented in this report are estimated based on data from the baseline years (2019, 2020, 2021 or 2022), along with year-over-year indexing of provincial average yields, input and output prices, assuming stable herd sizes and consistent animal performance with the baseline years.

Key takeaways

For the cow-calf enterprise, total average cost from the COP Network was \$1,724/cow in 2023. This was comprised of 60 per cent (\$1,030) in cash expenses, 12 per cent (\$205) depreciation, and 28 per cent (\$488) opportunity costs.

Total costs in 2023 were five per cent higher than 2022, driven by overall inflationary pressure and dry conditions in western Canada, which led to lower forage yields and additional expenses on purchased feed.

Average revenue was estimated at \$1,795 per cow, up a significant 33 per cent from 2022 thanks to sharply higher cattle prices.

With revenue growing faster than costs, profitability improved nationwide in 2023. Nearly all farms (98%) covered short-term (cash) costs, and a vast majority (91%) managed to cover medium-term (cash and depreciation) costs. About 58 per cent of farms were able to cover long-term (cash, depreciation, and

opportunity) costs. In comparison, in 2022, 83 per cent of farms covered short-term costs, 77 per cent covered medium-term costs, and only 29 per cent covered long-term costs.

Future of the COP Network

Over the next three years, the Canfax Research team will revisit focus group participants to understand how they responded to the future farm scenarios and strategies used during drought. Meanwhile, the team will continue to focus on analysis around Beneficial Management Practices (BMP) as well as farm competitiveness and profitability.

Introduction

The Canadian Cow-calf Cost of Production Network (COP Network) is the first nationally standardized cost of production information for the cow-calf sector, available in every province across Canada. Using standardized data collection allows for comparison both within and between provinces, as well as with cow-calf production systems world-wide.

Since the project launched in 2021, the COP Network has collected data from over 235 producers nationwide and generated benchmark farms that represent various production systems. Each benchmark farm is based on data from three to seven producers with similar production systems.

Data was collected for the baseline year (2019, 2020, 2021 or 2022) to capture typical farm structural and animal performance metrics such as yield, weaning weight, mature cow weights, etc. Annual indexing is then conducted for the subsequent years based on changes in provincial average input and output prices, as well as crop and forage yield.

Due to drought conditions and reduced forage yields in 2023, some benchmark farms were estimated to face a shortage of homegrown feed, leading to increased expenses for purchased feed. For these affected farms, it is assumed that drought payments were received if an assistance program was available in the region, with the payment amounts varying based on the extent of the shortage and the specific regional payment schemes.

For the 2023 results, six benchmark farms from the Alberta AgriSystems Living Lab were added to the dataset, bringing the total to 68 benchmark farms -- 65 cow-calf and three dairy-beef.

The combined dataset of the 65 cow-calf farms is discussed below. All this data, as well as individual farm summaries, can be found at canfax.ca.

Geographic Locations

The 65 cow-calf benchmarks are distributed across various ecoregions to provide national coverage. Specifically, the distribution includes six cow-calf benchmark farms in B.C., 19 in Alberta, 15 in Saskatchewan, one in the Alberta-Saskatchewan region, five in Manitoba, six in Ontario, seven in Quebec, and six in the Maritimes. Sixty-one per cent (40 of 65) of these farms are in the prairies, where 84 per cent of the Canadian beef cow herd is located.

Herd Size and Animal Performance Metrics

Herd size and key animal performance metrics are summarized in Table 1.

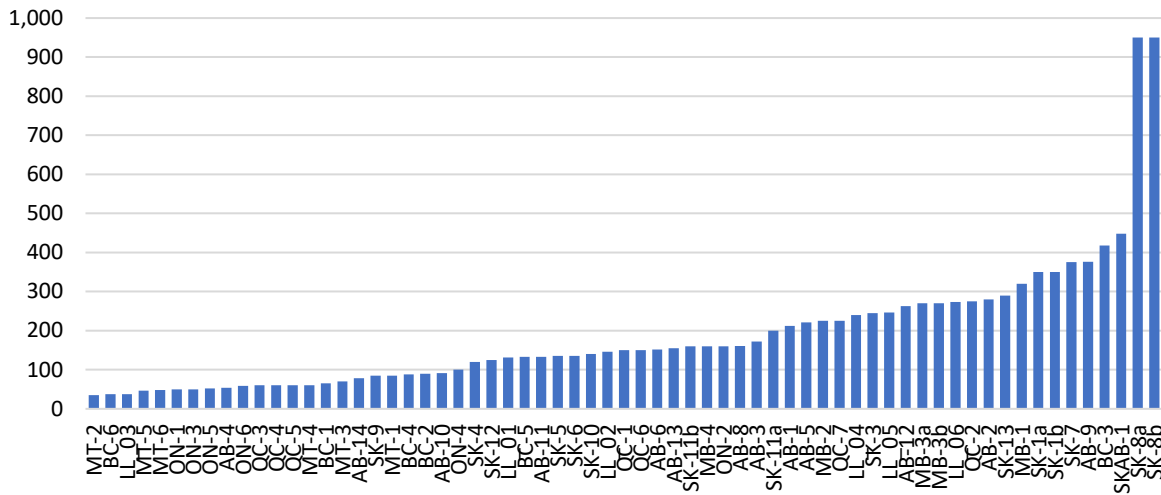
Table 1. Herd Size and Key Animal Performance Indicators

	Range	Average
Herd Size (# of beef cows)	35 – 950 hd	190 hd
Mature Cow Weight (lb.)	1200 – 1700 lb	1368 lb
Weaning Weight (lb.)	444 – 708 lb	561 lb
205-day Weaning Weight (lb.)	444 – 699 lb	547 lb
Calf Death Loss 24hr to weaning (% of live birth)	0.8 – 9.2%	3.1%
Replacement Rate (%)	5 – 21%	12%

Herd Size

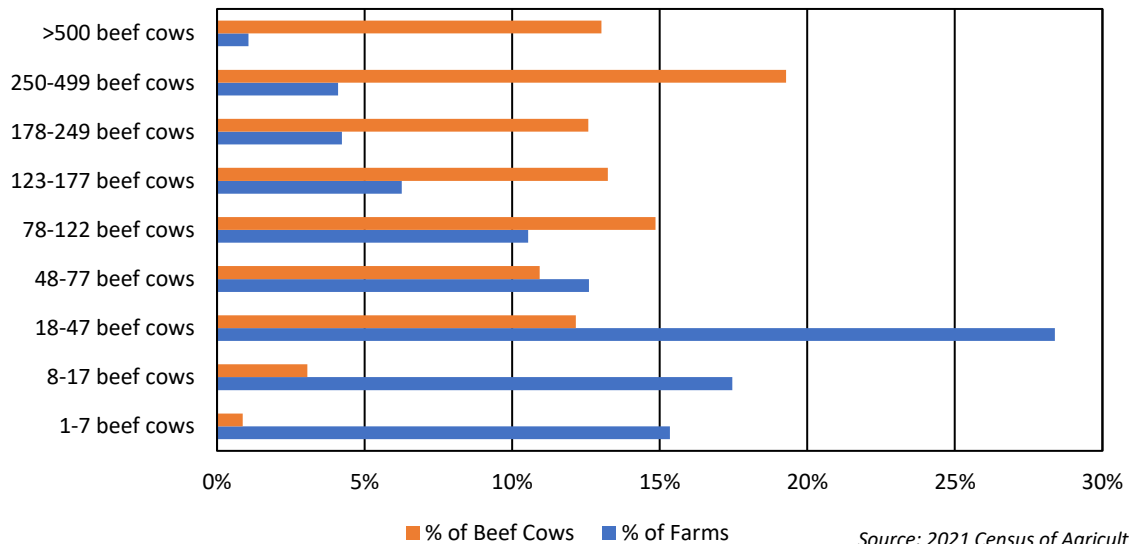
The average herd size of the 65 benchmark farms is 190 beef cows, with a range from 35 head of beef cows to 950 head (Figure 1). The COP Network dataset is skewed towards small- and medium-sized farms. Over one-third (34%) of the benchmark farms have fewer than 100 cows, 29 per cent have between 100 to 200 cows, 23 per cent have between 200 and 300 cows, while only 14 per cent have over 300 cows. This larger proportion of small- to medium-sized farms aligns with national statistics. According to the 2021 Census of Agriculture, 95% cow-calf operations have less than 250 beef cows (Figure 2).

Figure 1. Beef cow herd size on benchmark farms



Source: Canfax Research Services, COP Network

Figure 2. Profile of Canadian beef cattle operations by beef cow herd size



Source: 2021 Census of Agriculture

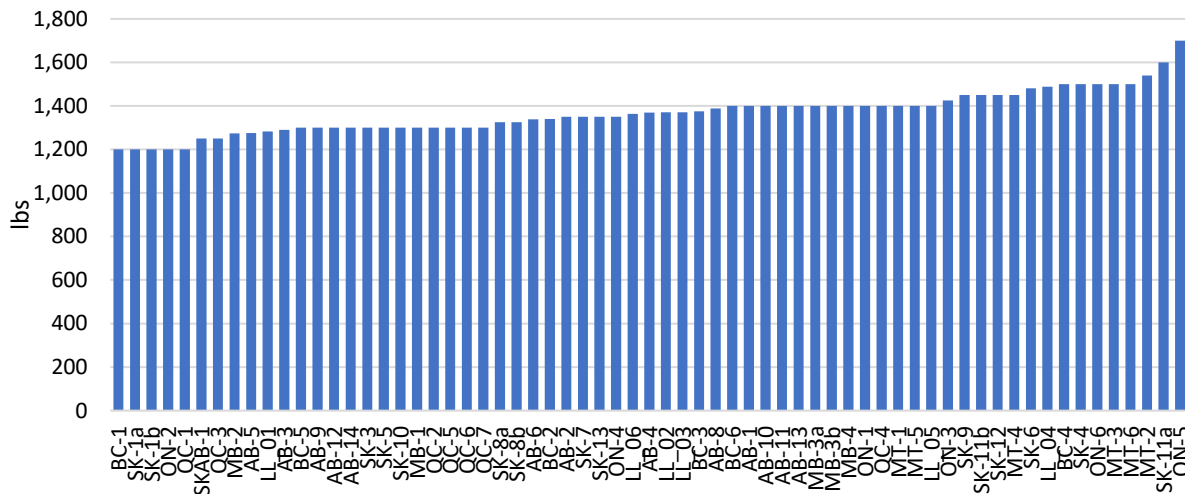
Animal Performance

Animal performance metrics from the COP Network will be compared here to those from the 2023 Canadian Cow-Calf Survey (2023 CCCS), where applicable. These comparisons provide an indication of the robustness of the COP Network dataset and highlight where differences in the data occur. Limitations and assumptions associated with these differences should be kept in mind when interpreting the results of the COP Network.

Mature cow weight

Mature cow weight of the 65 benchmark farms average at 1,368 lb, which is close to the average mature cow weight reported in the 2023 CCCS at 1,387 lb. Mature cow weights in the COP Network range from 1,200 lb to 1,700 lb (Figure 3). The heavier weights were associated with the purebred component of the operations.

Figure 3. Mature cow weight (lb) on benchmark farms



Source: Canfax Research Services, COP Network

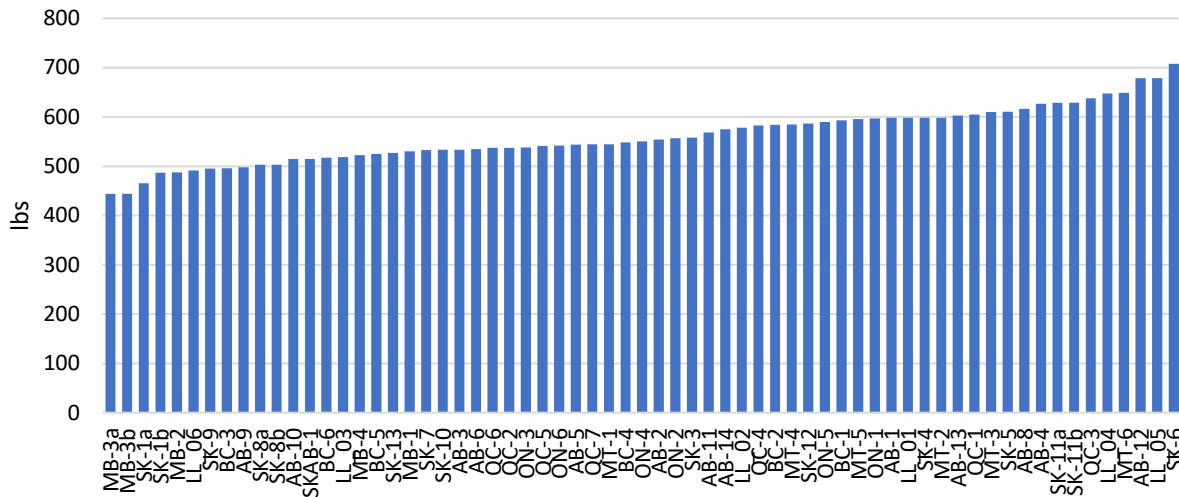
Weaning weight

Weaning weights averaged 561 lb across benchmark farms, with a range from 444 lb to 708 lb (Figure 4). The average weaning weight is 2.8 per cent lighter than the 577 lb for calves born to cows reported in the 2023 CCCS.

To account for differences in weaning age, 205-day adjusted weaning weight was calculated (Figure 5). The 205-day adjusted weaning weight averaged 549 lb, ranging from 459 lb to 687 lb. The COP Network average is one per cent lighter than the 2023 CCCS average of 554 lb.

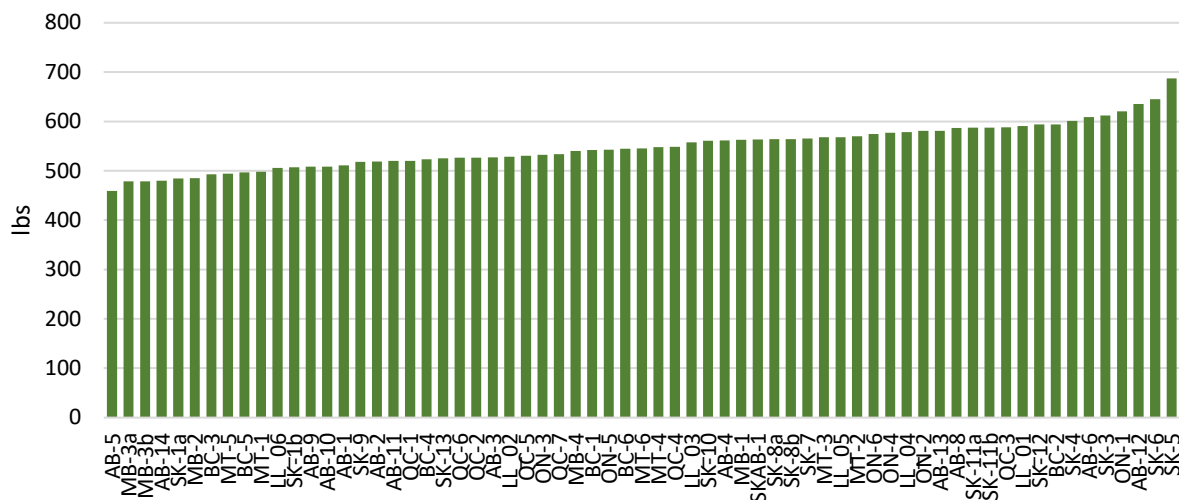
Weaning weights as percentage of mature cow weight averaged at 41.1 per cent (32% - 52%) in the COP Network, is similar to the 41.5 per cent reported in the 2023 CCCS.

Figure 4. Weaning weight (lb) on benchmark farms



Source: Canfax Research Services, COP Network

Figure 5. 205-day adjusted weaning weight (lb) on benchmark farms

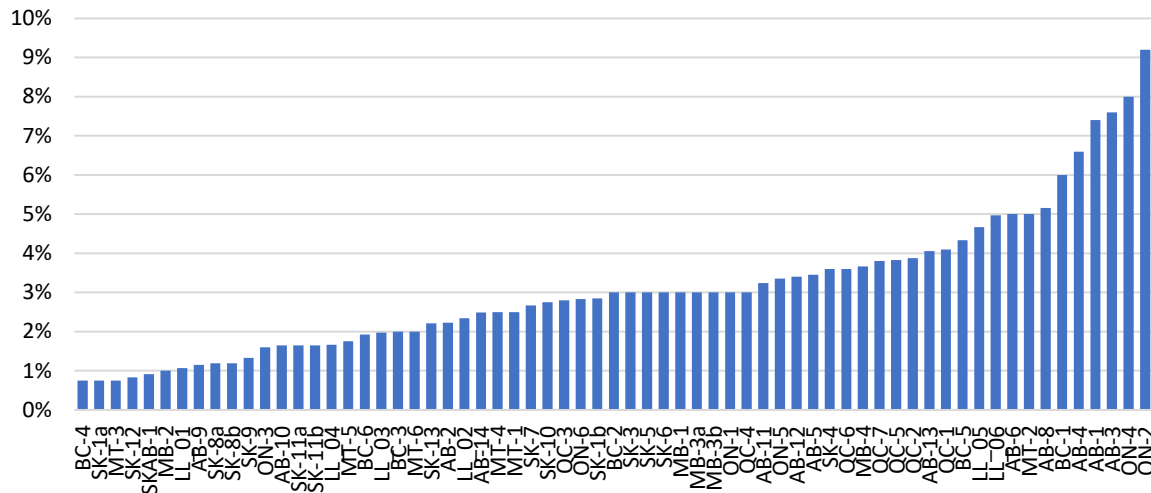


Source: Canfax Research Services, COP Network

Calf Death Loss

For the COP Network, calf death loss is calculated for calves from 24 hours old to weaning. Calf death loss averaged 3.1 per cent and ranged from as low as 0.75 per cent to 9.2 per cent (Figure 6). The higher death loss is predator related, illustrating the influence geographic region may have on this metric. In comparison, calf death loss from 24 hours old to weaning was reported at 2.5 per cent for calves born to cows and 2.9 per cent for calves born to heifers in 2023 CCCS.

Figure 6. Calf death loss from 24 hrs to weaning (%) on benchmark farms

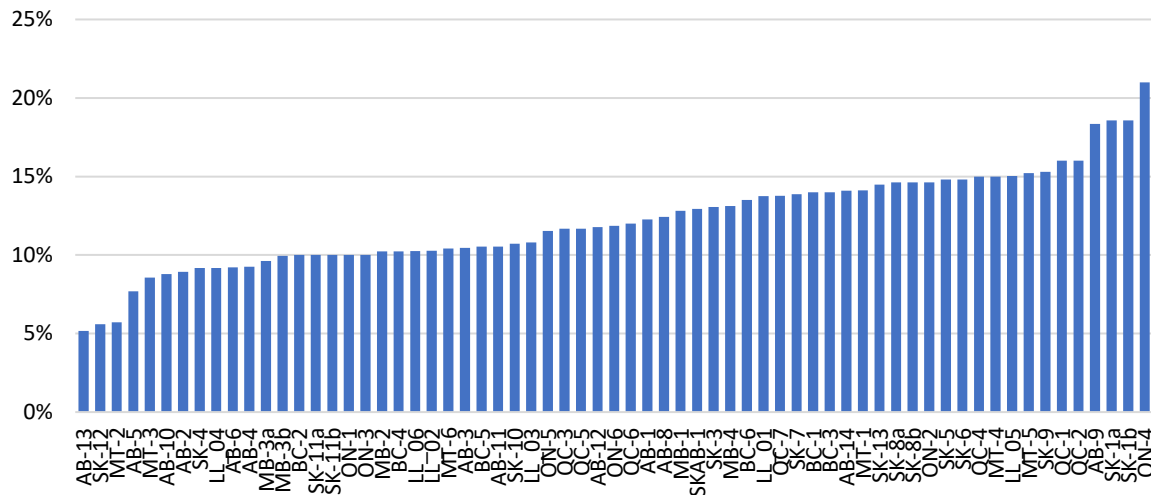


Source: Canfax Research Services, COP Network

Replacement rate

The COP Network defined replacement rate as the number of cull cows plus the number of cows that have died as a percentage of total cows on the operation (Agri Benchmark, 2015). Amongst the benchmark farms, the average replacement rate stood at 12 per cent, with a range from five per cent to 21 per cent (Figure 7).

Figure 7. Replacement rate (%) on benchmark farms



Source: Canfax Research Services, COP Network

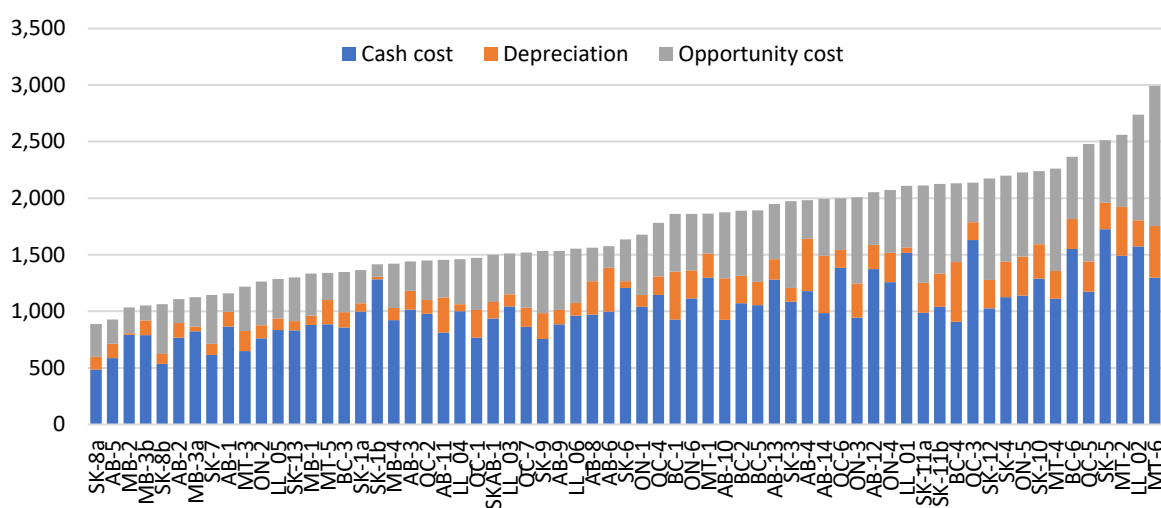
Production Costs in 2023

Overall, total production costs per cow on the benchmark farms show an upward sloping supply curve (Figure 8), with both low-cost and high-cost production systems represented.

In 2023, the average total cost rose to \$1,724 per cow, up five percent from 2022. The increase was more pronounced in the West, where costs increased by six per cent, compared to a one per cent increase in the East. The larger cost hike in the west is primarily due to drought conditions and lower forage yields, which led to higher expenses for purchased feed.

Breaking down the total costs, 60 per cent (\$1,030) were cash costs, 12 per cent (\$205) depreciation, and 28 percent (\$488) were opportunity costs. These are consistent with the previous year, which had 60 per cent in cash costs, 11 per cent in depreciation, and 29 per cent in opportunity costs.

Figure 8. Total costs (\$/cow) on benchmark farms in 2023



Source: Canfax Research Services, COP Network

Feed costs and winter-feeding systems

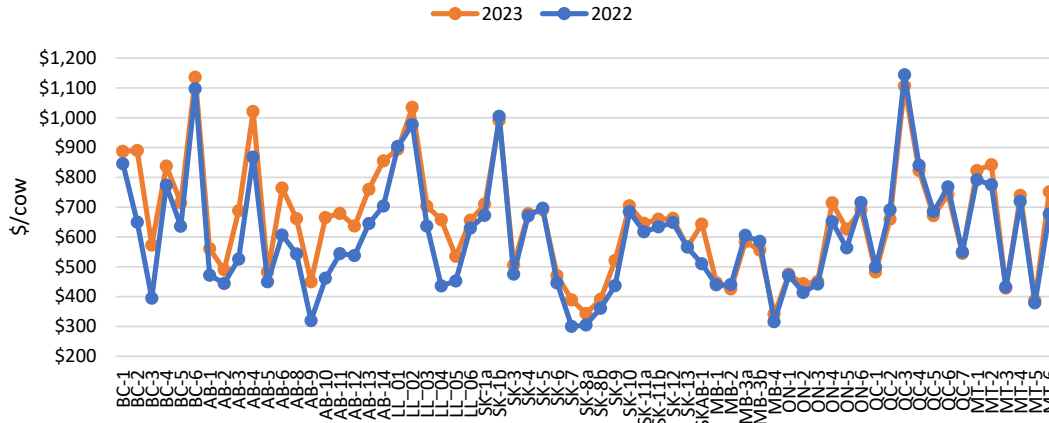
A large proportion of cow-calf producers' total cost of production is associated with winter feed costs.

The cost of purchased feed and fertilizer, seed, and pesticide for producing homegrown feed averaged \$347/cow in 2023, up 10 per cent from 2022 as expenses on purchased feed increased in the West due to drought conditions and lower yield compared to 2022, while prices of fertilizer, energy and other input prices stabilized.

When machinery cost and fuel are taken into account, the average approximate feed cost¹ is estimated at \$655/cow, up nine per cent from 2022 (Figure 9). Approximate feed cost was up 12 per cent or \$69/cow in the West and up two per cent or \$10/cow in the East. Overall, 37 per cent of the benchmark farms have approximate feed costs below \$600/cow. The approximate feed costs made up 38 per cent of total costs (cash + depreciation + opportunity costs) and 53 per cent of medium-term costs (cash costs + depreciation) in 2023.

¹ Approximation of Feed Cost is calculated as feed cost (purchase feed + fertiliser, seed and pesticides for feed production) + machinery cost (machinery maintenance + depreciation + contractor) + fuel, energy, lubricants and water.

Figure 9. Approximate feed cost per cow (\$/cow) on benchmark farms in 2023



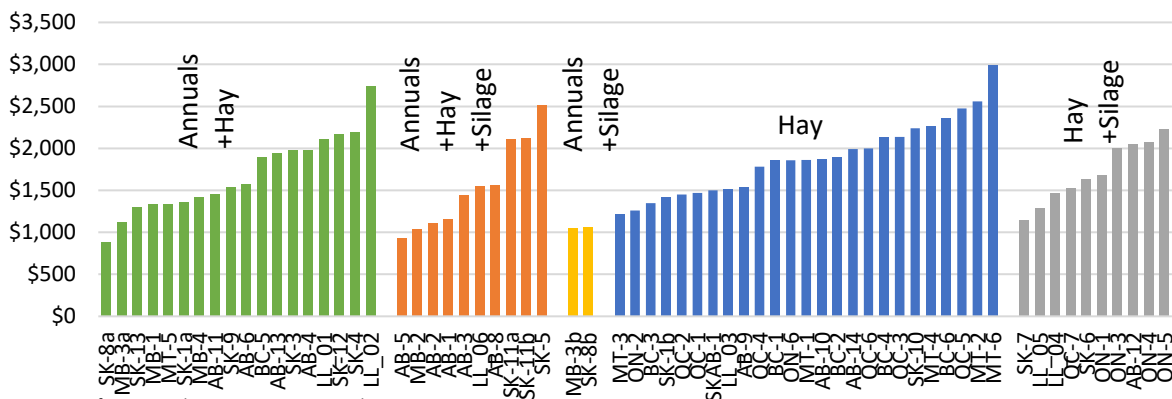
Source: Canfax Research Services, COP Network

Benchmark farms were categorized by primary forage in the winter diet. These were:

- Annuals: include greenfeed, straw, swath graze, corn graze, crop residues
- Hay: includes dry hay, haylage, grass silage
- Silage: includes oats silage, barley silage, pea silage, corn silage

Figure 10 shows the total costs per cow based on the primary feedstuff used, with a wide range of costs observed across different feed types. Farms that rely on any particular feedstuff—whether annuals with silage, annuals with hay, annuals with hay and silage, hay alone, or hay with silage—can fall into either high-cost or low-cost categories. This suggests that it is not the feedstuff itself that determines whether a farm is high or low cost, but rather how effectively the feedstuff is managed and utilized within the overall operation. Efficient management practices, rather than feed type alone, play a crucial role in controlling costs.

Figure 10. Total costs (\$/cow) by primary feedstuff on benchmark farms in 2023



Source: Canfax Research Services, COP Network

The daily feed cost is calculated by dividing approximate feed cost by the number of total winter-feeding days, based on the assumption that most of the costs for feeding and feed productions are incurred during the winter-feeding period for the majority of benchmark farms, with the exception of year-round grazing operations. Table 2 presents the estimated daily feed costs for each benchmark operation. Generally, farms with a higher proportion of purchased feed tend to have higher feed costs. It's important to note that the daily feed cost for SKAB-1, a year-round grazing operation, is likely overestimated due to its

shorter winter-feeding period. In year-round grazing operations, costs related to machinery, fuel, and land are more likely associated with grazing management. Excluding SKAB-1, average daily feed cost in 2023 was estimated at \$3.39/head/day, compared to \$3.14/head/day in 2022.

Table 2. Winter feeding systems on benchmark farms in 2023

	Winter feeding days	Daily feed cost (\$/head/day)	Primary feedstuff
BC-1	175	\$5.07	Hay
BC-2	210	\$4.24	Hay
BC-3	190	\$3.01	Hay
BC-4	195	\$4.30	Hay
BC-5	165	\$4.33	Annuals/Hay
BC-6	186	\$6.11	Hay
AB-1	250	\$2.23	Annuals/Hay/Silage
AB-2	226	\$2.13	Annuals/Hay/Silage
AB-3	234	\$2.91	Annuals/Hay/Silage
AB-4	211	\$4.81	Annuals/Hay
AB-5	235	\$2.03	Annuals/Hay/Silage
AB-6	152	\$4.99	Annuals/Hay
AB-8	238	\$2.78	Annuals/Hay/Silage
AB-9	189	\$2.38	Hay
AB-10	219	\$3.04	Hay
AB-11	212	\$3.20	Annuals/Hay
AB-12	194	\$3.28	Hay/Silage
AB-13	242	\$3.14	Annuals/Hay
AB-14	214	\$4.00	Hay
LL-01	151	\$5.92	Annuals/Hay
LL-02	222	\$4.66	Annuals/Hay
LL-03	218	\$3.23	Hay
LL-04	197	\$3.34	Hay/Silage
LL-05	200	\$2.67	Hay/Silage
LL-06	203	\$3.23	Annuals/Hay/Silage
SK-1a	222	\$3.19	Annuals/Hay
SK-1b	150	\$6.60	Hay
SK-3	180	\$2.80	Annuals/Hay
SK-4	165	\$4.10	Annuals/Hay
SK-5	200	\$3.45	Annuals/Hay/Silage
SK-6	186	\$2.52	Hay/Silage
SK-7	180	\$2.16	Hay/Silage
SK-8a	180	\$1.91	Annuals/Hay

SK-8b	155	\$2.52	Annuals/Silage
SK-9	205	\$2.54	Annuals/Hay
SK-10	134	\$5.25	Hay
SK-11a	165	\$3.91	Annuals/Hay/Silage
SK-11b	165	\$4.00	Annuals/Hay/Silage
SK-12	181	\$3.66	Annuals/Hay
SK-13	165	\$3.43	Annuals/Hay
SKAB-1	90	\$10.72*	Hay
MB-1	200	\$2.22	Annuals/Hay
MB-2	180	\$2.36	Annuals/Hay/Silage
MB-3a	210	\$2.77	Annuals/Hay
MB-3b	200	\$2.78	Annuals/Silage
MB-4	150	\$2.27	Annuals/Hay
ON-1	175	\$2.71	Hay/Silage
ON-2	180	\$2.69	Hay
ON-3	165	\$2.73	Hay/Silage
ON-4	233	\$3.07	Hay/Silage
ON-5	212	\$2.96	Hay/Silage
on-6	195	\$3.54	Hay
QC-1	200	\$2.41	Hay
QC-2	240	\$2.75	Hay
QC-3	200	\$5.53	Hay
QC-4	200	\$4.11	Hay
QC-5	227	\$2.96	Hay
QC-6	222	\$3.34	Hay
QC-7	200	\$2.72	Hay/Silage
MT-1	180	\$4.57	Hay
MT-2	220	\$3.83	Hay
MT-3	195	\$2.19	Hay
MT-4	230	\$3.22	Hay
MT-5	150	\$2.58	Annuals/Hay/Silage
MT-6	210	\$3.58	Hay

* Year-round grazing operation. Approximate daily feed cost is overestimated due to the short winter-feeding period.

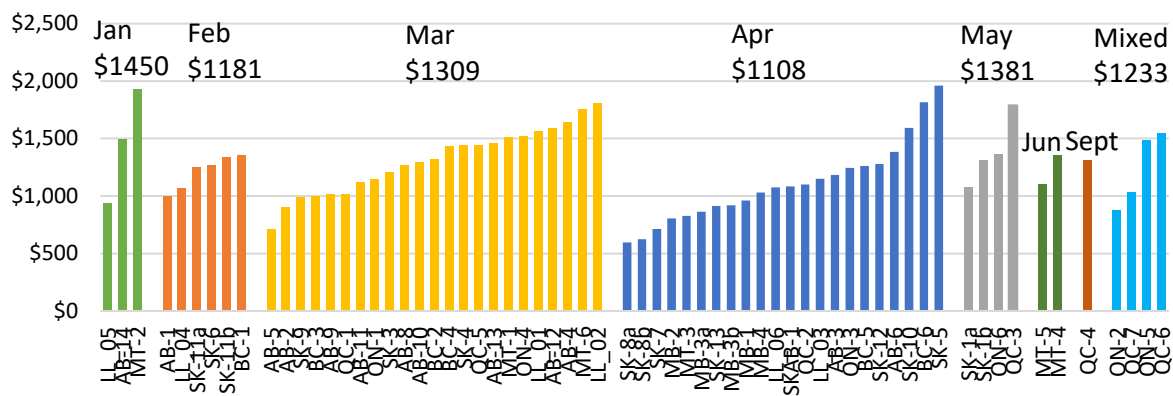
Cost by calving start month

Benchmark farms were also categorized by calving start month. The majority of benchmarks began calving in March (35%) and April (34%). Specifically, three benchmark farms started calving in January, six in February, 23 in March, 22 in April, four in May, two in June, and one in September. Additionally, four farms practiced both spring and fall calving.

Figure 11 shows medium-term costs (cash cost and depreciation) per cow, categorized by the calving start month across various benchmark farms in 2023. The majority of farms, which began calving in March and April, had average costs of \$1,309 per cow and \$1,108 per cow, respectively. Among the less represented groups, January had the highest average medium-term cost at \$1,450 per cow, followed by May at \$1,381 per cow, and February at \$1,181 per cow. Farms with mixed calving periods (spring and fall) had an average cost of \$1,233 per cow, while those starting in June and September were the least represented, with costs closer to the lower end of the range.

The averages by calving start month should be interpreted with caution as each group varies in sample size and representativeness. That said, it is important to note that there is a range of cost levels within each group. For instance, the lower end of the January calving group is comparable to the average cost in the April group, despite the January group having a higher overall average. This suggests that no particular calving start month consistently results in lower costs. Farms can be either high-cost or low-cost regardless of when they begin calving.

Figure 11. Medium-term costs (\$/cow) by calving start month on benchmark farms in 2023

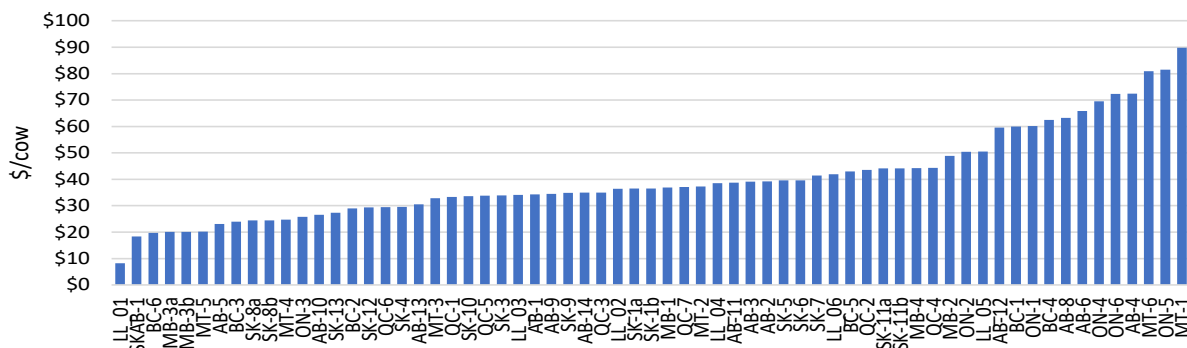


Source: Canfax Research Services, COP Network

Veterinarian service and medical costs

Veterinarian service and medical (vet & med) costs of all benchmark farms averaged at \$40/cow in 2023, with a range from \$8/cow to 90/cow (Figure 12). Two-thirds of the benchmark farms have vet & med cost between \$20/cow to 40/cow. Vet & med costs accounted for four per cent of total variable cost, with a range from one per cent to seven per cent.

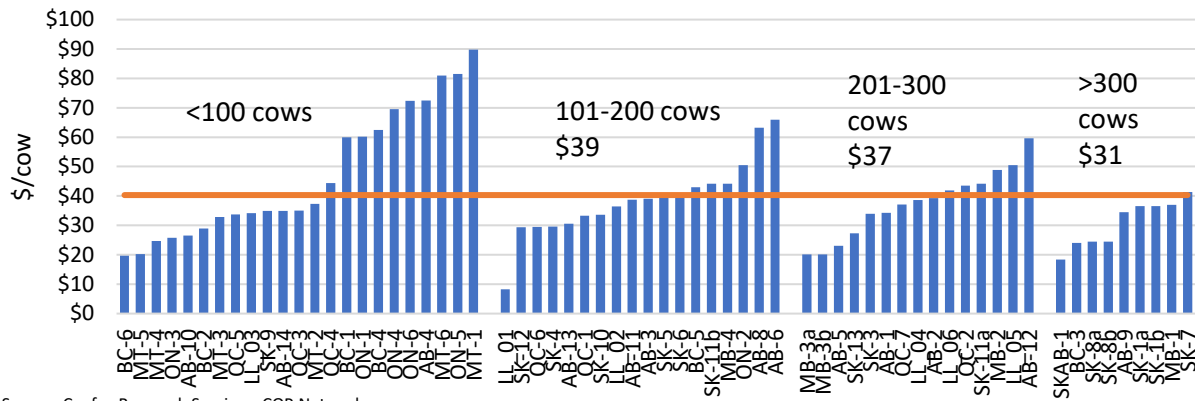
Figure 12. Vet & med cost per cow on benchmark farms in 2023



Source: Canfax Research Services, COP Network

Figure 13 illustrates the vet & med costs per cow in 2023, categorized by herd size. Smaller herds with fewer than 100 cows saw the highest average costs at \$47 per cow. As herd size increases, the cost per cow generally decreases, with herds of 101-200 cows averaging \$39, 201-300 cows at \$37, and those with more than 300 cows having the lowest average cost at \$31 per cow. This trend suggests economies of scale, where larger herds benefit from lower per-cow vet & med expenses.

Figure 13. Vet and med cost per cow by herd size on benchmark farms in 2023

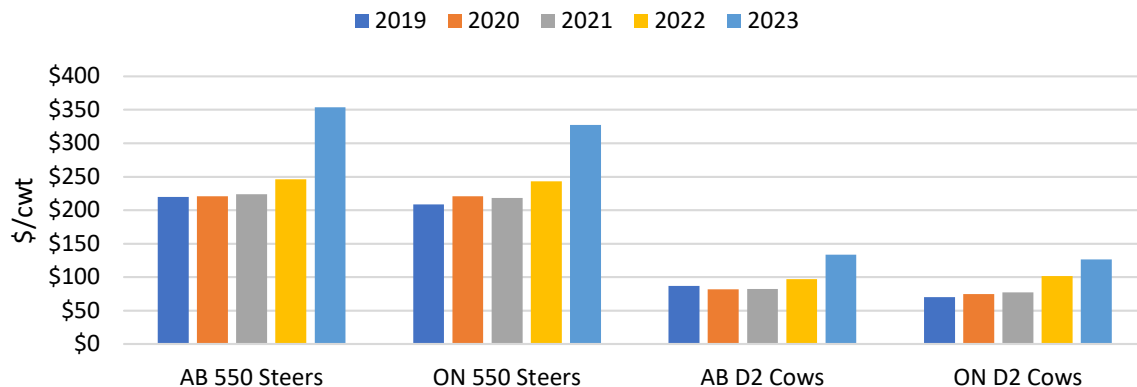


Source: Canfax Research Services, COP Network

Cow-calf revenue in 2023

In 2023, the average total revenue per cow rose sharply to \$1,795, marking a significant 33 percent increase from the previous year's \$1,348. This surge in revenue was largely driven by a sharp increase in cattle prices in 2023 (Figure 14). The rise in prices was primarily due to a record-low North American beef cow inventory at a level not seen since the 1970s, leading to tighter cattle supplies. Meanwhile, strong consumer demand in 2023 further bolstered both beef and cattle prices.

Figure 14. Annual steer calves and cow prices in Alberta and Ontario, 2019 to 2023



Source: Canfax

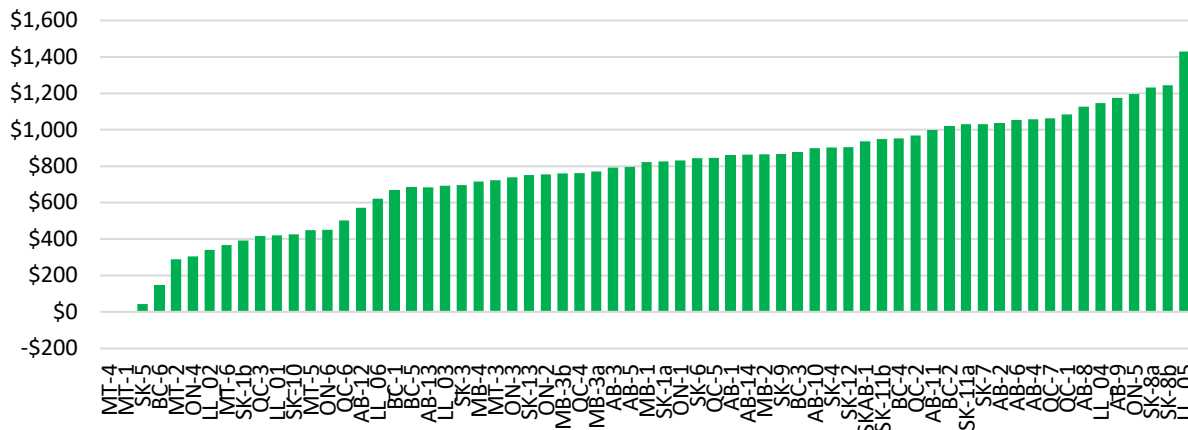
Cow-calf profitability

With revenue (+33%) growing faster than costs (+5%), profitability improved nationwide in 2023.

Nearly all benchmark farms (98%) covered short-term (cash) costs (Figure 15), and a vast majority (91%) managed to cover medium-term (cash and depreciation) costs (Figure 16). About 58 per cent of farms were able to cover long-term (cash, depreciation, and opportunity) costs (Figure 17). In comparison, in 2022, 83 per cent of farms covered short-term costs, 77 per cent covered medium-term costs, and only 29 per cent covered long-term costs.

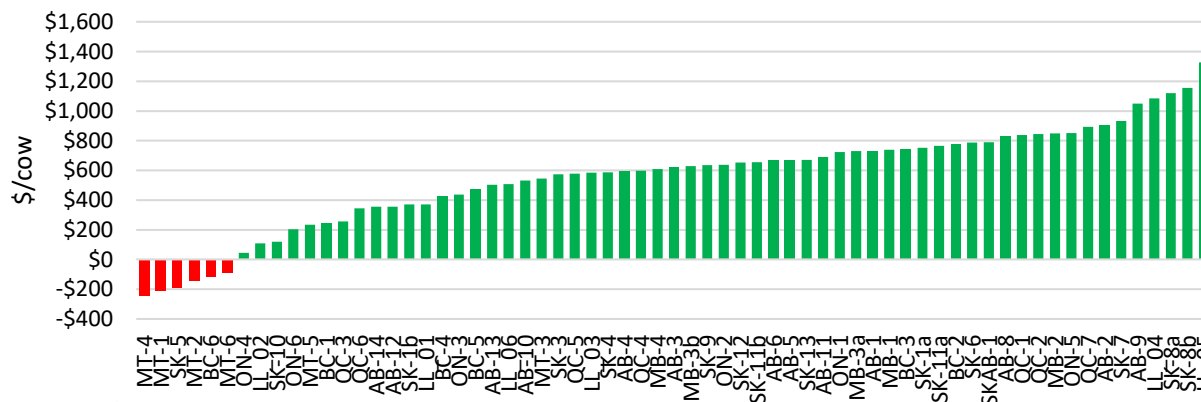
Overall, average short-term profits were up from \$357/cow in 2022 to \$764/cow in 2023, medium-term profits up \$181/cow to \$599/cow, and long-term profits were up -\$298/cow to \$71/cow. While these figures reflect a positive trend in profitability for 2023, there is significant variability between operations. Some producers may have experienced much higher profitability, while others saw less favorable results. Herd replenishment remains sluggish due to prolonged drought conditions in the West and extreme weather events that have restricted feed availability and compromised pasture conditions. Additionally, the age of producers is slowing the incentive to expand herds.

Figure 15. Short-term profits (returns less cash costs) (\$/cow) on benchmark farms in 2023



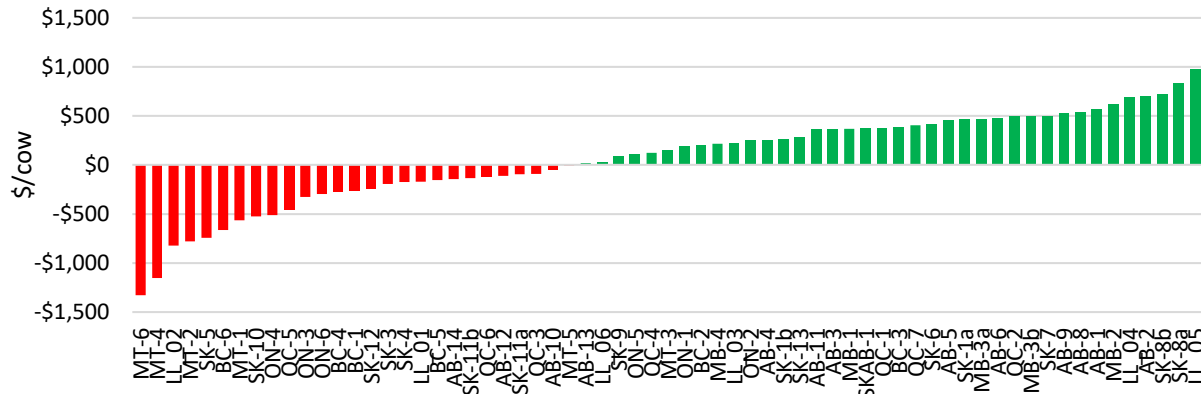
Source: Canfax Research Services, COP Network

Figure 16. Medium-term profits (returns less cash and depreciation costs) (\$/cow) on benchmark farms in 2023



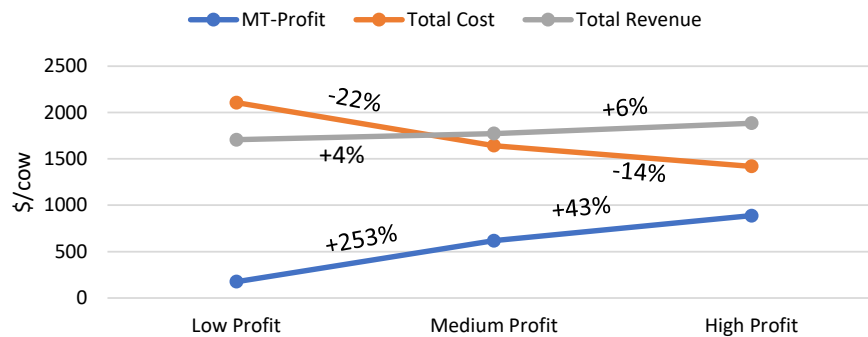
Source: Canfax Research Services, COP Network

Figure 17. Long-term profits (returns - cash, depreciation, and opportunity costs) (\$/cow) on benchmark farms in 2022



Dividing the 65 benchmark farms into three equally sized groups by medium-term profit, and comparing their total production cost, revenue and medium-term profits. As shown in Figure 18, reducing total costs by 22 per cent from the low-profit group to the medium-profit group and by 14 per cent from the medium-profit to high-profit group correlates with a significant increase in profitability, shown by a 253 per cent and 43 per cent increase in MT-Profit, respectively. Meanwhile, the total revenue sees only modest gains of four per cent and six per cent, underscoring that the substantial profit improvements are primarily driven by effective cost management. This highlights the critical role that controlling costs plays in maximizing profits, as cattle producers have less control over output prices.

Figure 18. Medium-term profit, total cost and total revenue of low, medium and high profit groups



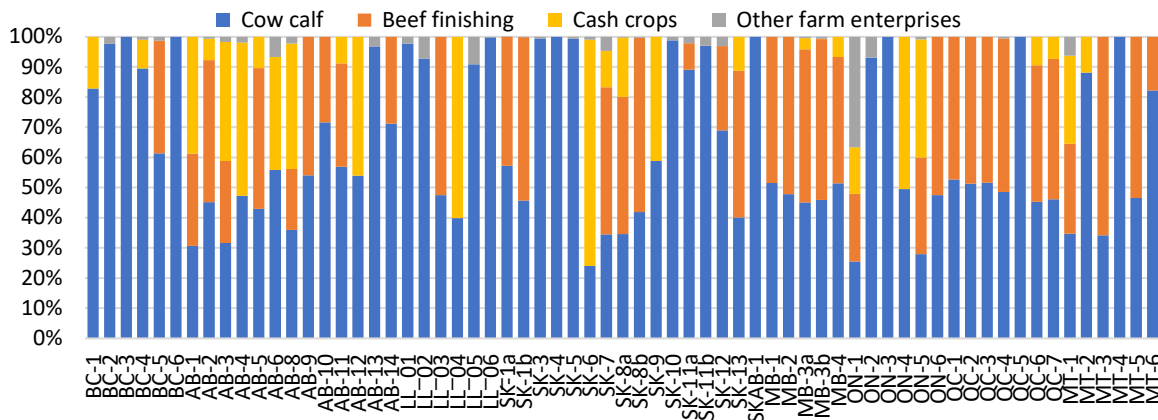
Diversification

While this report focuses on the cow-calf enterprise of the 65 benchmark farms, it is important to recognize that many of these operations are diversified with multiple enterprises. Out of the 65 farms, only eight farms rely entirely on cow-calf production. Thirty-nine farms (60%) also engage in backgrounding, 28 farms (43%) produce cash crops, and 35 farms (54%) generate additional farm income through activities like contract work or leasing (Figure 19).

Diversification serves as a risk management tool for these operations. For example, for the mixed cow-calf and cash crop operations, record-high crop prices bolstered overall farm income in 2022, before the spike in cattle prices. Conversely, in 2023, when cash crop revenue declined due to lower yields and grain prices, improved cattle revenue helped stabilize farm income. In essence, diversification enhances these

farms' resilience to market cycles, reduces reliance on a single income stream, and enables better navigation of market volatility.

Figure 19. Breakdown of farm revenue (% of total) by farm enterprise on benchmark farms in 2023



Source: Canfax Research Services, COP Network

Cattle Cycle Considerations

At the bottom of the cattle cycle, when cattle inventory is at its lowest and prices are at their peak, several key considerations come into play for optimizing profitability:

- **Leverage:** With tight cattle supply, leverage moves back to producers. This presents an opportunity for cow-calf operations to capitalize on improved margins, but it also demands careful consideration of risk management strategies.
- **Inventory Decisions:** When calf prices are at record highs, the opportunity cost of retaining heifers (forgoing revenue from not selling the heifer in the fall) is also at a record high. Decisions on whether to sell or hold cattle become strategic. Holding onto cattle in expectation of further price increases must be weighed against the risks of market downturns or increased costs.
- **Reinvestment:** Consider reinvesting profits made during this peak phase into herd rebuilding or other areas of the operation, anticipating future market downturn.
- **Diversification:** Exploring alternative revenue streams or diversifying the operation can provide a buffer against the volatility that often occurs after periods of high profitability.

References

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Statistics Canada. 2022. *Number of farms reporting beef cows and number of beef cows classified by beef cattle operation type and custom beef cow herd size, Canada and provinces, 2021.*

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