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Moving a cowherd towards optimum productivity: *2024 Productivity Benchmarks*

Operating across a wide range of environmental conditions, genetic potential and management systems, the 64 COP Network benchmarks include: seven benchmark farms in British Columbia, 19 in Alberta, 15 in Saskatchewan, one in Alberta-Saskatchewan (producers contributing to this benchmark came from both provinces in similar ecoregions), five in Manitoba, three in Ontario, one in northwest Ontario-Manitoba (again with producers contributing from both provinces), seven in Quebec, and six in the Maritimes. Almost sixty-three per cent (40 of 64) of these farms are in the Prairies, where 89% of the Canadian beef cow herd is located.

Given the diversity of operations across the country, it is not surprising to see a wide range in productivity metrics. ***But which of these metrics actually drive profitability? What is worth focusing on and what is just noise?***

We know that economies of scale is a major driver of cow-calf profitability with more of the larger herd sizes being profitable. But do these larger operations have better productivity metrics? Are producers with smaller herds able to offset this disadvantage by focusing on individual animal performance and efficiency?

What is the COP Network?

The Canadian Cow-calf Cost of Production Network (COP Network) uses standardized data collection which allows for comparison both within and between provinces, and internationally. Since launching in 2021, the COP Network has collected data from over 235 producers contributing to 64 cow-calf benchmark farms that represent various production systems. Each benchmark is based on data from 3-7 producers. Data collection occurs every 5 years with annual indexing of input and output prices, as well as crop and forage yields, in subsequent years. Individual benchmark farm summaries can be found at: https://canfax.ca/resources/cost-of-production/cop-results.html

The average herd size in the COP Network is 202 beef cows, with a range from 24 to 950. There are more small and medium-sized farms with 28% having fewer than 100 cows, 28% managing between 100 to 200 cows, 30% with 200 to 300 cows, while only 14% 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% of cow-calf operations have less than 250 beef cows.

Benchmarks by Herd Size

Productivity metrics were statistically different between the less than 200 cow herds and more than 200 cows for six metrics: cow

"It ain't what you know; but what you know that ain't so" ~ *Mark Twain*

to bull ratio, mature cow weight, calves alive after 24 hours per 100 cows exposed, calves weaned per 100 cows exposed, total live weight sold per cow, and weaning weight. However, the cow to bull ratio is the only metric that was higher for the larger herds, reported at 25:1. All the other five metrics were lower for the herds with more than 200 head indicating that larger herd size management was more focused on optimizing productivity, rather than maximizing productivity which can come at a higher cost.

Optimizing productivity is about efficient allocation and use of resources, recognizing trade-offs. It may be cost effective to move conception rates from 85% to 90%, but not to take them to 95%. Diminishing returns recognize that moving productivity incrementally higher can come at a different cost than the first incremental move. This means choices around things like mature cow weight will be more about matching the animals to the forage resources in your region rather than achieving a specific weight.

"Finding a balance between biggest and best: moving a cowherd toward optimum productivity."

~ Aaron Berger, Nebraska Extension Educator

Productivity Metrics by herd size	Total AVG	<200 cows	>=200 cows	Significance
Cow:Bull Ratio	24	23	25	**
Bull Culling Rate	20%	21%	19%	
Mature Cow Wt (lb)	1,358	1,376	1,336	**
Heifer Retention Rate	12%	12%	13%	
Cow Death Loss	1%	1%	1%	
Cow Culling Rate	11%	10%	11%	
Calves Alive After 24H/100 Cows Exposed	91	92	90	**
Calf Death Loss 24H to Wean	4%	3%	4%	
Calves Weaned/100 Cows Exposed	88	89	87	**
Total Live Wt sold/cow (lb)	600	619	576	**
Weaning Weight (WW) (lb)	559	575	539	**
205 d Adj. WW (lb)	547	552	541	
ADG Pre-weaning (lb/day)	2	2	2	
WW as % of Cow Wt	41%	42%	40%	
205-day WW as % of Cow Wt	40%	40%	41%	

*Significant at 10% level; ** Significant at 5% level

In 1988, Dr. Rick Bourdon wrote a paper titled "Bovine Nirvana – From the Perspective of a Modeler and Purebred Breeder" where he presented the case that genetic selection should be toward the optimum for what a set of resources or environment could support. Dr. Bourdon stated, "to breed for optimum means to have a target insight beyond which you don't want to go. If your goal is to maintain an optimum level for any trait, the evidence of your accomplishment is not visible change, but lack of it." Identifying a window of optimum given a set of resources and then selecting cattle that hit the optimum target is the goal.

"Profitable cattle are usually productive, but productive cattle are not always profitable."

~ Dr. Bob Taylor, Colorado State University

Remember that benchmarks are **NOT** based on who is the **most productive**. Benchmarks **ARE** based on who is the **most profitable**. Therefore, benchmarks come from the **Top 3rd** performing farms not the average.

Benchmark farms with less than 200 head and those with more than 200 head were split into separate groups. Within each of these two groups a top third performing group was created.

Less than 200 Beef Cows

For herds with less than 200 beef cows, the top-third based on profitability did not have any performance metrics that where statistically significantly different from the bottom two-thirds.

Productivity Metrics <200 cows	Total AVG	Bottom 2/3	Top 1/3	Significance
Cow:Bull Ratio	23	23	22	
Bull Culling Rate	21%	23%	19%	
Mature Cow Wt (lb)	1,376	1,371	1,386	
Heifer Retention Rate	12%	12%	11%	
Cow Death Loss	1%	2%	1%	
Cow Culling Rate	10%	11%	10%	
Calves Alive After 24H/100 Exposed	92	92	93	
Calf Death Loss 24H to Wean	3%	3%	3%	
Calves Weaned/100 cows Exposed	89	89	90	
Total Live Wt sold/cow (lb)	619	613	631	
Weaning Weight (WW) (lb)	575	569	587	
205 d Adj. WW (lb)	552	546	563	
ADG Pre-weaning (lb/day)	2	2	2	
WW as % of Cow Wt	42%	42%	42%	
205-day WW as % of Cow Wt	40%	40%	41%	

*Significant at 10% level; ** Significant at 5% level

More than 200 Beef Cows

For herds with more than 200 beef cows, the top-third based on profitability only had two metrics that were statistically different than the bottom two-thirds: calf death loss from 24 hours old to weaning at 2% and number of calves weaned per 100 cows exposed at 89.

Productivity Metrics >200 cows	Total AVG	Bottom 2/3	Top 1/3	Significance
Cow:Bull Ratio	25	25	24	
Bull Culling Rate	19%	21%	14%	
Mature Cow Wt (lb)	1,336	1,336	1,335	
Heifer Retention Rate	13%	13%	14%	
Cow Death Loss	1%	1%	2%	
Cow Culling Rate	11%	11%	12%	
Calves Alive After 24H/100 Exposed	90	90	91	
Calf Death Loss 24H to Wean	4%	5%	2%	**
Calves Weaned/100 Cows Exposed	87	85	89	*
Total Live Wt sold/cow (lb)	576	564	603	
Weaning Weight (WW) (lb)	539	538	541	
205 d Adj. WW (lb)	541	543	537	
ADG Pre-weaning (lb)	2	2	2	
WW as % of Cow Wt	40%	40%	40%	
205-day WW as % of Cow Wt	41%	41%	40%	

*Significant at 10% level; ** Significant at 5% level

What is worth focusing on?

Smaller herds, focused on individual animal performance, may benefit from a greater emphasis on cutting costs. Even if it comes with slightly reduced productivity, these actions can move the operation towards a more optimal allocation of resources.

Larger operations appear to tend to sacrifice conception rate and calf death loss to weaning, potentially in an effort to control costs. The top-third most profitable farms made investments into these two areas that paid off. Making strategic and measured investments into these areas could support profitability.

Key Takeaway's:

1. Compare your farm metrics with industry's top-third benchmarks
2. Identify if you are over or under the optimal
3. Adjust your focus to include cost control or strategic investments
4. Continually monitor and adjust

Finding optimal can be difficult, as it usually means going a step too far, before coming back to the 'sweet spot'. Continual monitoring and adjustment are needed. Comparing your farm's metrics to industry benchmarks can help identify if you are over or under the optimal presented by the top-third performing farms.