



Top 1% herds: What sets them apart from the rest?

- April 26, 2021

The [Herd Management Score \(HMS\)](#) is calculated yearly by Lactanet. This scoring system compares all Canadian herds according to six herd performance related management criteria, ranking them from first to last for each of the individual criteria and assigning an overall score to each farm.



The herds that are designated as the top 1% of Canadian producers are part of an elite list, a reflection of their unrelenting hard work. How do they do it? How do they climb to the pinnacle of elite herds on a national level?

Who are the Top 1% Herds?

We have collected some data to depict a clearer picture of these elite herds, to help you to better understand the herd management scoring system and the scores that these farms have achieved. The herds in the statistics below are conventionally managed and made up mostly of Holstein cows, for comparison purposes. There are 57 herds, 2 from Alberta, 29 from Ontario, 24 from Quebec, 1 from P.E.I. and 1 from Nova Scotia. They are of variable size, between 32 and 545 cows, and distributed fairly evenly among the various milking systems. The total HM scores themselves vary between 909 and 986.

Data	Average	Min	Max
------	---------	-----	-----

Number of Herds	57	-	-
Total Herd Management Score (HMS)	936	909	986
Number of Cows	148	32	545
LPI	2,598	2,444	2,864
Pro\$	850	302	1,691

Milking System	Number
Milking Parlour	21
Robot	17
Tie Stall	19

Milking Frequency	Number
Twice per day	26
Three times per day	14

Milk Value – 500 points

The first criteria considered in calculating HMS is milk value, which is the average monetary value for the milk components for the actual production of all of the cows in the herd, according to the actual values for milk and components. The average milk value is \$9,726/cow/year and varied between \$8,949 and \$11,326 /cow/year for the 57 Top 1% Herds in 2020.

In concrete terms, these farms produce an average of 40.2 kg/cow/day of milk at 4.06% fat and 3.31% protein. The daily component production is 1.63 kg of fat and 1.33 kg of protein/cow/day. The 305-day production is 12,582 kg/cow, and varies between 11,185 kg and 14,446 kg/cow. As for the components, the annual production of fat and protein falls between 474 and 595 kg per cow per year for fat, and between 373 kg and 512 kg per cow per year for protein.

On average, the peak lactation for Top 1% herds falls at 49 days and 49.6 kg of milk/cow/day, and one herd even surpassed 57 kg/day.

Data	Top 1% Herds		
	Average	Min	Max
Monetary Value of Milk (\$/cow/year)	9,726	8,949	11,326
Annual Production (kg/cow/year)			
Milk	12,823	11,183	15,428
Fat	520	474	595
Protein	424	373	512
305-Day Production (kg/cow)			
Milk	12,582	11,185	14,446
Fat	506	449	573
Protein	413	367	475
Test Day Production			
Milk (kg)	40.2	35.7	47.9

Fat (%)	4.06	3.81	4.70
Fat (kg/day)	1.63	1.45	1.85
Protein (%)	3.31	3.08	3.53
Protein (kg/day)	1.33	1.19	1.59
Peak Lactation			
Average Days in Milk at Peak	49	40	60
Peak Milk Production (kg/cow/day)	49.6	43.6	57.1

Udder Health – 150 points

The second criterion considered in the HMS calculation is udder health, calculated as an average of the somatic cell count (SCC) value over the course of the year. The annual SCC of these herds varied between 44 and 164 with an average of 103. On average, in these elite herds, 7.5% of cows present with an infection ($\geq 200,000$) at the first milk recording, and 10.6% of cows above 200,000 at second milk recording or more.

Data	Top 1% Herds		
	Average	Min	Max
Annual SCC Average (000's/ml)	103	44	164
Average Linear Score	1.7	1.0	2.4
Percentage of Cows with Infection at 1 st Milk Recording (%)	7.5	0.0	19.0
Percentage of Cows with Infection at 2 nd Milk Recording or More (%)	10.6	2.0	26.0

Age at First Calving – 100 points

The third criterion considered is the average age at first calving (in months) of all of the heifers in the herd for which the birth and calving dates are known, and that began their first lactation in the last 12 months. In 2020, the 57 Top 1% herds had an average age at first calving of between 21.7 and 24.3 months for an average of 23 months. Most of these farms, however, had an age at first calving between 22.7 months and 23.7 months; only five of the 57 farms had an age at first calving of 24 months or more. Although the average age at first calving is the parameter used to calculate the HMS, the optimal management of replacement animals also involves rigorous monitoring of the age distribution among the herd's primiparous animals at first calving, and optimal growth throughout the heifer-raising period.

Data	Top 1% Herds		
	Average	Min	Max
Age at First Calving (months)	23.0	21.7	24.3

Herd Efficiency – 100 points

Herd efficiency is the average yearly percentage of cows in the herd that are in lactation (not dry) on test day. For this criterion, we are looking for an optimal measurement, where results at the extremes (low or high) are not desirable, signifying a dry off which is either too short or too long neither of which is optimal. The 57 Top 1% herds in 2020 had an average of 87% of their cows in lactation and an average dry period length of 59 days. However, 47 of the 57 herds had a dry period length that was

between 47 and 62 days. As with age at first calving, good management implies validation of the distribution of length of dry period within a herd, not only monitoring the farm average.

Data	Top 1% Herds		
	Average	Min	Max
Percentage of Cows in Lactation (%)	87	85	91
Average Length of Dry Period (days)	59	47	86

Longevity – 100 points

The fifth criterion considered is longevity, defined as the average yearly percentage of cows in the herd that are in their third lactation or more on test day. The demographics of the farms included are as follows: on average 32.4% of cows in first lactation, 23.7% of cows in second lactation and 45.9% of cows in third lactation or more.

Data	Top 1% Herds		
	Average	Min	Max
Percentage of Cows in First Lactation (%)	32.4	23.5	49.0
Percentage of Cows in Second Lactation (%)	23.7	14.5	36.7
Percentage of Cows in Third Lactation and More (%)	45.9	36.8	63.1

Calving Interval – 50 points

Finally, the last criterion considered in calculating HMS is calving interval, calculated for the cows in their second lactation that have calved in the last year. The 57 Top 1% herds in 2020 had an average calving interval of 388 days that varied between 370 and 406 days. To maintain this average, these herds had an average DIM at First breeding of 74 days and a number of days open of 108 days; which allowed them to maintain a herd average DIM of 161 days, and for some farms, as low as 143 days.

Data	Top 1% Herds		
	Average	Min	Max
Average Calving Interval (days)	388	370	406
DIM at First Breeding (days)	74	59	98
Average Number of Days Open (days)	108	90	126
Herd Average Days in Milk (days)	161	143	183

Things to remember...

Although they are located in different provinces, with different milking systems, and with particular regional feeding differences, the 57 Top 1% herds presented here are representative of our Canadian producers as a whole. So, what makes them different? Rigorous and meticulous work every day and attention to detail that helps them to develop optimal management strategies that are specifically adapted to their situation, and their cows. There are many ways to reach optimal performance, but all of them require passion and consistency.

By Josiane Prince

Innovation & Development Intern



By Débora Santschi agr., Ph. D.



By Richard Cantin