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Quebec-Atlantic

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Increase your calves' chance of survival

As in the United States, calf mortality in Quebec is a significant problem. Nonetheless, there are rearing practices that can improve your calves' chance of survival.

A comparative study conducted by our group of researchers revealed that the mortality rate among young calves is close to nine per cent in Quebec, compared to only three per cent in Germany and Austria. That means that nearly 27,000 of the 300,000 heifers born each year in Quebec (Canadian Dairy Commission, 2006) will die before they are weaned. Although the Quebec data approaches the mortality rate in the United States (eight per cent according to the USDA), the results suggest that it is possible to reduce the calf mortality rate in Quebec herds. It is important to note that the nine per cent rate in Quebec only takes into account mortality at birth and during the first week of life, for both males and females, whereas the three per cent in Germany and Austria covers the entire period up to weaning, for females only, including mortality at birth. In Quebec, with no records, it is difficult to estimate the mortality rate for females alone for the entire pre-weaning period. In Germany and Austria, mortality data were collected directly from farm records whenever they were available.

Our results also showed that Quebec producers tend to underestimate calf mortality on their farms. While producers estimate that, on average, six per cent of female calves die at birth and during the first week of life, the average mortality rate reported by Valacta for males and females on these same farms is nine per cent. Is the three per cent difference between the database rates and the estimates attributable to the mortality rate among male calves? That would mean that two thirds of neonatal mortality would apply to females while the remaining third would apply to male calves. Once again, in the absence of records it is difficult to come to a conclusion on this point. It is important to bear in mind that record keeping provides concrete facts about a farm's situation; farmers can thus be more realistic and proactive in looking for possible ways to increase the survival of their calves.

Our approach

To conduct this study, we met with owners of dairy herds in Quebec, Germany and Austria. The visits enabled us to take a census of pre-weaning calf mortality rates in addition to holding a one-hour interview with each of the producers to discuss their management practices in connection with comfort and health. The questionnaire covered seven key elements: calving management and newborn care, colostrum management, calf-dam separation, painful procedures, calf feeding, weaning, and calf housing (see Table 2 and 3).

This exercise enabled us to identify problems in the management of newborn calves and to find solutions aimed at reducing the mortality rate among Canadian calves. The main solutions are presented here.

Record-keeping

Keeping records to monitor calf management and health is an extremely useful tool for detecting rearing problems. Over the months, records make it easier to identify the sources of calf-rearing problems and focus on finding solutions. A producer's efforts are rewarded when the farm has collected enough data to be able to analyse trends and compare its performance with that of other farms. At the moment, there is little data compiled on Quebec farms, but farm management software, such as DSA, facilitates on-farm data collection. This software is one of the bases of the Lac-T software that is used to enter data on the health and growth of replacement animals. Detecting health or growth problems is a good opportunity for farmers to examine management practices and housing arrangements as well as animal comfort. Record keeping also helps validate the effectiveness of improvements made on the farm.

Many of the management practices that could improve the comfort, health and survival of calves in Quebec herds are used in German and Austrian herds.

Calving pens

The use of calving pens is recommended, as opposed to tie-stalls, to ensure the comfort of both the cow and the calf during calving. Indeed, a cow that can move freely is able to stimulate and dry her calf, whereas a calf born in a tie-stall risks falling into the gutter and receiving no stimulation unless the producer intervenes. Moreover, the practice of using calving pens to house sick animals is only acceptable if the pen is disinfected after each use.

Frequency of visits

It is recommended that cows in the calving areas be checked every four hours to detect any problems and to ensure that newborn calves receive colostrum within two to four hours of birth.

Colostrum

Calves must be fed four litres of high-quality colostrum within the first two hours after birth to be able to absorb adequate amounts of the immunoglobulins required to ensure proper development of their immunity. It is recommended that colostrum be bottle-fed, but in difficult cases feeding with an oesophageal tube is the acceptable alternative. It is also recommended that producers keep a reserve supply of colostrum in the freezer and test the quality of colostrum stocks beforehand with a colostrometer. This practice ensures that a calf born between two milkings will not have to wait until the next milking to receive colostrum. It is important to note that colostrum has a higher nutrient content than milk and constitutes an excellent form of sustenance that should be provided to calves for as long as possible.

To avoid transmitting pathogens and inducing antibiotic resistance, unpasteurized waste milk should not be fed to young calves. The recommended milk delivery methods are bottle feeding and, better still, the use of a feeder, whether automated or manual (see photo). The calf has access to a nipple and so can choose to drink smaller quantities more often during the day, which leads to greater milk intake and hence promotes calf growth and good health. It is recommended that calves have unrestricted access to milk and that they consume at least eight litres of milk per day.

Calves must have unlimited access to water from the second day after birth; concentrates, as of the seventh day. If hay is provided, it must be of excellent quality.

Weaning

Weaning should not begin before six weeks of age and calves should be weaned gradually over a 10-day period.

Following this study, Vasseur and her colleagues (2001) developed a tool to evaluate calf and replacement heifer management, entitled Evaluate your Rearing Strategies. This tool enables producers, with the help of their dairy advisors, to evaluate the characteristics of the rearing environment and the calf and heifer management strategies used on their farms. The electronic version of this tool is available in English on the CRAQQ Web site, at the following address: http://www.agrireseau.qc.ca/bovinslaitiers/documents/Evaluate%20your%20Rearing%20Strategies.pdf. Valacta has launched a joint service offer based on this evaluation tool.

By ELSA VASSEUR, Visiting Research Scientist – Behaviour and Welfare of Dairy Cattle, Pacific Agri-Food Research Centre, AAFC, and STEVE ADAM, Dairy Production Expert – Comfort, Behaviour and Well-Being, R&D, Valacta, in collaboration with Jeff Rushen and Anne-Marie de Passillé, Agri-Food Research Centre, AAFC, Doris Pellerin, Université Laval, Christoph Winckler, University of Natural Resources and Life Sciences (BOKU), Austria, Joop Lensink, Institut supérieur d'agriculture, France, and Ute Knierim, University of Kassel, Germany.

Table 3: Rearing practices that differ significantly between Quebec and Germany and Austria, (mean value)

Rearing practices	Quebec (mean)	Germany and Austria (mean)
Number of daytime surveillance visits to the calving area	3.6	4.3
Duration of colostrum feeding	3.0	6.3
Quantity of milk (litres) fed per day during the first week of milk feeding	4.6	5.7
Quantity of milk (litres) fed per day between the first week and the last week of milk feeding	6.6	7.0
Quantity of milk (litres) fed per day during the last week of milk	3.1	3.8
Age at water access, in days	5.2	17.6
Age at concentrate access, in days	11.5	14.8
Age at hay access, in weeks	3.8	9.9
Age at weaning, in weeks	7.2	10.8
Weight at weaning, in kg	88.1	116.3
Concentrate intake at weaning, in kg	2.0	1.2

Table 1: Main characteristics of the herds surveyed (mean ± standard deviation)

	Quebec	Germany	Austria
Number of herds surveyed	118	30	30
Average herd size (number of cows)	52.3 ± 20.9	43.2 ± 23.0	36.0 ± 26.7
Average milk yield (kg/cow/year)	8697 ± 1153	8698 ± 856	Data unavailable
Main breed	Holstein	Holstein - Friesian	Simmental

Table 2: Rearing practices that differ significantly between Quebec and Germany and Austria, (percentage)

Rearing practices	Description	Quebec (% of herds)	Germany & Austria (% of herds)
Type of calving area	Regular stall	50.0	21.4
	Individual calving pen	49.4	78.4
Use of calving pen to house sick animals	Sometimes	58.2	87.5
	Never	41.8	12.2
Conventional method of colostrum feeding	Bottle	86.7	92.5
	Bucket or oesophageal tube feeder	13.3	7.5
Colostrum supply	Yes	28.7	70.2
	No	71.3	29.8
Timing of calf-dam separation	Less than 6 hours after birth	46.8	70.7
	More than 6 hours after	53.2	29.3
Use of unpasteurised waste milk for calves	Yes	47.4	72.3
	No	52.6	27.7

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