



Synergy for better hoof health management

André Desrochers

DVM, professor, Faculty of Veterinary Medicine, University of Montreal; René Lacroix, Eng., Analyst – Data Value, Valacta; and Anne-Marie Christen, M.Sc., Project Manager, Valacta

A first in Canada! For the past year now, 24 hoof trimmers in Quebec have been contributing to the national dairy herd improvement (DHI) databank by transferring data on hoof lesions. Thanks to their involvement and to the support from Quebec dairy industry partners, vast quantities of information on hoof problems are being compiled for future genetic and genomic evaluations and for health management improvement in our herds.

As of April 1, 2016, close to 250 producers have agreed to share their data on herd hoof lesions with the DHI databank. Their common link? They are all clients of one of the 24 hoof trimmers equipped with a rugged computer and a computerized data input system designed to collect information on cows, hooves, lesions and their severity. Using an interface and the Internet, participating hoof trimmers download the herd inventory from the milk recording database. Once the hoof trimming has been done and the data entered in the program, the hoof trimmers send all the information back to the central databank. As outlined in Figure 1, the Canadian Dairy Network will take on the task of analyzing the data and eventually publishing genetic indexes for hoof health.

Figure 1 Flow of hoof trimming data among dairy industry stakeholders in Canada



Next steps

Over the course of 2016, hoof trimmers in the other provinces who are equipped with the same type of computer system will join the effort to collect sufficient data to publish genetic and genomic evaluations for this new trait. A new management report for hoof health will also be developed, making it possible to correlate hoof lesions with a variety of milk recording data for better prevention and monitoring of foot and leg problems.

Currently in Quebec...

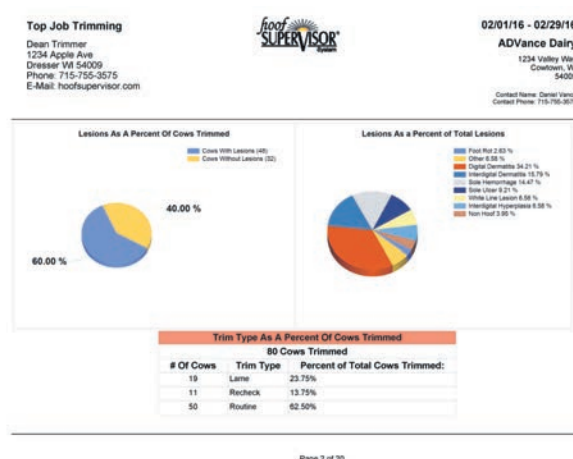
Once the trimming has been done, hoof trimmers give producers a report detailing the lesions observed on each cow and in the herd as a whole. The hoof supervisor reports are a great management tool as they can be personalized according to various criteria, depending

on the producer's preference (e.g. by days in milk, by month, by lactation or annually). Examples of these reports can be seen in Figures 2 and 3. From one visit to the next, producers are thus able to monitor the health status of their herds, identify any recurring problems, and measure the effectiveness of any treatments and/or changes in barn management. Most importantly, producers are able to use the report as a tool to facilitate dialogue between their veterinarian, their advisors and their hoof trimmer. Together they will be able to use the information on hoof lesions to develop an action plan to implement preventive measures and appropriate care and determine which products to use when required.

Figure 2

Cow	Type	Hoof	Claw	Zone	Lesion	Severity	Action	DIM	Lact	Recheck
504 (24/2016)	Lane	LR	4	(9)	Sole Hemorrhage	1	Block	59	1	3/19/2016
508 (24/2016)	Route	LR						59	1	3/19/2016
508 (24/2016)	Route	RR						138	6	4/29/2016
554 (24/2016)	Lane	LR	0	(1)	Interdigital Dermatitis	2	Treatment	88	5	3/5/2016
554 (24/2016)	Lane	RR	0	(0)	Other	1		88	5	3/5/2016
554 (24/2016)	Lane	RR	4	(3)	Sole Ulcer	1		88	5	3/5/2016
554 (24/2016)	Lane	RR						88	5	3/5/2016
5806 (21/10/2016)	Recheck	RR						40	5	
8154 (24/2016)	Route	LR						150	4	
8154 (24/2016)	Route	RR						150	4	
8228 (21/10/2016)	Recheck	LR	0	(1)	Interdigital Dermatitis	1	Wipe	247	4	
8228 (21/10/2016)	Recheck	RR	0	(1)	Interdigital Dermatitis	1	Wipe	247	4	

Figure 3

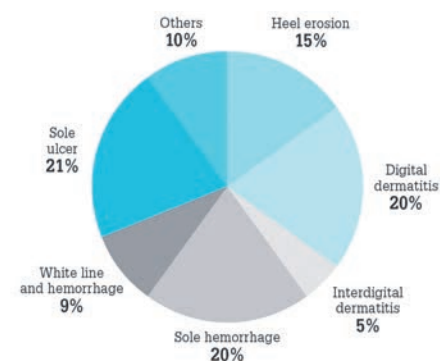


Interesting statistics!

Thanks to producers and hoof trimmers working together, 32,000 observations on nearly 16,000 cows from 246 herds have been collected since June 2015. Preliminary analyses indicate a total of 13,425 lesions on 5,200 cows in 232 herds. Notably, a third of the cows have at least one hoof lesion and only 14 of the herds are lesion-free!

Figure 4 shows the three most commonly observed lesions: sole ulcers, sole hemorrhages and digital dermatitis. Heel erosion follows closely and is more frequently encountered in the tie-stall herds that are predominant in Quebec. Heel erosion has long been associated with interdigital dermatitis, but the relationship has yet to be proven.

Figure 4 Distribution by lesion type among participating herds



Distribution of lesions by milking system

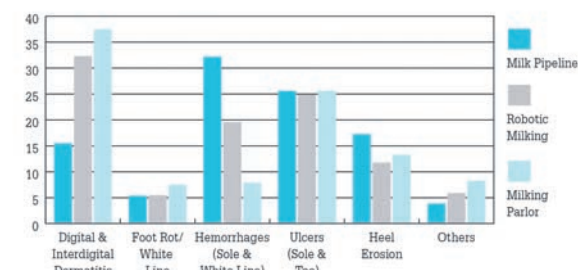
The lesions were then distributed by milking system, which is linked to the type of housing, with milk pipelines associated with tie stalls and robotic milking and milking parlour systems associated with free-stall housing.

Figure 5 Distribution by lesion type among participating herds

TABLE 1. OVERVIEW OF THE PRELIMINARY DATA ON LESIONS BASED ON THE MILKING SYSTEM

MILKING SYSTEM	NUMBER OF HERDS	AVERAGE NUMBER OF COWS PER HERD	NUMBER OF COWS WITH LESIONS	% OF COWS WITH LESIONS
Milk pipeline	186	62	18	30
Robotic milking	19	79	30	40
Milking parlour	18	147	61	46

Figure 5 below is extremely interesting and highlights a number of unexpected results that will need to be explained over the coming months. Unsurprisingly, the incidence of infectious disease is higher in free-stall herds (primarily digital dermatitis). On the other hand, hemorrhages and heel erosion occur far more frequently in tie-stall herds. The incidence of sole and toe ulcers seems to be more or less the same, regardless of the milking systems. It is clear that other factors (bedding, production, barn management, etc.) will need to be analyzed in order to fully understand these differences, which underlines the advantage of bringing together all of the information pertaining to milk production, housing conditions and breeding environment.



This project received financial assistance from Agriculture and Agri-Food Canada as well as funding and support from the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ). This funding was granted under the Program to support sectoral development strategies, a direct follow-up to the Dairy Research Cluster 2 Initiative: Improving Hoof Health in Canadian Dairy Herds.