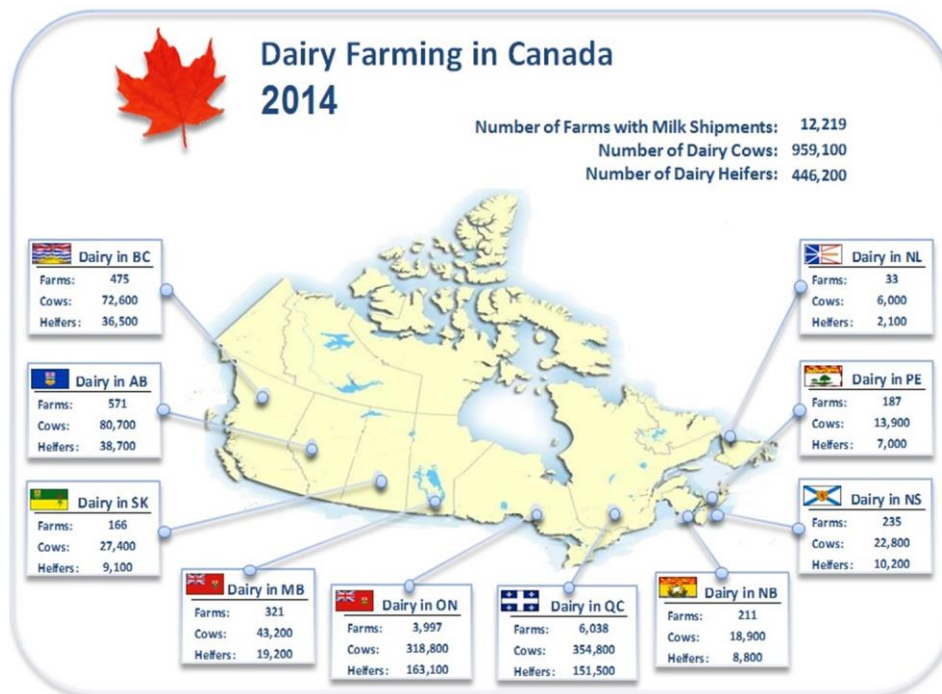




Improving Hoof Health in Canadian Dairy Herds

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Canada's Dairy Industry at a Glance

Total net farm receipts	\$5.9 billion
Milk production	79.5 million hl
Organic milk production	94 million litres
Largest processors	Saputo, Agropur & Parmalat
Number of plants	480 dairy plants
Net exports (Bovine embryos, semen and live dairy cattle)	\$110.3 million

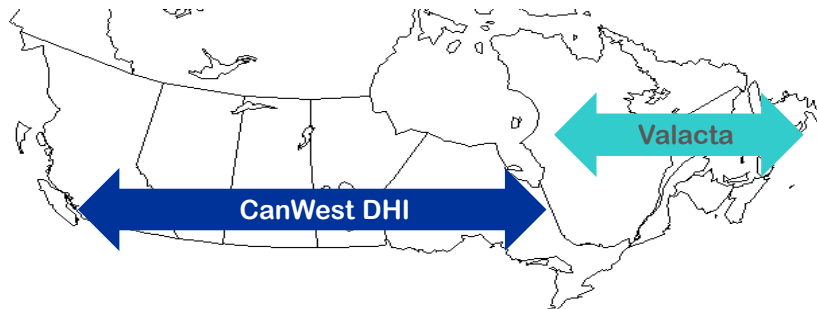


Canada's Dairy Industry at a Glance

- ❖ **Average Milk Production**
 - 9,780 kg (305 days)
 - 3.85 % fat & 3.22% protein
- ❖ **Breeds**
 - 94% Holstein
 - Others: Ayrshire, Brown Swiss, Canadienne, Jersey, Guernsey & Milking Shorthorn
- ❖ **Dairy Barns (2012)**
 - 73.5% Tie-stall
 - 23.4 % Free-stall
 - 3% Robotic system



DHI Agencies CanWest DHI – Valacta



Enrollment on Milk Recording in Canada

Total: 9,273 Herds (76%) / 698,686 cows (73%)

CanWest DHI: 4,052 Herds / 378,375 cows

Valacta: 5,221 Herds / 320,311 cows



Improving Hoof Health in Canadian Dairy Herds

- ❖ **Duration: 2014-2018**
- ❖ **Funded under the Dairy Research Cluster 2**
 - Agriculture and Agri-Food Canada
 - Dairy Farmers of Canada
 - Canadian Dairy Network
 - Canadian Dairy Commission
- ❖ **Collaborators**
 - Dr. Flavio Schenkel, CGIL, University of Guelph
 - Dr. David Kelton, OVC, University of Guelph
 - Dr. Dan Weary, University of British Columbia
 - Dr. Daniel Lefebvre, Valacta



Objectives

- ❖ Improve the hoof health of Canadian dairy cattle by genetic and management tools
 - Standardize the data collected by hoof trimmers across Canada
 - Initiate routine data flow from hoof trimmers to Canadian Dairy Herd Improvement databank (CDHI) and from CDHI to Canadian Dairy Network

Hoof Trimmers → CDHI → CDN → Genetic Evaluation



Objectives

- ❖ Genetic analysis of hoof health (HH)
 - Estimation of genetic parameters for HH traits
 - Genetic relationship with economically important traits
 - Identification of most efficient traits for selection
 - Estimation of breeding values for HH traits
 - Development of a sub-index for HH
 - Development of a routine genetic evaluation



Objectives

- ❖ Genomic analysis of hoof health
 - Cohort of potentially 10,000 cows with milk production data genotyped with 50k panel
 - Identify most promising genetic markers
 - Development of preliminary genomic evaluations
- ❖ Development of DHI management reports for dairy producers



Outcomes

- ❖ A national data collection system of HH traits
 - Flow: Hoof Trimmers → CDHI → CDN
- ❖ Estimated breeding value for Hoof Health
- ❖ Hoof Health sub-index to be included in a revised Life Profit Index (LPI)
- ❖ Management reports for Hoof Health



HH Projects in Canada

- ❖ Alberta Hoof Health Project
- ❖ 2010-2012
- ❖ 578 herds in 3 provinces had contributed trim records for 80,533 individual cows along with dairy production data
 - Alberta: 158 dairy herds / 40,558 individual cow data
 - British Columbia: 85 / 15,930
 - Ontario: 335 / 24,045

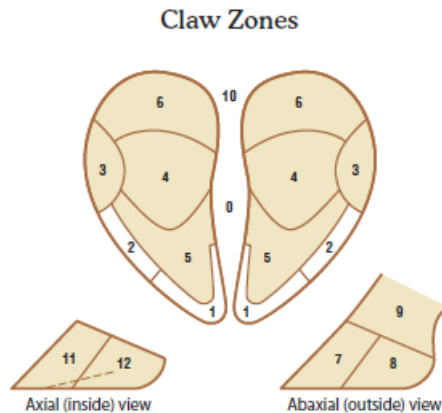


Alberta HH Project

- ❖ Data collected by provincial groups of hoof trimmers
- ❖ Hoof Supervisor™
 - Wisconsin, USA



Foot Atlas used to characterize the lesions



Code	Lesion Name
U	Sole Ulcer
T	Toe Ulcer
W	White Line Lesion
H	Sole Hemorrhage
F	Foot Rot
D	Digital Dermatitis
E	Heel Erosion
I	Interdigital Dermatitis
C	Corkscrew Claw
V	Vertical Fissure
X	Axial Fissure
G	Horizontal Fissure
Z	Thin Sole
K	Interdigital Hyperplasia
L	Periole Ulcer

Alberta HH Project – Main Lesions

	ALBERTA		BRITISH COLUMBIA		ONTARIO	
	N	%	N	%	N	%
Lesions	20,644	50.8	9,523	59.8	9,156	38.1
Digital Dermatitis	13,241	43.2	5,464	37.9	4,488	34.8
Sole Ulcer	5,284	17.2	2,149	14.9	1,684	13.1
White Line Lesion	4,760	15.5	2,053	14.3	1,106	8.6
Sole Hemorrhage	1,964	6.4	1,026	7.1%	2,894	22.4
Toe Ulcer	1,504	4.9	763	5.3	213	1.7

Current Activities

- ❖ **New Brunswick**
 - HH data collection running until 2015
 - 5 hoof trimmers – Hoof Supervisor
 - 210 dairy herds
- ❖ **Quebec**
 - Funding proposal submitted for the implementation of a permanent HH data collection
 - Questionnaire on environmental risk factors related to HH and cow comfort
 - Purchase ~ 25 Hoof Supervisors
 - Hoof trimmers' advanced training on trimming, anatomy, cow comfort and risk evaluation



Next Steps

- ❖ Inventory of all HH information & Projects
- ❖ Initiate HH data collection in other provinces
- ❖ Collaborate with CDHI to initiate the data flow from hoof trimmers
- ❖ Discussion on a permanent data collection on HH in Canada

