

Daniel Lefebvre
General Manager – Valacta

An integrated approach to the use of biomarkers

Valacta - My Centre of Expertise

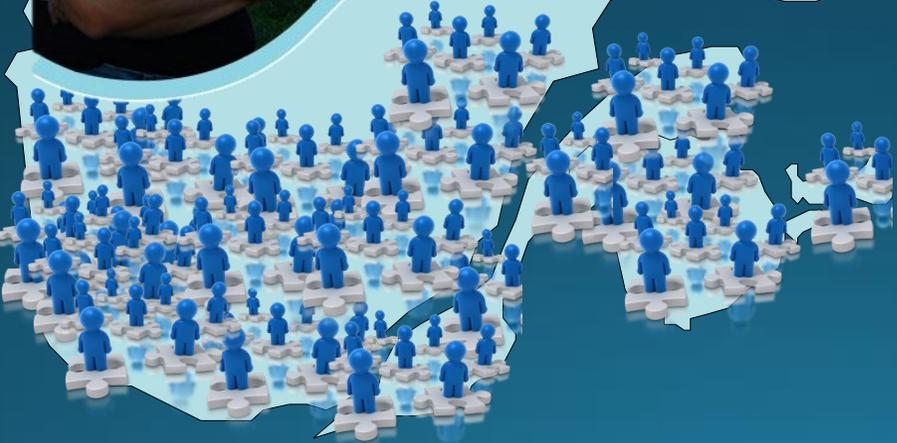
The purpose of Valacta's mission is to help me!

*Valacta contributes to the **sustainable development and prosperity** of the dairy sector through **knowledge transfer, information management and analysis services***





5,200 clients



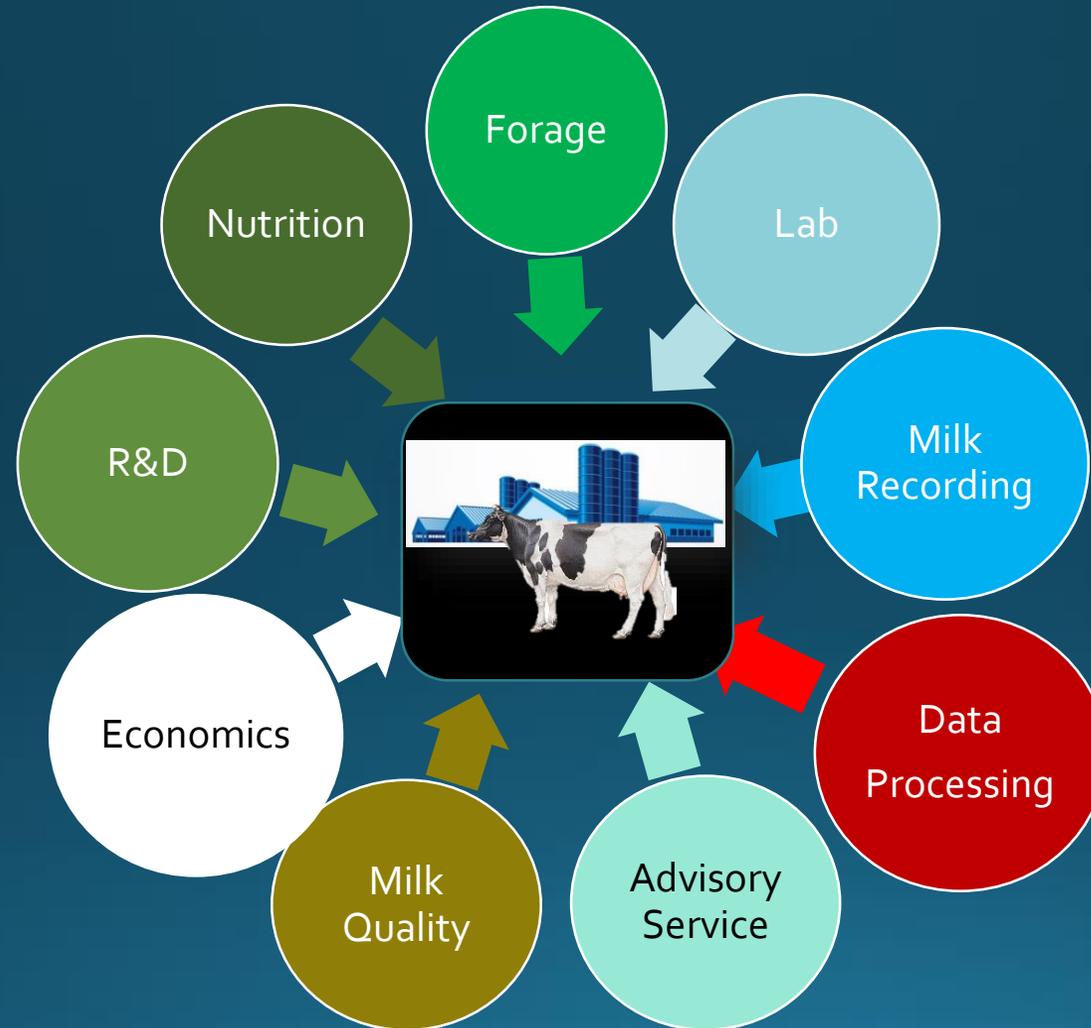
300 employees

300
Employees
At your service

- 215 Field (4 regions)
 - 135 Technicians, 60 Advisors, 6 Strategic Advisors, 3 Coaches, 7 Managers
- 35 Laboratory
- 21 IT + Customer Service
- 15 Administration (incl. HR, Communication and QA)
- 15 R&D



Valacta: Global Approach Model





Main Activities



Technical Services for Dairy Producers

Milking Supervision, Data Entry, CQM, Labour Efficiency, Measurements, Sampling



Advisory Services

Regular -basis, Specialized, Strategic (on demand), Milk Quality.



Knowledge Transfer and Development

Practical Workshops and Courses, Communication, Science and Technology Watch, Research Projects

Nutrition and Management

Organic

Comfort and Well-being

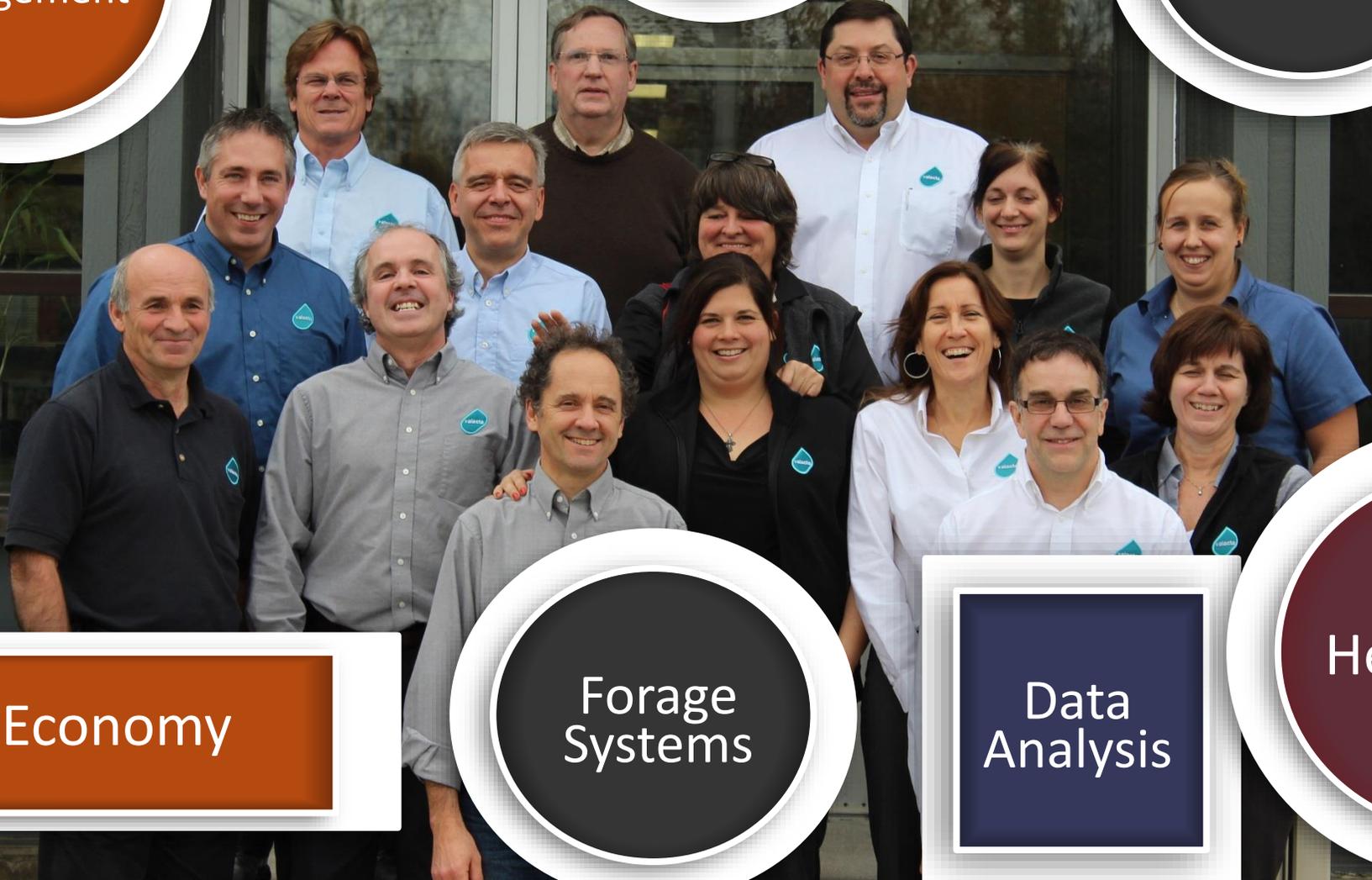
Transfer

Herd Health

Economy

Forage Systems

Data Analysis

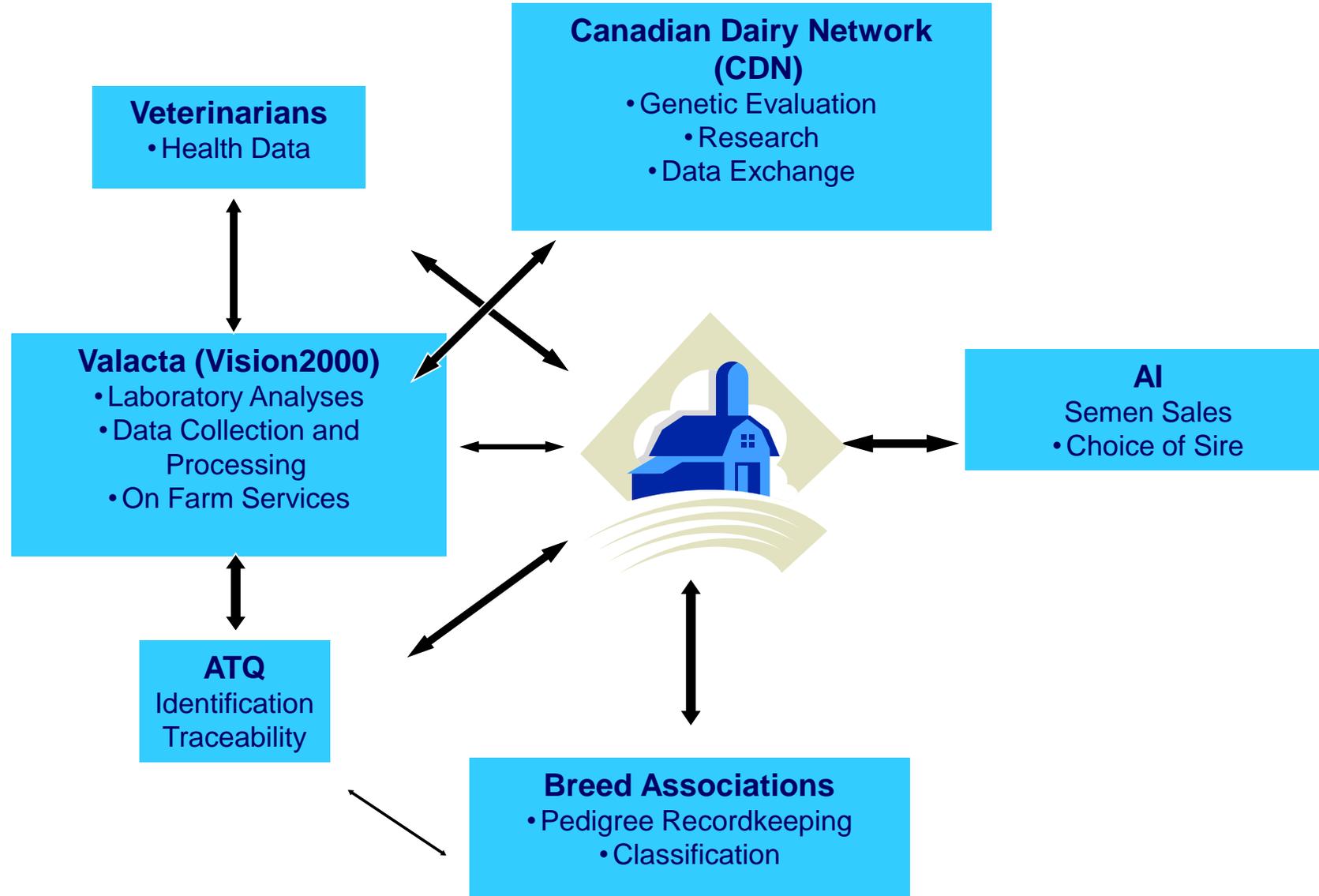




Data Processing



Data Sharing among Genetic Improvement Partners



VALACTA MOBILE:

La gestion à votre portée

valacta



05 NOV. 2014		11 DEC. 2014	
33.6	3.71	3.08	
263	224	222	212
161	70	12	

Vaches



LactoLogic inc.



2,600
installations
400 advisors and
technicians



For Producers

- Milk Recording
- Payment
- Quality
- Illness and Gestation
- Forage/Feed
- Water

For Processors and Other Laboratories

- Calibration Samples
- Wet Chemistry Analysis
- Microbiology

L
A
B
O
R
A
T
O
R
I
E
S



Milk Recording



Payment



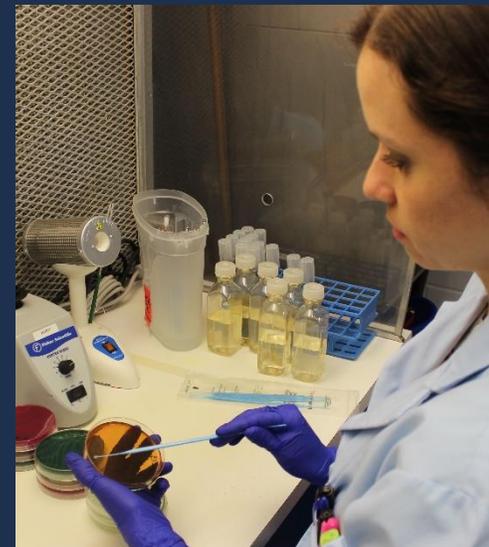
Quality



Reference/Calibration



Forage/Feed



Microbiology

Laboratories



- **Milk Recording (2.6 million samples/year)**
 - Fat, protein, lactose, somatic cells
 - Urea (57% of samples, 78% of farms)
 - BHB (54% of samples, 70% of farms)
 - ELISA: Pregnancy testing, Johne's Disease, Leukosis

- **Payment (1.1 million samples, 15/months/farm)**
 - Fat, protein, lactose
 - Somatic Cells
 - Extraneous Water
 - Urea



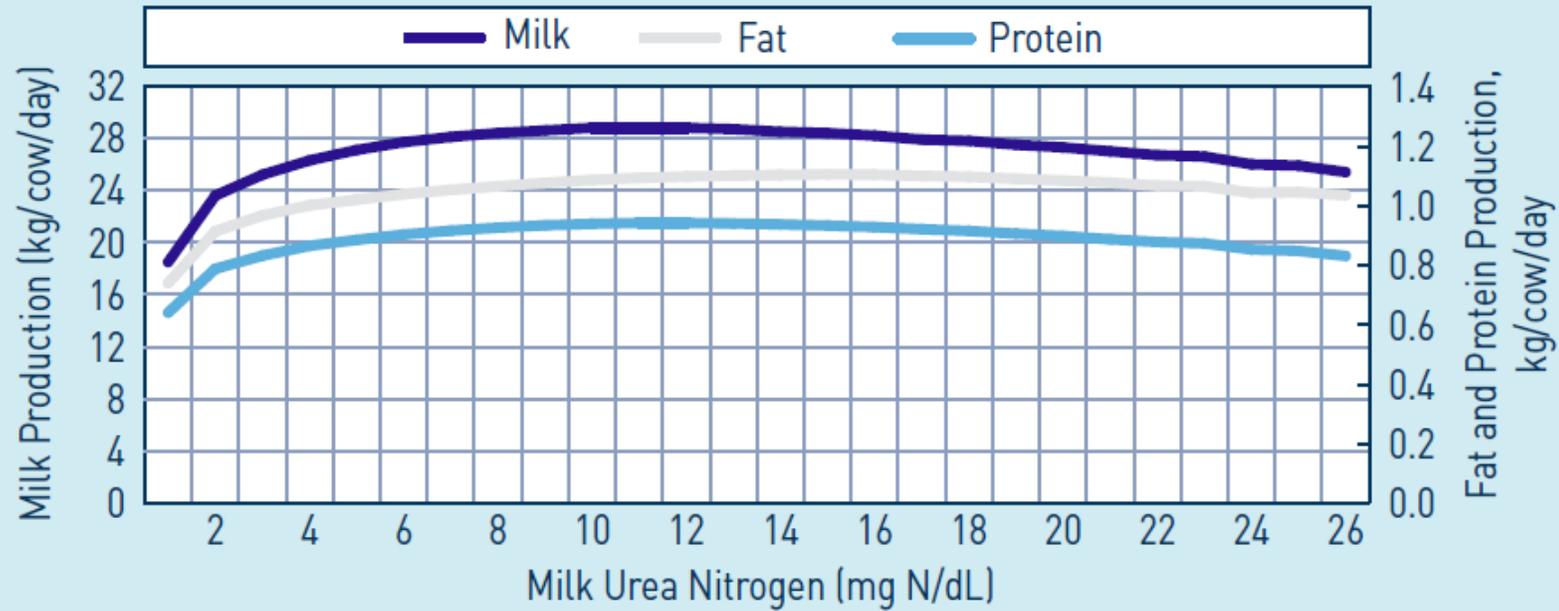
MUN

A tool to put “mun-ey”
in producers’ pockets...



"Milk urea nitrogen testing is an excellent tool. As a nutritionist, it helps me to prevent overfeeding of protein- which saves money on the farm. Also, it helps me fine tune rations in case I am underfeeding fresh cows. I recommend it on a regular basis, as the cost far outweighs the value it provides." - DANIEL SCOTHORN, SCOTHORN NUTRITION.

MILK, FAT AND PROTEIN PRODUCTION VERSUS MUN



Source: Valacta database, Quebec herds on milk recording, 2000-2009

Profits keep pace with
days open...



GESTA
LAB+



Pregnancy detection?

Simple, inexpensive
and reliable, without
any extra cow handling
or restraint.

Transition Cow Index^{MD}

Milk recording for dry cows!

44% of herds use TCI

« Tip of the
Iceberg »



Healthy Cows

Subclinical Cases

Clinical
Cases

The Iceberg!

TCI of 1,000 represents an extra \$450 in the current lactation.

KETOLAB



valacta



KETOLAB MEASURES WHAT YOU CAN'T SEE

Your DHI sample contains much more than just milk. It also includes a good deal of useful information to improve your performance and reduce your production costs.

KETOLAB measures the risk of ketosis using the cows' milk sample.

Cost of Ketosis: \$354 per case

61 % of
Quebec clients
use Ketolab

Milk Ketone Testing by FTIR

Advantages

- Suitable for whole herd screening
- Simple for the producer
- Low cost
- Can be performed on regular intervals
- Rapid results

Disadvantage:

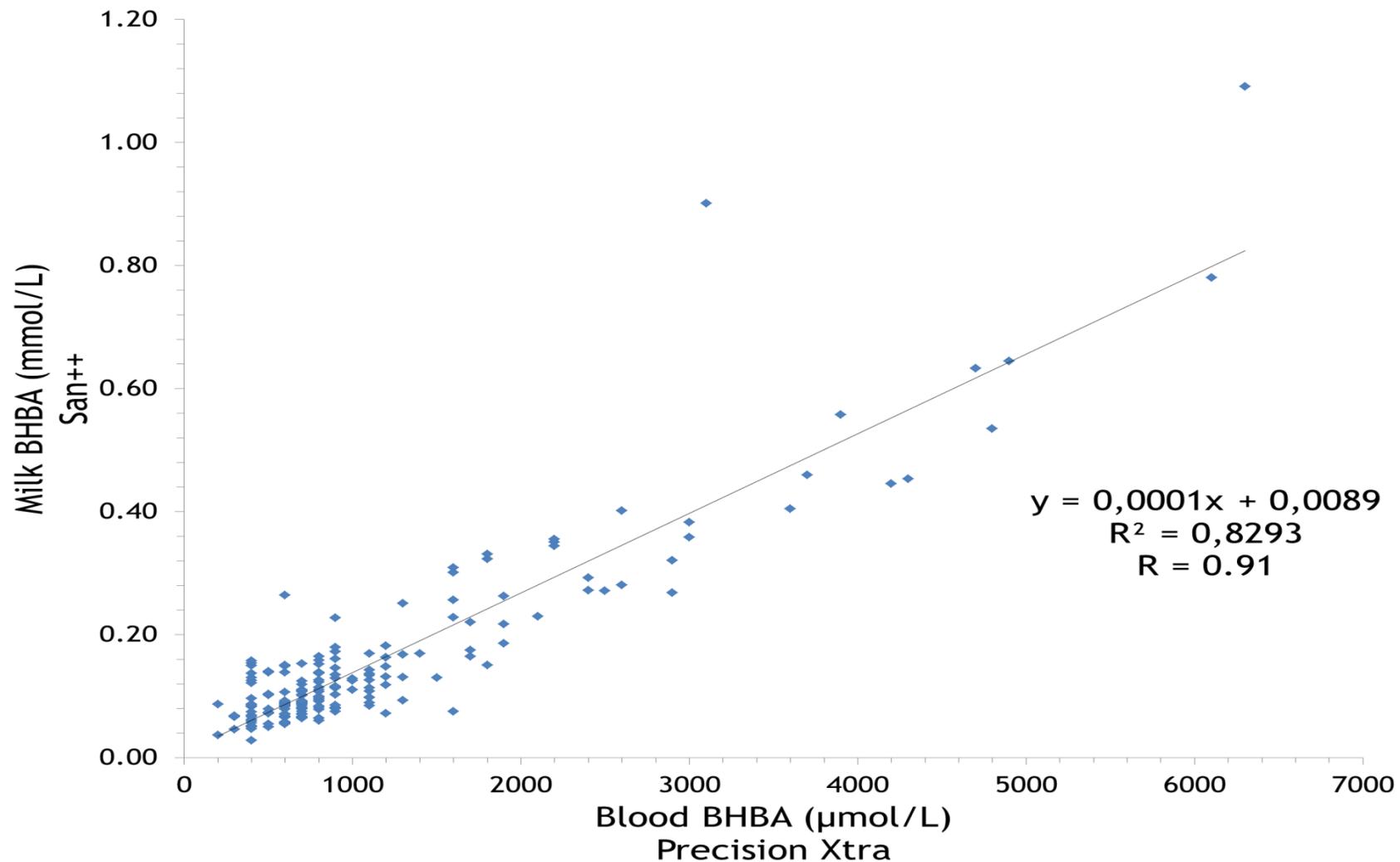
With monthly testing, not all cows are tested in the period most at risk

The logo for Valacta, featuring the word "valacta" in white lowercase letters inside a teal, rounded, teardrop-shaped graphic.

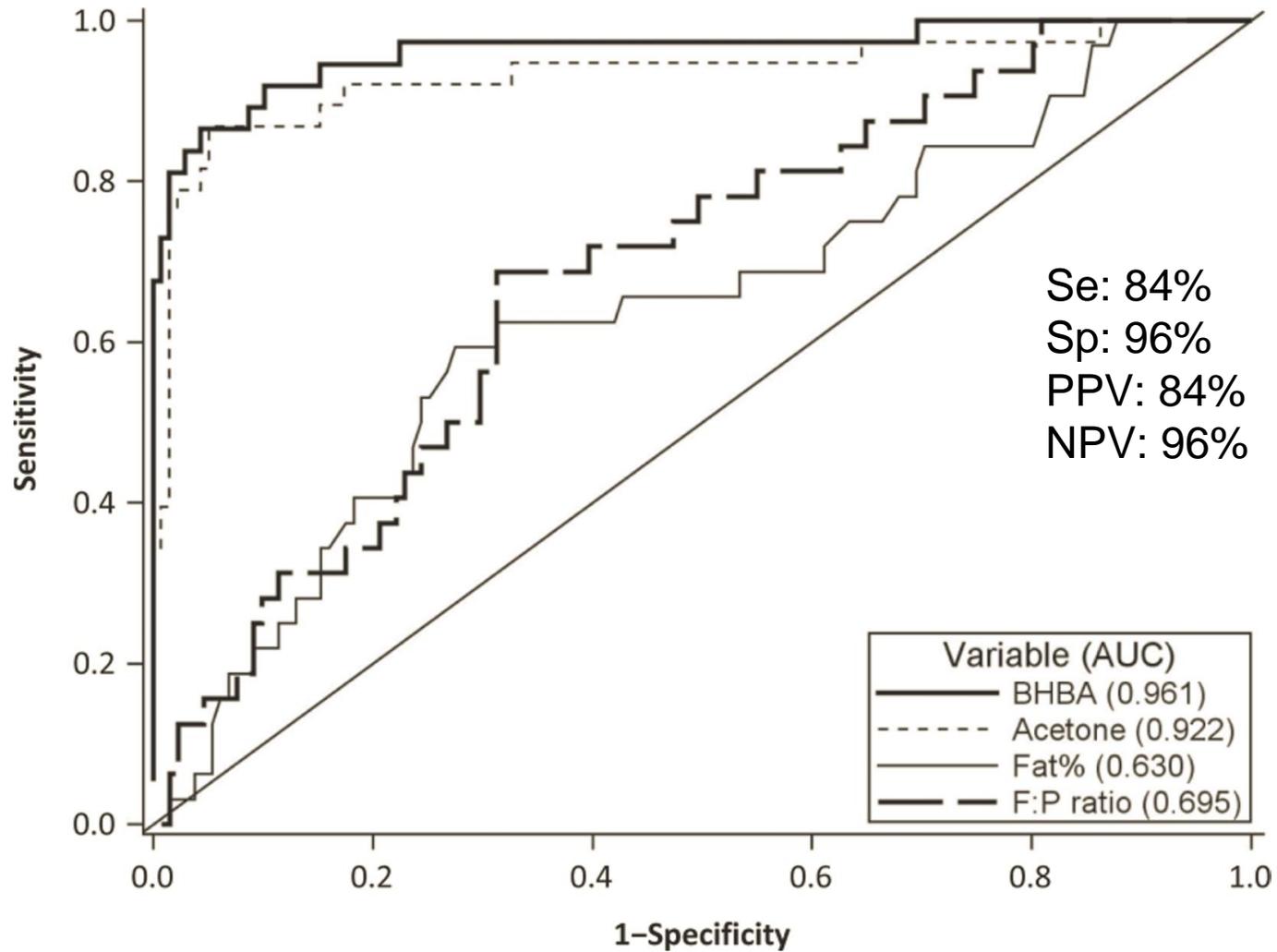
valacta

DAIRY
PRODUCTION
CENTRE OF
EXPERTISE

Graph 1. Correlation between milk BHBA concentration using SAN++ test and blood BHBA concentration (n=190)



Blood vs Milk : Test Characteristics



Milk BHB thresholds:

≥ 0.20 mM

• POSITIVE (**POS**)

Intermediate

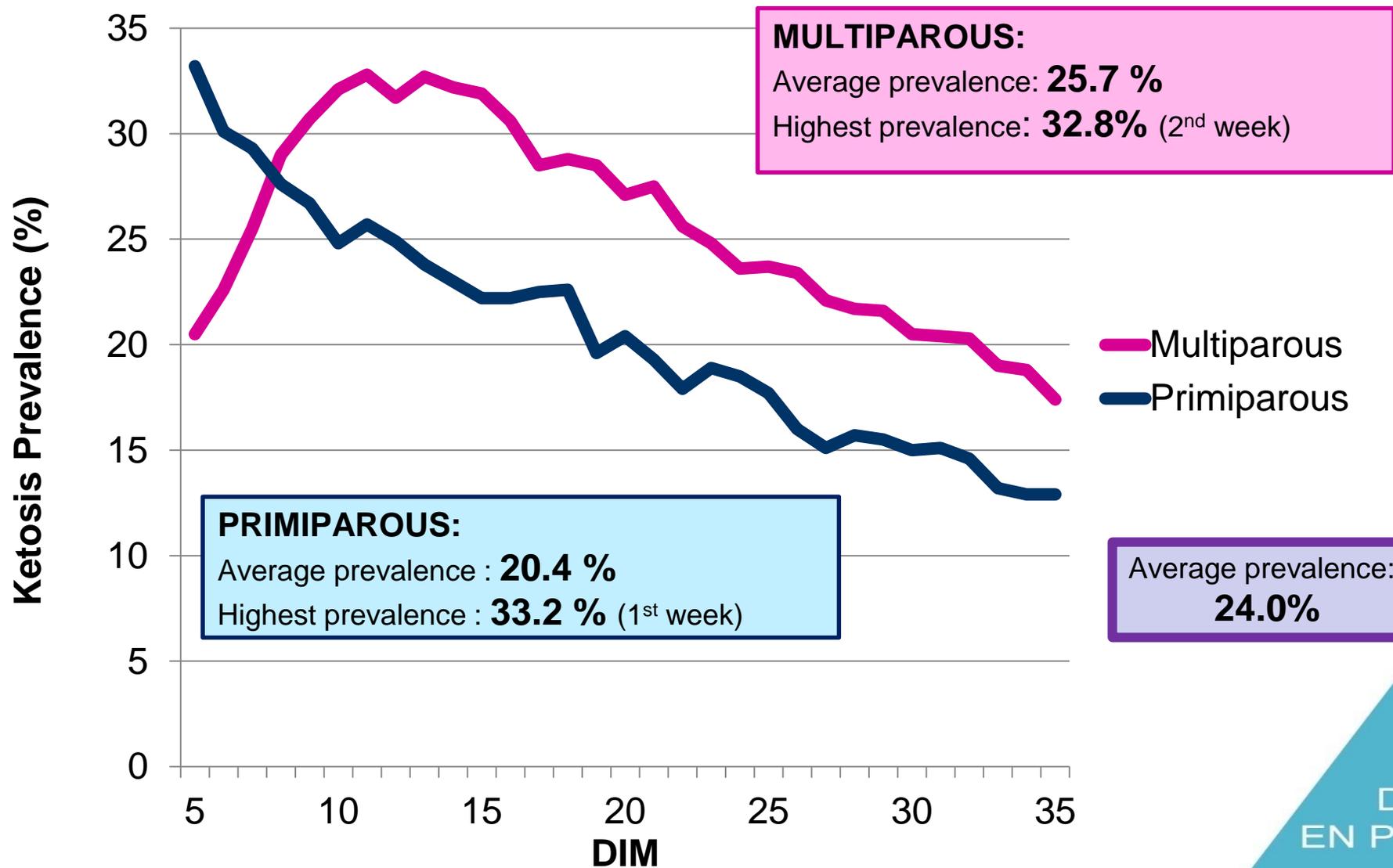
• SUSPECT (**SUSP**)

< 0.15 mM

• NEGATIVE (**NEG**)

valacta

Ketosis prevalence (POS + SUSP) according to parity

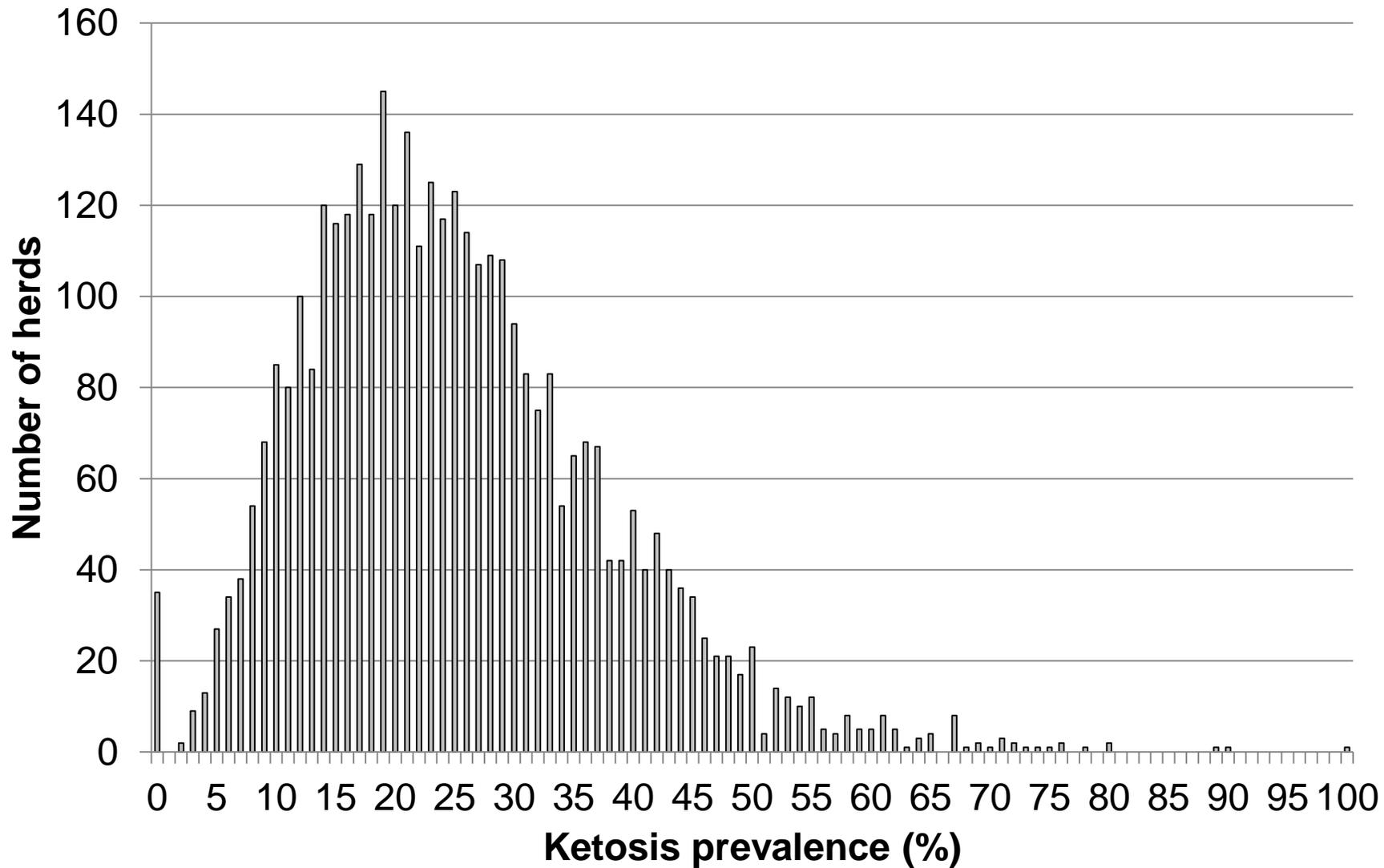


Valacta, 2014



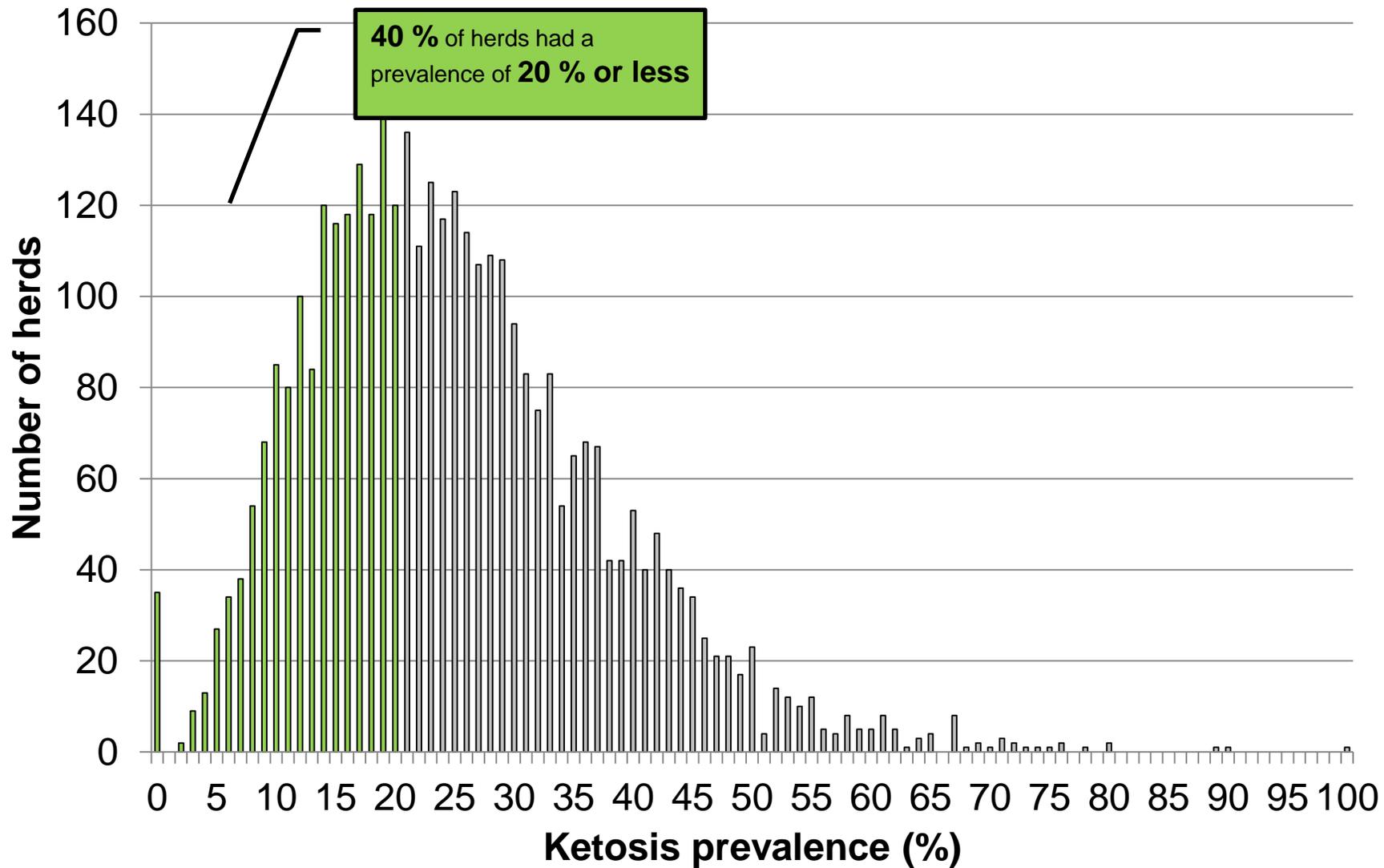
CENTRE
D'EXPERTISE
EN PRODUCTION
LAIITIÈRE

Herd distribution for ketosis prevalence in the first 5 weeks of lactation^a



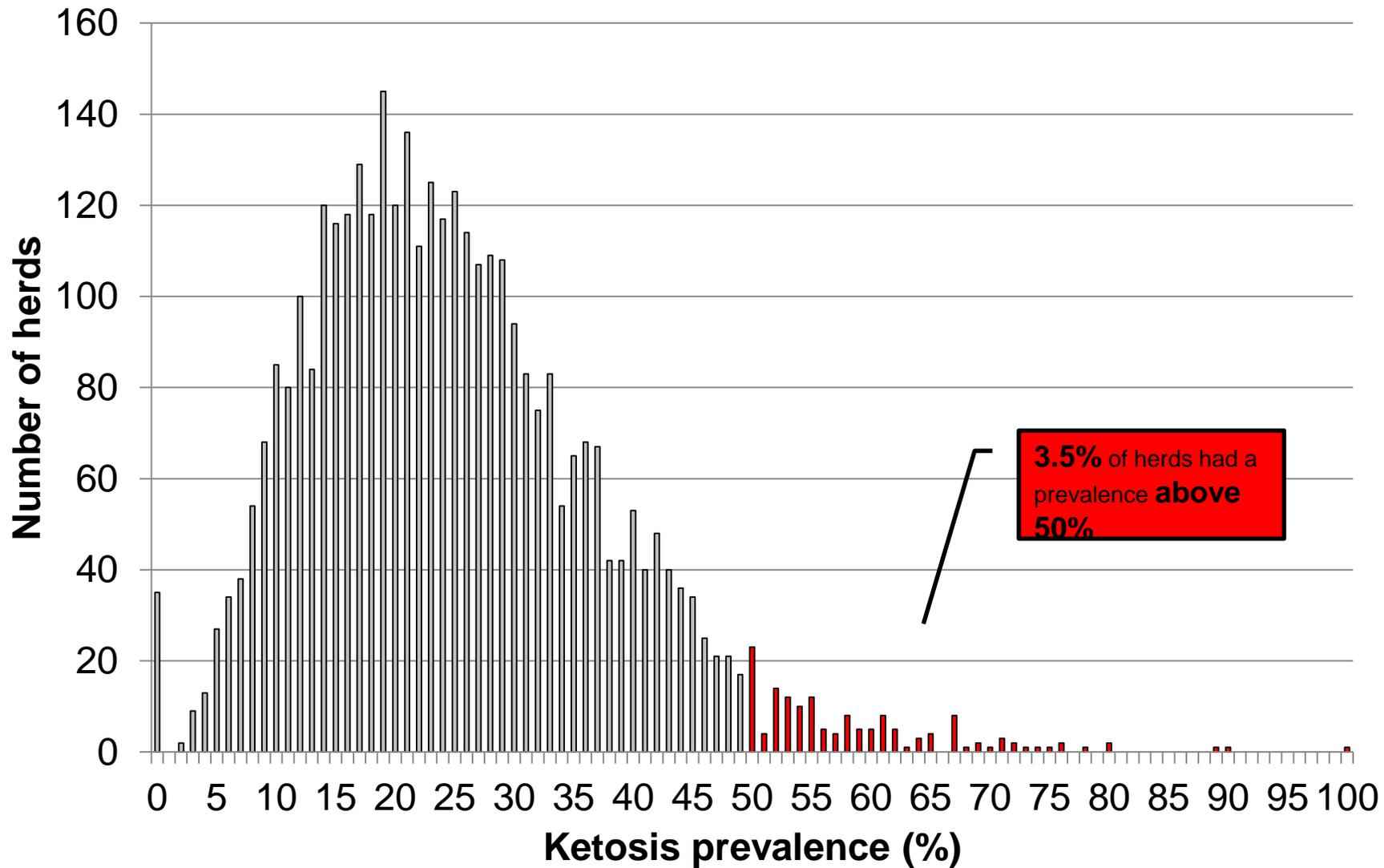
^a Excluding herds < 10 cows tested for BHB within the first 35 DIM; 3651 herds are included

Herd distribution for ketosis prevalence in the first 5 weeks of lactation^a



^a Excluding herds < 10 cows tested for BHB within the first 35 DIM; 3651 herds are included

Herd distribution for ketosis prevalence in the first 5 weeks of lactation^a



^a Excluding herds < 10 cows tested for BHB within the first 35 DIM; 3651 herds are included

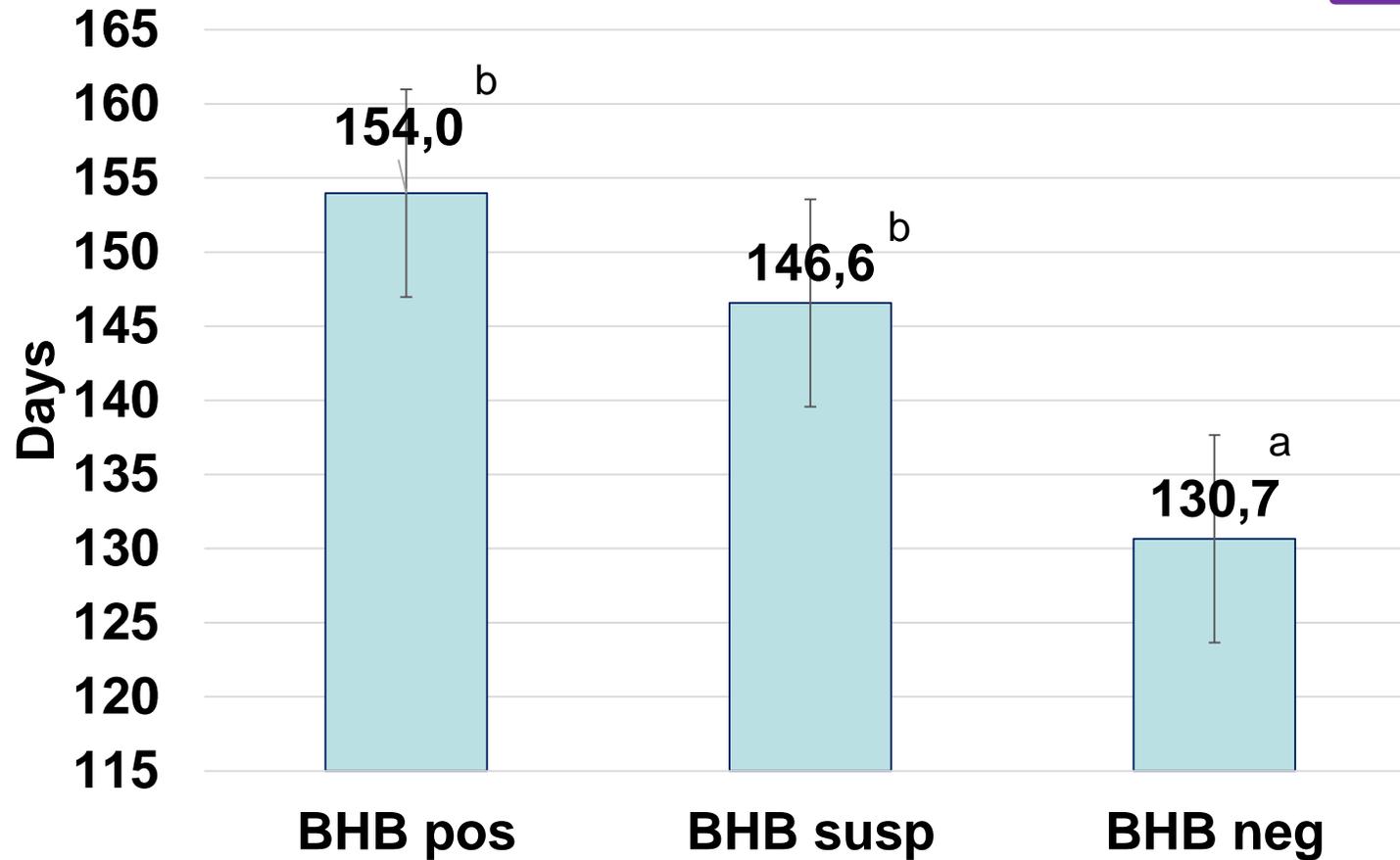
Impacts on Test Day Milk Yield and Components.

	POS	SUSP	NEG	SE	P
Milk yield (kg/d)	30.1 ^a	32.3 ^b	32.5 ^b	0.2	0.001
Fat (%)	5.07 ^c	4.62 ^b	4.10 ^a	0.02	0.001
Protein(%)	3.19 ^b	3.17 ^a	3.25 ^c	0.01	0.001
SCC (1000 cells)	360 ^c	318 ^b	232 ^a	23	0.001
Urea (mg N/dL)	9.2 ^a	10.0 ^b	10.5 ^c	0.1	0.001
Protein:Fat ratio	0.65 ^a	0.71 ^b	0.82 ^c	0.01	0.001
Transition Cow Index¹	-68 ^a	202 ^b	189 ^b	40	0.001

¹ Multiparous cows only

Days Open

$P(\text{catBHB}) = 0.001$
 $P(\text{Parity} * \text{catBHB}) = 0.09$

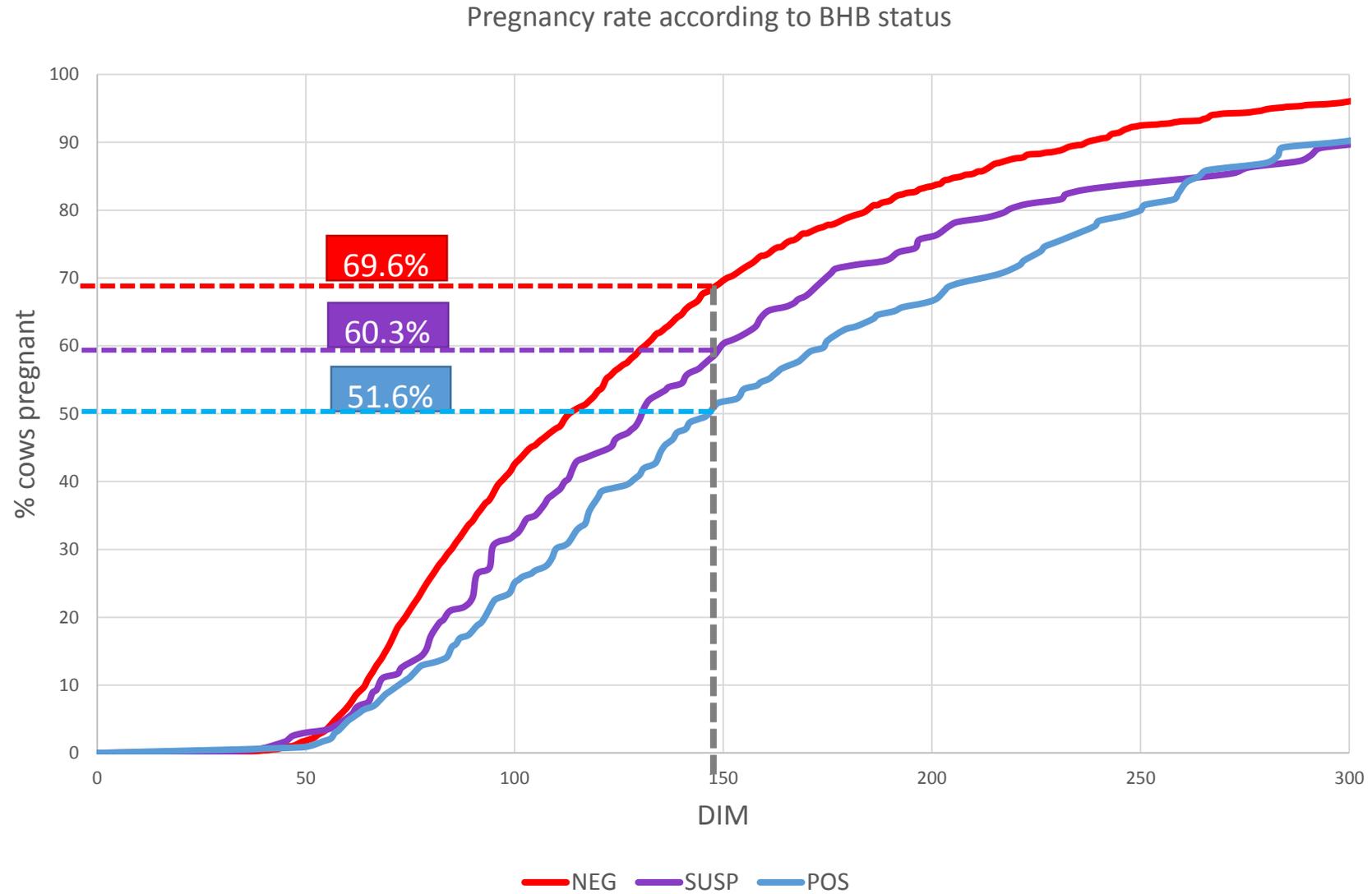


valacta

DAIRY
PRODUCTION
CENTRE OF
EXPERTISE

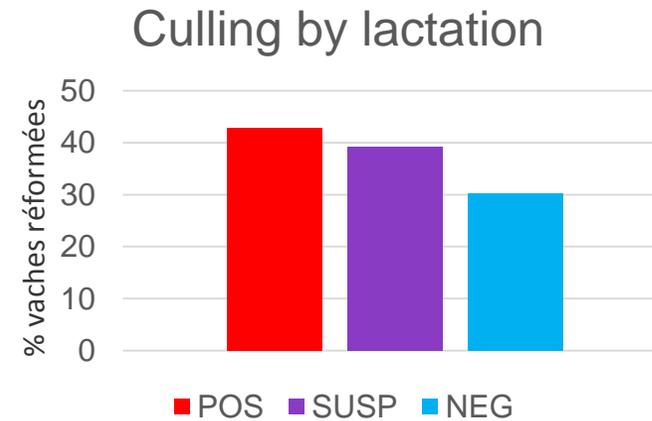
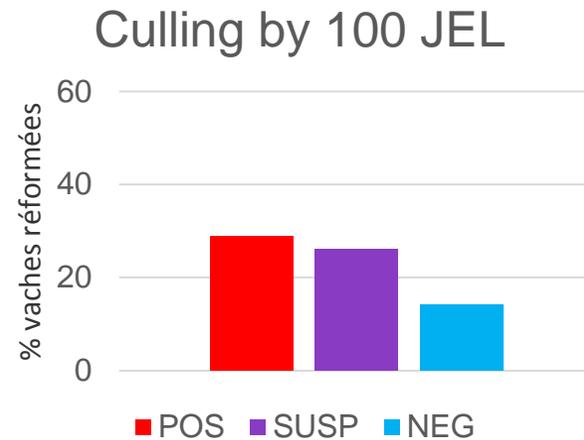
Valacta, 2014

Effect on Reproduction



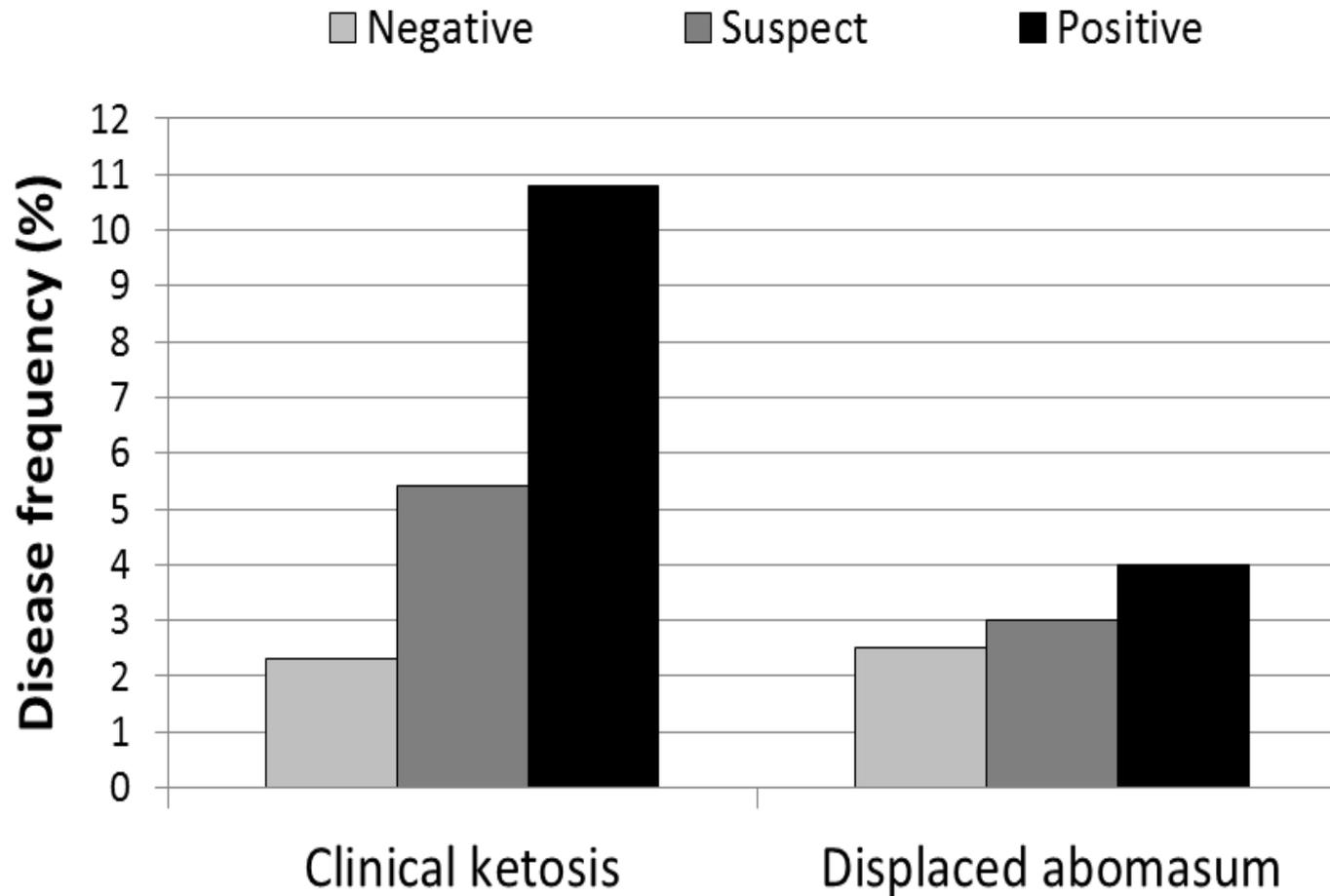
Impact on survival

	POS	SUSP	NEG	SE	P
Culling rate (before 100 DIM)	28.8 ^b	26.1 ^b	14.2 ^a	1.8	0.001
Culling rate (lactation)	42.8 ^b	39.2 ^b	30.3 ^a	1.9	0.001



Valacta, 2014

Association with disease



Koeck et al. 2014

valacta

DAIRY
PRODUCTION
CENTRE OF
EXPERTISE



NAME

HERD NUMBER

PAGE

TEST DATE

QC

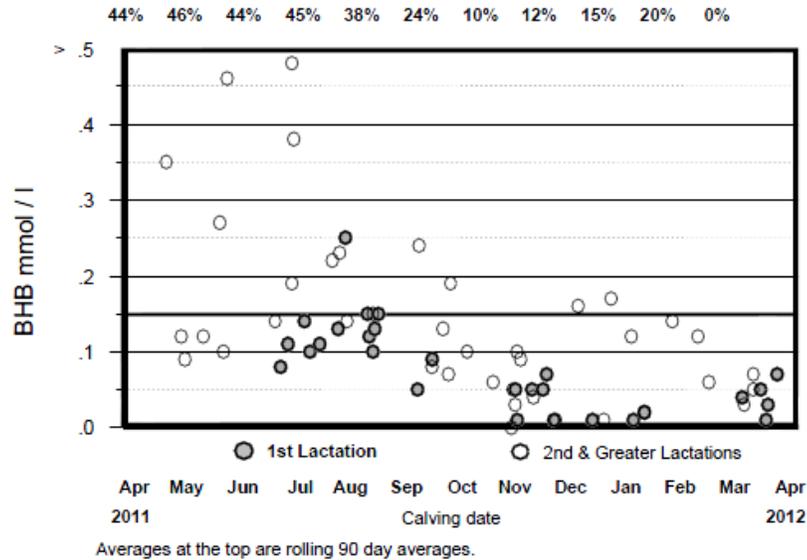
1 of 1

26 Apr 2012

SERVICE

Supervised

BHB At First Test



Cows Tested <= 90 Days In Milk

Cow Name	Lact #	D I M	M kg	F %	P %	P/F Ratio	BHB (mmol/l)	Condition Affecting the Test	Health Events
----------	--------	-------	------	-----	-----	-----------	--------------	------------------------------	---------------

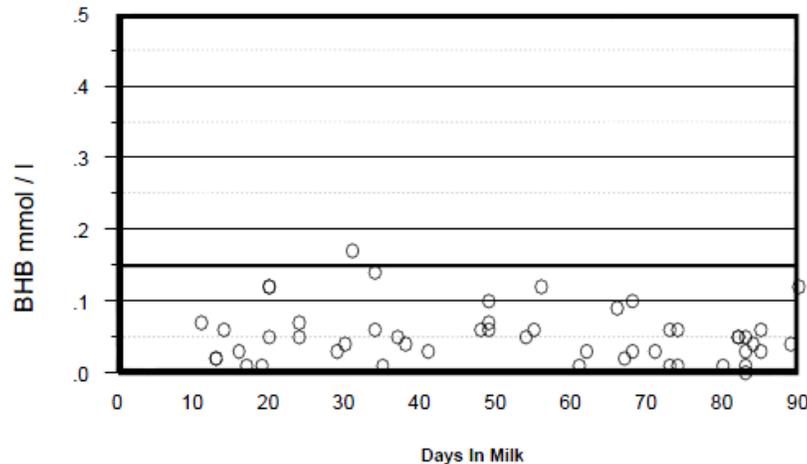
Positive (BHB >= 0.20 mmol / l)

Suspect (0.15 <= BHB < 0.20 mmol / l)

Negative (BHB < 0.15 mmol / l)

MARIEMAY	2	90	34.3	5.1	3.0	.58	.12		
RAINBOW	2	68	47.3	4.2	2.9	.69	.10		
PIMENTO	1	11	29.4	4.7	3.4	.72	.07		
BAGEL	2	24	49.2	3.8	2.8	.73	.07		
NIKITA	5	34	46.4	3.8	3.1	.83	.06		
JAVA	3	48	49.9	4.4	3.0	.69	.06		
MINOLTA	1	20	35.6	4.4	3.0	.68	.05		
CELINE	4	24	45.0	4.9	2.9	.59	.05		
POLKA DOT	5	54	64.0	3.1	2.7	.88	.05		
IMOGEN	2	83	43.8	4.0	3.1	.75	.05		
PHOEBE	1	30	37.2	3.3	3.0	.91	.04		
THEODORA	1	89	31.7	4.0	3.2	.81	.04		
LUTICIA	1	16	32.7	4.3	3.1	.73	.03		
HAILEY	2	29	47.7	3.1	2.8	.91	.03		
HELENA	1	17	29.7	3.5	3.0	.86	.01		
JOLYANNE	1	83	28.4	3.8	3.3	.85	.01		

BHB In Early Lactation (<= 90 DIM) For Tests In The Last 90 Days



Valacta's Strategy for Ketolab

- Ketolab is used as a screening tool to evaluate ketosis prevalence **at the herd level**
 - Ketolab is **not** an individual diagnosis tool
 - High BHB does not necessarily mean that this specific cow is sick, but it is an important risk factor for other problems

valacta

DAIRY
PRODUCTION
CENTRE OF
EXPERTISE

Ketolab in Quebec

- >70% of Valacta herds have registered for the service
- >55% of the samples analysed each month

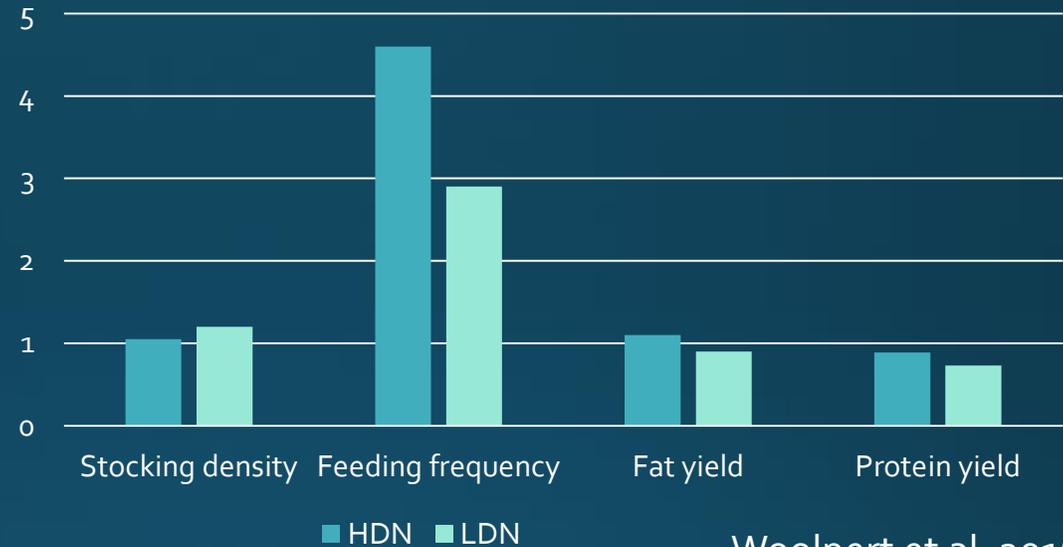
88% of farms using advisory service
57% of farms not using advisory service

valacta

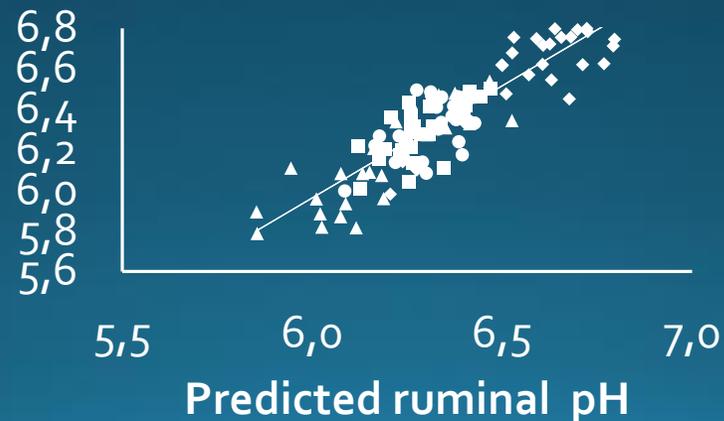
DAIRY
PRODUCTION
CENTRE OF
EXPERTISE

Biomarkers – What's next?

- Fatty acids
 - Rumen health
 - Energy balance
 - GHG
- DSCC
- Acute phase proteins



Woolpert et al. 2016



Chouinard et Gervais 2016



FOR YOU AND WITH YOU!

Thank You!

Valacta.com
dlefebvre@valacta.com
@DanielMLefebvre

