

# SUSTAINABLE PRODUCTION

## Session 2



THE 2019  
**EU AGRICULTURAL  
OUTLOOK CONFERENCE**

**Sustainability**  
from Farm  
to Fork







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# DISEASE RESISTANT GENETICS

  
**SEMEX**<sup>®</sup>  
Genetics for Life<sup>®</sup>



**Immunity+**<sup>®</sup>





**Humane Farm Animal Care**



**safe food**  
ALLIANCE

**SEMEX**



**Humane Choice**

**TRUE FREE RANGE**



\*Meets Humane Farm Animal Care Standards, which include humane animals raised with shelter, resting areas, and fresh water.  
Antibiotics or hormones in medical situations.



**2019 Scorecard: Restaurant antibiotic use policies and practices**

A	B	C	D+	F
A-			D	

How top fast food and fast casual chains rate on reducing the use of antibiotics in the beef supply.  
<http://uspi.org/chain-reaction>





# CAUSES OF ANTIBIOTIC RESISTANCE



Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.



Over-prescribing of antibiotics



Patients not finishing their treatment



Over-use of antibiotics in livestock and fish farming



Poor infection control in hospitals and clinics



Lack of hygiene and poor sanitation



Lack of new antibiotics being developed

## Antibiotics in the spotlight

[www.who.int/drugresistance](http://www.who.int/drugresistance)

#AntibioticResistance



World Health Organization

# IMMUNITY+<sup>®</sup> YOUR INNOVATION LEADER



Top 10 Innovative  
Product Winner by  
Dairy Herd Management  
2013



Canada's  
Governor Generals  
Innovation Award  
2017



UK Royal Dairy  
Innovation  
Award Winner  
2018



UK  
Dairy Day  
Best New Product  
2018



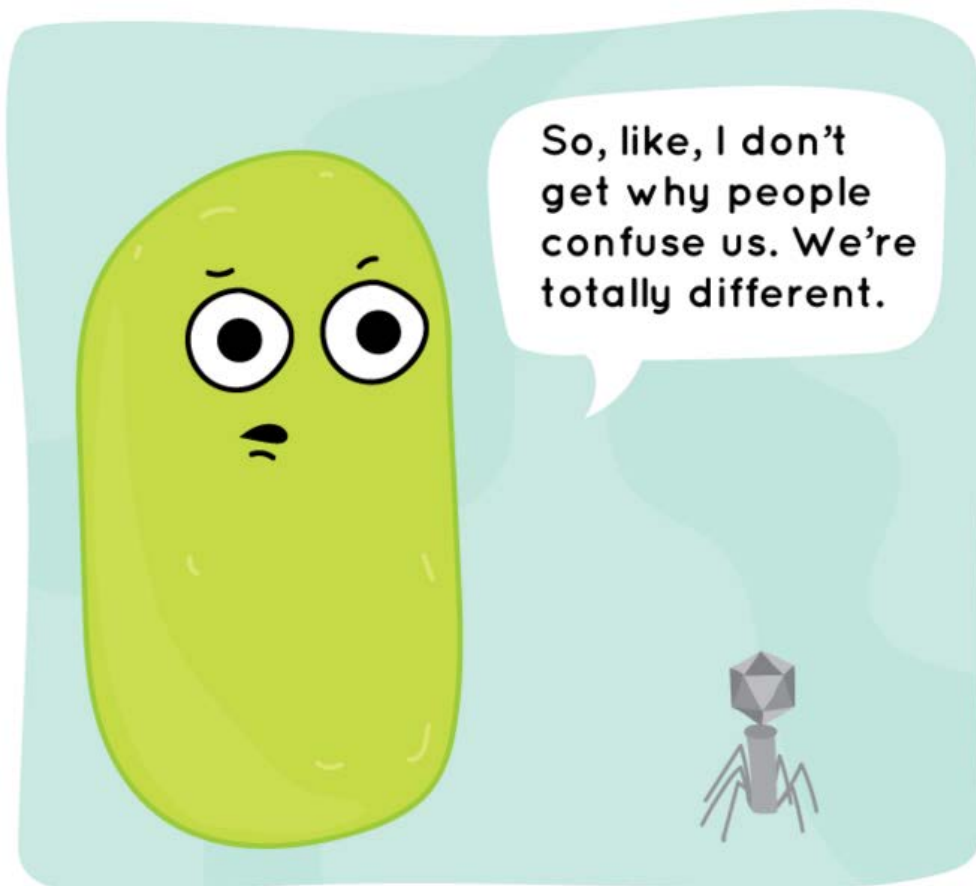
Top 10  
New Product  
World Ag Expo  
2019



- **Over 25 years R&D**

- **Over 100 published research papers by:  
Dr. Bonnie Mallard, University Guelph and her team**





#### **Bacterial infections**

- Mastitis, listeriosis, brucellosis, E. coli scours, bacterial pneumonia, metritis, digital dermatitis

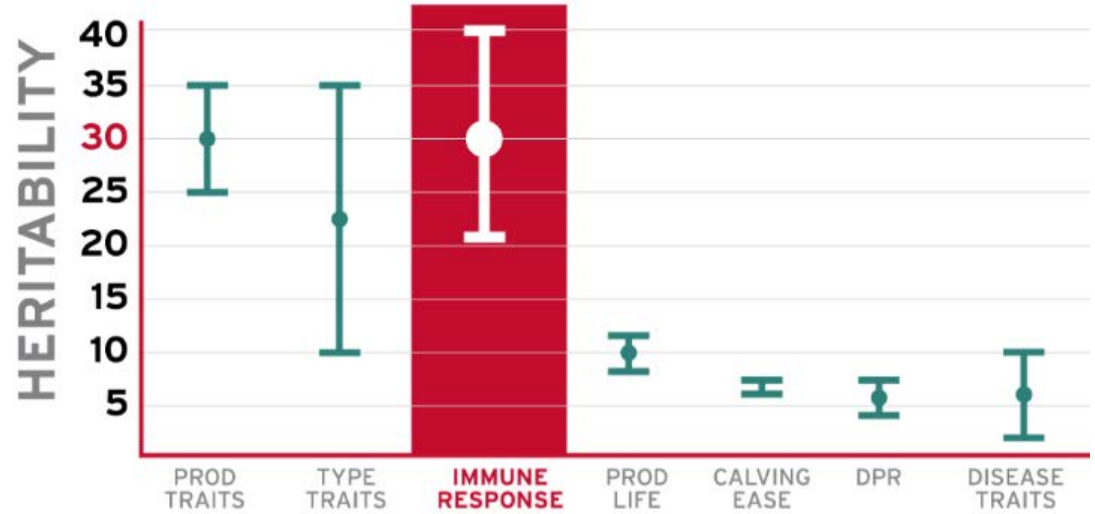
#### **Viral & mycobacterial infections**

- Viral pneumonia, BVD, IBR, leucosis, foot & mouth, tb, retained placenta, Johne's





**30%**  
IS HIGH FOR  
HERITABILITY

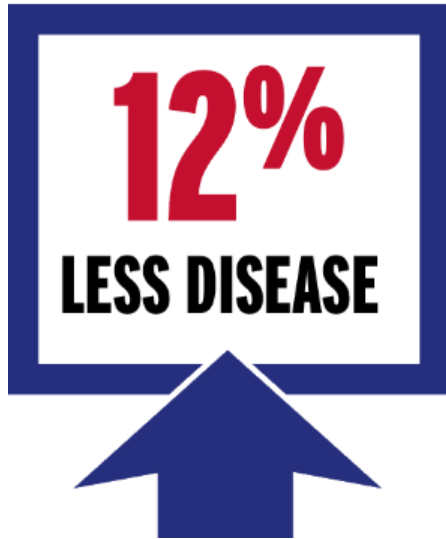



**Immune Response Heritability  
is High at 30%**



## PROVEN ON FARM GLOBALLY

Reported from 35 commercial herds totaling 30,000 cows  
75,000 heifers











HEALTH EVENT	IMMUNITY+ Prevalence	Non-Immunity+ Prevalence	 Reduction
Mastitis	28.5%	31.7%	10.0%
Persistent Mastitis	4.4%	5.3%	17.0%
Lameness	21.1%	24.0%	12.1%
Miscellaneous Illness	5.9%	6.5%	9.2%
Mortality	4.8%	6.0%	20.0%
Heifer Pneumonia	9.6%	9.8%	2.1%
Heifer Diarrhea	5.4%	5.7%	5.3%
Heifer Mortality	7.7%	9.2%	16.3%

# 2500 Cow Dairy in Slovakia - this farm used Immunity bulls-

## The Results

# Immunity+ sired cows: 326

# Non-Immunity+ or Unknown Immunity sired cows: 662

1 <sup>st</sup> Lactation Cows	Sold & Died	Mastitis	Metritis	Ketosis	Abort	DNB	RP	PNEU
Immunity+ Impact	18.8% 	31.5% 	43.1% 	6.2% 	5.7% 	41.3% 	47.9% 	73.2% 





# HIGH QUALITY COLOSTRUM WITH GENETICS

PROVEN RESULTS  
MORE ANTIBODIES  
A HEALTHY START



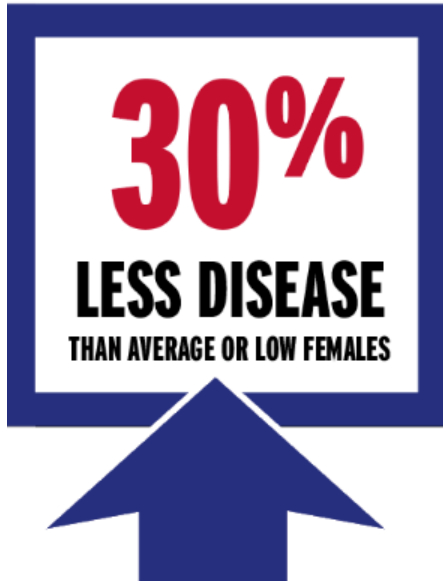
# Immunity♀

Only Semex can  
leverage Immunity  
Female Genomic  
Rankings & Testing

ELEVATE WITH SEMEX



## 10.000 cow study US and Germany



DISEASE		ABORTION	MISC. DISEASE	KETOSIS	LAMENESS	MASTITIS	METRITIS	PNEUMONIA
RELATIVE REDUCTION COMPARED TO	LOW AND AVERAGE	-5.8%	-28.5%	-12.0%	-39.2%	-21.5%	-16.6%	-73.2%

These High Immune response cows have 30% less disease than their herdmates with either average or low immune response herdmates.

**savings 124\$ per cow/year**



# Hohen Luckow (Germany 2500 cow Dairy – Genomic Tested Cows only 1.lac. Cows

June 2019

	<b>Mastitis</b>	<b>Persistent Mastitis</b>	<b>Abort</b>	<b>Lame</b>	<b>Metritis</b>	<b>Retained Placenta</b>
High Animals counts	70	70	70	70	70	70
Average Animal counts	313	313	313	313	313	313
Low Animals counts	51	51	51	51	51	51
Advantage Immune Female (High vs. All)	25.7%	100%	69.4%	33.7%	23.5%	71.1%



# Immunity+ vs. Other Technology



Feature	Other Technology	Immunity+
Genetic selection to reduce disease	●	●
Addresses bacterial diseases (AMIR)	●	●
Responds to clinical & sub-clinical mastitis		●
Addresses viral & mycobacterial diseases (CMIR)		●
Helps colostrum quality & vaccine response		●
High heritability (30%)		●
Fully validated through extensive research		●

# VALUE OF Immunity♀



**Reduction of total diseases= less costs  
and more income**

**+**

**Reduction in mortality= saving the cost of  
loss and replacement**

**+**

**Less animals to raise= less greenhouse  
gas**



## The Future

- Plans for genetic evaluations on greenhouse gas emissions
- Looking for new health traits via activity systems on dairy farms
- Pushing Immunity + to increase health in dairy and beef segment
- Premium payment for farms that select for Immunity+ Genetic?

# DISEASE RESISTANT GENETICS

  
SEMEX®  
Genetics for Life®

 **Immunity+**®



**Thank you**  
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