Challenges, new developments, techniques and programs in cow herd health

Herman Barkema, Nina von Keyserlingk, John Kastelic, Theo Lam, Chris Luby, Jean-Philippe Roy, Stephen LeBlanc, Greg Keefe, and Dave Kelton

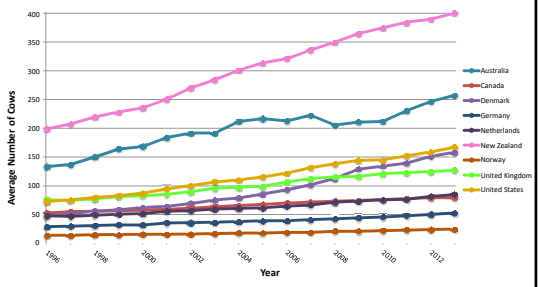
What has changed in the last decades?

- Increasing herd size and changed housing
- Increased consumer awareness
- Focus on animal welfare
- Increase in organic farming
- Emphasis on antimicrobial resistance

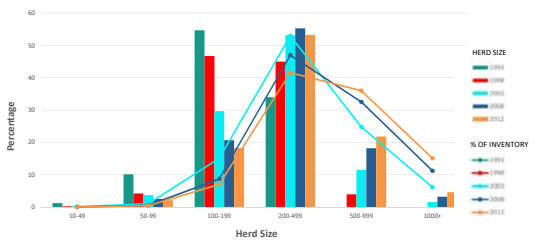
What has changed in the last decades?

- Critique on use of hormones
- Focus on biosecurity
- Changing technology

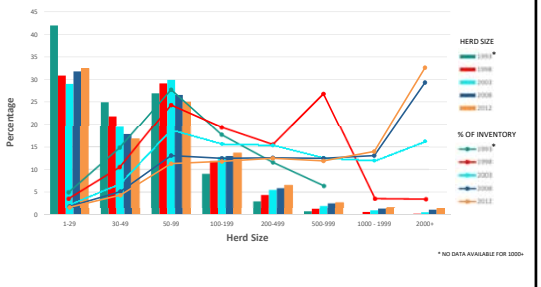
Dairy Herd Size



New Zealand



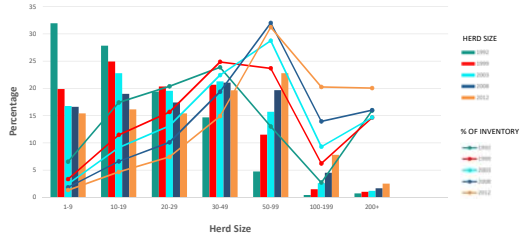
United States



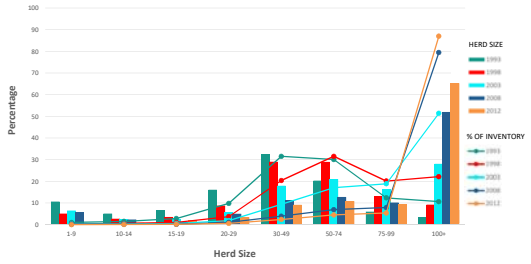
Diapositiva 1

HB1 Herman Barkema; 08/03/2016

Germany



Denmark



Consequences

- Farmers have to (learn to) work with personnel, different barn types and milking systems
  - More people at the farm (sufficient?)
  - Enough attention for individual animals?
  - Protocols needed
  - Computerized records
- Works if farmers are the 'Clean and Accurate' and not the 'Quick and Dirty' type
- Quality milk (bonus) programs

Increased consumer awareness

- Earlier, only interested in the quality of the product. Now, also wants to know how the product is produced
- Welfare
- Environment
- Organic food is perceived as being healthier
- Zoonotic and possibly zoonotic diseases
- The 'consumer' demands a safe healthy product produced by healthy happy cows (whatever that may be….) kept in an environmentally friendly way
- The most important 'consumers' are the large retailers

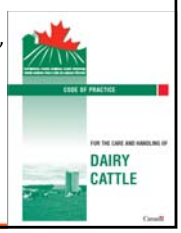
Consequences

- Dairy industry will have to get used to 'consumers' watching and proactively deal with issues that (may) arise
- Restrictive use of antibiotics and hormones → focus on prevention and information for monitoring, less on cure
- "Quality" becomes more and more important, welfare of cows is part of it
- The number of organic farms increases (slowly)
- Control of diseases requires an organized monitoring and control

Increased focus on animal welfare

- Development Code of Practice:

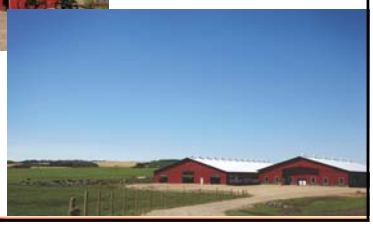
"We want to be proactive, dialogue with stakeholders and establish guidelines that make sense for farmers"



Welfare issues

- Tie-stall vs. free-stalls and straw-pack housing
- Tail-docking (still…)
- Use of pain medication with clinical disease
- Use of anesthetics with dehorning and castration of calves
- Feeding sufficient milk to the calves and discussion of individual housing
- …..
- Again, the consumer expects farmers, veterinarians and other advisors to be the advocate of the animals (and it even may be cost-effective….)

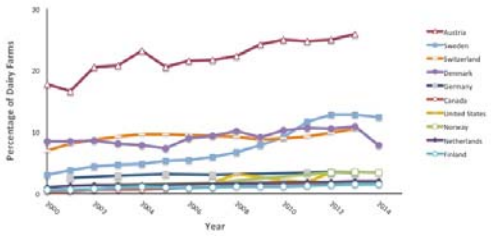
Changed housing



Tie-stalls versus Loose Housing

Country	2000-2004	2005-2008	2009-2011	2012-2014
United States	53	49		38
Canada			74	72
Iceland	86	74	64	61
Norway		88		74
Sweden	81	76	52	45
Finland	89	82	76	69
Denmark	65	28		18
Netherlands	18	13	10	8
Germany	36		27	
Switzerland	87	82	79	78

Organic Dairy Herds in the World



Organic Dairy Farming

- Demand increases all the time
- No use of antibiotics → no blanket dry cow treatment and no treatment of clinical mastitis with antibiotics
- Bulk milk SCC can be a problem
- A lot of unproven treatments used
- Organic farmers need to be better in prevention
- Holstein-Friesian cows the best for organic dairy farms?
- Organic milk is not healthier than conventional milk, it is the production process that is different

Antimicrobial Resistance

- Increasing pressure from human medicine to reduce use of antimicrobials in livestock
- Statements of medical organizations point the finger at the livestock industry
- Majority of antibiotics used in dairy is for mastitis
- In most North-European countries now selective use of antibiotics

Use of antibiotics in the dairy industry

- Yes, resistance to penicillin present since discovery but not increasing. However, that doesn't matter!
- We need to show our good will
- Therapeutic use is essential for animal welfare
- We should develop a target reduction in use of antimicrobials
- Blanket dry cow treatment will disappear

Use of hormones in the dairy industry

- No use of growth hormones in dairy cattle
- rBST is less used in the US because of pressure of consumers
- Wide use of fertility hormones in Sync programs
- Often extra-label use
- This use is on the radar screen

Biosecurity

- Lot of concerns about diseases coming from animals
- We have not eradicated one disease and only get new ones
- Farmers don't like biosecurity, associate it with 'government', and are afraid that it will affect their lifestyle
- Often used by people who don't have a clue what it means
- Needs to be disease-specific

Prevention of introduction of pathogens

Visitors are a risk for introduction of infections, particularly:

- Cattle traders
- Inseminators
- Veterinarians
- Nutritionists
- Humans play a major role in every outbreak of a foreign disease

Bouma et al., 2003
Stegeman et al., 1999

Prevention of introduction of pathogens

- Collection of dead stock → truck should not come near the animals
- Coveralls and boots for visitors such as the veterinarian, inseminator, DHI personnel, etc.
- Keep them clean and dry
- If they don't want to use them …..
- Frequent visitors such as veterinarians, inseminators, DHI staff, nutritionists, hoof trimmers, need to be an example!

Canadian proAction Initiative

- As a follow up to on-farm food safety
- Will be the national standard
- To demonstrate that milk is produced responsibly with respect for the environment, using best management practices ensuring the care of healthy animals

1. Milk Quality
2. Food Safety (Canadian Quality Milk)
3. Livestock Traceability
4. Animal Care
5. Biosecurity
6. Environment

proAction Initiative
On-Farm Excellence
Excellence à la ferme

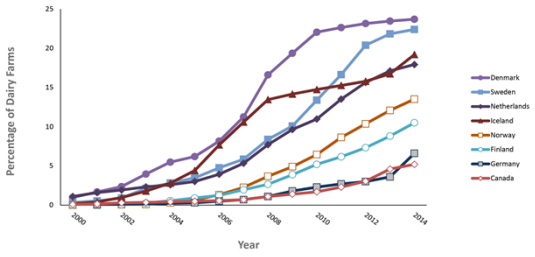
https://www.dairyfarmers.ca/what-we-do/programs/the-proaction-initiative-on-farm-excellence

Changing technologies

- Long long list
- Most important:
  - Automated Milking Systems
  - Automated Milk Feeders

Automated Milking Systems

% Farms milking with a robot



Automated Milking Systems

- Approx. 600-700 Canadian dairy farms milk with an automated milking system
- Predominantly Lely and DeLaval
- Worldwide approx. 20,000 farms with an AMS
- No problems (necessary) anymore with milk quality
- Clinical mastitis detection is still difficult
- Management style of farmer
- Generate a lot of data
- (Too) many herds stop with DHI

Automatic calf feeders

Automatic calf feeders

- Bought because of reduction in time and labor needed for calves
- Monitoring calves now becomes very important
- Group-housing increases risk for spread of infectious diseases
- Generate a lot of data

How to work with all the data??

- Nearly impossible because of the differences between programs
- They don't talk well with e.g. DairyComp305
- Many AMS farms quit DHI (should be forbidden!; also problem for genetic evaluations)
- Typically nothing is done with data of automatic calf feeders

→ Task for associations of dairy farmers, DHIAs, bovine practitioners, …..

The future

- Herds will become larger and tie-stalls will disappear
- Use of antibiotics will be more restricted → focus on prevention and information, no blanket DCT
- Sync programs will no longer be allowed
- AMS will become the standard, potentially automatic calf feeders as well
- Increase in disease programs with biosecurity as the theme

The future

- Organic farming will become more common, and conventional farmers better learn of good organic farmers
- Dairy practitioners, nutritionists and other advisors will need to learn to work with data coming from AMS and automated calf feeders

Dairy and veterinary organizations

- We need more leadership from our organizations and we need more 'chain thinking'
- Develop a vision for the future and make sure that we'll be ready for it
- Be our voice with government, medical organizations, industrial partners (software)

Dairy and veterinary organizations

- Take position (goals) and make a plan to reduce the use of antibiotics and hormones
- Welfare standards: e.g. dehorning and castration
- Forum on how to work with the new data and partner with the dealers and software developers

Acknowledgements

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American Dairy Science Association

Questions? Discussion?