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# Improving Animal Welfare and Productivity in Dairy Herds

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# Improving Animal Welfare and Productivity in Dairy Herds

## Overview

- In the last years researchers and farmers have put more attention on creating a comfortable environment for dairy cows and their replacements.
- Observation and experience show that cows housed in a comfortable environment produce more milk and generally live healthier, longer lives.



The productive period (from first calving) of a cow has dropped considerably.



The average productive lifetime of a dairy cow is 2.5 lactations.

**Average lifetime = 4.8 years**

Calf	Heifer	1st lactation	2nd lactation

Source: US Department of Agriculture – 2013.

### Cow longevity

*“The oldest known cow was Big Bertha who was almost 49 when she passed away on New Years Eve in 1993. Big Bertha produced 39 calves”*



Albert De Vries, 2013

Farmer Jerome O'Leary in the Blackwater Tavern with Big Bertha.

# Improving Animal Welfare and Productivity in Dairy Herds

## Overview

- To judge the level of cow comfort, it is important to know how a cow acts naturally,
- and for that is necessary to check daily time budget (eating, lying, resting, social interactions, ruminating, drinking, milking and travel time).



Source: C.J. CMuller and J.A. Botha 1997

Activity	Time Devoted to Activity Per Day
Eating	3 to 5 hours (9 to 14 meals/day)
Lying / resting	12 to 14 hours
Social interactions	2 to 3 hours
Ruminating	7 to 10 hours
Drinking	30 minutes
Outside pen (milking, travel time)	2.5 to 3.5 hours

Daily time budget for lactating dairy cow (From [www.milkproduction.com](http://www.milkproduction.com))



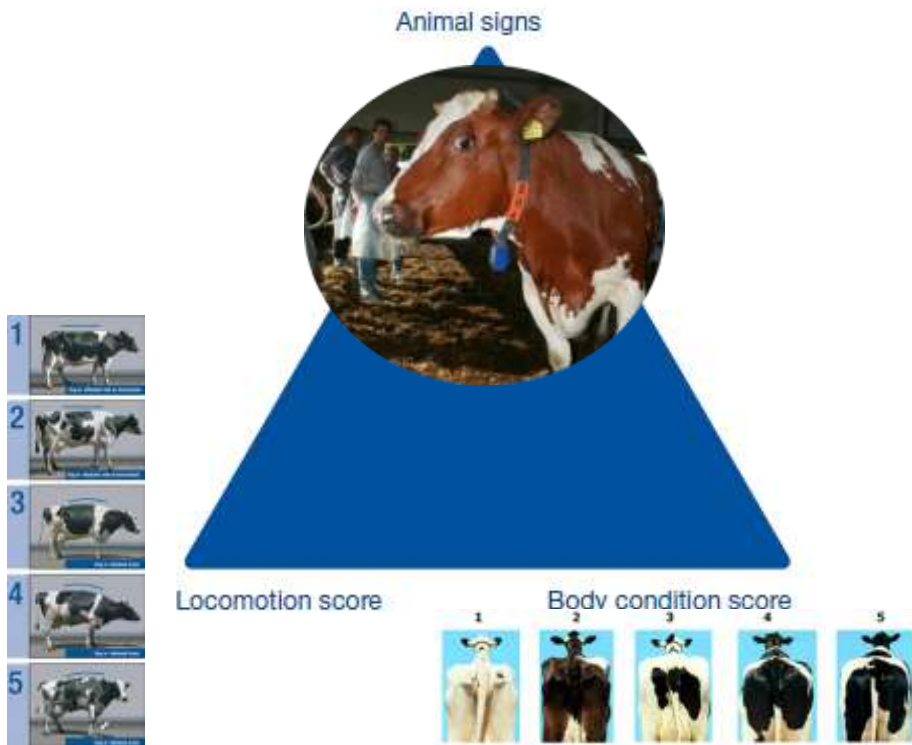
Geert Opsomer & Miel Hostens, 2013



# Improving Animal Welfare and Productivity in Dairy Herds

## Overview

DeLaval cow comfort triangle





# Improving Animal Welfare and Productivity in Dairy Herds

## System production

- Cows should have it all – good management, plenty of quality feed and water, fresh air, adequate daylight periods, a soft, clean resting surface and good floors.
- All equipment and animal housing systems must be designed, built, maintained and managed with focus in animal welfare.



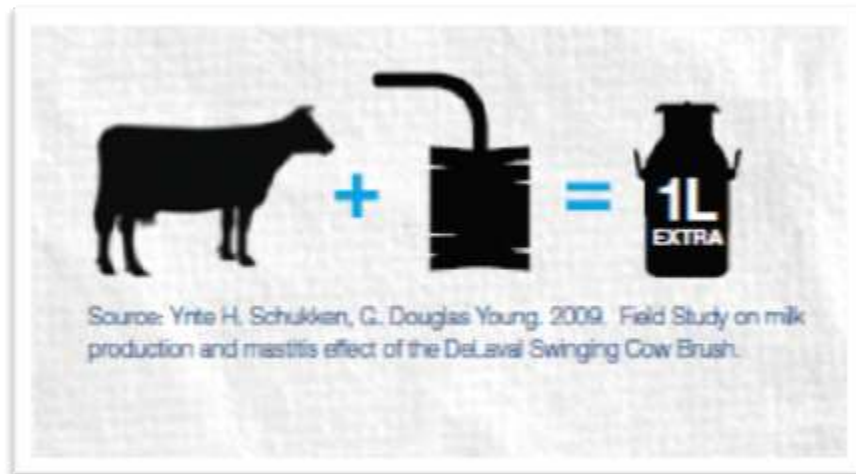
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# Improving Animal Welfare and Productivity in Dairy Herds

## Cow herd behavior (Grooming)

- Social interactions are part of natural herd behavior but is very important to have good space per animal to prevent negative interaction and also to offer the opportunity for the cow to self-groom using swinging cow brush so we can have healthier and more productive COWS.



Security Level





# Improving Animal Welfare and Productivity in Dairy Herds

## Calf herd behavior (Grooming)

- It is necessary gives the opportunity to reduce stress in a natural way by removing skin parasites and helping to keep a clean coat.

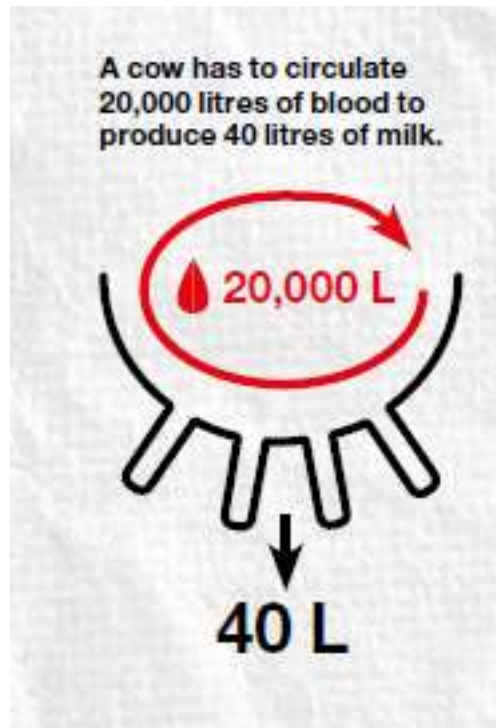




# Improving Animal Welfare and Productivity in Dairy Herds

## Resting areas

- Cows should behave naturally and stand or lie down easily. They need to stand up to walk, to eat, to drink or to be milking and lay down to rest and ruminate.
- Therefore ensuring a cow is comfortable during this process can have a significant effect on health and productivity.



Manteca, X. 2016

	Normal	Problema moderado	Problema serio
Tiempo para echarse (s)	< 5,20	5,20-6,30	>6,30
Animales echados fuera (%)	<3	3-5	>5
Suciedad parte inferior patas (%)	<20	20-50	>50
Suciedad ubre (%)	>10	10-19	>19
Suciedad parte superior patas (%)	<10	10-19	>19



# Improving Animal Welfare and Productivity in Dairy Herds

## Feeding areas

- To help ensure good feed intake, it is crucial that animals are comfortable while eating.
- Feed intake is increased when the cow has a comfortable eating position at the manger.



Feed table  
coverage

Only  
Concrete



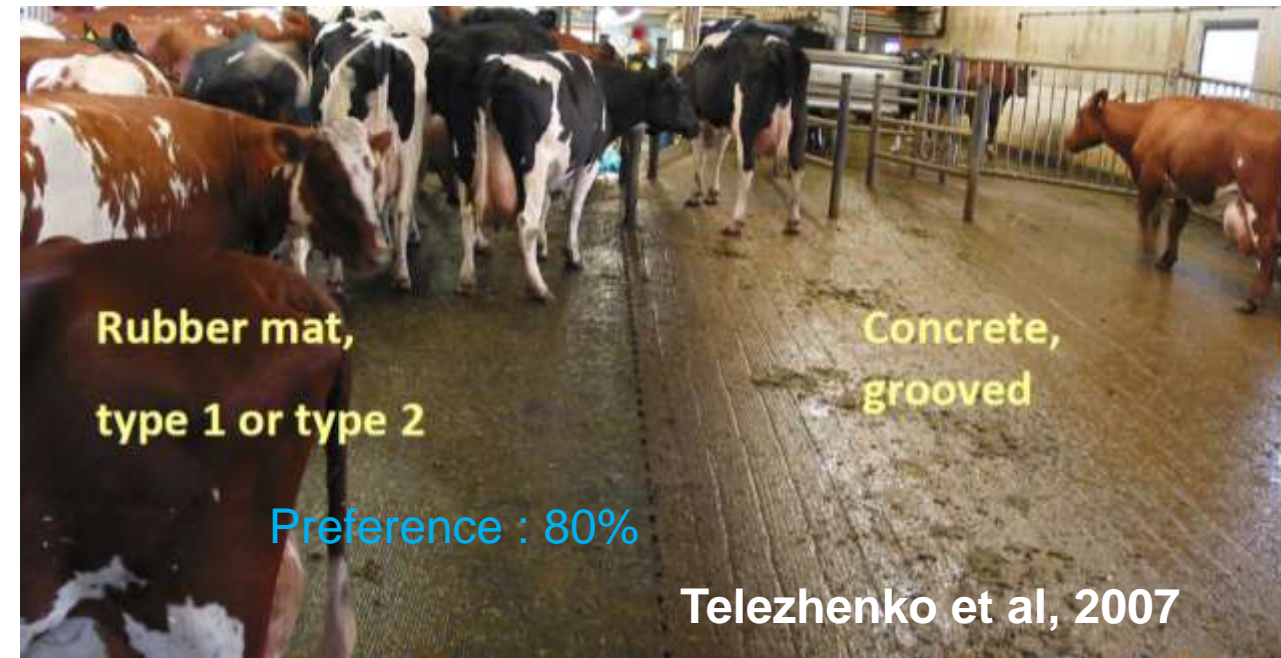
# Improving Animal Welfare and Productivity in Dairy Herds

## Walking areas

- The quality of floors, in terms of shape, hardness, friction and hygiene is of great importance for the health of cow feet and legs. Standing a long time in a waiting area and long walking distances on concrete floors, can all contribute to excessive wear and overburdening of the hooves.
- Installing rubber floor coverage in the alleys, milking parlour and the waiting area improve the daily routine and hoof health.

Scoring	0	1	2	3
DeLaval R18P	71%	26%	3%	0
Concrete	24%	37%	16%	22%

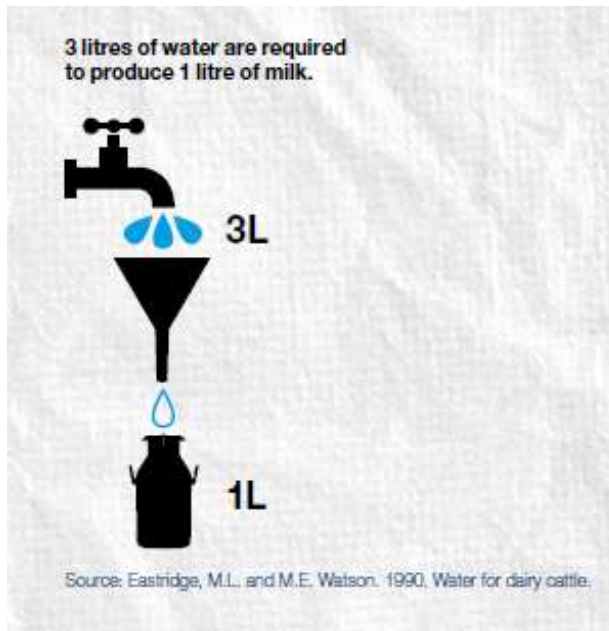
Norberg, P. 2012. Effects of rubber alley flooring on cow locomotion and welfare.



# Improving Animal Welfare and Productivity in Dairy Herds

## Drinking areas

- Water is essential for life and animal welfare. When good water supply is provided, cows drink more, eat more and thus produce more milk.

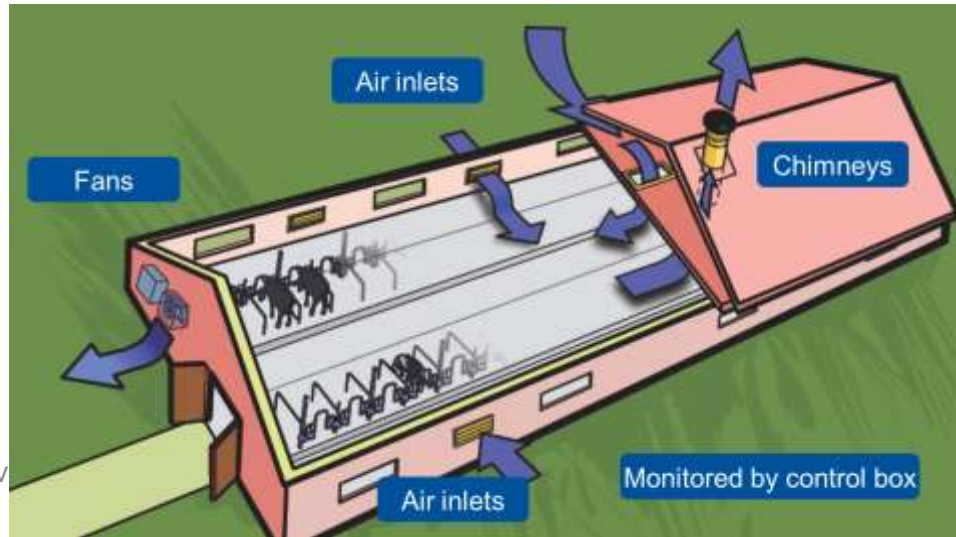




# Improving Animal Welfare and Productivity in Dairy Herds

## Ventilation

- Ventilation of any dairy housing structure, whether it is a newborn calf barn or a lactating cow barn, is very important.
- Dairy cows need a constant source of fresh, clean air to achieve their production potential.
- High moisture levels, manure gases, pathogens and dust concentrations present in poorly ventilated structures, create an adverse environment for animals.



# Improving Animal Welfare and Productivity in Dairy Herds

## Cooling cows

- Heat stress will decrease milk production, feed conversion rate and fertility (decrease pregnancy rates and lower birth weight in calves).
- Today the cow cooling system is crucial for modern farms.

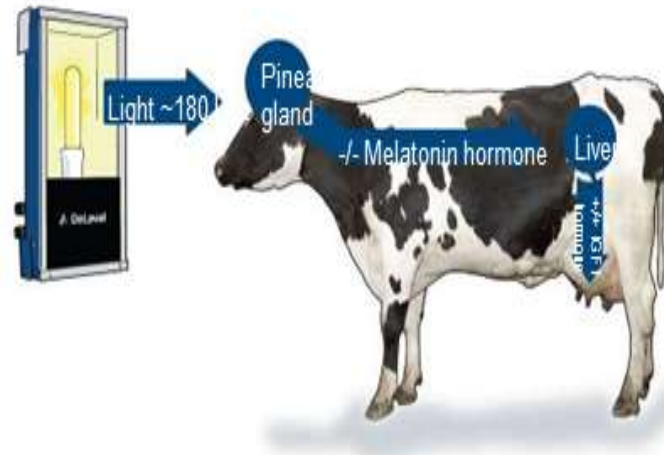




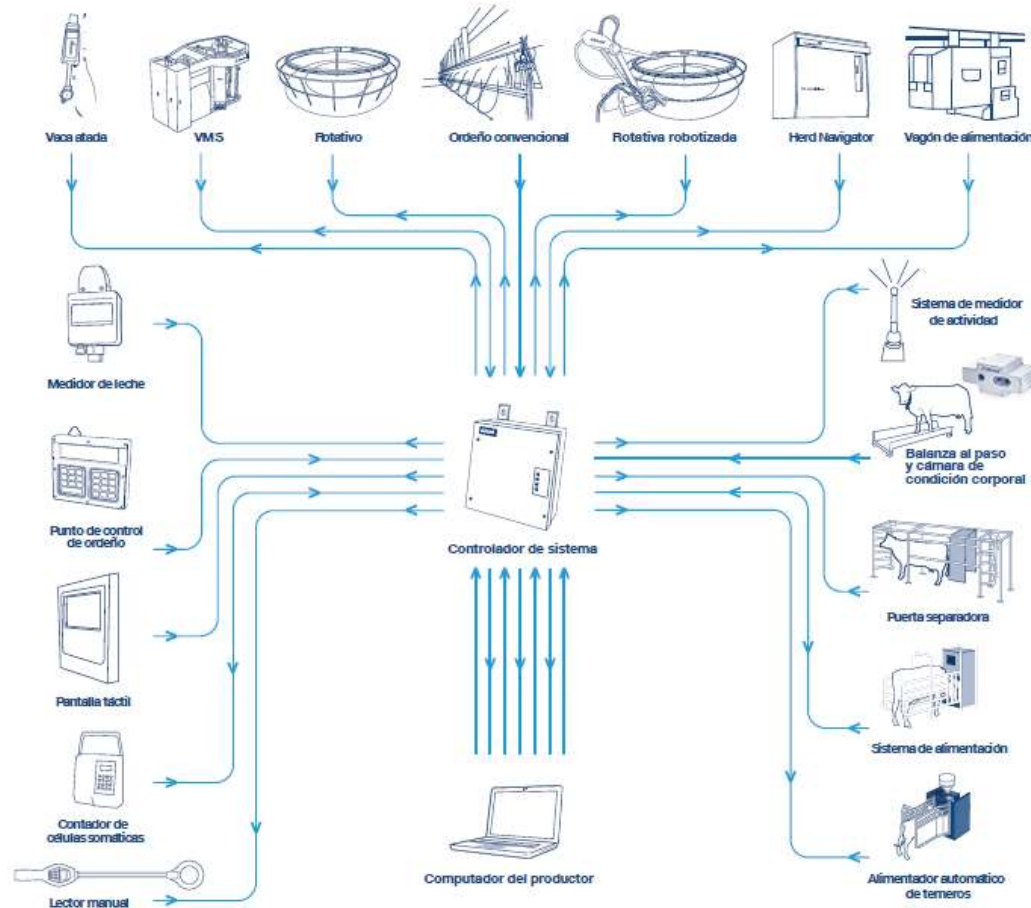
# Improving Animal Welfare and Productivity in Dairy Herds

## Illumination

- Long daylight periods (16 hours of daylight) have a very positive influence on milk yield, fertility and herd health.



# Improving Animal Welfare and Productivity in Dairy Herds Management



“We need information, analyze it, make decisions, and measure what we do to achieve the progress ”



# Improving Animal Welfare and Productivity in Dairy Herds

## Real Case: Chile 1

- First robotic farm in Pasture system (America)
- 300 milking cows (Jersey)
- Farmer: “We need work in the system production, no only in components separately”
- Increase the milk yield per cow = **2 -2,5 liters/ cow/day** (5.500 kg x year) and per hectare (15.000 kg/hect/year)
- Milk fat 4,82% (720 kg/hect) & Milk protein 3,72% (560 kg/hect)
- SCC 80.000 cél/ml \$ RBT 5.000 cfu/ml



Infortambo Magazine, N° 147 August 2015

# Improving Animal Welfare and Productivity in Dairy Herds

## Real Case: Chile 1

- New walking areas
- Better management with cows in the field
- Improve the “animal flow”, voluntary and unstressed
- Standard milking every day
- Better hooves condition





# Improving Animal Welfare and Productivity in Dairy Herds

## Real case: Chile 2

- Biggest robotic farm in the world
- 4.500 milking cows (Holstein) forecast
- Farmer: “We increased 10% the milk production”
- Conventional system 40,2 l/cow/day and **new system 44 l/cow/day**
- Milk fat 3,7% & Milk protein 3,5%
- SCC 140.000 cél/ml
- RBT 6.000 cfu/ml

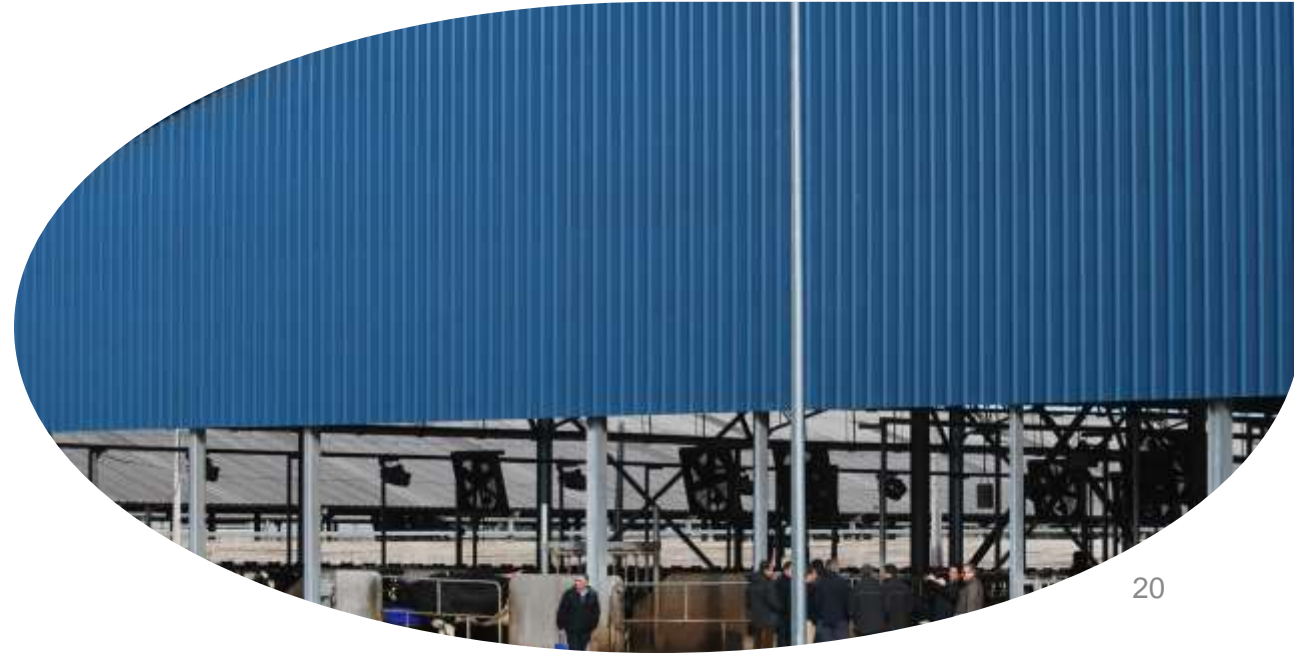


Infortambo Magazine, N° 159 August 2016

# Improving Animal Welfare and Productivity in Dairy Herds

## Real Case: Chile 2

- New barns
- Planning all the system
- Improve the “animal flow”, voluntary and unstressed
- Standard milking every day





# Improving Animal Welfare and Productivity in Dairy Herds

## Real case: Chile 2

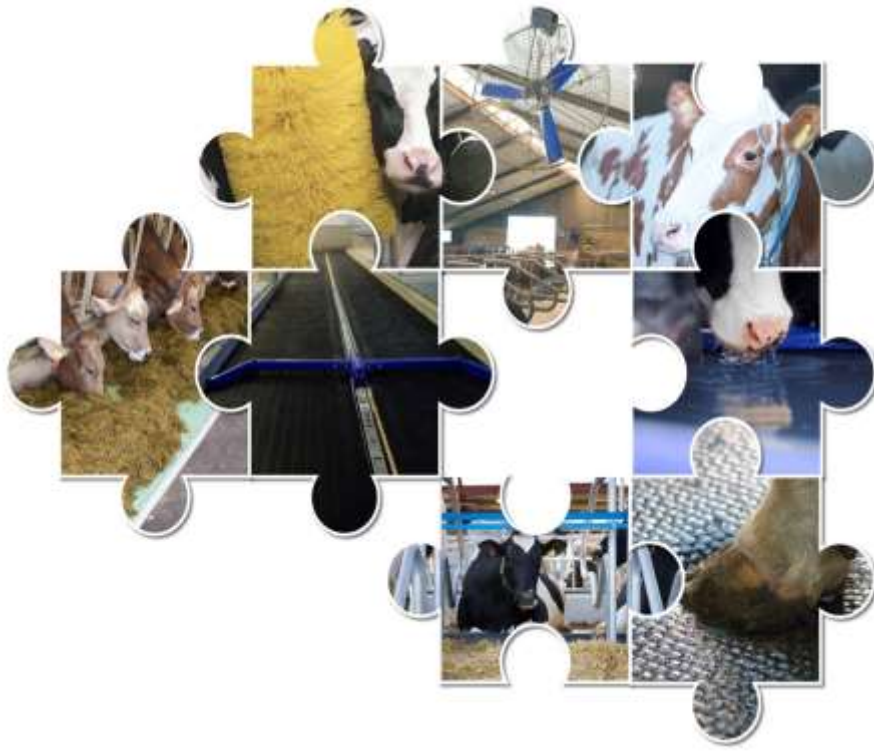




# Improving Animal Welfare and Productivity in Dairy Herds

## Take home message

- Today with the knowledge and new technologies, we have the clear opportunity to improve animal welfare and productivity in dairy herds.





# Thank you!





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