Automatic Milking

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More than 6000 AMS in the world



Management according to nature



Physiological functions and Behavioral needs set the limit



Cow traffic The engine in AMS

- Summarizes movements between lying-, feeding, drinking- and milking areas
- Affects fulfillment of behavioral needs
- Crucial for welfare and thus health, production and economy
- Cow traffic controlled by feeding

FEEDING MORE IMPORTANT THAN EVER



Systems for Cow traffic in AMS

3 different

FREE GUIDED maybe oneway gates pre selection / smart gates



obligatory passage through the robot



Association cell count – milking interval



Källa: Bearbetning av material från kommersiella besättningar

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Gunnar Pettersson, SLU
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Shortage of feed during night

Effects:

- Fewer milkings
- Queue in front of robot at morning feeding
- Risk for fewer milkings in the middle of the day due to decrease in feeding visits due to lazy cows





Gunnar Pettersson, SLU



Lazy cows (Rodenburg &Wheeler, 2002)



NÖK 2010

AM FORSKNING Gunnar Pettersson

svenskmjölk

Feeding frequency and milk yield, 11 herds



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"Kicking off" Mastitis Hairy udder **Dirty teats** Dirty camera Teat conformation Black teats In heat Inter-sucking Etc.

Simply when the cow delivers less milk than expected

What is an incomplete milking?

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Incomplete milkings

Kungsängen



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Introduction of first calvers

- Find their way in the barn
- Find their rank in the group
- Produce milk
- ✤ Eat!
- Calving influence general condition
- Training before calving?
- ✤ Milk leakage

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Feed visits



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Milk yield



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Welfare is dependent on fulfillment of three needs

- Need to rest
- Need to eat and drink
- Need to interact socially

Cow comfort, Stocking rate

Composition, Routines, Cow traffic

Cow traffic, Group size, Regrouping,

A good health situation start with fulfillment of the most important basic behavioral needs



A dairy cow at work Another dairy cow at work

What do you see??

Nutrition and Water - as important

A. DeLava

Free or restricted feeding ?

Social interactions can be positive – and negative...

Social functions? Stocking rate? Low ranked individuals?

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Pasture adds welfare to cows.. also in AMS



LRF:s referensgrupp för betesfrågor 2009-02-18 Charlotte Halbér Standgren



AMS and pasture - conclusions

- It must be a "good" pasture.
- The cows must be allowed to see the pasture and "mates" already in the stable door.
- Feed extra silage outdoors.
- Selection gate, milk cows before leaving stable.
- The brighter part of the day or 24 hour system.
- Some overcapacity during pasture season.
- Stick to your model Cows don't like changes.
- Water in pasture necessary if more than 300-400 m distance from the barn.



Udder health in AMS

Mastitis and High cell counts are caused by bacteria also in AMS

Bulk milk somatic cell count in different types of herds Svensk Mjölk, Milk recording system 2008





Bulk Tank AMS, SCC associations



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Figur 1. Skattat tankcelltal i besättningar med olika medelavkastning (Tkg ECM), uppdelat på besättningens ras för besättningar med AMS och a) 50-99 kor och b) 100-199 kor.

High SCC (p < 0,001)

- Holstein breed
 Large farm (> 100 cows)
 AMS
- Low yield



Marie Mörk, Svensk Mjölk

Higher cell counts in "modern" Swedish herds

Mathematics

Increased number of infectious contacts

Management

- Transition period: Nutritional deficiencies, neglected hygiene and biosecurity
- No sectioning to protect healthy cows and heifers at calving, drying off, during dry period or lactation
- Deficiencies in Cow Comfort and hygienic condition in barn and feed.
- Holstein more common in larger herds



7 reasons to a high and varying cell count in AMS

- Problems in Cow traffic results in prolonged and uneven milking intervals
- No follow up of Incomplete Milkings
- Poorly functioning or few Systemic washings
- No sectioning to protect healthy heifers and cows from contagious ones.
- Unhygienic Milking in the robot
- Late detection of **Mastitis**
- Wet and dirty teats at milking due to dirty cubicles, alleys etc.



Improved udder health in AMS – How?

Supervision and Routines Supervision and Routines NÖK 2010

Feeding and Nutrition

Supervision

- Check rumen fillness
 - Newly calved daily
 - All cows once a week
- Check rumination
 - When changing diet
 - Once a month
- Check feeding equipment
 - Daily

Routines

- Provide forage 23 hours
- Sweep feed table
 - Once daily
- Clean water
 - Tanks daily
 - Cups twice a week
- Clean feeding equipment
 - once a week



Dry and clean lying area

Supervision

- Check grooming machine
 Once a week
- Good quality of bedding material
- Calving area
 - Cleaner and drier than anything in the barn

Routines

- Exchange bedding
 Within 48 hours
- Check for leaking cows
 Move and clean
- Cut the fur coat
 - When necessary
- Store bedding material in a dry and protected place



Healthy claws a prerequisite in AMS

Supervision

- Record claw health
 - Twice yearly
- Gait assessment
 Twice yearly
- React on acute lameness

Measures

- Trimming
 - Twice yearly
- Inspection and treatment of acute lameness, block on sole lesions
 - Continuously
- Footbath
 - ≥ 2-4 days per month
- Dry and clean floors
 Scraping overv bour
 - Scraping every hour



Cell count and Mastitis

Supervision

- Check cow traffic and technical function

 Once a week
- Check "chronicals", High cell counts, new infect.
 - Quarterly
- Bulk milk cell count
 Every delivery
- Identify healthy cows
 At calving
- Check incomplete
 milkings
 - Twice daily

Routines

- Protect healthy cows at:
 - Calving, lactation, drying off and dry period
- Milk <u>all</u> cows twice daily
- Post Milking Teat disinfection
- Dry cows in another barn
- Dry off "chronically infected udder quarters"
- Milk leaking cows before calving





robotpaketmjölk FRÅN IDE TILL FULLT FUNGERANDE DRIFT

Thank you for your attention

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