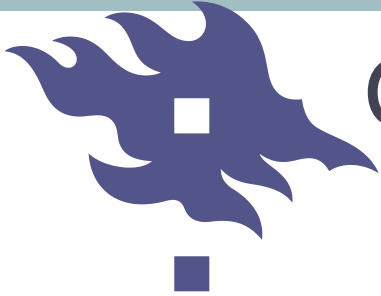


Udder health in modern dairy farms - associations with management and grouping of cows

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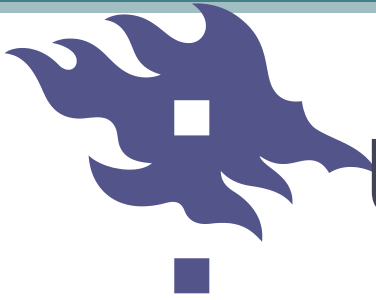
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Work Efficiency Institute: Veli-Matti Tuure, Markku Lätti, Janne Karttunen
Agrifood Research Finland: Tapani Kivinen, Timo Hurme



Grouping strategies in large dairy farms

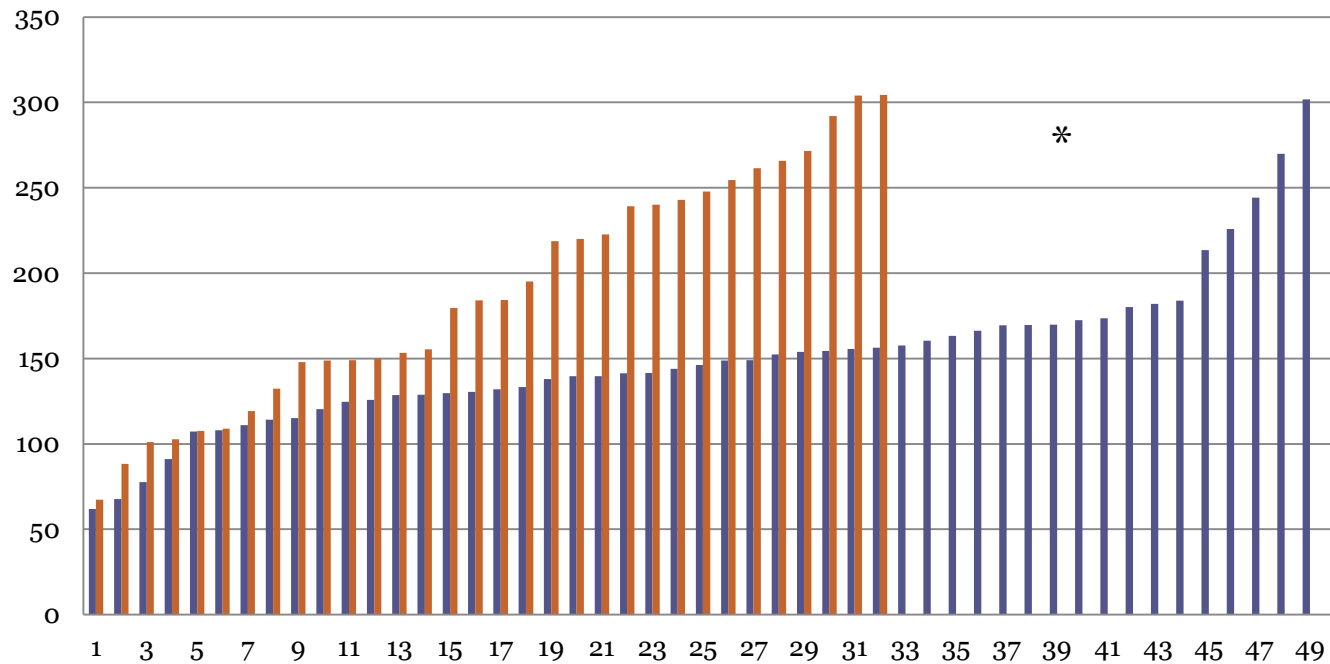
	Milking parlour (PM)	Automatic milking (AM)
Number of herds	50	32
Cows (mean of 2011)	125	125
Year of introduction	(1973-) 2000-2010	(1969-) 2001-2010
Milking	herringbone 56% side by side 28%	2 boxes 81% >2 boxes 19%
Feeding	mixed ratio 76% silage + concentrates 14%	partial mixed ratio 72% silage + concentrates 22%
Access to pasture + outside pen	24% + 8%	9% + 16%
Proportion of Holstein cows	32% (SCC↓ , p<0,001)	54%

14.6.2013

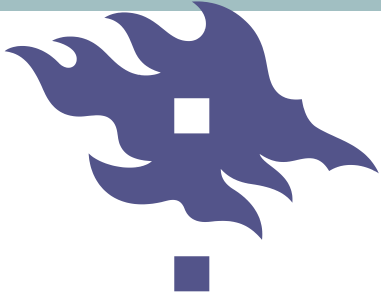


Udder health in 82 herds

Geometric mean of cowSCC/herd * 1000 cells/ml in 2011



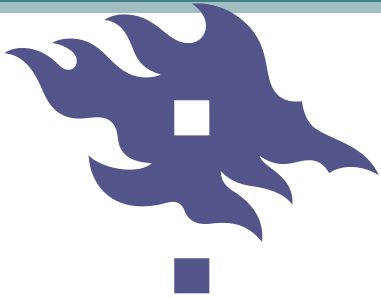
□ AM
□ PM



The model

- Linear mixed model with herd as a random effect
- Outcome variable: ln-transformation of the median cowSCC in 2011
- Background factors: breed, parity, milk yield, number of SCC measurements/cow
- Variables: management, measurements of the barn, observations of the cows
- Final models:
 - **All herds:** milking type (AM vs. PM), keeping heifers with dry or lactating cows before calving, detection of mastitis, *cows/stall, space/cow, stall surface material*
 - **AM herds:** separation of cows with mastitis, mastitis detection, two/one robot unit/cow group, cow traffic system, having DD, proportion of calves suckling each other, separation of cows in heat, stall surface material, proportion of severe hock lesions, cows/stall, *use of teat spray and DCT*
 - AM herds: number of milkings/day/cow (not in the model)

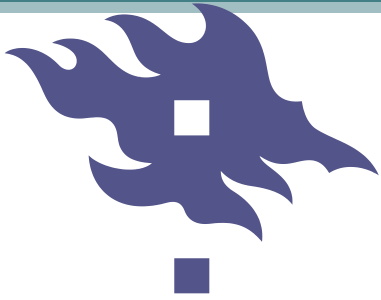




Grouping of cows in milk

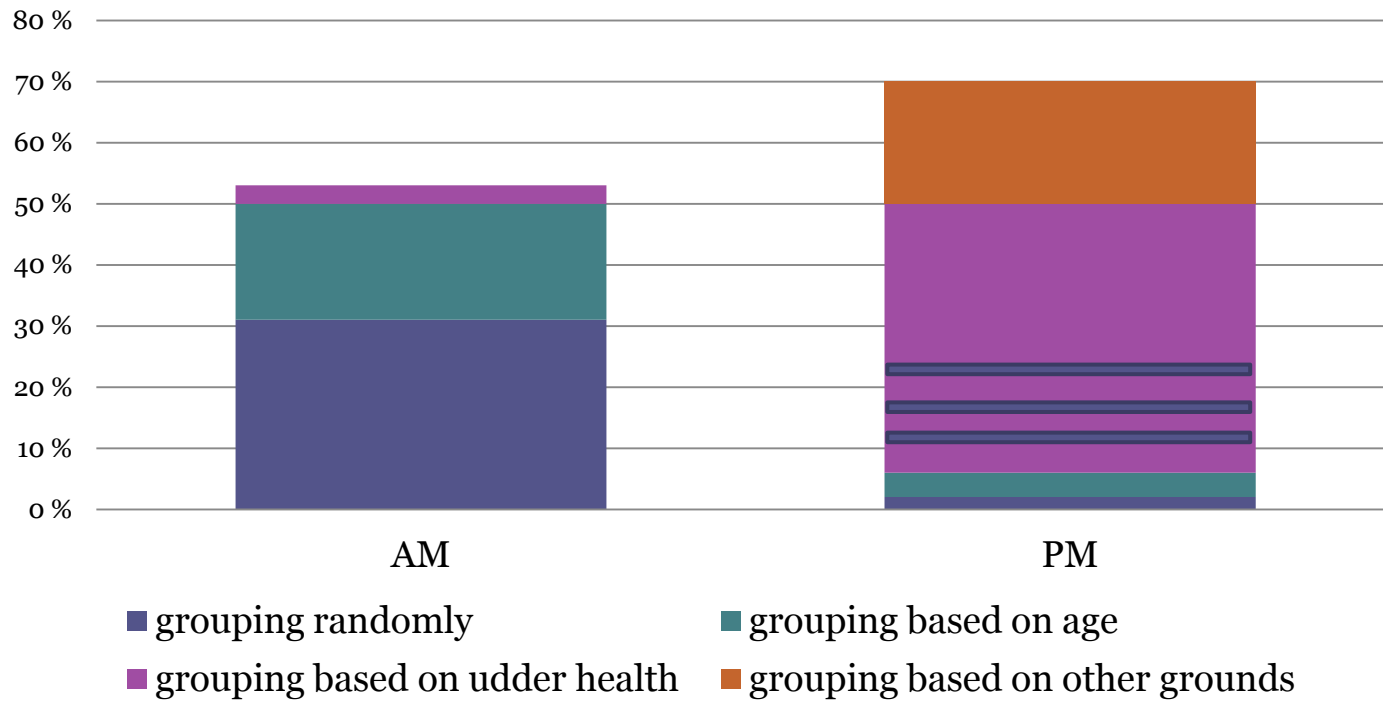
	PM	AM	Association with SCC
Mean no. of cows (+heifers) in the biggest group	73 (32-170)	85 (49-200)	SCC ↓ if 120 cows in one group ($p < 0,01$) in AM farms
M ² /cow	7,4 (3,8-14,6)	7,6 (4,8-9,6)	SCC ↓ if less space ($p = 0,06$) (ln 0,07/m ²)
Overcrowding (1,1 – 1,27 cows/stall)	38%	44%	SCC ↑ if less cows/stall ($p < 0,10$)

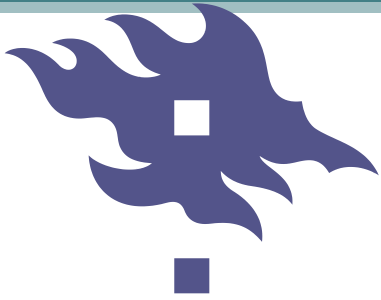




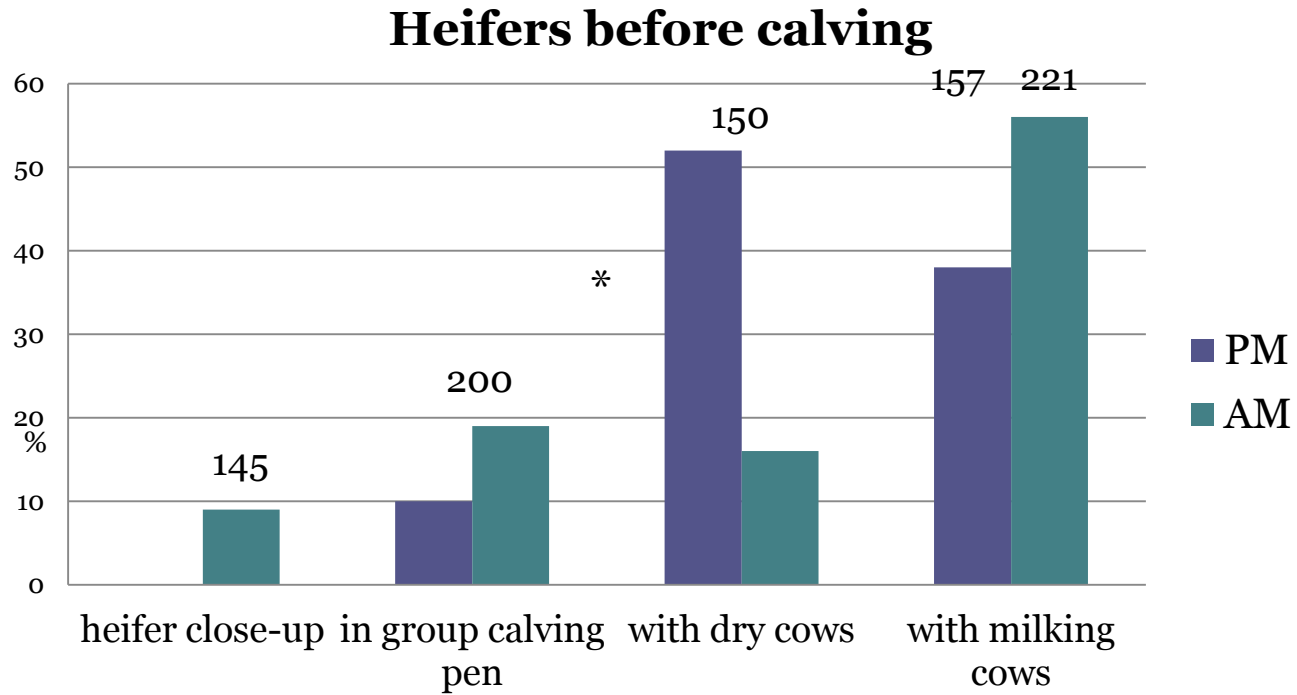
Grouping of cows in milk

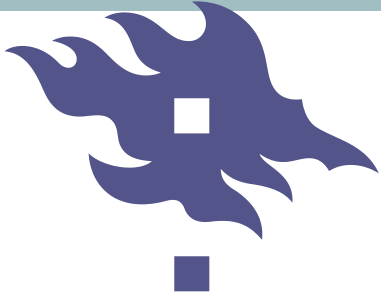
Herds with >1 group for lactating cows





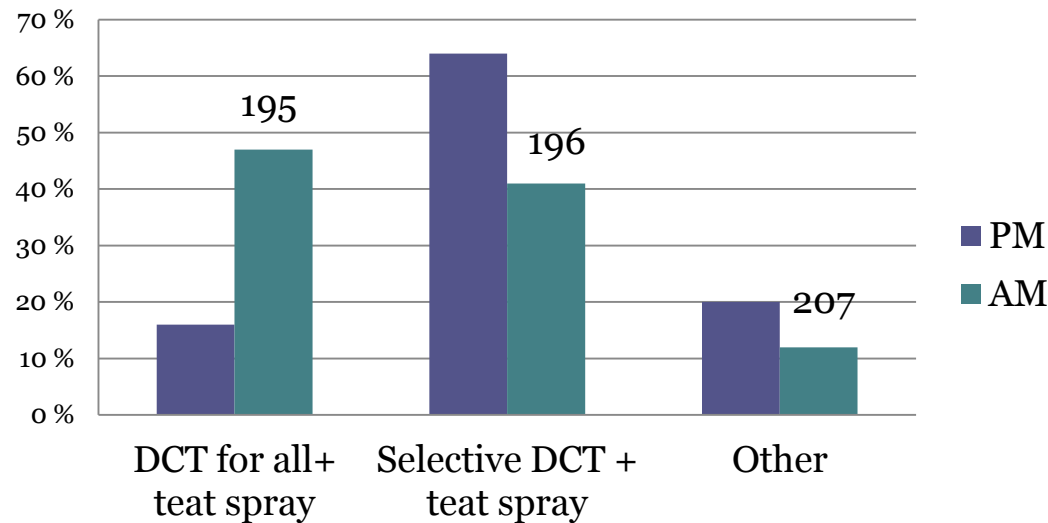
Heifers before calving





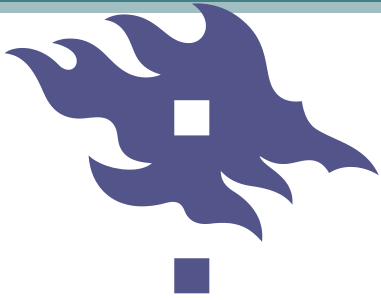
Fighting against infection

Dry cow therapy + teat spray

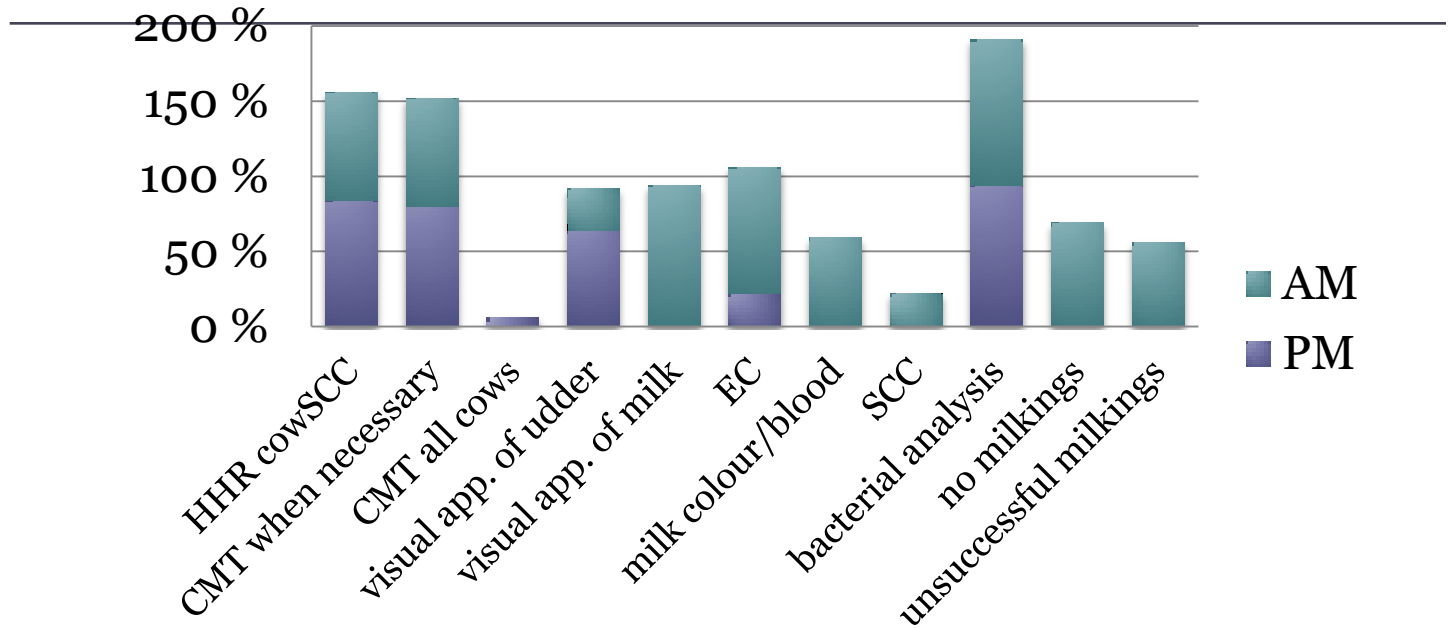


- Liner treatment in AM: steaming + rinsing 56% of the farms, rinsing 44% of the farms (ns.)



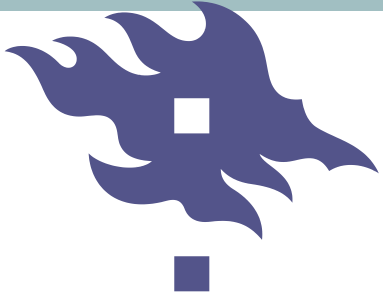


Detection of mastitis



	PM	AM
% of farms having "sufficient" methods	68%	31-47%
SCC ↓ if detection is not "sufficient" (p<0,05)		(dep. on definition)



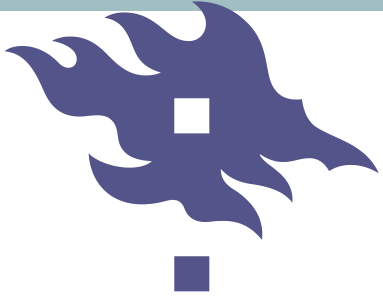


Milking frequency in AM

	Free traffic	Guided traffic
% farms	75% (SCC ↓ p<0,01)	25%
Number of milkings/cow in 2011	2,5 (2,0-2,8)	2,5 (2,3-2,9)

SCC ↓ if >2,6 milkings/day (not in the final model)





Conclusions

- Better udder health in PM:
 - Separation of cows with mastitis
 - Heifers not with cows in milk
 - Ayrshire vs. Holstein
 - Grouping of cows in milk?
 - Frequency of milking?

- Other outcomes have yet to come out:
 - Acute clinical mastitis
 - SCC > 200 000 for the first time for first parity cows
 - Culling because of mastitis
 - Different mastitis bacteria