

The compost barn – an innovative housing system for dairy cows

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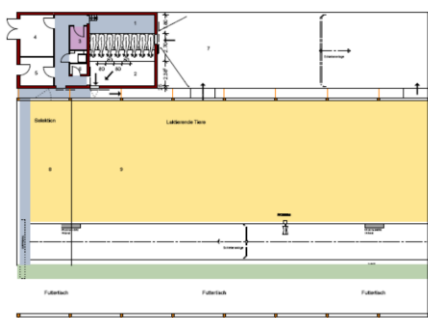
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What is a compost barn?

- ◆ Two-area system
(bedded lying area, feeding alley with solid or slatted floor)
- ◆ Lying area: bedded with sawdust or wood shavings
- ◆ Bedding material is added every 2 – 7 weeks (0.4 – 1.3 m³/animal)



What is a compost barn?

- ◆ Once or twice a day bedding material is loosened with a grubber or rotary hoe, working in any faeces and urine
- ◆ mixture can decompose with the help of aerobic microorganisms
- ◆ Compost removal (mucking out): twice a year (spring and autumn)

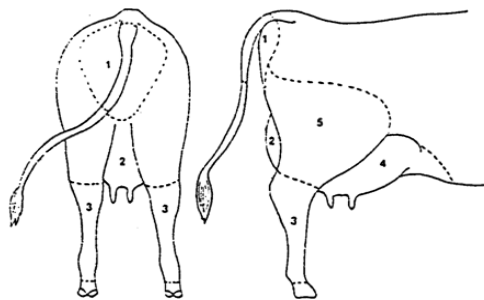


Materials and methods

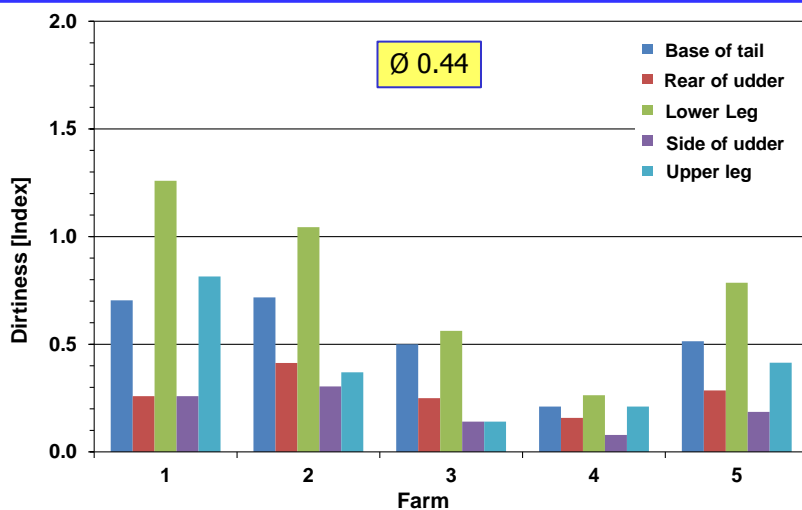
- ◆ Joint research project between HBLFA Raumberg-Gumpenstein (A) and ISS Tänikon (CH)
- ◆ Aim: Analysis of overall conditions involved in the construction and running of compost barns for dairy farming
- ◆ Five Austrian farms with compost barns
- ◆ Herd size: 18 – 35 cows per farm
- ◆ Investigations:
 - Cleanliness of the animals
 - Integument alterations (hairless patches, lesions, swellings)
 - Animal behaviour (especially lying and standing)
 - Lameness
 - Questionnaire survey (7 farms)

Cleanliness of the animals – Method (Faye and Barnouin, 1985)

- ◆ Five areas of the body (zones)
- ◆ Five scores (0 – 2)



Cleanliness of the animals - Results



Integument alterations - Method (Ekesbo, 1984)

Tarsal joint

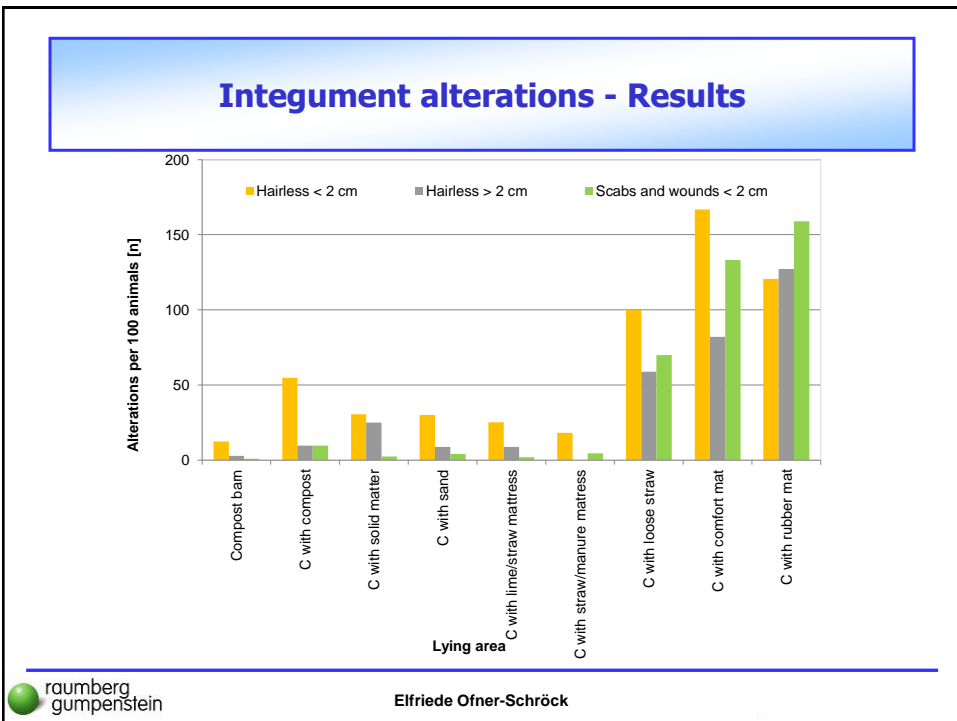
Tarsus

Carpus

hairless patches, dry scabs, open wounds, swellings

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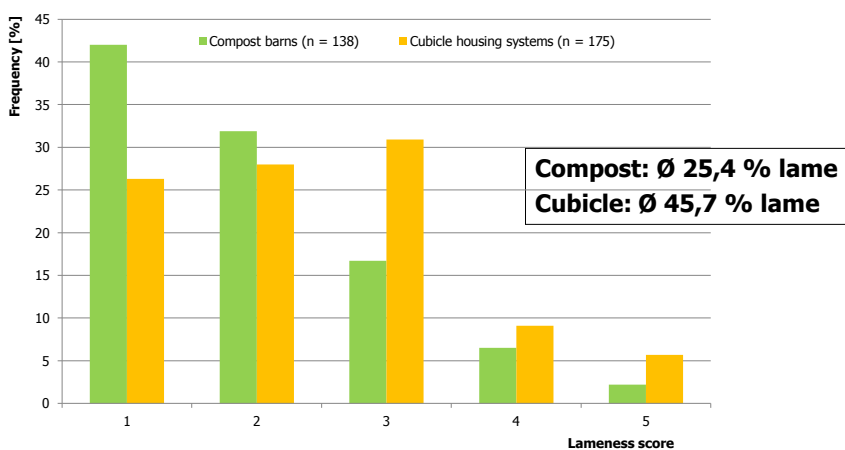
Lameness assessment (Model of Winckler & Willen, 2001)



Lameness scores (values):

- 1 – normal gait
- 2 – uneven gait
- 3 – short striding gait with one limb
- 4 – short striding gait with more than one limb or strong reluctance to bear weight on one limb
- 5 – does not support on one limb or strong reluctance to put weight on limb in two or more limbs

Results of lameness assessment



Summary

- ◆ **Cleanliness of the animals:** The dirtiness of animals averaged 0.44, while the udder was the cleanest and the lower leg the dirtiest area.
- ◆ **Integument alterations:** Only a few lesions in carpal and tarsal joints could be found.
- ◆ **Lying behaviour:** Concerning lying behaviour cows showed no differences between times of day and temperatures. Large differences in lying behavior were evident between farms.
- ◆ **Lameness:** In lameness assessments 25 % of cows were scored to be lame in compost barns. This percentage is significantly lower than a series of results on cubicle housing systems (31 – 46 %).
- ◆ **Questionnaire survey:** According to the farmers, animal welfare in compost barns is better than in the housing system previously used.

Conclusions

From the present results, the compost barn can be seen as an animal-friendly system.

Further investigations are desirable to analyze other factors affecting animal health and to resolve any outstanding issues concerning economy and alternative litter materials.

