

# Trends in dairy cow husbandry

*Recently, very rapid structural changes have taken place in dairy-farming with added impetus through the introduction of the free exchange for milk quotas. Whilst current evaluations from accounting results in Wesphalia-Lippe Chamber of Agriculture region definitely show that size is not everything, increased animal performance and further growth in herd size is forcing an optimisation of rearing, livestock housing construction, feeding, milking technology and management for the longer-term securing of economic success.*

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## Keywords

Calf husbandry, naturally ventilated housing, cubicles and feeding area design, milking technology

**T**he production of healthy calves is the basis for healthy dairy cows. The preparation of a large-enough calving pen with dry, clean bedding has a decisive influence on the beginning of a milking cow career. If the calving pen is envisaged for several cows at the same time, group size should not exceed three to four cows otherwise an interrupted birth process cannot be guaranteed. In this context, among the most important birth support measures are controlling and monitoring. Supporting the birth through pulling the calf is only necessary and sensible in exceptional cases. Many investigations have clearly shown that premature and wrongly carried-out pulling can lead to damage in the subsequent breeding cycle of the mother animal.

## Trends in rearing

Proven as suitable has been the keeping of new born calves for about 14 days in individual pens with the calf housing separate from the dairy cow housing. The isolated rearing lowers the infection pressure noticeably. It is sensible to orient ventilation on the outdoor temperatures. There is a choice of different calf huts through to calf igloos. With the latter, however, the partly increased difficulties concerning working conditions for the stockpersons attending to the calves must not be underestimated. After 14 days it is advisable to gather the calves in welfare-correct groups which also serve to increase labour efficiency. Automatic drinkers have definitely established themselves for the feeding of appropriately-sized groups. The technology involved is, in the meantime, tried and tested, even although the manufacturers continually manage to bring detail improvements onto the market. Open pens encourage good calf health although, as with all natural climate housing, drinking systems must be protected from frost. Labour economy advantages are offered by fully-slatted accommodation for rearing young cattle. Keeping the animals in multi-area housing with separated laying surfaces or in cubicle housing is, however, more established. Through the early accustoming with cubicles the later acceptance of this type of housing by animals can be noticeably improved.

## Natural ventilation accommodation in new buildings

Cubicle housing has definitely become established. Natural ventilation is applied in new cubicle housing. Where the building shell is closed, raising the eaves to give openings, and establishing an appropriate roof pitch, gives sufficient air volume and a good air exchange. Causing increased discussion now as a further trend are the cucettenstall or cubicle stander systems. Here, the animals are offered a protected (roofed) lying area, with passageways and feeding area only partly roofed. Outdoor conditions as part of the cow environment has a positive effect on the hardiness of the animal. However, in the case of non-roofed yards, allowance must be made for the increased slurry production through rainfall complementing the manure.

## New in Germany: fans against heat stress

For a long time it has been recognised that, with high-performance animals in particular, heat stress causes substantially more problems than cold. Ventilator fans are now being used in Germany too – with good success. These increase air exchange and combat heat stress. Misting systems for increasing air moisture content have not up until now established themselves although these offer a certain potential in the minimisation of heat stress.

## Cubicle design: cantilever dividing rails now standard

In cubicle design, cantilever partitioning railings have, in the meantime, become standard. The market offers many different, practice-proved, variants. Cantilever rails not only increase the movement room per cow, they also simplify the fitting of lying area surfaces. High and deep cubicles continue to compete with one another as far as design is concerned and good results have been shown to be possible on littered straw manure mattresses as well as on soft bed systems with minimal straw. The decision as to which system to adopt is strongly dependant on size of herd, availability of straw and available labour and has different focal points depend-



## Automatic milking systems make high demands on the users

In total, automatic milking systems present the users with greatly increased demands. This covers not only the ability to handle technology and software, there's a need for added awareness and "stockperson's eye" in animal management. From the AMS manufacturers' side, improved sensor technology is required for the identification and isolation of suspect milk. At the same time, more effort is needed by the software sector towards increasing user-friendliness. Whilst milking robots deliver a plethora of information towards the optimising of management much of this, however, ends-up in a "data graveyard". The target must be to present all this information to the farmer so that decision-making is made easier.

### Summary

Successful milk production making full use of the cow's genetic potential is only possible when the animals' needs are known and met. This fact is not new, even when it is more emphasised at the moment under the catchphrase "cow comfort". Cubicle housing in its present form offers good conditions for realising the requirements of the cow. Detail improvements in individual function areas are still possible. The fundamental fact that a system can only be as good as the person using it remains valid in this context. Intelligent management systems will be increasingly important in the future and can offer tremendous support. The target is a reduction in health-impairing work so that free time is created for more herd care and management.



*Fig. 1: Calf igloos offer plenty of fresh air and encourage the development of robust animals*

ding on the region. Using sand as litter material has undoubtedly advantages from cow comfort aspects but the usual manure handling systems quickly set limits to the amount that can be used.

Whilst perforated flooring for cattle movement areas has been accepted for many years as the standard solution, solid flooring has, on cost grounds, experienced a renaissance in recent years. Slats with 8 cm breadth leaving a 3.5 cm spacing have become successfully established in slatted flooring. One problem with solid flooring can be poor slip resistance. In the long term, the use of asphalt reduces the risk of animals slipping, but does involve extra costs. To what extent profiling of concrete floors offers a permanent increase in slip resistance has not yet been finally decided upon. With dairy cows, the fitting of a stationery manure-withdrawal system is advisable in every case. Such systems, operated via time-switches, keep movement areas very dry with associated positive influence on hoof health. For this reason, too, slat scrapers are being increasingly fitted in perforated flooring systems.

### New reflections on feeding place design

In feeding area design, the long-term tried and tested self-catching feeding fence has come under critical reappraisal in some regions. The grounds for this are the too-high costs involved, and the suspected reduction in comfort for the cows caused by the feeding fence. On larger farms the cost argument is certainly not to be ignored, although using only a static feeding fence means increased feed losses and dirtier slatted floors at the fence. Omitting self-catching fences also means that an additional catching facility has to be created for animal treatment. Appropriate facilities are in the meantime available and in the most practical designs these are associated with the milking parlour system. Feeding areas which allow the ani-

mals to stand on a softer and drier surface so that hoof health is promoted are still at the beginning of development and do not allow final evaluation on costs and usage.

As before, the highest labour input in dairying is with the milking operation. Further developments in conventional milking technology are mainly limited to detail solutions. The market for automatic milking systems (AMS) indicates, on the other hand, great dynamism. The number of companies offering such systems has further increased and in the meantime reliable information is available for most systems. An important point is that the majority of those have satisfactorily solved the questions of reliable cluster attachment and of the actual milking procedure. An increase in the flexibility of working time and an improvement in quality of life is being confirmed by nearly all stockpersons that have turned to AMS. For udder health or labour input AMS has not, however, been able to satisfy all expectations. With a subject such as udder health, with its large complex of causal effects, it has become clear that it is not practical to look at the milking technology in isolation when performance drops. As a rule in such situations, clear failures in the care and management of the herd are also responsible.



*Fig. 2: Lying comfort through lightly-bedded soft mats and cantilever cubicle partition railings. (Fotos: W. Achilles)*