

# Intensive Herd Management

## Basis for Costing in Milk Production

*With herd size changing through infrastructure alterations and milk production performance increasing at the same time there's increasing pressure on the manager as well as on herd management. Additionally, agri-political pressures and economic concepts increasingly necessitate monitoring the milk production enterprise for smooth running and economic reliability using suitable objects and time for control.*

For monitoring economic performance in milk production, it would appear that individual animal performance instead of whole herd assessment is now necessary, and that the animal performance control should be divided into different aspects such as feeding and herd replacements. [2, 3, 4]. Required here is a suitable individual animal database. Management support is available via herd management programs and application of computer-supported technology through to part-automation of the milk production process [2, 8, 9, 10]. Computer-supported process-technological requirements have a role in data collection, cow planners in data preparation and evaluation.

### Material and Methods

Database Test Station I, Hohenheim University (Meiereihof) can be used for a variety of cost calculations. A production system has been running here since 1990 characterised by part automatised through a comprehensive process. Alongside milk production and concentrate consumption, forage intake and liveweight are individually recorded. It is also possible to record cow-individual AI and vet inputs. In the latter case the vet deliveries and application receipts supply the necessary data. Part and full cost calculations give the single animal economic parameters. These then form the basis for whole dairy herd evaluation. An evaluation of different aspects is carried out with the help of cost benefit analyses. Alongside these purely

economic and mainly monetary aspects, cost-benefit analysis is also used for qualitative assessment of animal, environment and consumer protection.

### Individual costings

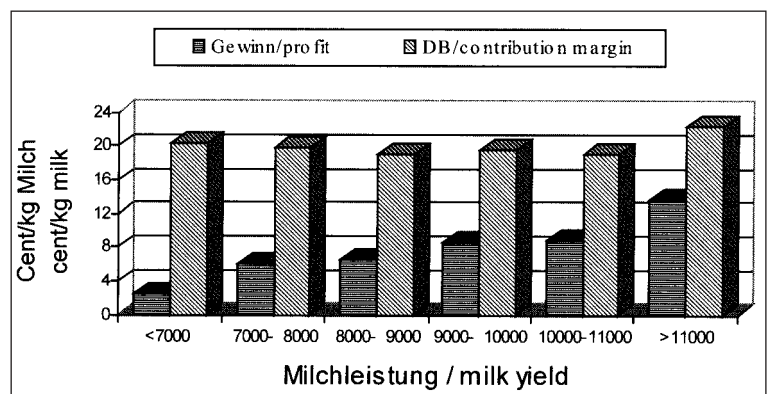
Individual economic parameters are mainly to support herd member selection. Under current milk quota regulations this information – usually only available to a limited extent – can be usefully exploited to its fullest extent [3, 4, 5]. For calculation of individual gross margins vet and AI costs join forage and concentrate costs. Also MLP data allows the calculation of animal-individual monthly milk price according to the respective monthly milk production. Naturally, gross margin in €/cow rises with increasing milk production and year. But, based on the kg milk, it is clear that cows with lower production can equal the economic returns of high performance cows (fig. 1). For quota management this also means that relatively low-performance animals are in the position to exploit that generally limited factor „Guarantee amount“ with the same economical success [5]. When the factors „labour“ and „housing“ are considered there is evidence, contrary to the gross margin, that high-performance cows, even when converted to per kg milk, perform better in the context of these factors. Where labour or building space is limited the selection decisions therefore would be based on milk performance.

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### Keywords

Milk production, herd management, computer aided process engineering, costing, controlling, single animal economic parameters

Fig. 1: Profit and gross margin (c/kg milk) in relationship to milking performance



## Evaluation of partial aspects

With respect to milk production variable costs, saving potential is particularly possible in the two large cost blocks „feeding“ and „replacements“. These two thus undergo their own economic analyses. Here, the absolute feed costs are shown related to milk production and rise along with the production. Based on kg of milk, the feed costs can, in the case of higher performance, be substantially reduced, however (fig. 2). As can be seen in the further evaluation of the feed management, the gross margin per kg milk can be substantially improved through increased performance from forage as well as through lower concentrate consumption [6, 7]. Along with replacement costs, the influence of reduced first calving age and reduced returns to service are given special attention. In both cases an impressive increase in profit can be realised. The positive influence of reduced returns to service is however much greater and as a rule can be achieved with much less input.

## Evaluating qualitative aspects

A further research subject looked at the contribution this type of intensive herd management or production system could make to animal, environment and consumer protection [1]. To suitably order the potential values, determined through cost benefit analysis, of a very intensive production system, byre and extensive loose housing systems were also subject to the same evaluation. Here it was first of all clear that an intensively managed loose housing system achieved the highest cost benefit ratios in all sections and because of this was to be preferred in terms of animal, environment and consumer protection. Additionally, it was established that especially in the aspects welfare (floor space/cow) and environment (emitting surfaces) there were substantial conflicts of aim. In summary of these analyses it can be established that a highly mechanised and partly automated production system tends to offer a positive contribution to animal, environment and consumer protection.

## Summary

To ensure long-term a successful milk production sector, more importance must be attributed to cost calculations and, with those, management for success. Possible potentials for reducing costs can only be effectively exploited, however, when the milk production enterprise is subject to economic control on the basis of separate aspects of herd management and on the individual animal, and no longer only as a total herd. Playing a sup-

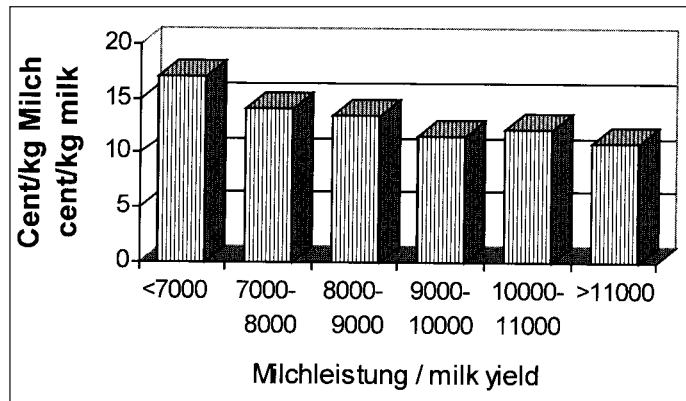


Fig. 2: Feed costs (c/kg milk) in relationship to milking performance

porting role here is increasing automation of the milk production process and creation of the necessary database for the appropriate cost calculations. Over and above these purely economic aspects an intensive herd management also offers the possibility of fulfilling increased demands from the animal, environment and consumer protection aspects. Especially with regard to consumer protection, this type production management produces to a great extent the required documentation for absolute quality management right along the production line.

## Literature

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