

## **Optimisation of milkers' convenience on large agricultural companies**

Masterthesis at the Department of Agricultural Engineering

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### Abstract

Due to the current trends in the agricultural pricing politics, profitable husbandry of milking cows has become difficult for the European farmers. The trend of rationalising will continue and you will find herds of milking cows with 500, 1,000 or even more animals more frequently. Consequently, the workplace of a milking parlour is getting more and more industrialised character and the demands of a human being, animal and technique during the milking process have been changing accordingly. Not only in the rotary systems but also in other modern milking parlours most elements of the milking routine have been automated except the pre-milking, the cleaning of the udder and the attaching of the milking cluster to the teats. On the one hand, highly specialised techniques become necessary and, on the other hand, the variety of the shift milkers' tasks becomes poorer and their responsibility diminishes while, at the same time, the work load due to the strongly repetitive tasks increases. Besides the aspect of animal welfare, the humane well-being may also not be neglected. Therefore, the main topic of this thesis will be the milkers' convenience on large agricultural companies – this issue will be reviewed from a more holistic point of view rather than in a way focusing on one single aspect of this thematic field. What is the status of work satisfaction, how do the employed milkers estimate certain job related burdening factors, how could their situation be optimised and does there still exist any possibility for establishing a good human-animalrelationship in spite of factory farming? The review of the scientific literature provides information about the workplace of a milking parlour, shows an illustration of the standards of milking technique and the known burdening factors but also a placement within work science and a description of the common working processes in a milking parlour. This review provides the basis for the development of guidelines for interviews done with eight shift milkers on five representative large agricultural companies in Eastern Germany. The results of these interviews facilitate a proposal for a definition of the term "milkers' convenience" [German "Melkerkomfort"] which has been ambiguous so far and offer a starting point for an evaluation sheet concerning milkers' convenience. Further, a comparison to previous research is done and supports the above-average incidence of musculoskeletal disorders which are due to ergonomically inappropriate work-load of dairy farmers and milkers. From

the milkers' perspective, in regard to various physical resp. climatic stress factors in the milking parlour, the most necessary optimisation concerns low temperatures in winter and a bad air quality in summer. Psychological strain is reported more frequently than expected. The main reasons are stress on account of working under the time pressure, monotone of the work as well as permanent pain of some milkers. In the visited milking parlours the general status of work satisfaction turns out to be quite heterogeneous. Among other reasons, this may also be explained by technical equipment and the numerous inadequacies concerning this matter which nobody feels responsible for and/or by the milkers' attitude towards their work. The latter becomes apparent in a strongly variable way of handling of the cows. In this context, the milkers' relationship towards their conductor and also the conductor's function as a model have a high importance.

Altogether, there still is a big potential to improve milkers' convenience on large industrial companies. Formerly as well as newly raised questions urgently necessitate the need for further research which concentrates besides the ergonomic studies also on organisational measures, leadership and the prevention of psychological strain.