

increased wall length. This leads to additional stress at the base of the deep flexor tendon. The preliminary results suggest that the intervals of claw trimming have to be shortened.

SOFT-ELASTIC FLOORINGS FOR PAVED WALKING AREAS IN CUBICLE HOUSING SYSTEMS FOR DAIRY CATTLE

BENZ, BARBARA 1) AND HERMANN WANDEL 2)
 1) GUMMIWERK KRAIBURG ELASTIK GMBH, 84529 TITTMONING, GERMANY
 2) INSTITUT FÜR AGRARTECHNIK, UNIVERSITÄT HOHENHEIM, 70593 STUTTGART, GERMANY

Summary

Previous experiments have shown, that elastic, yielding rubber mats, which were installed in free stalls with slatted floors, improved claw health and unimpeded cow behaviour. The following study aims to compare the results concerning claw health and animal behaviour on slatted floors with paved floors, both covered with rubber mats. The results show that the positive effects of the rubber mats hardly differ due to the structure of the floor.

1. Problem

The animal-suitability of a cubicle housing system is based on the mobility of the cows. Elastic floorings from solid rubber which are put on slatted floors can imitate successfully the slip-resistance and softness of the pasture. Claw damages, mechanical-traumatic diseases in particular, are reduced immensely on elastic floorings. Especially remarkable is a positive change of the claw-form. A weight bearing area is shaped which prevents the un-physiological stress on the claw base which is prevalent in indoor stock keeping. Reduced mechanical stress and unlimited fearless movement of the cows on soft-elastic floorings enable adequate blood circulation and claw-supply and ensures a good horn quality. (BENZ, 2002).

2. Aim

Due to less construction costs loose housing systems are being built more and more with paved floors. Both slatted and paved floors in loose housing systems cause problems regarding sustained slip-resistance and alarming claw damages (HERMANN, 1997). The aim of this study is to find out, if the positive effects regarding animal behaviour and claw health through soft floorings on slatted floors can also be seen on paved floors and which demands go along with the manure scraper technologies.

3. Material and methods

Tests on rubber floorings on paved walking areas with different manure scraper systems were carried out on several farms. The results involve three farms with paved floors and slatted floors each. The observations were carried out directly on six focus cows. Comparative studies on claw health were put into practice within the scope of claw trimming sessions before the installation of soft rubber mats and approx. six month after that.

4. Results and discussion

The cows walked with longer steps on paved floors, but they did not walk faster than on slatted floors. After the installation of soft rubber mats the step length increased to 72cm on average, regardless whether on paved or slatted floors (fig. 1). The medium walking speed also increased, whereas the cows on slatted floors with rubber floorings moved a bit faster than the ones on paved floors with rubber floorings (fig. 2).

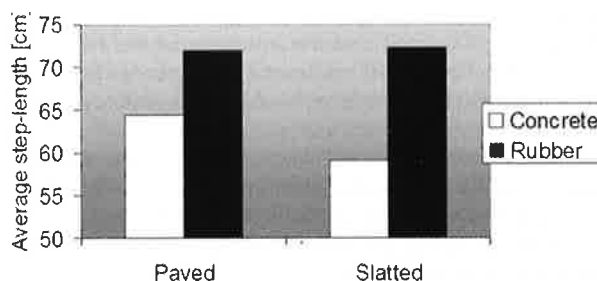


Fig. 1: Average step length on slatted or paved walking areas with and without soft rubber floorings (3 test farms each)

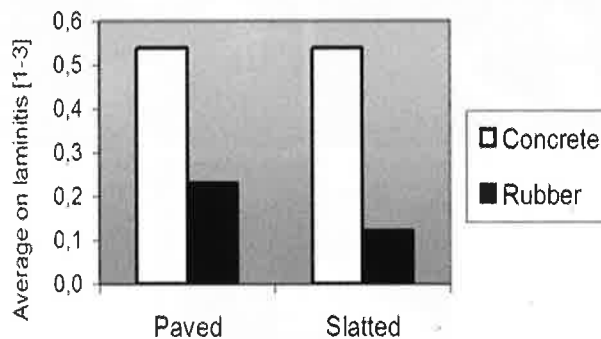


Fig. 2: Average speed on slatted or paved walking areas with and without soft rubber floorings (3 test farms each)

The results on claw health show a clear improvement on the conditions of the claws, which demonstrate the example of laminitis (fig. 3) and the example of mechanical-traumatic claw diseases, which were combined and weighted on relevance (comp. BENZ 2002 - fig. 4). On the test farms with paved floors the results were better than on the ones with slatted floors. Generally validated statements about the disease rates on paved floors compared to slatted floors can not be derived due to the little amount of test farms. However, the results show that no fundamental differences were apparent between the two building systems and positive effects on claw health and

9. Session: Housing management, animal behaviour and claw health

walking behaviour after the installation of soft floorings are comparable.

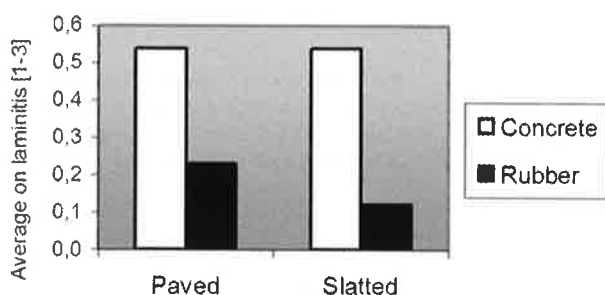


Fig. 3: Average results on laminitis on slatted or paved walking areas with and without soft rubber floorings

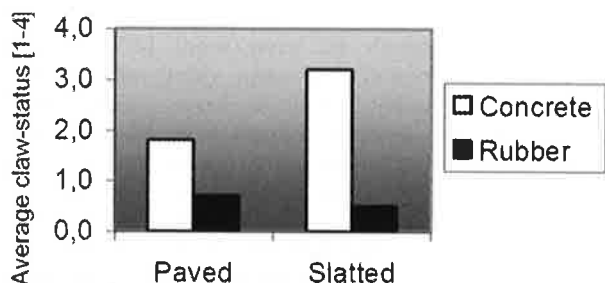


Fig. 4: Average results on mechanical-traumatic claw diseases, which were combined and weighted on relevance, on slatted or paved walking areas with and without soft rubber floorings

The claw-status of the animals on the test farms with slatted floors were worse by trend than on the ones with paved floors. In this way the initially shorter step length on slatted floors can be explained. This difference between the two building systems did no longer prevail after the installation of soft rubber floorings and with improved claw health and slip-resistance. A slightly higher walking speed on slatted floors with rubber mats, compared to paved floors with rubber mats, lead to the presumption that the slip-resistance of the slatted floors is higher compared to the paved floors due to the structure of the floor. The rubber mats with knob profile on the underside enable the claw to sink in which prevents slipping. These observations lead to the conclusion, that the use of soft rubber mats, which deform a few millimetres under the pressure of the cow weight, is necessary for adequate slip-resistance, especially on paved floors.

References

- BENZ, B.: Elastische Beläge für Betonspaltenböden in Liegeboxenlaufställen. Dissertation, Universität Hohenheim, 2002
- HERRMANN, H. J.: Einfluss unterschiedlicher Bodenausführungen von Laufflächen auf das Verhalten und die Klauengesundheit von Kühen. Dissertation, Universität Gesamthochschule Kassel, 1997

EFFECT OF RUBBER COATED SLATTED CONCRETE FLOOR ON BEHAVIOUR OF FATTENING BULLS

Bahrs, E.^{1a}, Platz, S.¹; Nüske, S.², Ahrens, F.¹ and M. Erhard¹
¹Institute of Animal Welfare, Ethology and Animal Hygiene, Faculty of Veterinary Medicine, Ludwig-Maximilians-University Munich and ²Teaching and Experimental Farm Oberschleißheim, Ludwig-Maximilians-University Munich
^aContact at: Institute of Animal Welfare, Ethology and Animal Hygiene, Faculty of Veterinary Medicine, Schwere-Reiter-Str. 9, D - 80797 München, Germany. Phone: +49-89-15927831, Fax: +49-89-1578277, e-mail: e.bahrs@tierhyg.vetmed.uni-muenchen.de

Introduction

The main factor that influences claw health and lying behaviour in cattle is the type and quality of the floor surfaces. Especially concrete floor causes claw diseases and lameness leading to negative effects on well being and productivity. Therefore, the aim of the present study was to investigate the influence of rubber mats on behaviour of fattening bulls.

Method and material

For these purpose 18 fattening bulls were divided into three groups. The bulls were held in a full slatted concrete floor pen (CT), a pen equipped with interlocking rubber mats (RM) and a pen with the liberty to choose between the two kinds of floor (Choose pen), respectively. The animals were observed by 24 hours videotaping and by direct observation to determine resting time, resting phases, rising time and sexual and aggressive behaviour of the bulls.

Results and discussion

Having the liberty to choose between full slatted concrete and rubber mats surface the bulls showed a significant ($P < 0.05$) preference of the rubber mats area (3.9 bulls vs. 2.1 bulls during the day, 4.5 bulls vs. 1.5 bulls during the night). Furthermore, the number of resting phases (10.3 vs. 2.3) and the resting time (11.2 ± 0.9 h vs. 2.2 ± 0.7 h; means \pm SEM) were higher ($P < 0.05$) in bulls during being on the mats then on the concrete floor. The resting time between the three groups varied from 11.9 ± 0.5 h (RM) and 12.1 ± 1.2 h (CT) to 13.4 ± 0.2 h (Choose pen) [means \pm SEM]. Thereby, the Choose pen group rested longer ($P < 0.05$) then the RM group. The space of time needed for rising was not significantly different between the groups. The incidence of aggressive behaviour and the frequency of riding also did not show any differences.

In conclusion, these first results indicate benefits for the

9. Session: Housing management, animal behaviour and calf health

animals by the rubber coated floor and it is to expect that as well behavioural elements like riding and aggression as space of time needed for rising will differ with increasing weight gain between the three groups.