

Chakri Ted-arsen 2007: Rubber Mat Application upon Physiological Changes and Production Performance in Cattle. Master of Science (Animal Production), Major Field: Animal Production, Department of Animal Science. Thesis Advisor: Associate Professor Kanchana Markvichitr, Dr.Med.Vet. 97 pages.

Dairy cows and beef steers were assigned in 2 experiments, as for the first experiment was purposed to determine dairy cow preference test on types of floor consisting of rubber mat and concrete. Ten dry dairy cows with an average bodyweight 475 ± 64.34 kg were freely raised in a loose housing open barn where it was divided into 2 equal parts. There were total 4 observations with a 24-hour- recording of every 10-minute-interval for visually detection on eating, ruminating and idling (including lying) activities on either rubber mat or concrete floors. Fresh cut guinea grass and clean water with mineral block supplement were given throughout the day. Mean daily time spent on eating behaviour was 6.56 ± 0.77 hours. Time spent on standing was 8.02 ± 1.78 hours from which 6.18 ± 1.81 hours was standing time on the rubber mat floor while lying time was 9.42 ± 1.55 hours from which 8.74 ± 1.77 hours was the lying time spent on rubber mat floor. In general, the animals daily spent more time on rubber mat floor than did on the concrete floor (14.92 vs. 2.52 hours). All recordings were highly statistical different ($P < 0.01$).

The second experiment was conducted to compare the application of rubber mat and concrete floors on physiological changes and production performance of 24 fattening beef cattle for 120 days. Eighteen male crossbred Brahman and native cattle, average bodyweight of 334.65 ± 14.02 kg and 6 Kamphaengsaen beef steers, average bodyweight of 452.83 ± 30.88 kg, were randomly assigned into 6 treatments comprising with concrete floor as the control treatment and the remaining 5 treatments of 5 different rubber compositions. All animals were fully fed the Total mixed ration (TMR) *ad libitum* with freely access to clean water and mineral block supplement for the whole day. The results revealed that there were no significant differences in dry matter intake, growth rate and feed conversion ratio among treatments. When types of floors were taken into account, cattle on concrete floor spent most time on standing and least time on lying which were statistically different among the treatments ($P < 0.05$). There were no significant differences in both hormonal and enzymatic changes whilst immunological responses among treatments were under normal ranges. However, total white blood cells of animals in the concrete floor treatment had the highest value, which was statistically different ($P < 0.05$). Subsequently, the incident of leg lesions was statistically different ($P < 0.05$) among the treatments, where cattle in the control group was seriously affected. However, hoof length in the concrete floor group was significantly shorter than in the rubber mat treatments ($P < 0.01$).

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