Texas Dairy Matters
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RUBBER FLOORING FOR COW COMFORT AND PRODUCTIVITY

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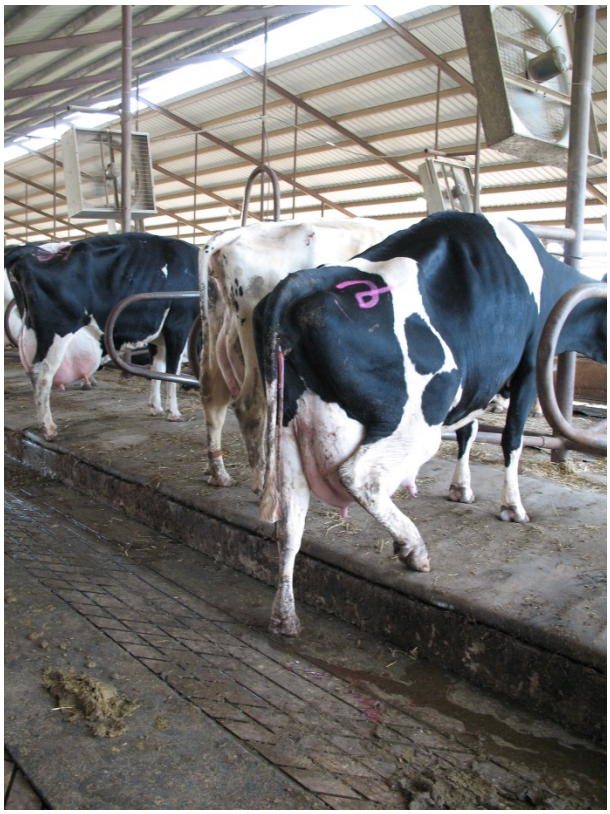
Dairy farmers strive to provide dairy cows a clean, dry environment where they can be comfortable and productive simultaneously. Frequently cows are now housed in barns in an attempt to control the cow's environment and enhance productivity. Over the years, extensive research has been conducted on barns to improve ventilation, stall design, and heat stress abatement. Researchers have evaluated various stall surfaces in an attempt to identify which provide the greatest comfort for the cow. An increase in lameness occurs when stalls aren't correctly sized, bedded or maintained.

When stalls are comfortable, cows increase their time in the stalls rather than standing on concrete. However concrete floors in parlors, holding pens, feed lanes and freestall barns are a fact of life for today's dairy cow. Consequently,

researchers from Purdue University recently evaluated whether rubber flooring in the feed lanes of freestall barns could improve production, hoof health, and locomotion.



Thirty Holstein heifers were selected for the study. Prior to calving all heifers were maintained on a bedded pack until they were ready to calve. Cows were moved to maternity stalls with concrete floors and wood shavings to calve. After calving, heifers were assigned to either concrete or rubber flooring in the feed lane area for their entire lactation. The freestall barn was a 4-row barn with freestalls arranged in a tail-to-tail fashion. The lane between freestalls was concrete in both groups. At the end of their first lactation, all cows were dried off and were housed on pasture or in the bedded-pack barn until subsequent calving. Once cows calved the second time they remained in either the concrete or rubber flooring groups they were in during first lactation.

Cows housed with rubber flooring on the feed lane produced more milk fat and milk protein, as well as had a higher milk protein percentage. Milk yield, fat percentage, persistency, days open, somatic cell score, days open and number of inseminations did not differ (Table 1). Half of the cows housed on concrete were diagnosed with some type of hoof ailment (digital dermatitis, foot rot, abscess, sole ulcer, or sole separation), while 22% of the cows housed with the rubber feed lane had an ailment. During the second lactation, locomotion scores were worse for cows housed on concrete. First lactation cows on concrete tended to have greater cortisol concentrations, an indicator of stress or pain, at some points during their lactation. However by second lactation no differences were noted, which may mean that the cows had adapted to their environment.

Table 1. Effect of flooring type on select productivity measures

Item	Concrete	Rubber	Significance (P)
Mature Equivalent Milk, lb	25,504	26,895	NS
Mature Equivalent Fat, lb	950	1075	.022
Mature Equivalent Protein, lb	717	801	.009
Fat, %	3.7	4.0	.108
Protein %	2.8	3.0	.015
Number of Inseminations	2.8	2.3	.371
Somatic Cell Score	2.6	1.4	.164
Hoof Therapy Treatments, Number per Cow	2.19	1.44	0.03

Since Texas producers sell milk based on components, the additional milk fat and protein value could offset some of the costs of adding rubber matting to feed lanes. Additional effort may be required to keep the rubber matting anchored depending upon the type of waste management system.

This was a relatively small study, so the changes in milk production, number of inseminations and somatic cell score were not significant. Further study is needed to verify whether the changes on these parameters are real, but they might provide additional revenue to offset costs as well.

Reference

Eicher, S.D., D. C. Lay, Jr., J.D. Arthington, and M.M. Schutz. 2013. Effects of rubber flooring during the first 2 lactations on production, locomotion, hoof health, immune functions, and stress. J. Dairy Sci. 96:3639-3651.