

Effects of floor matting type on feedlot steer performance and locomotion

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- Built in 2004

Animat Pebble



- Do you like the rubber flooring?
- Does it improve intake or ADG? Feed efficiency?
- Do you have fewer feet and leg problems??

Hypothesis and Objectives

- Hypothesis
 - Rubber floor matting will improve steer performance and locomotion
- Objectives
 - Determine the effect of bare concrete, 12-year-old Animat Pebble flooring, new Animat Pebble flooring, and new Animat Maxgrip flooring on steer performance, carcass traits, and locomotion



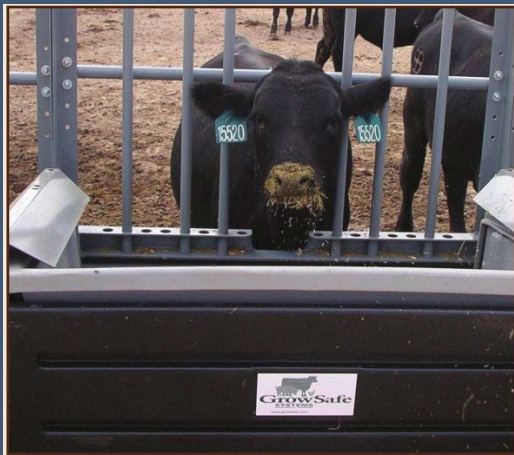
Pebble



Maxgrip

Experimental Design

- 208 Angus crossbred, fall-born steers
 - 32 pens (8 pens per treatment)
 - 6 or 7 steers per pen (36-43 ft² / steer)
- Steers were allotted randomly to 1 of 4 treatments
 - No matting, concrete slatted floors = Concrete
 - Current (old) Animat Pebble matting = Old
 - New Animat Pebble matting = Pebble
 - New Animat Maxgrip matting = Maxgrip
- May 3, 2016 - Nov 29, 2016 (209 days)



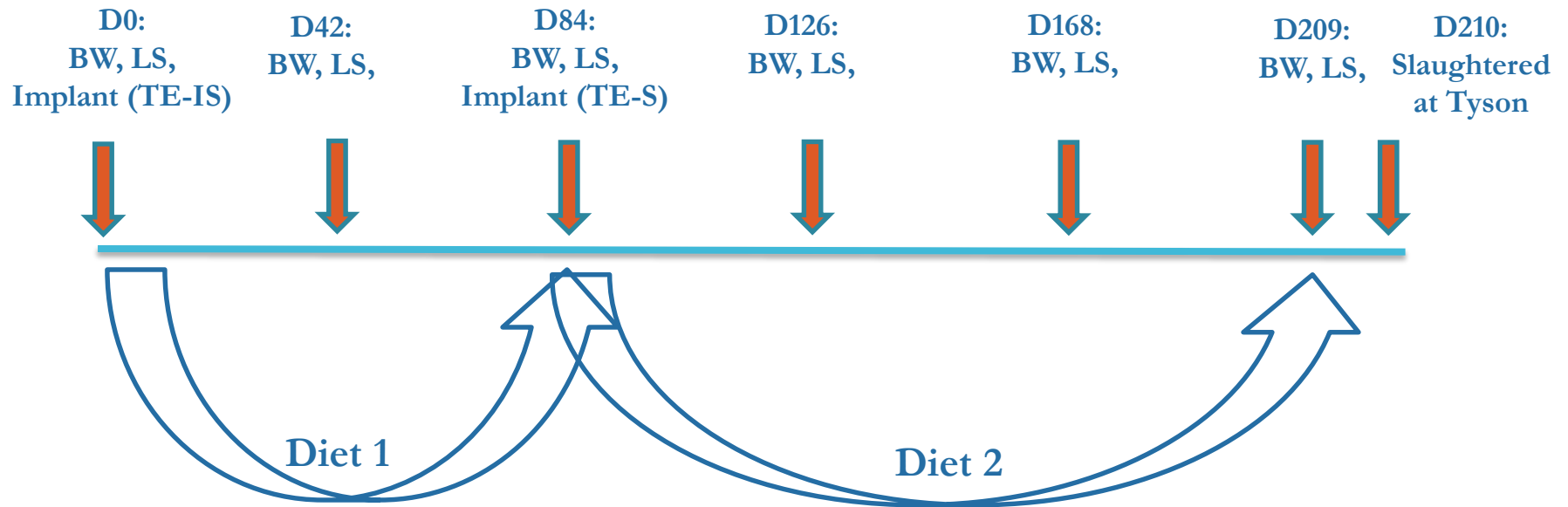
	Inclusion, % DM	
Item	Diet 1	Diet 2
Ingredient, %		
Dry Corn	40	50
Corn Silage	30	20
MDGS	20	20
Medium Cal Supplement	10	10
Analyzed nutrient content		
CP, %	13.8	13.9
NDF, %	25.8	22.6
ADF, %	11.6	9.3
Crude fat, %	4.2	4.4

Fed common diet ad libitum in GrowSafe

Locomotion Scoring

Locomotion Scoring System	
Score	Description
0	<u>Normal</u> -stands and walks normal with flat back
1	<u>Mildly Lamé</u> - stands with flat back, arches when walks. Slightly abnormal gait
2	<u>Moderately Lamé</u> - stands and walks with arched back. Short strides and favors a certain leg
3	<u>Severely Lamé</u> - constant arched back unable to put weight on one limb or are unable to move.

Experimental timeline



Results



Body Weight

Effects of floor matting type on feedlot steer performance

	Treatment					
Item	Concrete	Old	Pebble	Maxgrip	SEM	P-value
BW, lb						
d 0	487	487	486	487	6.40	0.99
d 42	661	658	666	664	9.27	0.93
d 84	834	826	833	839	10.4	0.83
d 126	1010	997	1028	1014	10.9	0.24
d 168	1165 ^b	1157 ^b	1200 ^a	1190 ^{ab}	12.53	0.04
d 209	1288	1286	1319	1311	12.83	0.16

Average Daily Gain

Effects of floor matting type on feedlot steer performance

	Treatment					
Item	Concrete	Old	Pebble	Maxgrip	SEM	P-value
ADG, lb/d						
d 0 – d 42	4.12	4.06	4.25	5.23	0.12	0.57
d 42 – d 84	4.16	3.98	4.10	4.29	0.11	0.22
d 84 – d 126	4.19 ^b	4.01 ^b	4.65 ^a	4.18 ^b	0.10	<0.01
d 126 – d 168	3.69	3.80	4.08	4.22	0.17	0.10
d 168 – d 209	2.98	3.01	2.92	2.92	0.17	0.97
d 0 – d 209	3.83 ^b	3.83 ^b	3.99 ^a	3.96 ^{ab}	0.05	0.03

Feed Intake

Effects of floor matting type on feedlot steer dry matter intake

	Treatment					
Item	Concrete	Old	Pebble	Maxgrip	SEM	P-value
DMI, lb						
d 0 – d 42	16.5	16.7	16.4	16.6	0.38	0.94
d 42 – d 84	22.1	21.5	22.2	21.8	0.44	0.70
d 84 – d 126	24.4 ^{ab}	23.4 ^b	24.9 ^a	24.9 ^a	0.43	0.05
d 126 – d 168	24.4	24.6	25.6	26.0	0.50	0.07
d 168 – d 209	24.6	24.6	25.8	25.5	0.51	0.22
d 0 – d 209	22.4	22.2	22.9	23.0	0.38	0.33

Feed Efficiency

Effects of floor matting type on feedlot steer feed efficiency

	Treatment					
Item	Concrete	Old	Pebble	Maxgrip	SEM	P-value
G:F						
d 0 – d 42	0.247	0.250	0.256	0.254	0.005	0.62
d 42 – d 84	0.191	0.188	0.186	0.202	0.005	0.13
d 84 – d 126	0.174 ^b	0.175 ^b	0.188 ^a	0.170 ^b	0.004	0.01
d 126 – d 168	0.153	0.158	0.160	0.167	0.007	0.60
d 168 – d 209	0.121	0.122	0.113	0.116	0.007	0.72
d 0 – d 209	0.173	0.174	0.175	0.176	0.003	0.85

Locomotion

Effects of floor matting type on feedlot steer locomotion score				
Item	Concrete	Old	Pebble	Maxgrip
LS				
d 0	0.0	0.0	0.0	0.0
d 42	0.2	0.1	0.1	0.1
d 84	0.5	0.2	0.2	0.2
d 126	0.5	0.2	0.3	0.3
d 168	0.8	0.3	0.4	0.5
d 209	1.0	0.6	0.8	0.6

Locomotion

Effects of floor matting type on feedlot steer locomotion score				
Item	Concrete	Old	Pebble	Maxgrip
d 0				
0	97.2%	96.2%	98.1%	98.0%
1	2.8%	3.9%	1.9%	2.0%
2	0.0%	0.0%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%
d 42				
0	83.0%	87.5%	90.4%	84.3%
1	17.0%	10.6%	9.6%	15.7%
2	0.0%	1.9%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%
d 84				
0	64.2%	84.6%	83.7%	81.4%
1	25.5%	14.4%	14.4%	18.6%
2	8.5%	1.0%	1.9%	0.0%
3	1.9%	0.0%	0.0%	0.0%

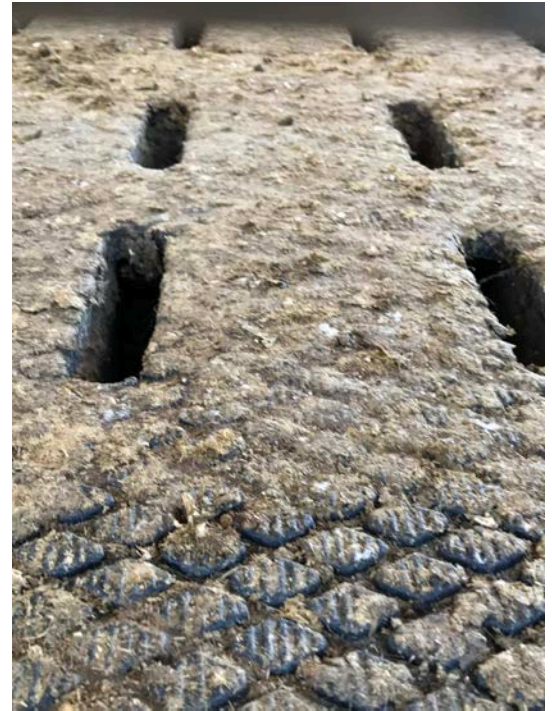
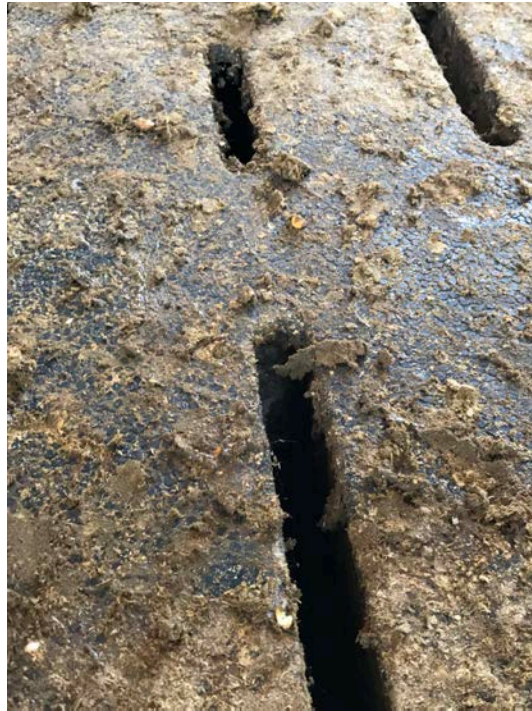
Locomotion

Effects of floor matting type on feedlot steer locomotion score				
Item	Concrete	Old	Pebble	Maxgrip
d 126				
0	60.4%	76.9%	74.0%	75.5%
1	30.2%	22.1%	26.0%	22.6%
2	7.6%	1.0%	0.0%	2.0%
3	1.9%	0.0%	0.0%	0.0%
d 168				
0	42.5%	75.0%	60.6%	58.8%
1	37.7%	23.1%	37.5%	34.3%
2	12.3%	1.9%	1.9%	6.9%
3	7.6%	0.0%	0.0%	0.0%
d 209				
0	34.9%	48.0%	55.8%	48.0%
1	36.8%	43.1%	38.5%	42.2%
2	17.0%	4.9%	4.8%	8.8%
3	11.3%	3.9%	10.6%	1.0%

Carcass Characteristics

Effects of floor matting type on feedlot steer carcass traits

	Treatment					
Item	Concrete	Old	Pebble	Maxgrip	SEM	P-value
HCW, lb	789	786	803	797	8.90	0.52
Dressing, %	61.2	61.1	60.8	60.7	0.20	0.31
REA, in ²	12.93	12.83	12.77	12.69	0.21	0.87
Back Fat, in	0.58	0.57	0.62	0.60	0.02	0.39
KPH, %	2.07	2.05	2.08	2.10	0.02	0.42
Yield Grade	3.35	3.36	3.56	3.54	0.08	0.18
Marbling Score	489	504	485	501	12.8	0.62



Manure build-up??

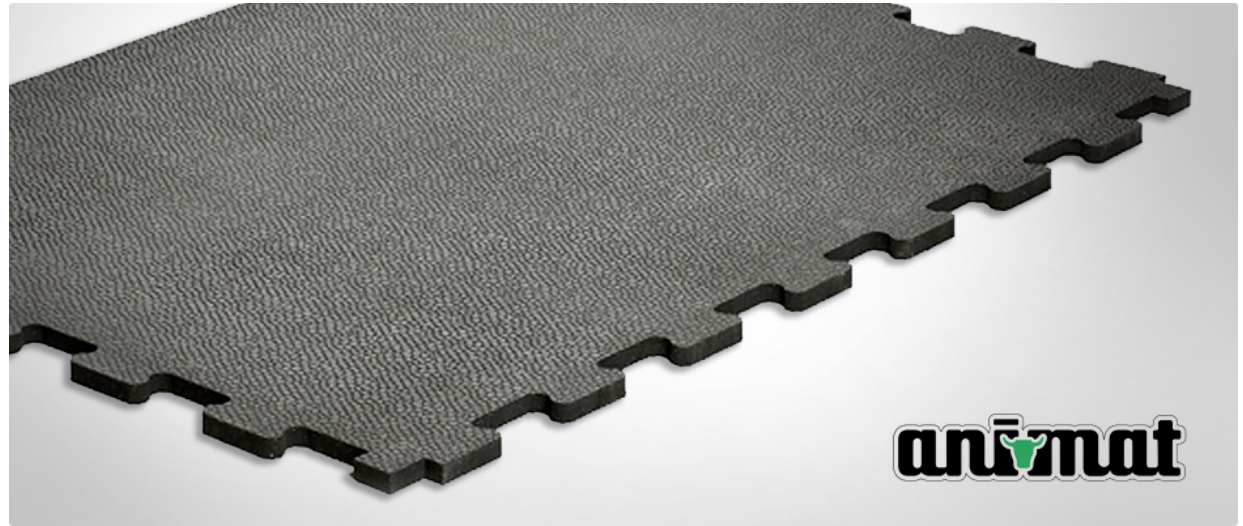


Future work

Feeding behavior differences?
Different stocking rates?
Different pen sizes?

Summary

- **New rubber matting improved performance**
 - **ADG**
 - **Feed Efficiency**
- **Old and new rubber matting improved locomotion scores**
- **Floor matting did not affect carcass traits**



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