

Locomotion Scoring of Dairy Cattle



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LOCOMOTION SCORING OF DAIRY CATTLE

2001

LOCOMOTION SCORING

CONDITIONS

- **Location:** Commercial Dairy in Michigan
- **Researchers:** D.J. Sprecher, DVM, MS, DACT
D.E. Hostetler, DVM, MS
J.B. Kaneene , DVM, Ph.D.
- **Animals:** 66 Primi- and Multiparous Holstein Cows
- **Duration:** 1 Year, Calving Through Conception or Culling

LOCOMOTION SCORING

PROCEDURES

- All Animals Received an Initial Lameness Score Before Completion of 60 d Voluntary Waiting Period
- Animals Were Enrolled in the Study Upon Completion of Voluntary Waiting Period and Not Reported as a Potential Cull
- Lameness Scoring Continued at 4 wk Intervals Through Confirmed Conception or Culling

LOCOMOTION SCORING

RESULTS

- **A Total of 66 Primi and Multiparous Cows Completed Their Voluntary Waiting Period**
- **Among the Enrolled Cows, 77.3% Became Pregnant and 22.7% Were Culled**
- **Lameness, Defined as Locomotion Score > 2 , Was Prevalent; Mean Score Was 2.5 With a Standard Deviation of 1.05**
- **Percentage of Cows With Locomotion Scores > 3 at First Service and in Total Were 24.5% and 36.4%, Respectively**
- **Cows With Lameness Score > 2 at First Service Were 49.1% and in Total 65.2%**

LOCOMOTION SCORING

RESULTS

Reproductive Measure	# of Cows	Mean	SD	Range
Days to first service	55	96.22	27.70	62-171
Days open	51	131.90	65.78	62-304
Breeding herd days ^a	66	111.17	93.09	2-245
Total services	55	1.82	1.12	1-5
Services / pregnancy	51	1.78	1.12	1-5

^a Endpoint equals the interval from the voluntary waiting period to either conception or 305 days of lactation and includes all cows culled after completion of their voluntary waiting period

LOCOMOTION SCORING

RESULTS

Reproductive Performance Failure Risk For Lameness Score > 2

Increased days to first service	2.8 x more likely
Increased days open	15.6 x more likely
Breeding herd days ^a	15.6 x more likely
Increased services / conception	9.0 x more likely

- If > 10% of Cows Have Lameness Score > 3, Hoof (Claw) Health Needs to be Addressed

^a Endpoint equals the interval from the voluntary waiting period to either conception or 305 days of lactation and includes all cows culled after completion of their voluntary waiting period

LOCOMOTION SCORING

RESULTS

- **Cows With Lameness Score > 2 Have Increased Risk of Reproductive Failure:**

Reproductive Measure	Relative Risk Factor
Days to first service	2.8 x more likely
Days open	15.6 x more likely
More services/conception	9.0 x more likely

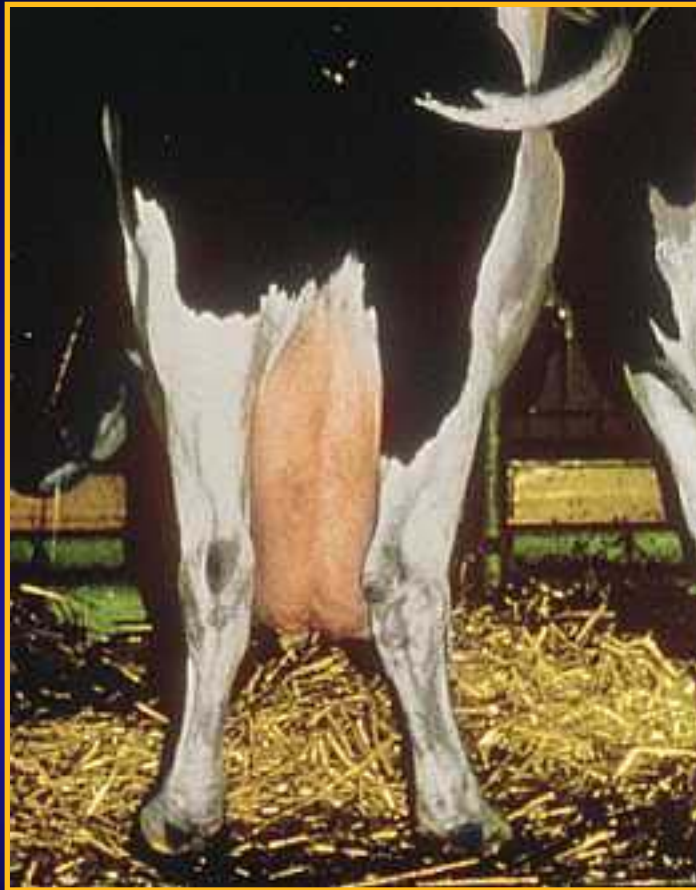
- **If > 10% of Cows Have Lameness Score > 3, Hoof (Claw) Health Needs Addressed**

EFFECT OF LAMENESS ON REPRODUCTION



- **Research Indicates That:**
 - In a 100 cow herd, 30 to 60 cows/year will be treated for lameness
 - Cows treated for lameness are open 28 more days
 - Cows lame between 36 and 70 d postpartum are open 30 d longer

EFFECT OF LAMENESS ON PERFORMANCE



■ Areas Impacted:

- Reproductive Performance
- Dry Matter Intake
- Milk Production
- Body Condition
- Veterinary Costs
- Culling Rate
- Profitability

EFFECT OF LAMENESS ON PERFORMANCE^a

% Reduction vs. Locomotion Score = 1

Locomotion Score	Dry Matter Intake	Milk Yield
2	- 1%	0
3	- 3%	- 5%
4	- 7%	- 17%
5	- 16%	- 36%

EFFECT OF LAMENESS ON PERFORMANCE^a

PREDICTING MILK LOSSES DUE TO LAMENESS

Animal Inputs		
Group Milk Avg	36.3	kg/d
Group Size	1000	Total cows
Milk Price	\$12.00	\$/45.4 kg

Predicted Outputs		
Avg LS	1.6	LS Units

Locomotion Scores (LS)	% of Cows
1	63.0
2	22.0
3	8.0
4	7.0
5	0.0

Losses		
Milk	0.6	kg/cow/d
	585	kg/group/d
Fiscal	\$0.16	\$/cow/d
	\$159	\$/group/d
	\$4758	\$/group/mo

Total 100.0



LOCOMOTION SCORING

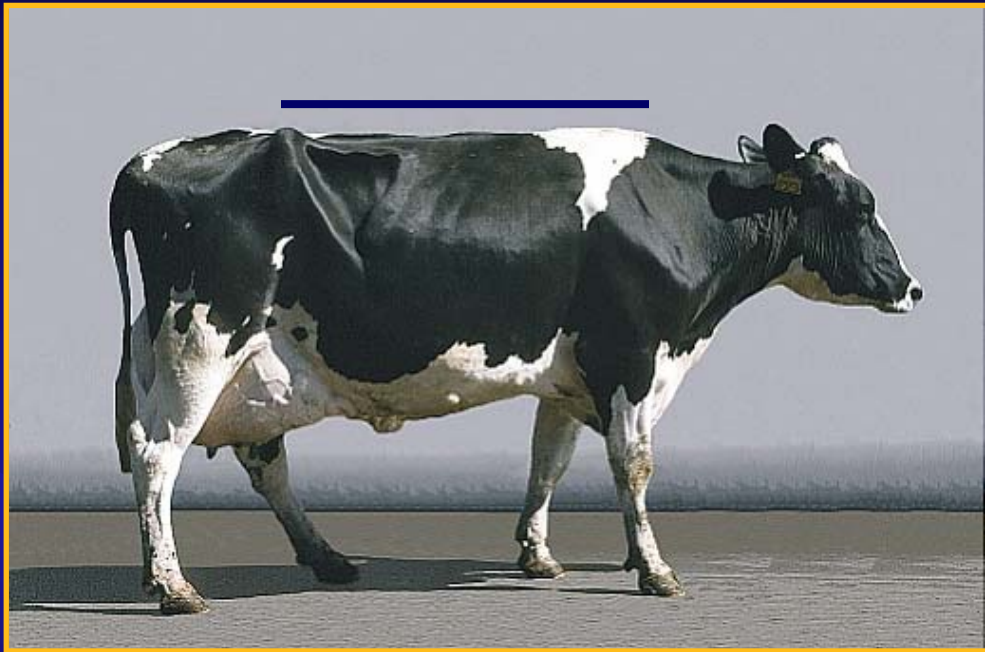
- **Based on Observation of Cows Standing and Walking (Gait) With Special Emphasis on Their Back Posture**
- **Effective For Early Detection of Claw Disorders, Monitoring Prevalence of Lameness, Comparing the Incidence and Severity of Lameness Between Herds and Identifying Cows For Functional Claw Trimming**
- **Observations Should be Made on a Flat Surface That Provides Good Footing For Cows**
- **Cows Scoring 2 or 3 Should be Examined and Trimmed to Prevent More Serious Problems**
- **Trimming Should be Done by a Competent Trimmer With the Goal of Returning the Claws to Functional Weight Bearing and Conformation**

CLINICAL DESCRIPTION:

1

NORMAL

- Stands and walks normally
- All feet placed with purpose



Back Posture Standing: Flat



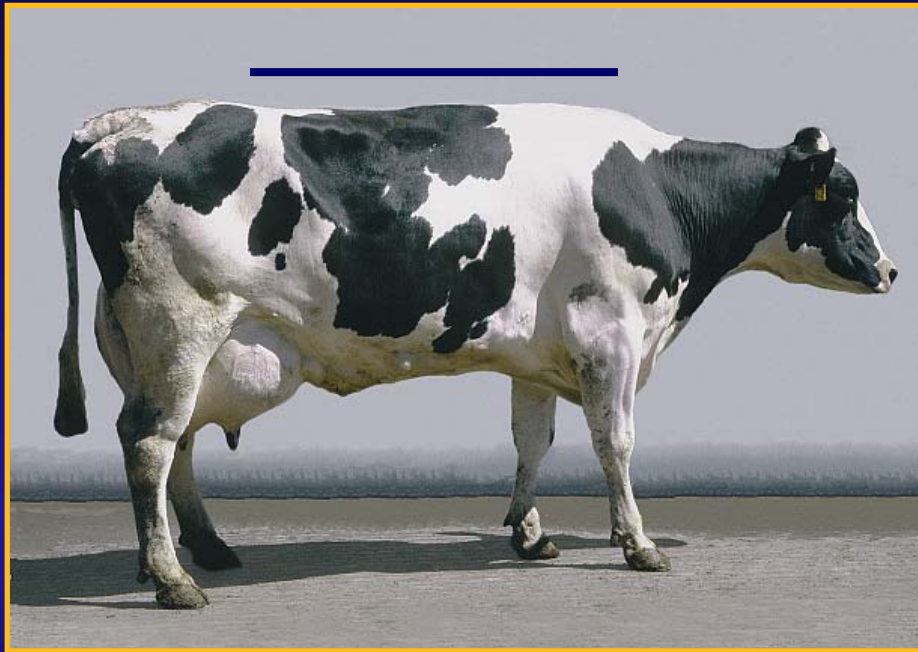
Back Posture Walking: Flat

CLINICAL DESCRIPTION:

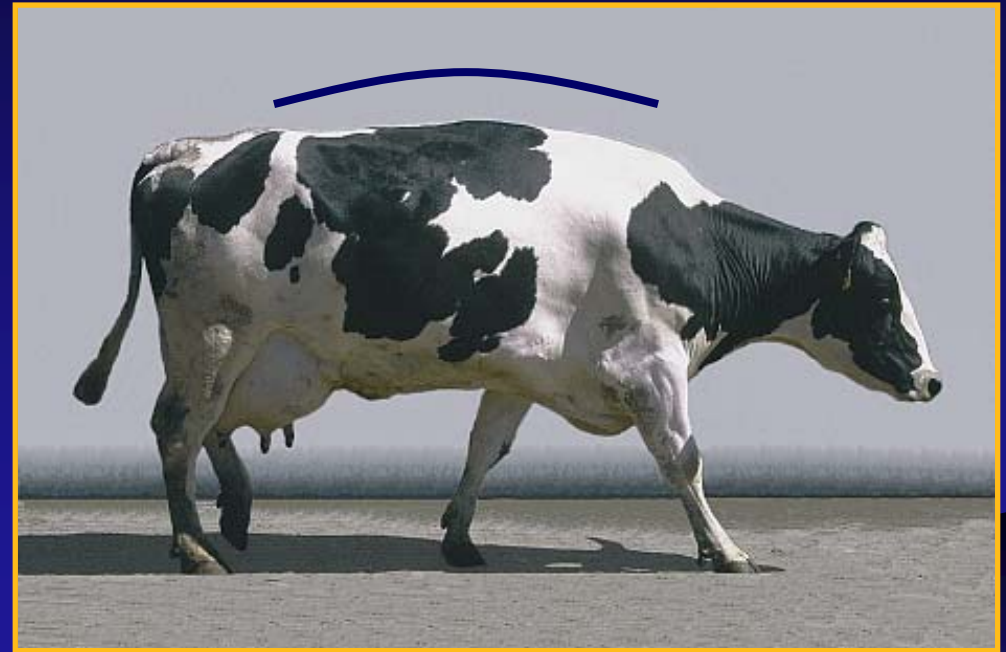
2

MILDLY LAME

- Stands with flat back, but arches when walks
- Gait is slightly abnormal



Back Posture Standing: Flat

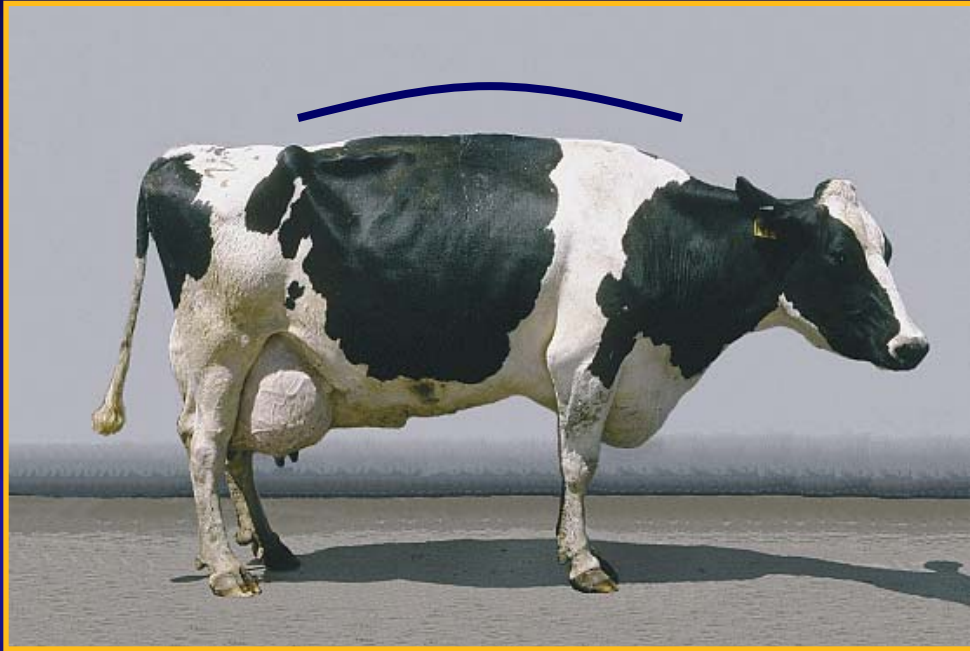


Back Posture Walking: Arched

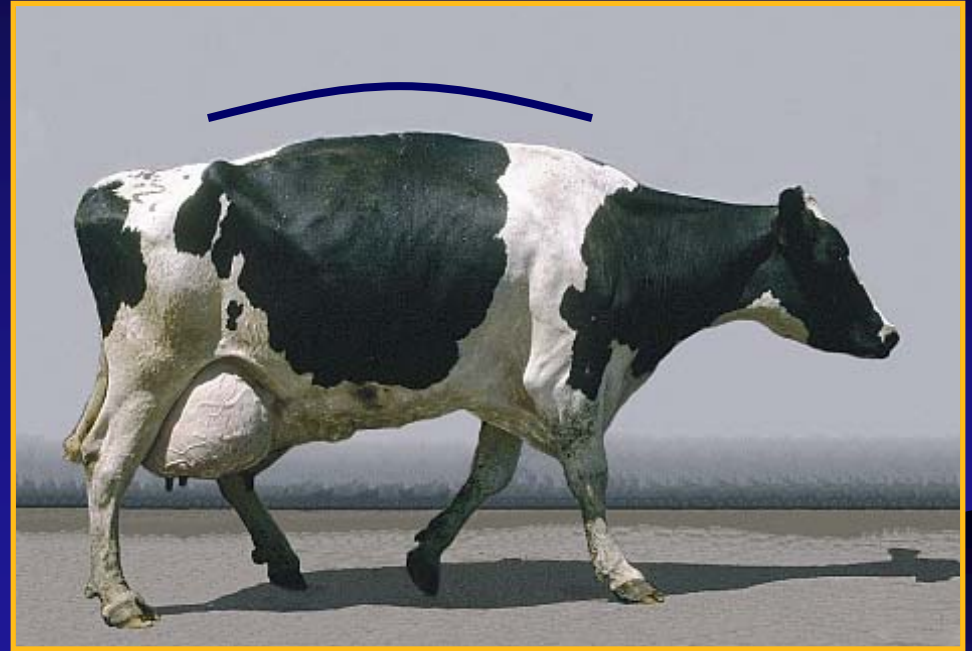
CLINICAL DESCRIPTION:
MODERATELY LAME

3

- Stands and walks with an arched back
- Short strides with one or more legs



Back Posture Standing: Arched



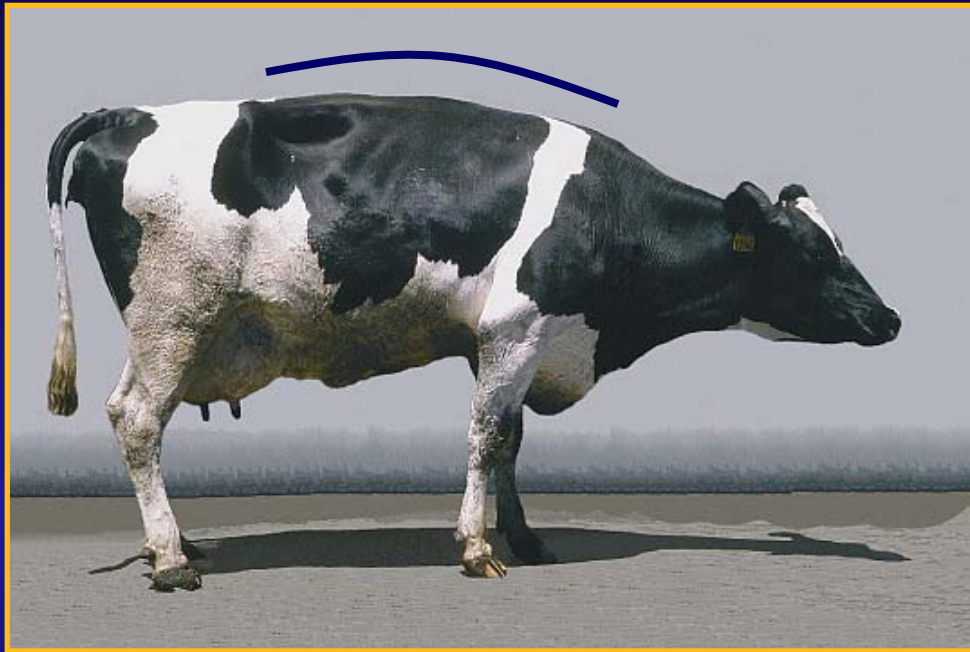
Back Posture Walking: Arched

CLINICAL DESCRIPTION:

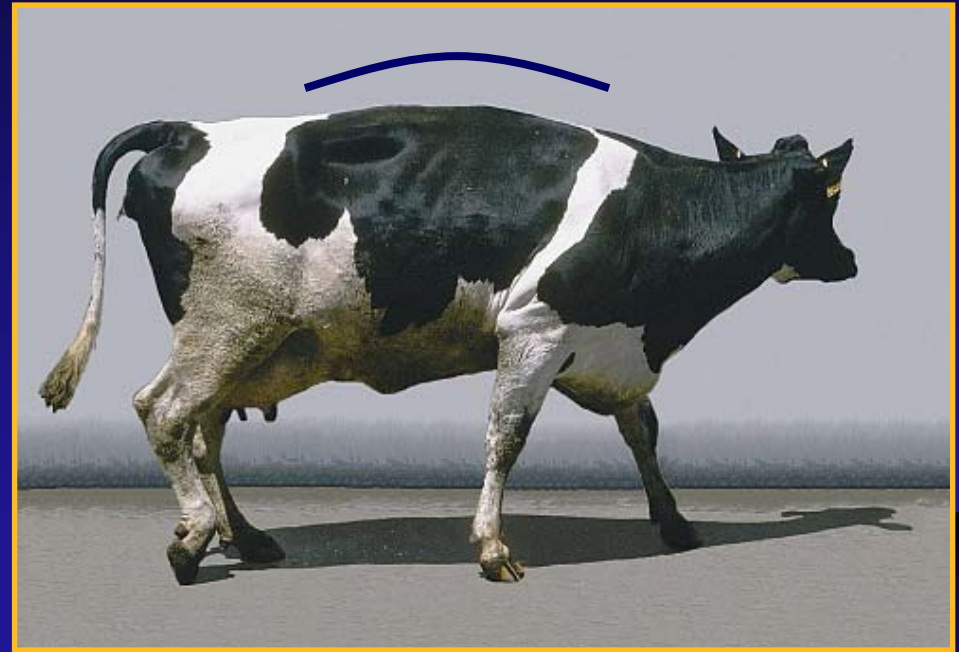
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LAME

- Arched back standing and walking
- One or more limbs favored but at least partially weight bearing



Back Posture Standing: Arched

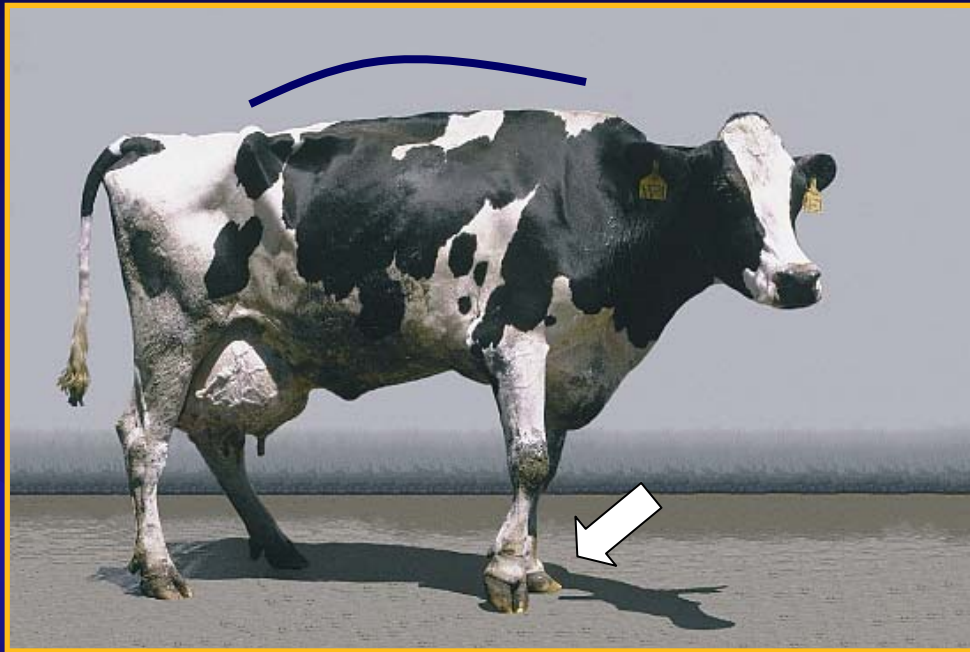


Back Posture Walking: Arched

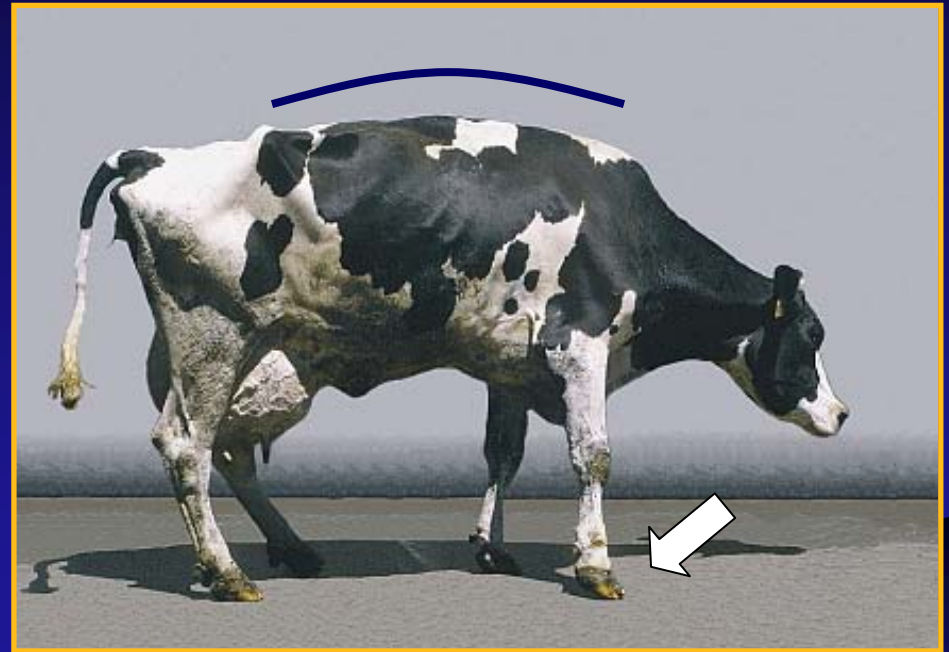
CLINICAL DESCRIPTION:
SEVERELY LAME

5

- Arched back, refuses to bear weight on one limb
- May refuse or have great difficulty moving from lying position



Back Posture Standing: Arched



Back Posture Walking: Arched

LAMENESS

- **Lameness is a Multifactorial Disease; The Following Management Factors Will Influence the Incidence of Lameness:**
 - **Cow comfort**
 - avoid over crowding
 - provide properly designed and maintained stalls
 - minimize heat stress
 - flooring should provide good traction
 - **Hoof (Claw) care**
 - practice maintenance trimming (2x/year)
 - provide therapeutic trimming
 - properly maintain and administer foot baths
 - maintain a clean and dry environment
 - provide and maintain good walking lanes and races

LAMENESS

■ Lameness is a Multifactorial Disease; The Following Management Factors Will Influence the Incidence of Lameness:

- Transition
 - minimize abrupt ration changes to reduce rumen upsets
 - strive to maximize animal health
- Nutrition
 - provide nutritionally balanced diets
 - provide adequate functional and effective fiber
 - provide properly mixed and delivered rations
 - formulate rations to minimize sorting
 - feed diets with proper micronutrient fortification
 - **feed Availa®4^a for improved claw integrity**

^a Availa-4: Availa®Zn zinc amino acid complex, Availa®Mn manganese amino acid complex, Availa®Cu copper amino acid complex and COPRO® cobalt glucoheptonate

THANK YOU



The Leader in Trace Mineral Nutrition
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