

Lameness: Causes and Sequence of Events

Nutrition

- Excessive Grain
- Finely Chopped Forage
- Improper Feeding Management
- Incorrect Ratio of Concentrate to Forage

Increased Lactic Acid Production

Lowered pH

Death of Gram Negative Bacteria

Infectious Diseases

- Metritis
- Mastitis
- Retained Placenta

Molds/Mycotoxins

Endotoxin Release

Histamine

Genetics

Vaso-Constriction/Dilation (Hoof Corium)

Metabolic Disorders

- Milk Fever
- Ketosis

Weakened Claws (Hooves)

- Breakdown in Supportive Connective Tissue
- Poor Quality Horn Formation

Environment/Management

- Stress
- Trauma
- Exercise
- Trimming

Manifestations

- Yellow Soft Horn
- Deformed Claws
- Double Sole
- Sole or Toe Ulcer
- White Line Disease
- Hemorrhage

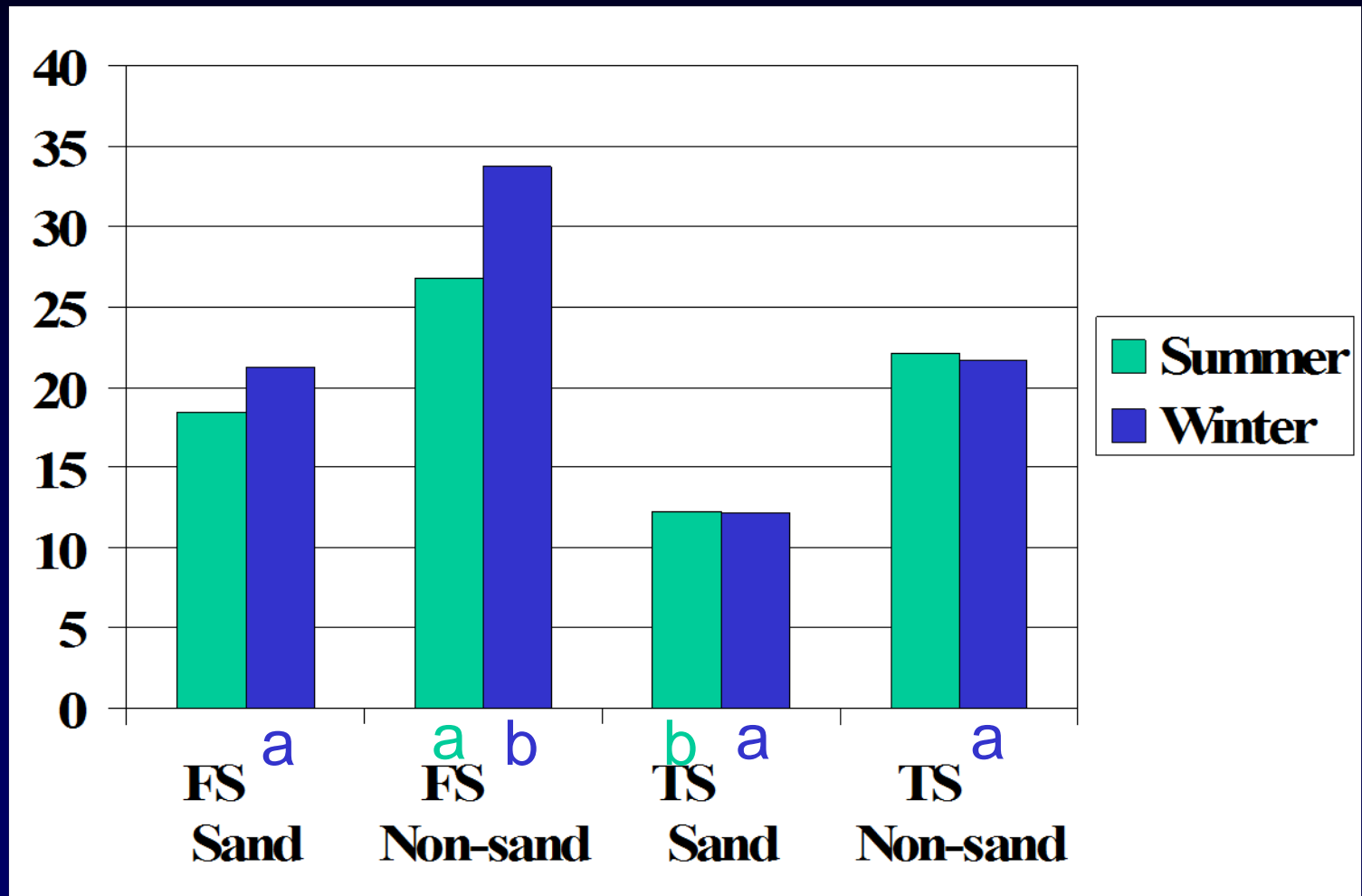
Lameness!

Lameness prevalence as a function of housing type and stall surface

- 30 herds - 14 stanchion/tie-stall, 16 free-stall
- Herds averaged 67 (tie-stall) and 175 (free-stall) cows
- Cows were lameness scored in summer and winter
 - 1 = normal
 - 2 = slight lameness
 - 3 = moderate lameness
 - 4 = severe lameness
- >3,600 cows evaluated
- Stall base **Sand** **Non-sand**
(rubber mat, rubber filled mattress,
concrete with added straw, shavings, etc.)

Interaction between locomotion score & stall base and its effect on time standing up in stall

% of cows lame



Effect of free stall surface on daily activity patterns in dairy cows



Video cameras, 1 sec per 30 sec

10 cows per herd (60 sand, 60 mattress)

Lameness scored

Effect of free stall surface on daily activity patterns in dairy cows

Herd parameters

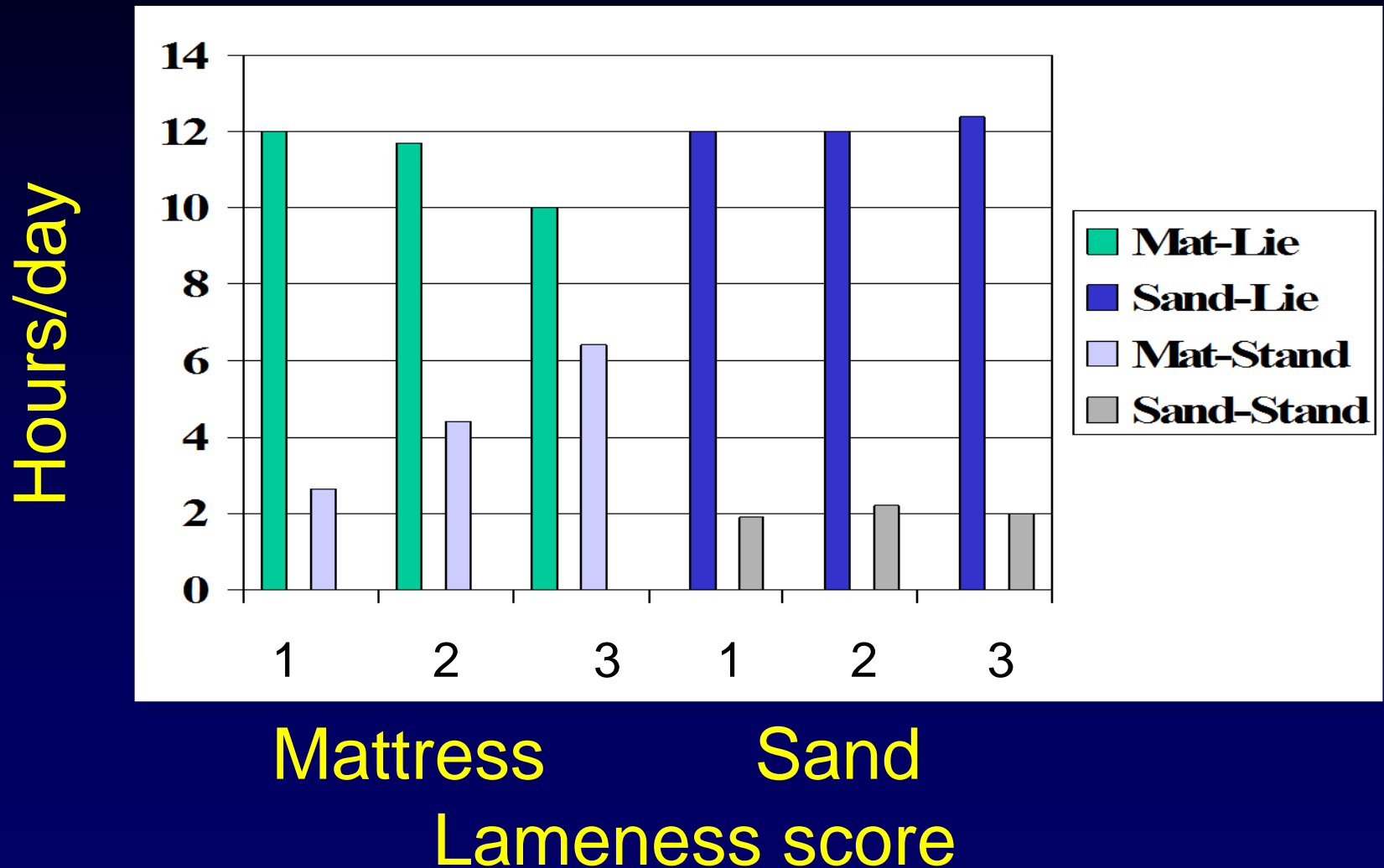
	<u>Mattress</u>	<u>Sand</u>	<u>P</u>
Herd size, #	305	298	
Cows in pen, #	77	96	.12
Stocking rate	108	108	
RHA, lbs.	24,800	26,728	
Annual turnover rate	36.5%	28.8%	.09
Herd prevalence of clinical lameness	24.0%	11.1%	<.001

Effect of free stall surface on daily activity patterns in dairy cows

Daily activity, h/d

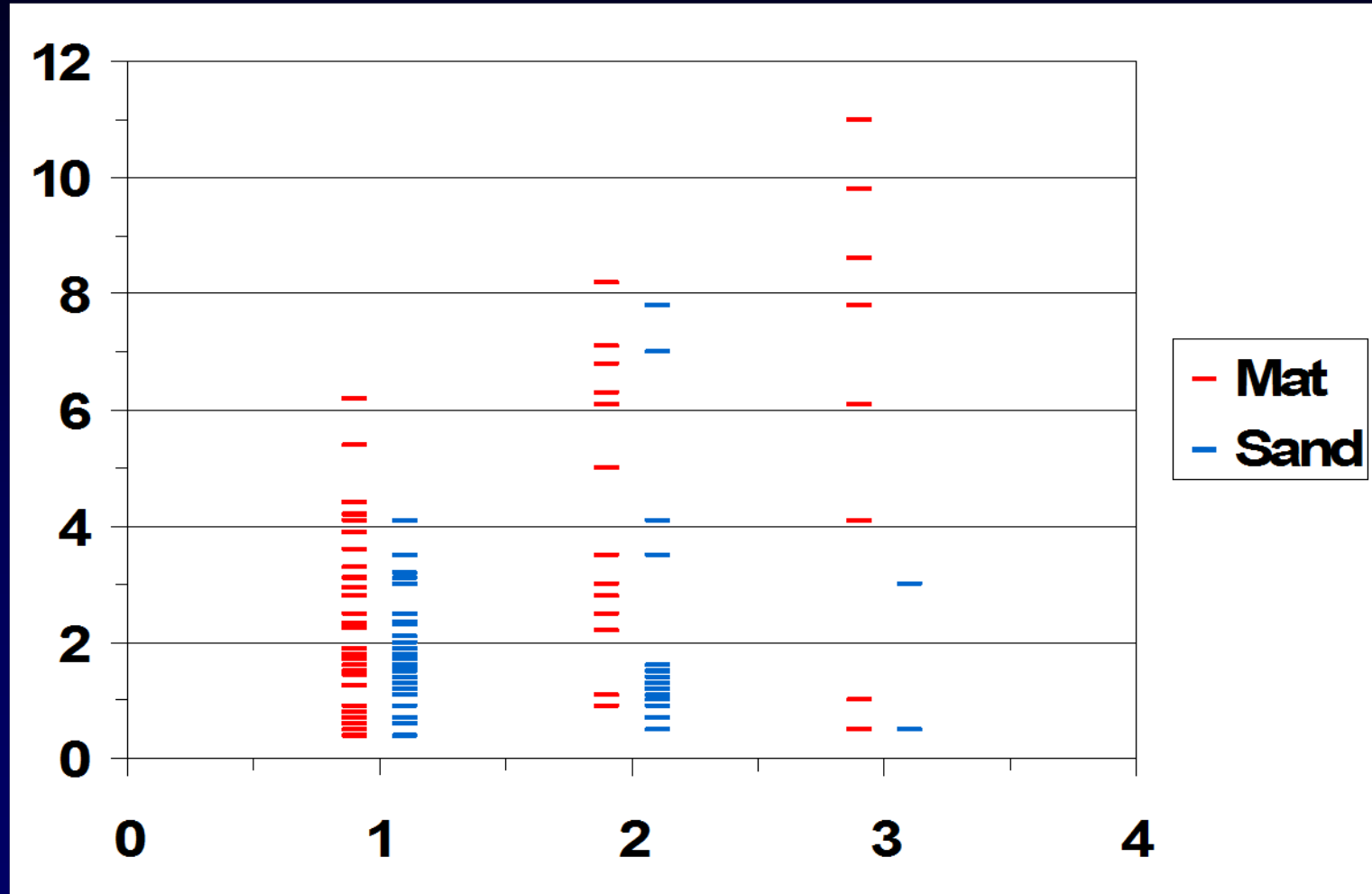
	<u>Mattress</u>	<u>Sand</u>	<u>P</u>
Time lying in stall	11.7	12.0	
Time standing in stall	3.4	1.8	.002
Time up in alley	2.3	2.3	
Time up feeding	4.1	4.6	.03
Time up milking	2.6	3.2	

Interaction between locomotion score & stall base and its effect on time standing up in stall



Interaction between locomotion score & stall base and its effect on time standing up in stall

Time up in stall, h/d



Mastitis Problem Solving Scheme

STEP 1

Identify Mastitis Problem

**Acute Mastitis
>1% per year**

**New Clinical Cases
>2% per month**

**Bulk Tank SCC
>150,000**

**DHI Test Day Ave. LS >4.5
>10%**

Bacteriologic Cultures: Bulk Tank and/or Individual Cows

STEP 2

Determine Causative Organisms

Environmental Organisms

Coliform

Strep spp.

Staph spp.

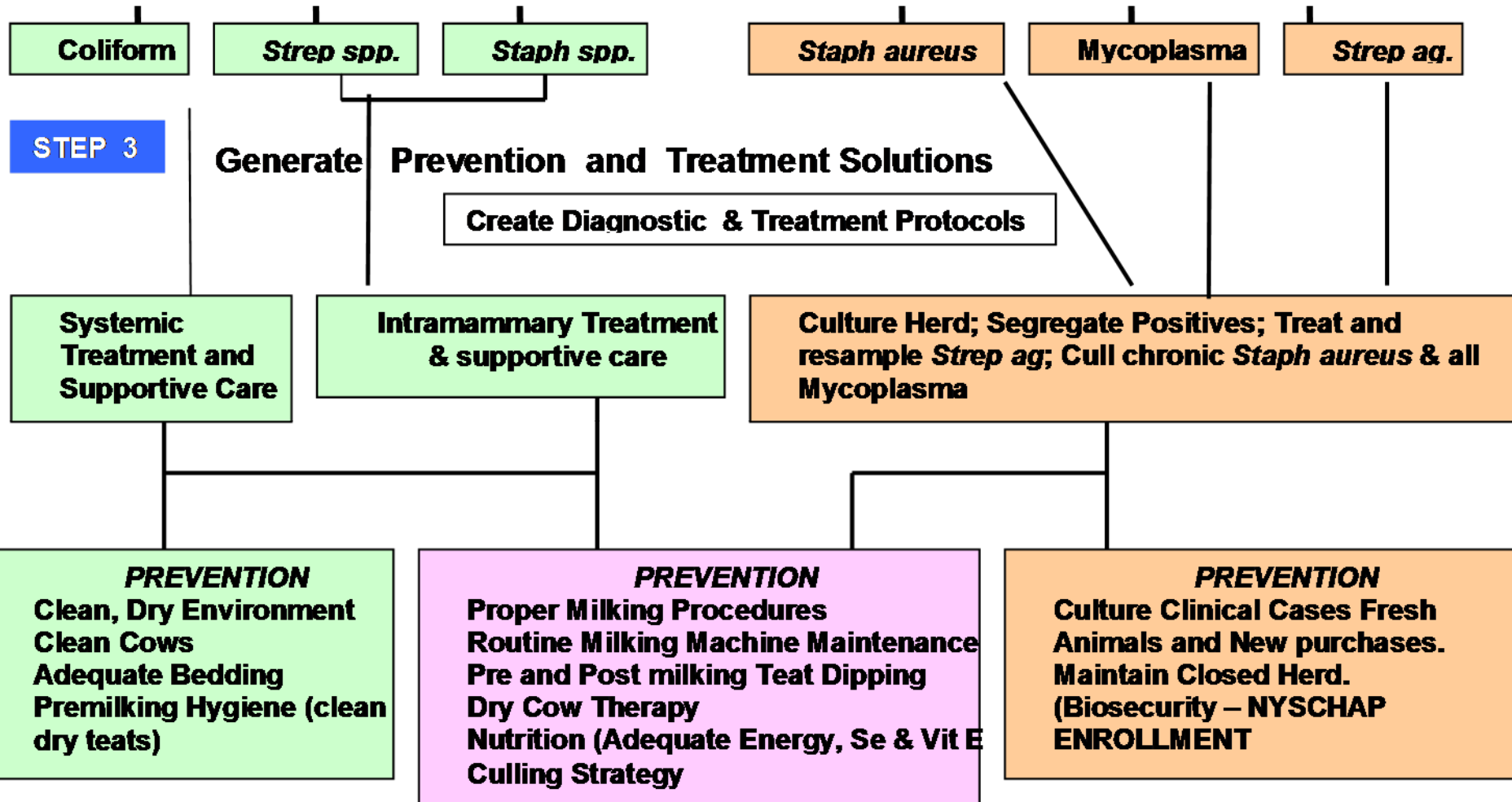
Contagious Organisms

Staph aureus

Mycoplasma

Strep ag.





STEP 4**Generate Strategic Plan - Establish Herd Goals****STEP 5****Generate Tactical Plan**

Operational Tactical Plan – Standard Operating Procedures

**Management Tactical Plan - Employee Training & Evaluation
- Effective Records System**

STEP 6**Monitor Performance, Reassess Goals, and Tactical Plans****DHI SCC Reports**

**Test Day Average linear score
New & Chronic Infection Rates**

Milk Plant Quality Reports

**Clinical Infections Rate
Cure Rate**

QMPS Reports

Pathogens





The New York State
Cattle Health
Assurance Program

Mastitis

**Background and
Best Management
Practices**

