

2006 Iowa Pork Regional Conferences



## Pork Quality: Implications of Handling & Transportation



C.A. Stahl  
Meat Scientist

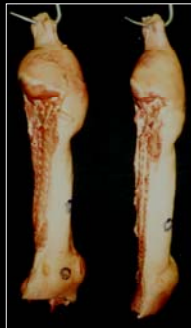
Food Animal Consultation & Testing Services

## Presentation Outline

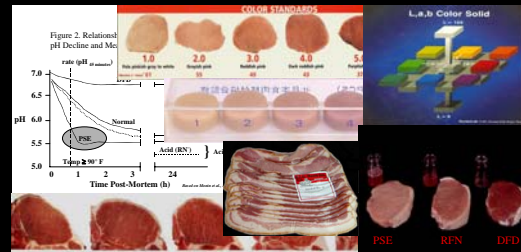
- ✓ The Industry Conundrum
  - What is Pork Quality?
  - Where have we been and where are we going?
  - Things to think about
- ✓ What's the Worst that Could Happen?
  - Cost to the producer
  - **Cost to the industry**
- ✓ "THE CHALLENGE"
  - Production Issues
  - Transporter Issues

## What is Pork Quality?

1. Carcass Yield
2. Wholesomeness
  - Safety of the product
3. **Economic Attributes of Functionality**
  - I. Consumer acceptability
    - Color
    - Flavor
  - II. Further processing
    - Firmness & Wetness
    - Water-holding Capacity



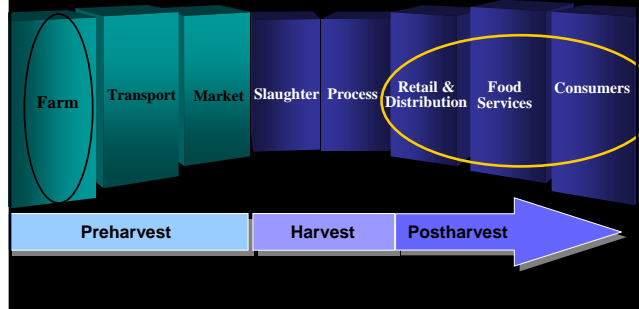
## Where Have We Been? (Consumer Demand: An Industry Conundrum)



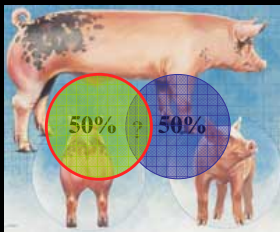
## Things to think about



## Things to think about



## Things to think about



## What's the worst that can happen?



Source: TOA Handbook

## What's the worst that can happen? (Carcass Condemnations)

Table 10  
National Pork Benchmarking Audit Estimate of Economic Loss Associated with  
Nonconformities in Carcass Quality

Condemnation	1992	2002
Trim	1.00	1.20
Skin	.01	.02
Bruises	.08	.08
Abscesses/Injection Sites	.47	.57
Arthritis	.08	.12
Broken Bones	.59	.30
Subtotal	2.23	2.29

## What's the worst that can happen? (Quality Condemnations)

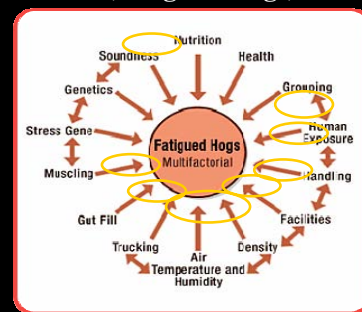
Table 10  
National Pork Benchmarking Audit Estimate of Economic Loss Associated with  
Nonconformities in Carcass Quality

Two-toned color	.27	.43
PSE	.34	.90
DFD	.01	0.0
WHC	-	.50
Echymosis	.49	.30
Marbling	-	0.0
Subtotal	1.11	2.13

## What's the worst that can happen? (Economic Losses Can Add Up)

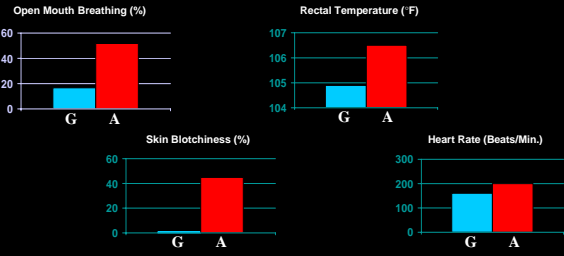
Two-toned color		.43
PSE		.90
Trim	1 Semi-Load: 170 animals = \$557.60	1.20
WHC	6 Semi-Loads: 1020 animals = \$3,345.60	.50
Bruises		.08
Broken Bones		0.30
Subtotal		3.28

## What's the worst that can happen? (Fatigued Hogs)



Source: TOA Handbook

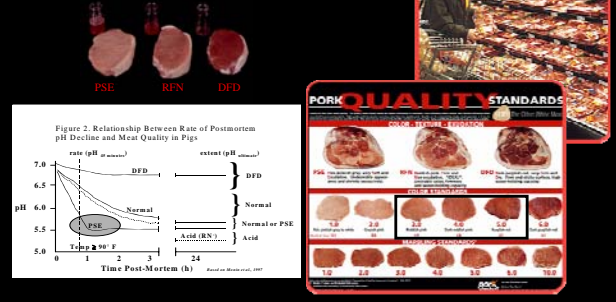
## What's the worst that can happen? (Fatigued Hogs)



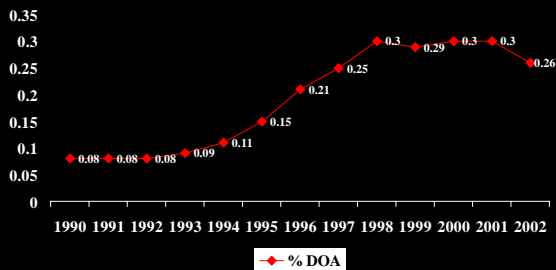
Source: TQA Handbook

## What's the worst that can happen? (Fatigued Hogs)

✓ Excessive stress and muscle exertion can lead to PSE pork.



## What's the worst that can happen? (DOA's)



Ellis, McKeith & Ritter

## What's the worst that can happen? (DOA's)

	# of Loads	DOA (%)	Fatigued (%)	Loss (%)
Study 1	2199	0.28	0.81	1.09
Study 2	93	0.19	0.62	0.81
Study 3	24	0.25	0.75	1.00
Study 4	74	0.23	0.85	1.08

McGlone & Ellis, McKeith & Ritter

## What's the worst that can happen? (DOA's)

Study	% of Loads	Loss (%)	# Animals	\$ Loss
Study 1	99	1.09	4074.0	\$467,980
Study 2	95	1.05	36.86	\$14,715
Study 3	24	1.00	40.28	\$4,624
Study 4	74	1.08	135.86	\$15,606

**\$100 Million Annually**

Assuming:  
170 head per Load  
Carcass Weight: 201.0 lbs.  
Weighted Average: \$57.15 cwt

## The "CHALLENGE" (Take Advantage of Educational Opportunities)



## The "CHALLENGE" (Understand Animal Behavior & Natural Instincts)

- ✓ Hogs have a strong natural urge to escape.
- ✓ Hogs have a natural tendency to follow.
- ✓ Hogs are easily frightened.
- ✓ Excited hogs are more difficult to move.
- ✓ Move pigs in small groups of 3-5



- |  |                             |
|--|-----------------------------|
| Dangling chains                          | Loose ramps and boxes       |
| Slippery floors                          | Shadows                     |
| Loud noises                              | Extreme bright light        |
| Water puddles                            | Drain gates                 |
| Shiny objects                            | Flapping and moving objects |
| Clothing hanging on fences               | Dogs or other animals       |
| Sunlight shining through a crack or hole |                             |
| Sudden changes in the color of equipment |                             |

Source: TOA Handbook

## The "CHALLENGE" (Pop Quiz!)



Source: TOA Handbook

## The “CHALLENGE” (Utilize Alternatives to Electric Goods)



## The “CHALLENGE” (Comprehend Space & Temperature Requirements)

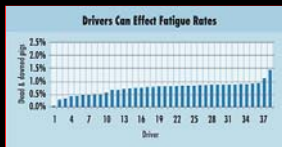
Average Weight (lbs.)	Number of Hogs Per Running Foot of Truck Floor Normal Weather		Square Feet Per Head
	Truck or Trailer Width		
	96	102	Normal Weather
50	5.23	5.56	1.53
100	3.44	3.66	
150	2.56	2.70	
200	1.88	1.99	4.26
300	1.67	1.77	4.79
350	1.45	1.55	5.48
400	1.25	1.33	6.39

**Most Common Yet Preventable Mistake!**

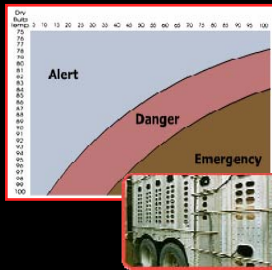
Source: TOA Handbook

## The “CHALLENGE” (Comprehend Space & Temperature Requirements)

- ✓ Consider Weather Conditions & the Size of Animal Being Transported.
- ✓ Overcrowding is NEVER as option.
- ✓ Always be prepared.



Source: PORK Magazine-John McGlone



Source: TOA Handbook

## The “CHALLENGE” (Comprehend Space & Temperature Requirements)

Truck Set – Up Procedures During Temperature Settings			
EET	Air Temp (°F)	Bedding	Side-Slats
Bitter Cold	<10	Heavy	10% Open*
Very Cold	< 40	Heavy	10% Open*
Cold	40-50	Medium	25% Open
Mild	50-75	Light	50% Open
Warm	75-90	Light	All Open
Very Warm	> 90	Light†	All Open

Source: TOA Handbook

## Acknowledgements

- The conscientious producer
- Colin Johnson (ISU/IPIC)
- Iowa Pork Producers Association
- Iowa Pork Industry Center
- Iowa State University
- National Pork Board



## Questions?



P.O. Box 333  
Sheldon, IA 51201  
712-324-1445  
[www.usethefacts.com](http://www.usethefacts.com)