

Cattle Confinement Considerations



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What Affects Cattle Comfort?

- Air temperature
- Wind
- Precipitation
- Relative humidity
- Shelter
- Solar radiation
- Pen surface
- Animal body condition
- Animal surface/unit wt.
- Hair coat



What About Animal Welfare?

**Is this
good animal
welfare?**



Advantages of Confinement Barns

- Control manure runoff
- Animal comfort
 - Winter
 - Summer
- Improve performance?
 - Gain – 3.5%
 - Feed efficiency – 3.85%
- Reduce animal sickness
- Value of manure



When a Confinement Barn Excels

- Light-weight calves
 - Muddy
 - Rain and $<35^{\circ}$
 - Cold and windy
- Market ready animals
 - Muddy
 - Hot and sunny
- Black-hided cattle
- Dairy steers



Value of Manure

Open Feedlot

11 lbs Total N/ton x \$0.31 =
\$3.41 Total N/ton

14.0 lbs P₂O₅/ton x \$0.43 =
\$6.02 P₂O₅/ton

17.0 lbs K₂O/ton x \$0.30 =
\$5.10 K₂O/ton

\$14.53/ton (5 tons/space/yr)
\$73/space/year*

Mono-Slope Barn

21.7 lbs Total N/ton x \$0.31 =
\$6.73 Total N/ton

14.1 lbs P₂O₅/ton x \$0.43 =
\$6.06 P₂O₅/ton

14.6 lbs K₂O/ton x \$0.30 =
\$4.38 K₂O/ton

\$17.17/ton (10 tons/space/yr)
\$172/space/year*

Disadvantages of a Confinement Barn

Increased Cleaning

| Frequency | % Producers |
|---------------|-------------|
| 4 times/week | 6.7 |
| 3 times/week | 6.7 |
| 2 times/week | 13.3 |
| 1 time/week | 46.7 |
| Every 2 weeks | 26.6 |

Increased Bedding

| Bedding | Lb/hd/d |
|---------|---------|
| Average | 4.25 |
| Range | 2-10 |



Orientation of a Confinement Barn

Mostly east-west; seldom north-south



Bunk Space Sets Barn Length Minimum = 12" per Head

South Bunk



North Bunk



Animal Density

- Solid floor
 - Avg: 40 sq ft/hd
 - Range: 38-50 sq. ft/hd
- Slatted floor
 - Avg: 25 sq ft/hd
 - Range: 22-28 sq ft/hd
- Dependent on animal



Floors of a Confinement Barn

Solid



Slotted



Russ Euken, ISUEO

Enhancing the Floors in a Confinement Barn

Scored Solid Floor



Mats for Slatted Floors



Back of Building – Split Curtain

- Upper curtain
 - attached 2" below eave
 - Extends down 3'
- Lower curtain
 - Attached below upper curtain
 - Extends to wall
 - Rolls up from bottom (reduces rodent damage)
- Concrete wall is 5' high



Upper Curtain

Lower Curtain

Ventilation in a Confinement Barn

- Set by the opening of the curtain in the back
- Roof may be insulated to control condensation
- Goals:
 - Keep cattle dry
 - Protect from wind
 - BUT still have air movement



How the Curtain is Managed



Slotted Floor, Deep Pit Beef Barn



Cleaning a Pen



Adding Bedding to a Pen



Types of Bedding



- Cornstalks
 - Most common
- Soybean Stover
- Straw
 - Oat
 - Wheat
- Woodchips

Estimated Absorption of Bedding

| Material | Lbs Water/Lb Bedding (10% moisture) |
|----------------------|--|
| Pine chips | 3.0 |
| Pine sawdust | 2.5 |
| Pine shavings | 2.0 |
| Hardwood | 1.5 |
| Shredded newspaper | 1.6 |
| Shredded corn stover | 2.5 |
| Ground corn cobs | 2.1 |
| Oat straw | 2.5 |
| Wheat straw | 2.2 |
| Chopped, mature hay | 3.0 |
| Soybean stover | 2.8 |

Bedding Management

Deep-Bedded Pack



Shallow-Bedded Pen



Effect of Bedding Management on Pack Characteristics (Apr/June 09)

| | Deep Bedding | Shallow Bedding |
|---------------------------|--------------|-----------------|
| Pack Moisture, % | 63.1 | 67.2 |
| Pack Temp, °F | 70.2 | 65.2 |
| pH | 7.69 | 6.90 |
| Gen E. coli, log CFU/g | 6.02 | 6.72 |
| Branch Chain VFA | 2.57 | 3.81 |
| Aromatics | 1.95 | 4.42 |
| Surface Temp, °F | 63.5 | 61.4 |

Manure Storage





This kind of hair loss on the lower round has been observed in some deep bedded facilities



Cause not known –
too wet, manure pH,
abrasive surface??

Mud/Manure Scoring



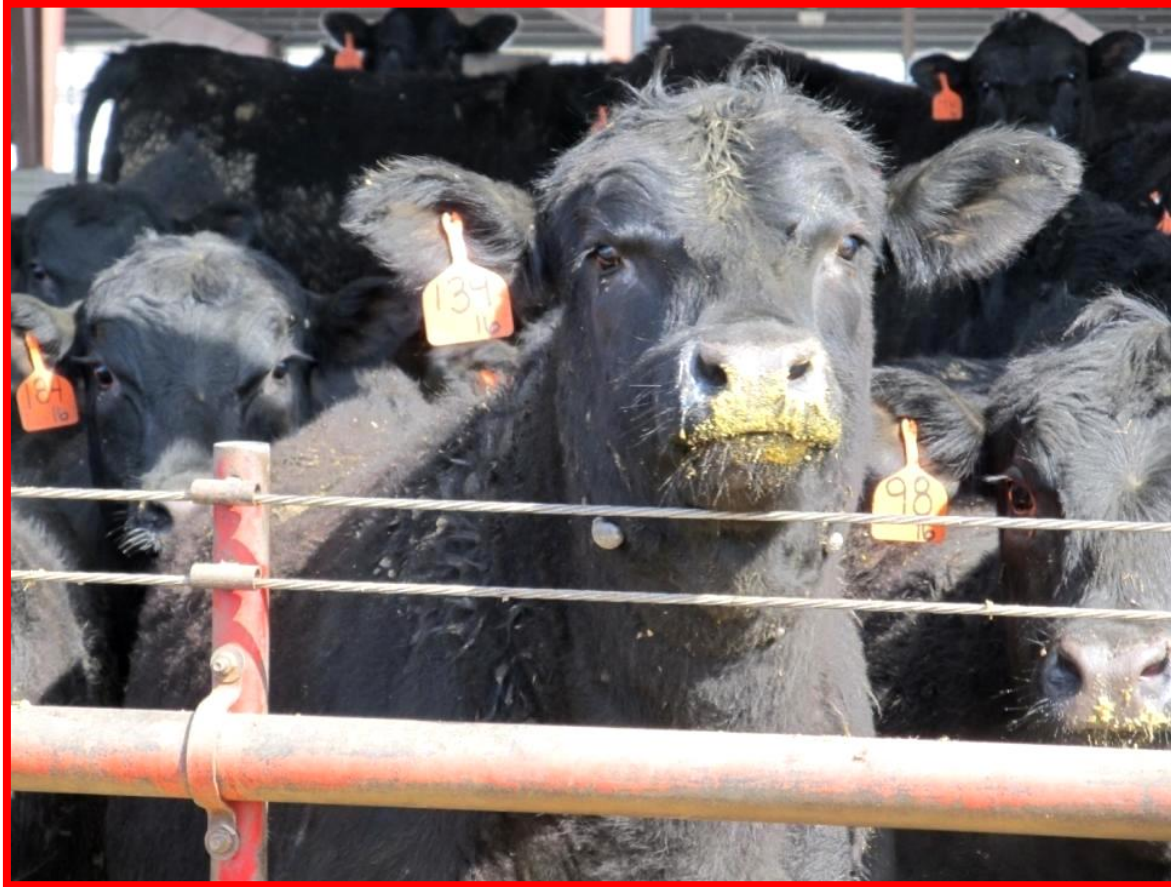
Why Worry About Mud/Manure Scores?

- ↑ heat & cold stress
- ↓ ADG & FE
- ↓ dressing percent
 - 1% on 1400# steer = 14#
14# x \$1.1889 = \$16.64
- ↓ value of hide (~\$30)
- ↑ potential for E. Coli 0157:H7
- Recall cost – recovery, ↓ investment value
- ↓ consumer confidence



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Thank You!



Questions!