Mono-Slope Beef Barns: Basic Design

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What is a Mono-Slope Barn?

- 16'
- 1.5' minimum
- 12'
- 28.5'

Advantages of a Mono-Slope Barn

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

This presentation is archived at:
http://www.extension.org/pages/21819/chronological-webcast-archive
Value of Manure

<table>
<thead>
<tr>
<th></th>
<th>Open Feedlot</th>
<th>Mono-Slope Barn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 lbs Total N/ton x $0.55 = $6.05 Total N/ton</td>
<td>21.7 lbs Total N/ton x $0.55 = $11.93 Total N/ton</td>
</tr>
<tr>
<td></td>
<td>14.0 lbs P₂O₅/ton x $0.60 = $8.40 P₂O₅/ton</td>
<td>14.1 lbs P₂O₅/ton x $0.60 = $8.46 P₂O₅/ton</td>
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<tr>
<td></td>
<td>17.0 lbs K₂O/ton x $0.50 = $8.50 K₂O/ton</td>
<td>14.6 lbs K₂O/ton x $0.50 = $7.30 K₂O/ton</td>
</tr>
<tr>
<td></td>
<td>$22.95/ton (5 tons/space/yr)</td>
<td>$27.69/ton (10 tons/space/yr)</td>
</tr>
<tr>
<td></td>
<td>$115/space/year*</td>
<td>$277/space/year*</td>
</tr>
</tbody>
</table>

Disadvantages of a Mono-Slope Barn

<table>
<thead>
<tr>
<th>Increased Cleaning</th>
<th>Increased Bedding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>% Producers</td>
</tr>
<tr>
<td>4 times/week</td>
<td>6.7</td>
</tr>
<tr>
<td>3 times/week</td>
<td>6.7</td>
</tr>
<tr>
<td>2 times/week</td>
<td>13.3</td>
</tr>
<tr>
<td>1 time/week</td>
<td>46.7</td>
</tr>
<tr>
<td>Every 2 weeks</td>
<td>26.6</td>
</tr>
</tbody>
</table>

When a Mono-Slope Excels

- Light-weight calves
  - Muddy
  - Rain and <35°
  - Cold and windy
- Market ready animals
  - Muddy
  - Hot and sunny
- Black-hided cattle
- Dairy steers

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Viewing a Mono-Slope Barn

Front View – 28.5’
Back View – 16’

Back Needs to Accommodate Equipment

Orientation of a Mono-Slope Barn

Mostly east-west; seldom north-south
**Bunk Space Sets Barn Length**

Minimum = 12” per Head

- South Bunk
- North Bunk

**Length of a Mono-Slope Barn**

- Long
- Short

**Width of a Mono-Slope Barn**

- Wide-100’
- Medium-64’/Narrow-40’

Russ Euken, ISUEO

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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

Roof of a Mono-Slope Barn

Steel
Insulation

Floors of a Mono-Slope Barn

Solid
Slatted

Russ Euten, ISU EOV

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Enhancing the Floors in a Mono-Slope 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

Back of Building – 1-Piece Curtain

- Has an eave vent opening
- Curtain below eave vent
  - One piece attached to center rod
  - Extends simultaneously to wall and eave vent
  - When completely rolled up looks like a long slender tube
- Concrete wall is 5’ high

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Raising and Lowering the Curtain

Winched with Roping
Hydraulically Operated

Ventilation in a Mono-Slope

- 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

Alleys for a Mono-Slope Barn

North Side
South Side
Pen Perimeter

Exterior Wall  Interior Wall

Pen Interior

Bunk Apron Wide Enough to Clean  12" Wide Step-Up Keeps Bunk Clean

Bedding Management

Deep-Bedded Pack  Shallow-Bedded Pen

Livestock and Poultry Environmental Learning Center Webcast Series

May 17, 2013

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Types of Bedding

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

Adding Bedding to a Pen
Working Facilities

Separate

Within the Mono-Slope

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Thank You!

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