High vs Low Cost Options for Sow Housing Conversions

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Introduction

• The Canadian sow herd is in transition...
  • Estimate 20-40% of sows are now in groups
  • And...
  • by 2024, the majority of sow barns will have converted to groups

• What can we learn from the experience of early adopters?
Cost of renovations

• Overall, barn renovations have been less costly than initial projections
  • Initial projections: $500-1000/sow
  • Actual costs: $200-700/sow

• Still a major investment !!
Changes in sow herd?

• Space requirements and sow numbers are another concern...
  • Will group housing result in fewer sows and reduced production?

• Efficient use of space and greater sow productivity - group sow barns are producing the same number of pigs
## Pros and Cons

<table>
<thead>
<tr>
<th>Category</th>
<th>Floor Feeding</th>
<th>Shoulder Stalls</th>
<th>ESF</th>
<th>Free-Access ESF</th>
<th>Free-Access Stalls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Space Allowance</strong></td>
<td><strong>Pro</strong>: Moderate space requirement</td>
<td><strong>Pro</strong>: Moderate space requirement</td>
<td><strong>Pro</strong>: Low space requirement</td>
<td><strong>Pro</strong>: Low-moderate space requirement</td>
<td><strong>Con</strong>: High space requirement</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td><strong>Pro</strong>: Low cost</td>
<td><strong>Pro</strong>: Low cost</td>
<td><strong>Con</strong>: Moderate to high cost</td>
<td><strong>Con</strong>: Moderate cost</td>
<td><strong>Con</strong>: High cost</td>
</tr>
<tr>
<td><strong>Daily Management</strong></td>
<td><strong>Pro</strong>: Low tech</td>
<td><strong>Pro</strong>: Low tech</td>
<td><strong>Pro</strong>: Automated management</td>
<td><strong>Pro</strong>: Automated management</td>
<td><strong>Con</strong>: Low tech</td>
</tr>
<tr>
<td></td>
<td><strong>Con</strong>: High management input to sort groups, find and manage dropouts</td>
<td><strong>Con</strong>: High management input to sort groups, find and manage dropouts</td>
<td><strong>Con</strong>: Technical expertise, ear tags</td>
<td><strong>Con</strong>: Technical expertise, ear tags</td>
<td></td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td><strong>Pro</strong>: No sow training</td>
<td><strong>Pro</strong>: No sow training</td>
<td><strong>Con</strong>: Training required</td>
<td><strong>Con</strong>: Some training required</td>
<td><strong>Pro</strong>: No sow training</td>
</tr>
<tr>
<td><strong>Social/Welfare</strong></td>
<td><strong>Con</strong>: High aggression and competition</td>
<td><strong>Con</strong>: Aggression and competition</td>
<td><strong>Pro</strong>: Individual feeding</td>
<td><strong>Pro</strong>: Individual feeding</td>
<td><strong>Pro</strong>: Individual feeding</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Con</strong>: Many sows remain in stalls</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td><strong>Con</strong>: Overfeeding used to reduce aggression</td>
<td><strong>Con</strong>: Overfeeding used to reduce aggression</td>
<td><strong>Pro</strong>: Automated sorting, heat checking, ‘precision farming’</td>
<td><strong>Pro</strong>: Automated data collection, ‘precision farming’</td>
<td><strong>Con</strong>: All sows in a group get same feed amount</td>
</tr>
</tbody>
</table>
High and Low Cost Conversions:  
Two Saskatchewan Examples

- Shoulder Stalls
  Carlton Trail, Polar Pork

- Electronic Sow Feeding
  Merkosky Barn, Olymel

• Similar herd sizes, very different solutions
Carlton Trail: Shoulder Stalls

Barn renovation

• The barn was refurbished in 2017
  • Barn was empty, wiring removed

• **Renovation**: Stall sides were removed - pens were formed using 5 stalls per side

• Groups of 10 sows per pen
• Kept stall fronts & feed lines
• **Repopulated**: 2750 sows
Carlton Trail: Shoulder Stalls

Pen layout

• Pens are 17’ x 10’: 17 ft$^2$/sow
Feed drops and Floors
Carlton Trail: Shoulder Stalls

Renovation cost

• Total of approx. 250K, or $100/sow (!)
• Used existing feed system and lines
• Made pens and replaced gates
• Work was completed within 6 weeks
Carlton Trail: Shoulder Stalls

Management in gestation

• Bred in stalls; preg. check at 30 days
• **Groups of 10 formed** (12-15 groups/week)
  • Matched for uniform size
  • Some mixing aggression
  • Open, over- or under-condition sows are removed to stalls

• **Feed drop**: first thing each morning
  • Dropped into water trough
Carlton Trail: Shoulder Stalls

Production (Sept- Nov 2019)

• Farrowing rate: 90.2%
• Total born 15.23 pigs/litter
• Born alive 13.47 pigs/litter
• Stillborn 7.4%
• Mummies 4.18%

• Two years in operation- and no major issues
Carlton Trail: Shoulder Stalls

• Barn manager, Serena Scott, has worked in sow barns over 13 years
• She likes the system and feels sows are calmer and ‘happier’ vs stalls because they can choose where (and with whom) they lie
Carlton Trail: Shoulder Stalls

Pros:
• Good production numbers ~30 p/s/y
• Sows easier to move- e.g. into farrowing
• Reduced death losses vs stall barns

Cons:
• Removing deads...
• Space allowance?
  • 17 ft²/sow
# Code of Practice

**Recommended minimum floor space allowances for gilts and sows in group housing**

<table>
<thead>
<tr>
<th>Group type</th>
<th>Partial slats</th>
<th>Bedded floor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m²</td>
<td>ft²</td>
</tr>
<tr>
<td>Gilts</td>
<td>1.4 - 1.7</td>
<td>15 - 18</td>
</tr>
<tr>
<td>Sows</td>
<td>1.8 – 2.2</td>
<td>19 - 24</td>
</tr>
<tr>
<td>Mixed</td>
<td>1.7 – 2.1</td>
<td>18 - 23</td>
</tr>
</tbody>
</table>
Carlton Trail: Shoulder Stalls

• **Canadian Pork Excellence** - PigCARE program
  • Replacing ACA in 2020

• **Group sow housing certification:**
  • Based on two questions-
  • *Is the percentage of sows and gilts in pens greater or equal to 60%?*
  • *Are sows provided space for separation of dunging area from lying and feeding area?*
Merkosky Barn: ESF

Barn renovation

• Barn was originally built in 1996
  • Designed for live boar matings and 16 d weaning age
• Renovation: Took place in 2017
• Original herd was 2600; final herd is 2600
  • Herd reduced to 1500 sows during renovation
• Stalls and pens were removed
  • Entire barn gutted- including insulation & siding
Merkosky Barn: ESF

Barn renovation

• **Gestation**: created 8 large dynamic group pens
• Two gilt pens and 6 sow pens (~225 sows/pen)
• **Nedap ESF system**
Merkosky Barn: ESF

Barn renovation

- First area constructed was ESF training area
- Sows were trained for ESF; no gilts introduced until construction was complete
Gilt Training Pen
Merkosky Barn: ESF

Gestation pen layout

• Eight pens: each contains 4 to 6 feeders
• After feeding, sows exit to drinking/dunging area – ‘racetrack’ pen layout

• Gilts at 19.5 ft² and 45 gilts/ESF station
• Sows at 23 ft² and 56 sows/ESF station
Merkosky Barn: ESF

Breeding Management
• Sows are bred in stalls, put directly into groups after breeding
• Minimal stall time

• **Heat detection**
  • Boar pens with detectors
  • Marks any open sows and they are sorted for breeding

• **No preg checking!**
Merkosky Barn: ESF

Renovation cost

• Total project cost was ~$700/sow

• Includes: new wiring, ventilation controller, inlets, LED lighting, wall coverings, fans, slats, breeding stalls, ESF feeders and labor

• The works!!

• Took approximately 5 months
Merkosky Barn: ESF

Adjustments

- **Influenza outbreak** - spring of 2019
  - seems to cycle more in pen gestation and hold on longer than in a stall barn
- Mummies rose to 4% but now back to 2%
- An autogenous vaccine is being made to hopefully control better this flu season
Merkosky Barn: ESF

Adjustments

• Increase in lameness with groups
  • Floors, diet, other causes?
• Chelated minerals added to diets

• 0.5 extra staff brought in at renovation
  • Adjusting management & flu care, treatment
• Now back to original staff numbers
Merkosky Barn: ESF

Production

• Farrowing rate: 87% (Target 90%)
• Total born 14.5
• Born alive 13
• Stillborn 7%
• Mummies 2%

• Larger piglets
Merkosky Barn: ESF

Pros
• Reduction in feed costs
• Higher birthweight piglets
• Meeting high welfare standards
  • high space allowance, limited time in stalls

Cons
• Difficulty moving sows
  • No ‘handling bubble’
Which is better??

- Apples and Oranges? Or Toyota vs Tesla?
- Pig welfare depends not on the system, but on the quality of individual pig care...

"Managed correctly, any of the housing systems can work. If we look at the... scientific literature, it doesn't matter how sows are housed. It matters more how they're cared for."

- Tim Safranski, Extension specialist, University of Missouri
Which is better?

- Both systems are working well
- **Good production levels:** comparable (or better) than stalls
- Still room for improvement..
- Staff have adapted- and prefer groups

• **What system will you choose?**
Thank You!
Acknowledgements
Questions?