Transition to Sow Housing
Noel H Williams
Iowa Select Farms
ISF Production System

• Family Owned Business
  – Own all sow and gilt development facilities

• 165,000 Sows
  – 38 Sow Farms

• Historically, all of ISF production system has gilts grouped in pens through movement to farrowing
  – 16-20 gilts per pen
  – Drop Feeding System

• After gilt farrowing, sows are housed in gestation stalls (except 2 sow farms)
  – One farm purchases in 2014
  – One farm Retro-Fit for evaluation
Evaluation Process

• All Retro-Fits
  – If new facilities, could be a different decision process
  – Footprint, permitting constraints
• Animal Well-Being
• People Safety
• Capitol Costs for Conversions
• Production Implications
• Customer Needs
Conversion Evaluation

• Collaborative efforts with internal and external resources to evaluate the best potential system for Iowa Select Farms production management
  • Industry experience in various companies and production systems
    – External experts
      • Iowa Select Farms’ Animal Well-Being Committee
      • Equipment companies
      • University expertise
      • Genetic company
## Multiple Systems Available

<table>
<thead>
<tr>
<th>System Type</th>
<th>Key Characteristics</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESF</strong></td>
<td>Computerized Feeding</td>
<td>Individual Feed Intake</td>
<td>High repair/maintenance</td>
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<tr>
<td></td>
<td>Large Group Pens</td>
<td>Condition Control</td>
<td>Tag loss/reliability</td>
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<tr>
<td></td>
<td>Per sow spacing 18 sq ft.</td>
<td>Protection at feeding</td>
<td>High value being wasted</td>
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<tr>
<td></td>
<td>Fully dated</td>
<td>Recordkeeping</td>
<td>Waiting in line</td>
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<td></td>
<td>RFID electronic tags</td>
<td>Same barn footprint</td>
<td>Any failure = feed out</td>
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<tr>
<td></td>
<td>Database control</td>
<td>Low Capital Cost vs. stalls</td>
<td>Pig training</td>
</tr>
<tr>
<td><strong>Mechanical Sort</strong></td>
<td>Large Group Pen</td>
<td>Individual animal monitoring</td>
<td>High repair/maintenance</td>
</tr>
<tr>
<td></td>
<td>Food/water courts</td>
<td>Less equipment cost relative to ESF.</td>
<td>Higher cost: feed equip and sort equip both.</td>
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<tr>
<td></td>
<td>Mechanical sort to feed or pen</td>
<td>Similar barn footprint</td>
<td>Difficult retrofit</td>
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<tr>
<td></td>
<td>Electronic Tags</td>
<td>Low cost relative to stall</td>
<td>Tag loss/reliability</td>
</tr>
<tr>
<td></td>
<td>Midway ESF/Other systems</td>
<td>Record keeping</td>
<td>Less ability to monitor individual feed intake.</td>
</tr>
<tr>
<td><strong>Free Stall/Loafing</strong></td>
<td>Combine groups and feeding stalls</td>
<td>Protection while feeding</td>
<td>Space may be 35 ft²/ha</td>
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<tr>
<td></td>
<td>Room large pen</td>
<td>Protection in general</td>
<td>Very expensive – stall plus pen.</td>
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<tr>
<td></td>
<td>Feed in stalls</td>
<td>Good retrofit.</td>
<td>May increase footprint by 50%.</td>
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<tr>
<td></td>
<td>Body length or partial stalls</td>
<td>Same feed equipment.</td>
<td>No individual feeding or conditioning of sows.</td>
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<tr>
<td><strong>Trickle Feed</strong></td>
<td>Deliver feed over long period (15-30 minutes)</td>
<td>Feed ‘fixation’ reduces fighting</td>
<td>Only small groups</td>
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<tr>
<td></td>
<td>Small pens 5-6 sows</td>
<td>Good retrofit to existing barn.</td>
<td>15-20% space reduction in barn.</td>
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<tr>
<td></td>
<td>Mix 20 sq ft/sow</td>
<td>Cost similar to stalls</td>
<td>No individual feeding to body condition.</td>
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<tr>
<td></td>
<td></td>
<td>No training</td>
<td>Must group for size and aggression.</td>
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<tr>
<td></td>
<td></td>
<td>No complex equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Existing feed systems</td>
<td></td>
</tr>
<tr>
<td><strong>Drop/Manual Feed</strong></td>
<td>Hand feed small group pen</td>
<td>Least cost system</td>
<td>Aggressive feeding behavior.</td>
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<tr>
<td></td>
<td>Feed on solid floor</td>
<td>Easy Retrofit</td>
<td>Body condition variability – especially heavy.</td>
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<tr>
<td></td>
<td>Mechanical feed drops</td>
<td>High density</td>
<td>Labor may be higher</td>
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<tr>
<td></td>
<td>Small pens 4-5 sows</td>
<td>No complex equipment</td>
<td></td>
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<tr>
<td></td>
<td>16 – 20 square feet per sow</td>
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</tbody>
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Source: Interviews and material provided by Kirk Brincks, Hog Slat, Inc.
## System Comparison-Summary

<table>
<thead>
<tr>
<th>System</th>
<th>Running Cost</th>
<th>Ease of Management</th>
<th>Management Training</th>
<th>Freedom From Bullying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stalls</td>
<td>****</td>
<td>****</td>
<td>X</td>
<td>****</td>
</tr>
<tr>
<td>Trickle</td>
<td>***</td>
<td>***</td>
<td>XX</td>
<td>**</td>
</tr>
<tr>
<td>Drop with Feeding Stalls</td>
<td>***</td>
<td>***</td>
<td>XX</td>
<td>***</td>
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<tr>
<td>Free Access</td>
<td>***</td>
<td>***</td>
<td>X</td>
<td>****</td>
</tr>
<tr>
<td>ESF (Static)</td>
<td>**</td>
<td>****</td>
<td>XXX</td>
<td>**</td>
</tr>
<tr>
<td>ESF (Dynamic)</td>
<td>**</td>
<td>***</td>
<td>XXX</td>
<td>**</td>
</tr>
</tbody>
</table>

*Poor, **Acceptable, ***Good, ****Very Good
X – Moderate, XX-High, XXX-Intensive

*aRef: Uwe Weddige, Futterkamp Research Station*
Iowa Select Farms—System Proposal

• Meets guidelines for acceptable definition of group housing
• Utilizes existing infrastructure
• Production efficiency
  – Implementation/conversion
    • Don’t go back wards in production
  – On-going training and development of people
    • Easily Implemented
• Employee safety
System Development
1st Step - Gilt Development
Why are Gilts SO IMPORTANT to ISF?

• Highest % of farrowings in the herd
  – Biggest determinant of herd performance; as go the gilts so goes the herd
  – Breeding targets
  – Replace involuntary fallouts
  – Replace voluntary culling

• Important to maintain parity structure

• **Next to feed, highest variable cost item for weaned pig production**

• **Influence herd health stability and ultimately down stream performance**
All of our gilts are gestated in pens
60% of our system has gilts gestated off site from the sow farm
Gilt Flows

• Along the way, acclimated for
  – PEDv
  – PRRS
  – Mycoplasma
  – Flu (in some cases)
  – Roto Virus
  – Parvo/Lepto
  – Circo
  – Salmonella
  – Illietis
  – Ecoli.

• This acclimatization can be
  – Vaccine or inoculation (preferred)
  – Lateral introduction (not preferred)
Gilt Development

• Collaboration with genetic supplier on genetic selection, feeding guidelines and management SOPs for our maternal genetics
  – Gilts grouped in large pens to help with social interactions as sows
  – Maintain pen integrity during the gilt development process
    • Nursery to grower
    • Grower to GDU
    • GDU to Sow farm
  – Careful selection for feet, leg and structural issues to ensure longevity
    • Requires more gilts in order to improve these traits
    • Selection rates of 60 – 70 % versus 80 percent
Animal Management

• Gilt Mating System
  – Off Site GDU’s
    • After HNS, eligible for mating
    • Once heat confirmed they are transferred and bred in a stall
    • Then grouped (try to maintain pen integrity) and housed in pens
    • Groups of 15
  – HNS Sow Farms
    • Gilts transferred after HNS to Sow farm
    • Bred in stalls and after pregnancy is confirmed moved to a pen
    • Groups of 8-15 depending on the site
Animal Management

• Parity sows
  – Moved to stalls after weaning and during breeding
  – Transferred to converted small group pens after confirmed pregnancy
    • Up to 12 bred sows/pen
    • Individual head stall for drop feeding system
Retrofit Plan

• Leave enough stalls to individually house sows until pregnancy conformation and house lame, injured, or at risk sows

• Built our own head stanchion versus retrofit existing stalls
  – Head stanchion is approximately 18” deep and protects the sow’s head and neck when eating and drinking

• Walk through pen dividers placed between pens where the back alley was located for caretaker access and safety
Feeding Area
Retrofit Plan

• Transition of inventory during retro-fit
  – Moved existing inventory off site to a finisher barn
    • Sows in groups of 10-12
    • Full feed
      – Diet formulated to limit intake
  – Thus far, we have done 12 retro-fits and have had minimal issues from a health stand point or production stand point
Retrofit Stalls to Group Pens
Management Tips
Transitioning Staff to Pen Gestation

- Everybody aware that animals are going to fight:
  - Pulling animals out timely
  - Documentation around fighting – 2 day rule
  - Space management – can’t backfill pens
  - Not a once a day walk through:
    - Listen for sows fighting – check it out
    - Pull sows that are needing it
What have I learned (Mary):

• Managing the pen before sows go into pens:
  – Feed on the floor
  – Make pens right after sows are fed
  – Sows are focused on eating and not fighting

• Managing pens is an all day process:
  – Continually checking on fighting
  – Making sure animals are content
Keys to Improving Production Results

• Ensuring that all sows are pregnant going into the pens
  – Open sows create havoc

• Feeding – diligence around feeding schedules and levels

• Know which sows NOT to put into the pens:
  – Evaluate group prior to going into the pen
    • Watch condition and lameness
    • Watch for animals that are not eating

• Watch older parity sows that are going into pens for the first time.
Crew’s Perception Today on Pen Gestation

• **Biggest fear was on PWB:**
  – First turn pulling 4 – 5 animals out of pens a day
  – Today not pulling that many out in a week
  – Once sows have gone through a turn there is little fighting

• **It doesn’t take as long to chore a barn:**
  – Can observe quickly the sow that are having issues

• Less sows with feet and leg issues than in crates

• SDL in pens is lower than compared to crates currently on farm
  – Sows are able to move around
  – More apt to make a quicker decision on animals
Day to Day Management

• **Feed Management:**
  – Plenty of feed prior to mixing
  – Adjust down gradually after the pen is mixed
  – When a sow is pulled out need to shut off a box
  – Try to body score in pens to adjust boxes based on what the sows are changing to.

• **Animals that don’t go to pens:**
  – Evaluation of group prior to going into pen
    • Swollen ankles, long toe nails, torn up vulvas – going to sick crate area
    • Check treatment cards – if treated in the last week don’t send to pens
  – Evaluation of sow when you breed her – can she make it in a pen situation
Day to Day Management

• When to pull an animal:
  – Sows that have been marked up for 2 days
    • Same for vulva bites
  – The “Bully” sow
  – When she isn’t going to be successful in the pen
  – Watch for animals standing in the middle of the pen at feeding time
  – Use good judgement
Day to Day Management

• Utilization of “Sick Crates”:
  – Sows that you determine will not make in a pen environment will go to this area
  – Sows that don’t get along in the pen environment will go to this area
  – This is the critical sow area
Criteria used to make Pens

• Gilts go with gilts – **NO EXCEPTION**
• Body condition
  – By size of the animal
• Keep younger parity sows together
• Breed date/Gestation length
Differences Between Pen Gestation and Stall Gestation

- Crates easier to tell if a sow is not eating in a pen you need to watch behaviors
- Identifying some treatments is harder not always seeing who is having the issue
- Identification of aborts mid gestation is harder – may not see the abort – need to watch sow behaviors
- Managing space – always need to be thinking about this.
Implications

• Multi-year project with extensive capital requirements
  – 7-9 months minimum per conversion
  – Multiple conversions at a time
    • Transport
    • Construction crew availability
    • Management transition
      – Training and supervision
Implications

• Animal welfare
  – Not convinced pens > stalls from an AWB perspective
  – Have a PWB measure/audit function with our system and work to improve
Key Take Away

• Alternative designs
  – Retrofit vs. new (different decision process)
  – Today, no clear winner in system design
  – Reality of no clear winner
    • Will create greater noise during the transition process
    • Will create longer time periods to standardize industry processes and achieve consistently high productivity
Key Take Away

• Multi-year project which will take extensive capital and labor investment
• Extensive retro-fit