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**FARROWING SOW SCENARIO**

 Animal Welfare Judging and Assessment Competition, 2011

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### Background



<b>Farm 1</b>	<b>Farm 2</b>
<ul style="list-style-type: none"> <li>□ Farrow to finish facility located in Missouri           <ul style="list-style-type: none"> <li>▣ 200 Farrowing sows</li> <li>▣ 20 Sows scheduled to farrow at a time</li> </ul> </li> <li>□ Finished pigs sold directly to processor and local markets</li> </ul>	<ul style="list-style-type: none"> <li>□ Farrow to wean facility located in Iowa           <ul style="list-style-type: none"> <li>▣ 2,000 Farrowing sows</li> <li>▣ 120 Sows scheduled to farrow at a time</li> </ul> </li> <li>□ Supplies feeder pigs under contract to a large packer/processor</li> </ul>

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### Facility Overview



<b>Farm 1</b>	<b>Farm 2</b>
<ul style="list-style-type: none"> <li>□ 1 gestation/farrowing building           <ul style="list-style-type: none"> <li>▣ 2 farrowing rooms in the building, each can accommodate 10 sows</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>□ 3 farrowing houses and one gestation house           <ul style="list-style-type: none"> <li>▣ 4 rooms per farrowing house, each can accommodate 30 sows</li> </ul> </li> </ul>

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©Hensley Construction



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## Personnel



Farm 1	Farm 2
<ul style="list-style-type: none"> <li>□ Two partners and 2 part-time employees                             <ul style="list-style-type: none"> <li>▣ One partner oversees gestation/farrowing</li> <li>▣ Partners have business degrees &amp; have had farm &gt;20yrs</li> <li>▣ Employees have 1-4 yrs experience</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>□ Farm manager and 4 full-time employees                             <ul style="list-style-type: none"> <li>▣ Manager has 16 yrs experience and MS in animal science</li> <li>▣ Employees have 2-7 yrs experience with the company</li> <li>▣ All receive regular training in pig care as per company policy</li> </ul> </li> </ul>

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## Sows

Farm 1	Farm 2
<ul style="list-style-type: none"> <li>□ Large White x Landrace</li> <li>□ Born and raised on the farm</li> <li>□ Parities 1-8                             <ul style="list-style-type: none"> <li>▣ 18% culled per year (primarily due to age)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>□ Large White x Landrace x Yorkshire</li> <li>□ Obtained from a contract breeder</li> <li>□ Parities 1-4                             <ul style="list-style-type: none"> <li>▣ 37% culled per year (due to reproductive problems and lameness)</li> </ul> </li> </ul>

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## Gestation: Farm 1

- Gestating sows are housed together in groups of 20 according to expected farrowing date
  - ▣ Gilts grouped together during gestation and farrowing
  - ▣ Fed 2x/day, 2.5 kg/sow/day, in feeding stalls




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## Gestation: Farm 2

- Sows are housed in individual gestation stalls
  - Sows and gilts placed according to expected farrowing date to facilitate tracking and moving animals
  - Fed 1x/day, 2.7 kg per sow, in individual feeders



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## Gestation Health & Behavior\*

	Farm 1	Farm 2
Length (cm)	201 ± 8.2	203 ± 6.8
Height (cm)	86.1 ± 3.1	89.2 ± 3.3
Girth (cm)	189.0 ± 6.5	188 ± 8.2
Pre-Farrow Weight (kg)	268.2 ± 38.7	275.8 ± 36.0
BCS (1-5 scale)	2.9 ± 0.3	3.1 ± 0.1
Gait Score <sup>§</sup> (0-3 scale)	1.2 ± 0.1	1.7 ± 0.5
Lesion Score <sup>§</sup> (0-3 scale)	1.4 ± 1.1	0.9 ± 0.8
Aggression (% of observations)	2%	0.5%
Stereotypic Behavior (% obs.)	3.4%	22.7%
Annual Sow Mortality	8.9%	6.1%

\*Measures taken the week before farrowing. Behavioral observations conducted from 0800-1600.  
<sup>§</sup>Scores of 0 on gait or lesion scales indicate no abnormalities.

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## Farrowing Environment



### Farm 1

- Natural ventilation and exhaust fans
- Natural light and manually-controlled fluorescent lights

### Farm 2

- Central heating negative pressure ventilation system
- Fluorescent lights controlled by timer

	Farm 1	Farm 2
Light Schedule	~0700-1700	0600-1800
Ambient Temperature	14-28°C (57-82°F)	18-22°C (64-72°F)
Relative Humidity	32-86%	65%
Ammonia Levels	10-35 ppm	5-12 ppm

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### Farrowing Environment: Farm 1

- Farrowing rooms = 9.2 m x 12.8 m (30.2' x 42')
  - ▣ Solid concrete floor, bedded w/wheat straw (15 cm (6"))
  - ▣ 2 dry feeders (3 spaces/feeder) and 2 cup drinkers located in a communal feeding and dunging area
  - ▣ 10 pens/room, each pen = 1.8 m x 2.4 m (6' x 7.9')
    - Open doors allow sows to enter and exit pens freely
  - ▣ Sows move in 4 days before earliest expected farrowing date
    - All sows in a room were housed together during gestation



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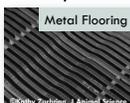
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### Farrowing Environment: Farm 2

- Farrowing rooms = 5.5 m x 16.8 m (18' x 55')
  - ▣ 30 crates/room, each crate = 1.5 m x 2.1 m (5' x 7')
    - Width for sow = 0.6 m (2')
    - Creep for piglets = 0.45 m (18") per side
    - Metal flooring
    - 1 dry feeder and 1 cup drinker per crate
- Sows move to farrowing rooms 2 days prior to expected farrowing date



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### Farrowing Environment: Farm 1

- Sows select their own farrowing pens
- Pens are bedded before sow entry, no additional bedding is added
- Pens do not have anti-crush rails, supplemental heating or creep areas
- After farrowing, a roller is installed at the bottom of each pen door (40 cm (16") above floor) to prevent young piglets from leaving the pen



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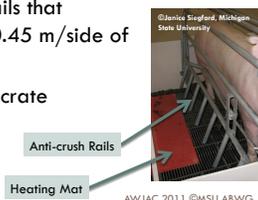
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## Farrowing Environment: Farm 2

- Sows are placed in crates in order of expected farrowing date
- No bedding is provided in the crates
- Crates have anti-crush rails that delineate creep areas (0.45 m/side of crate (18"/side))
- One creep area in each crate contains a heating mat



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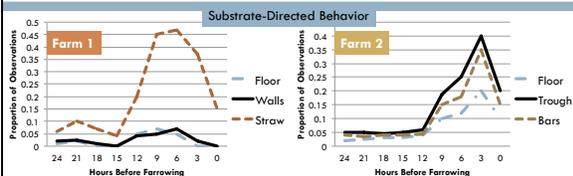
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## Pre-parturient Behavior\*

	Farm 1	Farm 2
Lying (% obs.)	65.8 ± 2.3	46.7 ± 1.9
Standing (% obs.)	32.4 ± 0.1	46.5 ± 0.2
Dog Sitting (% obs.)	1.8 ± 0.1	10.2 ± 0.4
Total # Postural Changes	77 ± 9.2	181.6 ± 3.7



\*Observations made over the 24 h before farrowing, ending with birth of the first piglet, for ten sows on each farm.

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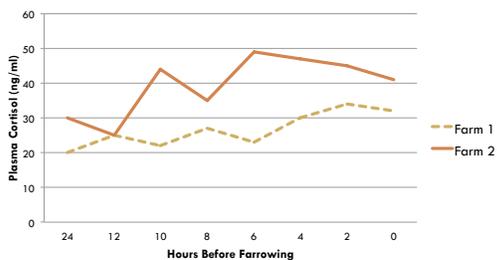
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## Pre-Parturient Physiology



\*Measurements taken over the 24 h before farrowing, ending with birth of the first piglet, for ten sows on each farm.

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## Farrowing Management

### Farm 1

- Sows are checked every 2 hours
  - Sows are assisted if no piglets are delivered within 1 h of the start of labor or >1 h between piglets
- Piglets are checked to be sure they have nursed
  - Piglets are given colostrum if they still have not nursed when placenta is expelled

### Farm 2

- Sows are checked hourly
  - Sows are assisted if no piglets are delivered within 45 min of the start of labor or >45 min between piglets
- Piglets are dried immediately and checked to see if they have nursed
  - Piglets are given colostrum within 1 h of birth if they have not nursed

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## Parturient Behavior: Sows\*

	Farm 1	Farm 2
Rooting or Nest Building (# obs.)	1.4 ± 0.1	4.4 ± 1.2
Stereotypic Behavior (# obs.)	0 ± 0.2	6.9 ± 1.7
Total # Postural Changes	11.2 ± 3.4	37.8 ± 6.5
Time from Birth of 1 <sup>st</sup> to Last (h)	3.5 ± 1.6	5.0 ± 2.8
Interval between Births (min)	17.8 ± 0.9	32.6 ± 1.4
Piglets Farrowed while Standing or Sitting (%)	3.1 ± 0.5	4.7 ± 0.6
Sniffing Piglets (# obs.)	24.7 ± 5.6	9.2 ± 2.3
Sow Nose to Piglet Nose (# obs.)	29.3 ± 2.3	10.4 ± 2.2

\*Observations made between the birth of the first and last piglets for ten litters on each farm.

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## Parturient Behavior: Piglets\*

	Farm 1	Farm 2
Time to First Udder Contact (min)	13.9 ± 2.3	11.0 ± 1.1
Time to First Teat Contact (min)	19.5 ± 2.5	18.1 ± 2.2
Time to First Suckling (min)	46.0 ± 5.6	42.2 ± 3.7
Fights at Teats (# obs.)	3.8 ± 1.9	4.1 ± 2.0
Piglets Resting in Contact w/Sow (% obs.)	23.2 ± 3.4	15.6 ± 2.5
Piglets Resting away from Sow (% obs.)	36.7 ± 4.2	47.3 ± 5.1

\*Observations made between the birth of the first and last piglets for ten litters on each farm. Data on latency to contact and suckle were recorded per piglet, using the time of birth as time 0 for that piglet.

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### Health & Productivity Statistics

	Farm 1	Farm 2
# Piglets Born Alive	11.7 ± 2.9	11.6 ± 2.7
# Stillborn	0.7 ± 0.1	0.8 ± 0.1
Piglet Birth Weight (kg)	1.59 ± 0.05	1.67 ± 0.04
Piglet Mortality Rate* (%)	14.7 ± 2.2	8.5 ± 4.5
Sow Mortality Rate* (%)	1.9 ± 2.5	1.4 ± 1.3
Udder Lesion Score <sup>§</sup> (0-3 scale)	1.7 ± 0.9	0.3 ± 0.1
Piglets Lesions <sup>§</sup> (0-3 scale)	1.1 ± 1.0	0.5 ± 0.2
Piglet Morbidity Rate* (%)	9.2 ± 4.6	12.4 ± 3.8
Sow Morbidity Rate* (%)	2.8 ± 0.8	3.2 ± 0.9

\*Mortality and morbidity rates include only mortality occurring during the first week after birth.  
<sup>§</sup>Scores of 0 on gait or lesion scales indicate no abnormalities.

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### Litter Management & Processing

Farm 1	Farm 2
<ul style="list-style-type: none"> <li><input type="checkbox"/> Piglets are cross-fostered at ~12-24 h</li> <li><input type="checkbox"/> Piglets are processed at ~48 h                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Navels disinfected if needed</li> <li><input type="checkbox"/> Iron shots</li> <li><input type="checkbox"/> Ears notched</li> <li><input type="checkbox"/> Tails docked</li> </ul> </li> <li><input type="checkbox"/> Males castrated at ~1 week with local anesthetic</li> <li><input type="checkbox"/> Needle teeth clipped only if litter and sow show lesion score ≥ 2</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Piglets are cross-fostered at ~24 h</li> <li><input type="checkbox"/> Piglets are processed on at ~96 h                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Navels disinfected if needed</li> <li><input type="checkbox"/> Iron shots</li> <li><input type="checkbox"/> Ears notched</li> <li><input type="checkbox"/> Tails docked</li> <li><input type="checkbox"/> Needle teeth clipped</li> <li><input type="checkbox"/> Males castrated</li> </ul> </li> </ul>

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### Week 1: Farm 1

- On day 3, piglets manipulate straw and play
- By day 7, piglets sample sow's feed
- At day 7, piglets are able to climb out of the pen and mix with other litters
  - Very little aggression is observed (btw sows or piglets)
  - Piglets try to suckle other sows
- Sows and piglets often lie in contact with each other





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### Week 1: Farm 2

- On day 3, piglets play and try to manipulate items in the crate, the sow and each other
- By day 6, piglets sample water from sows' drinkers
- Piglets often lie in contact with each other on the heating mat

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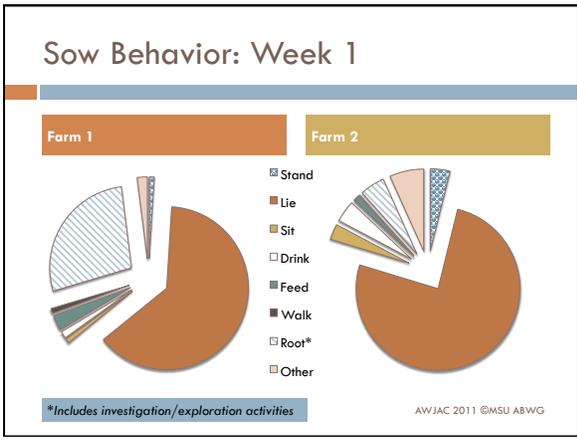
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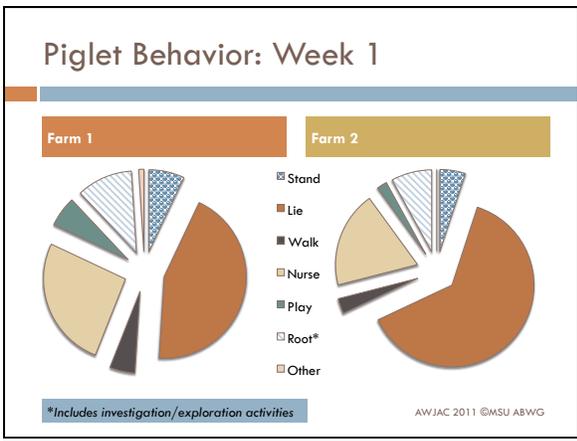
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