Quick Starts!

Newborn Pig

Weaned Pig
Quick Starts!

Newborn Pig

Weaned Pig
Current Trends

Courtesy of Ron Ketchem, Swine Management Services
Current Trends
Newborn Pigs

Birth Weight

Birth-to-nurse interval

Colostrum intake

The first 12 hours!
#1 Birth Weight

Should you pay attention to it?
Intrauterine Growth Restriction

### Table 1: Performance Characteristics Across Stages of Production

<table>
<thead>
<tr>
<th>Bodyweight (kg)</th>
<th>% Survival to weaning</th>
<th>Average Daily Gain (g/day)</th>
<th>Days to 100 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lactation (to 26 days)</td>
<td>Nursery (to 67 days)</td>
<td>Growing (to 110 days)</td>
</tr>
<tr>
<td>Less than 1.13</td>
<td>203</td>
<td>293</td>
<td>601</td>
</tr>
<tr>
<td>Equal to and greater than 1.13</td>
<td>228</td>
<td>359</td>
<td>659</td>
</tr>
</tbody>
</table>

**17.5%**

Spanish study: 3 farms, totalborn average 14.3 piglets, average birthweight 1.46 kg, PWM 14.2%

---


1 lb (450 g) increase in birthweight = 2.8 lb (1.27 kg) increase at weaning

Survivability?
<table>
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<tr>
<th>Bodyweight (kg)</th>
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<th>Days to 100 kg</th>
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<td>Nursery (to 67 days)</td>
</tr>
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<td>58</td>
<td>203</td>
<td>293</td>
</tr>
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<td>Equal to and greater than 1.13</td>
<td>92</td>
<td>228</td>
<td>359</td>
</tr>
</tbody>
</table>

Spanish study: 3 farms, totalborn average 14.3 piglets, average birthweight 1.46 kg, PWM 14.2%


### Cumulative Mortality

<table>
<thead>
<tr>
<th>Variables</th>
<th>At 3 days</th>
<th>At 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Birth weight, g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>490–1270</td>
<td>152</td>
<td>11 (7.2)</td>
</tr>
<tr>
<td>1271–1540</td>
<td>156</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>1541–1790</td>
<td>154</td>
<td>4 (2.6)</td>
</tr>
<tr>
<td>1791–2750</td>
<td>150</td>
<td>3 (2.0)</td>
</tr>
<tr>
<td></td>
<td>11 (7.2)</td>
<td>14 (9.2)</td>
</tr>
<tr>
<td></td>
<td>2 (1.3)</td>
<td>10 (6.4)</td>
</tr>
<tr>
<td></td>
<td>4 (2.6)</td>
<td>5 (3.2)</td>
</tr>
<tr>
<td></td>
<td>3 (2.0)</td>
<td>4 (2.7)</td>
</tr>
</tbody>
</table>

### Cumulative Mortality

<table>
<thead>
<tr>
<th>At 21 days²</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>28 (18.4)</td>
</tr>
<tr>
<td>139</td>
<td>17 (10.9)</td>
</tr>
<tr>
<td>142</td>
<td>12 (7.8)</td>
</tr>
<tr>
<td>142</td>
<td>8 (5.3)</td>
</tr>
</tbody>
</table>

Death loss:
- + 5.3%
- + 6.5%
- + 13.1%
1 lb (450 g) increase in birthweight = 2.8 lb (1.27 kg) increase at weaning\(^1\)

30% increase in mortality from 800g to 700g birthweight\(^2\)


\(^2\)Jourquin J et al., 2014. Pigs at risk: Impact of birth weight increase on survivability and days to market, a simulation model. Proceedings of the IPVS Meeting, Ireland. pp. 288
#2 Birth-to-Nurse Interval

Is it important?
What is the average time it takes a pig to find a teat after birth?

29 minutes

What happens in 29 minutes?

• Drop in body temperature
  • Newborn piglets’ ability to regulate body temperature is limited → limited energy reserves
  • Chilled pigs one of the biggest causes of early life death loss
  • Colostrum intake = ↑ metabolic rate = ↑ body temperature
  • Other benefits of early colostrum intake
BNI Impact on Rectal Temperature

Longer BNI = lower body temperature

Courtesy of Ron Ketchem, Swine Management Services
PIC GTSR, unpublished data.
**Body Temperature @ Birth and 24 Hours**

Below 38.1°C

- <1275g – 46%
- >1275g – 17%

Range @ Birth: 31.3 to 40.8 °C

< 38°C

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Cumulative mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectal temperature 0 h, °C</td>
<td></td>
<td>At 3 days  n (%)</td>
</tr>
<tr>
<td>31.3–36.8</td>
<td>149</td>
<td>7 (4.7)</td>
</tr>
<tr>
<td>36.9–37.9</td>
<td>172</td>
<td>6 (3.5)</td>
</tr>
<tr>
<td>38.0–38.5</td>
<td>126</td>
<td>4 (3.2)</td>
</tr>
<tr>
<td>38.6–40.8</td>
<td>165</td>
<td>3 (1.8)</td>
</tr>
</tbody>
</table>

| Rectal temperature 24h, °C |     | At 3 days  n (%) | At 7 days  n (%) |
| 33.3–38.0  | 148 | 8 (5.4)             | 15 (10.1)        |
| 38.1–38.5  | 162 | 3 (1.8)             | 4 (2.5)          |
| 38.6–38.9  | 143 | 1 (0.7)             | 5 (3.5)          |
| 39.0–40.5  | 153 | 2 (1.3)             | 3 (2.0)          |


Saskatchewan Pork Industry Symposium, November 14-15, 2018
< 38°C

<table>
<thead>
<tr>
<th>Rectal temperature 24h, °C</th>
<th>15% lighter</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.3–38.0</td>
<td>117</td>
<td>34(29.1)</td>
</tr>
<tr>
<td>38.1–38.5</td>
<td>150</td>
<td>25(16.7)</td>
</tr>
<tr>
<td>38.6–38.9</td>
<td>134</td>
<td>9(6.7)</td>
</tr>
<tr>
<td>39.0–40.5</td>
<td>146</td>
<td>12(8.2)</td>
</tr>
</tbody>
</table>

Drying piglets

91.9 F

76 F

70% of crushed pigs had no milk in their stomach! 
Majority of crushed pigs in first 3 days!

Total time = 20 – 30 seconds!

< 38°C at 24 hours after birth

Birth-to-Nurse Interval

Pre-weaning Mortality

Weaning Weight
#3 Colostrum Intake
Why is it so important?

Newborn piglets are vulnerable!
- Low energy reserves
- No immune protection

Essential to:
- Provide energy (thermoregulation)
- Provide passive immunity (immunoglobulins)
- Provide growth factors for development and maturation

GUT CLOSURE 24-36 HOURS
Composition of colostrum is affected by the status of mammary tight junctions:

<table>
<thead>
<tr>
<th></th>
<th>colostrum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour</td>
<td>0</td>
</tr>
<tr>
<td>Solid, %</td>
<td>30.2</td>
</tr>
<tr>
<td>Protein, %</td>
<td>18.9</td>
</tr>
<tr>
<td>Fat, %</td>
<td>7.2</td>
</tr>
<tr>
<td>Lactose, %</td>
<td>2.5</td>
</tr>
<tr>
<td>Energy (kJ/100g)²</td>
<td>260</td>
</tr>
</tbody>
</table>

Modified from Chiba, L. 2004 and Theil et al., 2014.

Where are you in the first 12 hours after farrowing?

Courtesy of Ron Ketchem, Swine Management Services
Colostrum Composition

Where are you in the first 12 hours after farrowing?

Table 1. Changes in sow milk composition after parturition.

<table>
<thead>
<tr>
<th></th>
<th>colostrum</th>
<th>12</th>
<th>15-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour</td>
<td>0</td>
<td>12</td>
<td>15-24</td>
</tr>
<tr>
<td>Solid, %</td>
<td>30.2</td>
<td>20.8</td>
<td>19.6</td>
</tr>
<tr>
<td>Protein, %</td>
<td>18.9</td>
<td>10.2</td>
<td>7.2</td>
</tr>
<tr>
<td>Fat, %</td>
<td>7.2</td>
<td>7.2</td>
<td>7.7</td>
</tr>
<tr>
<td>Lactose, %</td>
<td>2.5</td>
<td>3.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Energy (kJ/100g$^2$)</td>
<td>260</td>
<td>276</td>
<td>346</td>
</tr>
</tbody>
</table>

Modified from Chiba, L. 2004 and Theil et al., 2014.

Courtesy of Ron Ketchem, Swine Management Services

Saskatchewan Pork Industry Symposium, November 14-15, 2018
Colostrum Fun Facts

• Sow vs. piglet impact on colostrum intake (Devillers 2004)
  • > 450 g/kg in bottle-fed piglets
  • 212-373 g/kg in sow-reared piglets

• The flow of colostrum is steady for ~ 7.5h after delivery of the last piglet and then becomes cyclic
• Piglets consume 30% of their first day colostrum intake during first nursing bouts after birth
• Less than 75% of litter present at nursing bouts during the first 6 hours post partum

15 ml of supplemental colostrum to small piglets within 4h post partum:

IgG in blood, neonatal mortality

Quesnel et al., 2012
Saskatchewan Pork Industry Symposium, November 14-15, 2018
Consumption of Colostrum by Birth Order


Piglets need a minimum of 100 ml colostrum for a good chance at survival!

Saskatchewan Pork Industry Symposium, November 14-15, 2018
Effect of Colostrum Intake (first 24 hours)

- ~30% increase in mortality rate with decreasing colostrum intake.

- 1 gram increase in colostrum intake = 8.8 grams heavier at weaning


Immunoglobulins in Colostrum


250 g colostrum for an average (1.4 kg) piglet:
✓ Reduces PWM
✓ Provides immune protection
✓ Improves weight gain

1/3 of litters do not get enough colostrum to fulfill their needs!

Quesnel et al., 2012
Herds that consistently helped the piglets to get colostrum immediately after birth had around 3% lower piglet mortality than herds that did not practice this routine.

(Andersen et al., 2007)
First 24 Hours of Life

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Between birth and 3 days of age</th>
<th>Between 4 days of age and weaning</th>
<th>Piglets alive at weaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colostrum intake (g)</td>
<td>147 ± 21a</td>
<td>255 ± 22b</td>
<td>333 ± 14c</td>
</tr>
<tr>
<td>Weight gain (g)</td>
<td>−18 ± 14a</td>
<td>59 ± 15b</td>
<td>104 ± 9c</td>
</tr>
<tr>
<td>Rectal temperature (°C)</td>
<td>36.6 ± 0.15a</td>
<td>37.6 ± 0.15b</td>
<td>37.9 ± 0.09c</td>
</tr>
<tr>
<td>Cortisol (ng/ml)</td>
<td>484 ± 44a</td>
<td>273 ± 45b</td>
<td>275 ± 19b</td>
</tr>
<tr>
<td>IgG (mg/ml)</td>
<td>16.9 ± 1.8a</td>
<td>21.1 ± 1.9ab</td>
<td>24.3 ± 0.9b</td>
</tr>
<tr>
<td>Glucose (mg/l)</td>
<td>758 ± 61a</td>
<td>1016 ± 64b</td>
<td>1048 ± 28b</td>
</tr>
<tr>
<td>Lactate (μmol/l)</td>
<td>6405 ± 471a</td>
<td>6218 ± 488a</td>
<td>5147 ± 181b</td>
</tr>
<tr>
<td>n (blood sampled)</td>
<td>14</td>
<td>13</td>
<td>219</td>
</tr>
</tbody>
</table>

Goal: 250 g colostrum for average (1.4kg) piglet

↑ weight gain
↑ colostrum intake = ↑ rectal temperature
↑ immunoglobulins
↓ mortality

Colostrum Intake and Growth

<table>
<thead>
<tr>
<th>Trait</th>
<th>low BWT, low COL</th>
<th>low BWT, high COL</th>
<th>high BWT, low COL</th>
<th>high BWT, high COL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piglet birth weight, lb.</td>
<td>2.04</td>
<td>2.34</td>
<td>2.91</td>
<td>3.05</td>
</tr>
<tr>
<td>Piglet colostrum intake, lb.</td>
<td>.095</td>
<td>.366</td>
<td>.109</td>
<td>.419</td>
</tr>
<tr>
<td>Weaning weight, lb.</td>
<td>10.0</td>
<td>12.7</td>
<td>12.2</td>
<td>14.4</td>
</tr>
<tr>
<td>Weight at 74 days of age, lb.</td>
<td>67.1</td>
<td>78.1</td>
<td>74.4</td>
<td>85.6</td>
</tr>
</tbody>
</table>

Average daily gain, lb.
- low BWT, low COL: 2.32
- low BWT, high COL: 2.38
- high BWT, low COL: 2.43
- high BWT, high COL: 2.47

Average daily feed intake, lb.
- low BWT, low COL: 6.57
- low BWT, high COL: 6.68
- high BWT, low COL: 6.69
- high BWT, high COL: 6.84

Feed efficiency
- low BWT, low COL: 2.83
- low BWT, high COL: 2.81
- high BWT, low COL: 2.76
- high BWT, high COL: 2.76

Age at market, days
- low BWT, low COL: 158.3
- low BWT, high COL: 153.2
- high BWT, low COL: 150.4
- high BWT, high COL: 147.2

> 1130 g birthweight


low COL = ~ 45 g
high COL = ~ 150 g

2.34 lb = 1061 g
2.91 lb = 1320 g
<table>
<thead>
<tr>
<th>Bodyweight (kg)</th>
<th>% Survival to weaning</th>
<th>Average Daily Gain (g/day)</th>
<th>Days to 100 kg</th>
</tr>
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Spanish study: 3 farms, totalborn average 14.3 piglets, average birthweight 1.46 kg, PWM 14.2%


1.13 kg = 2.50 lbs
24-Hour Monitoring – Is it possible?

- Farrowing assistance
- Dry piglets
- Nipple train
- Split-suckling
- Temp sows

60% (7 h)  
88% (18 h) 

2700-head sow farm in U.S. with 24-hour monitoring (Ketchum 2017)
1 gram increase in colostrum intake = 8.8 grams heavier at weaning

Oxytocin to improve colostrum quality?

Composition of colostrum is affected by the status of mammary tight junctions:

Farmer et al.  

- Sows that had completed farrowing between 1200 and 2000 h.
- Injections were given twice daily (0800 and 1630 h) starting on day 2 of lactation (i.e., between 12 and 20 h after birth of the last piglet), totaling 4 injections.

12 HR = ↓ IgG and Protein
Milk composition


Saskatchewan Pork Industry Symposium, November 14-15, 2018
Results and Limitations

• Piglet effects
  • **No effect** on weight gain (to d 35)
  • **No effect** on IgG, IgA or IGF in piglet blood on d 5
  • Tendency for lower mortality in OXY group (P < 0.10)

• Limitations
  • Gut closure begins 24 hours after birth
    • Earlier injection?
    • Study injection was 12-20h after farrowing completion
  • Sample size constraints
    • 10 sows per treatment
    • 3 average sized piglets be litter (30 per treatment group) – effects on small piglets?

Milk increases:
IgA $\rightarrow$ local immunity
IGF $\rightarrow$ GIT development
Newborn Pigs

The first 12 hours!
Quick Starts!

Newborn Pig

Weaned Pig
Gut Development

- Weaning is a stressful time
  - Pig must adapt rapidly to major changes in environment and nutrition
  - Gut at 50% digestive maturity

- Adverse changes in the intestinal structure at weaning
  - Reduced villous height
  - Increased villous width

- Integrity of the epithelium becomes weakened
  - Reduces barrier function
  - Increases inflammation
  - Predisposition to dehydration, diarrhea and enteric infections

Reduced absorption and enzyme activity!
Creep Feed

- ADG advantage of 18 g/day in nursery for pigs fed creep feed
  - 49 days nursery period = 0.88 kg (1.95 lbs) heavier
- Calculated usage was between 452 – 659 g per litter
  - 12 pigs = 55g per pig
  - Estimate of cost is $0.55/litter or $1.31/sow yearly
- No impact on pigs in farrowing
- My recommendation:
  - Creep feed 7 days prior to weaning
  - Feed twice per day, max 100g/litter
  - Keep the bowls clean and fresh

<table>
<thead>
<tr>
<th>Parameter</th>
<th>No Creep</th>
<th>Creep</th>
<th>SEM</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N of pens</td>
<td>25</td>
<td>53</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>N of pigs</td>
<td>585</td>
<td>1150</td>
<td>0.132</td>
<td>NS</td>
</tr>
<tr>
<td>Entry weight (kg/pig)</td>
<td>6.07</td>
<td>6.09</td>
<td>0.132</td>
<td>NS</td>
</tr>
<tr>
<td>Period 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days</td>
<td>7.3</td>
<td>7.3</td>
<td>0.075</td>
<td>NS</td>
</tr>
<tr>
<td>Weight (kg/pig)</td>
<td>6.86</td>
<td>7.05</td>
<td>0.144</td>
<td>NS</td>
</tr>
<tr>
<td>ADG (g/pig)</td>
<td>109(^b)</td>
<td>132(^a)</td>
<td>4.280</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>Period 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days</td>
<td>9.0</td>
<td>9.1</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>Weight (kg/pig)</td>
<td>10.01</td>
<td>10.28</td>
<td>0.225</td>
<td>NS</td>
</tr>
<tr>
<td>ADG (g/pig)</td>
<td>334</td>
<td>343</td>
<td>7.295</td>
<td>NS</td>
</tr>
<tr>
<td>Period 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days</td>
<td>28.6</td>
<td>28.5</td>
<td>0.565</td>
<td>NS</td>
</tr>
<tr>
<td>Weight (kg/pig)</td>
<td>26.90</td>
<td>27.60</td>
<td>0.408</td>
<td>NS</td>
</tr>
<tr>
<td>ADG (g/pig)</td>
<td>587</td>
<td>605</td>
<td>7.405</td>
<td>P=0.096</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of days</td>
<td>44.8</td>
<td>44.8</td>
<td>0.230</td>
<td>NS</td>
</tr>
<tr>
<td>ADG (g/pig)</td>
<td>457(^b)</td>
<td>475(^a)</td>
<td>6.315</td>
<td>P&lt;0.05</td>
</tr>
<tr>
<td>% dead/removal</td>
<td>4.81</td>
<td>3.02</td>
<td>0.804</td>
<td>P=0.1266</td>
</tr>
</tbody>
</table>

*Started feeding day 13, twice per day
Are pigs eating after weaning?

• Periweaning Failure to Thrive Syndrome (PFITS)
• Quiz
  • All pigs weaned at 21 days-of-age and are the same age
  • Some pigs have been eating normally
  • Some pigs have been fasted for different lengths of time (0-8 days)
Control pig – eating normally for 7 days

Fasted for 7 days

Photos courtesy of Dr. Terri O’Sullivan, Ontario Veterinary College, University of Guelph
Fasted for 8 days

Control pig – eating normally for 8 days

Photos courtesy of Dr. Terri O’Sullivan, Ontario Veterinary College, University of Guelph
Fasted for 7 days

Control pig – eating normally for 7 days

Photos courtesy of Dr. Terri O’Sullivan, Ontario Veterinary College, University of Guelph
Chilling

Performance Day 0-8

*8X more fall back pigs
*10X more injections

Performance Day 9-15
## Temperature Curves

<table>
<thead>
<tr>
<th>Days</th>
<th>Temperature set point</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Celsius (°C)</td>
</tr>
<tr>
<td>At weaning</td>
<td>28.0-29.0</td>
</tr>
<tr>
<td>7</td>
<td>27.8</td>
</tr>
<tr>
<td>14</td>
<td>26.0</td>
</tr>
<tr>
<td>21</td>
<td>25.0</td>
</tr>
<tr>
<td>28</td>
<td>24.0</td>
</tr>
<tr>
<td>35</td>
<td>23.0</td>
</tr>
<tr>
<td>42</td>
<td>22.0</td>
</tr>
<tr>
<td>49</td>
<td>21.5</td>
</tr>
<tr>
<td>56</td>
<td>20.5</td>
</tr>
</tbody>
</table>

**Take Home:**

**Watch the pigs!**
- Sleeping/dunging patterns
- Excessively wet floors
- Piling
- Cleanliness of the pigs
Producer Survey

• GOAL: Identify what producers are doing in the nursery
• Collaborators each identified 1-2 producers they thought were doing an excellent job and met with them to discuss their work methods.
Cleaning

- Pressure washing
  - Room and equipment
  - Turn feeders upside down!
  - Good soap to remove biofilm, disinfectant
  - Allow adequate drying time
    - Summer maximum ventilation
    - Winter 30% ventilation and heating
  - Inspection! (and retouching if necessary)
Water

• Disinfection of water lines
  • Monthly to yearly
• Flow rate
  • min 0.5L/min (Code of Practice)
• Adjust the height of nipples (1:10)
• Additional water sources
  • Red hoppers
  • Minimum is pens with smaller pigs
• Drain water from lines on the morning of entry
  • Want fresh water for pigs
  • Room has been heated
• Acidify water at entry to nursery (pH <4)

Ryan’s addition:
• Water meter
  • Ensure water supply is ongoing
  • Record 1-2x per day
  • Early detection of sickness
Feed

• Ensure pigs start on the correct phase!
• Stimulate appetite
  • Feed small meals frequently
  • By hand the first 10 days
  • 1kg max in stainless hoppers for 25 pigs
  • Sprinkle milk powder on the feed of smallest pigs
• Need to have an option for all pigs to eat together
  • Especially important for the smallest pigs
  • Enter to feed, all pigs stand up and eat together
Individual Pig Care

- Always have a marker!
- Classify animals by size
  - Quickly identify pigs falling behind
  - Good time to have eyes on each pig and look for lameness
  - Different feeding approaches
- Antibiotic injection of the pigs <4.5kg
  - E.g. Draxxin
  - Bottom 10-20%
- Frequency of room walkthroughs
  - 2X per day minimum
  - Up to 5X per day in the first 7 days
  - Get pigs used to humans
Hospital Pens

• Always have extra pens to isolate pigs!
  • Minimum 2 pens per room (1 sick, 1 recovering)
  • Adding 1-2 pigs more per pen at entry to have sick pens
• Minimum 3-4 pigs per pen (add healthy pigs if needed)
  • Social animals, will encourage feed consumption
• Euthanasia

What’s a NORMAL treatment rate?

➢ 2-5% of individual treatment per batch
➢ 75% success on individual treatments
## Injectable Costs

<table>
<thead>
<tr>
<th>Stage</th>
<th>Weight</th>
<th>Value</th>
<th>Injectable Cost (Trimidox 3 days)</th>
<th>Injectable Cost (Pen+Dex 3 days)</th>
<th>Injectable Cost (Draxxin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaning</td>
<td>6-7 kg</td>
<td>40 $</td>
<td>0.11 $ (0.3%)</td>
<td>0.22 $ (0.6%)</td>
<td>0.75 $ (1.9%)</td>
</tr>
<tr>
<td>Nursery</td>
<td>25 kg</td>
<td>65 $</td>
<td>0.40 $ (0.6%)</td>
<td>0.79 $ (1.2%)</td>
<td>2.80 $ (4.3%)</td>
</tr>
<tr>
<td>Finishing</td>
<td>50 kg</td>
<td>95 $</td>
<td>0.80 $ (0.8%)</td>
<td>1.57 $ (1.7%)</td>
<td>5.60 $ (5.9%)</td>
</tr>
<tr>
<td></td>
<td>75 kg</td>
<td>125 $</td>
<td>1.20 $ (1.0%)</td>
<td>2.36 $ (1.9%)</td>
<td>8.40 $ (6.7%)</td>
</tr>
<tr>
<td></td>
<td>100 kg</td>
<td>155 $</td>
<td>1.60 $ (1.0%)</td>
<td>3.14 $ (2.0%)</td>
<td>11.20 $ (7.2%)</td>
</tr>
<tr>
<td></td>
<td>125 kg</td>
<td>185 $</td>
<td>2.00 $ (1.1%)</td>
<td>3.93 $ (2.1%)</td>
<td>14.00 $ (7.6%)</td>
</tr>
</tbody>
</table>

*Preventing group treatment!*
## Cost of Treatment Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
<th>Treatment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed</td>
<td>6-30 kg</td>
<td>2 kg Chlor 100 + 0.4 kg Denagard 10% / T</td>
<td>670 $ / 1000</td>
</tr>
<tr>
<td>Water</td>
<td>15 kg</td>
<td>Paracillin SP (5 days)</td>
<td>160 $ / 1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neomycin 325 (5 days)</td>
<td>130 $ / 1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apralan (5 days)</td>
<td>840 $ / 1000</td>
</tr>
<tr>
<td>Injectables</td>
<td>15 kg</td>
<td>Trimidox/Borgal (3 days)</td>
<td>25 $ / 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Penicillin + Dexamethasone (3 days)</td>
<td>50 $ / 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Draxxin (1 dose)</td>
<td>170 $ / 100</td>
</tr>
</tbody>
</table>

Saskatchewan Pork Industry Symposium, November 14-15, 2018
## Antibiotic Use

<table>
<thead>
<tr>
<th>Nursery</th>
<th>DDDvet</th>
<th>DDDvet median</th>
<th>Days tx / 45</th>
<th>No antibiotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed</td>
<td>0 - 3500</td>
<td>1550</td>
<td>74.6</td>
<td>10 %</td>
</tr>
<tr>
<td>Water</td>
<td>0 - 700</td>
<td>40</td>
<td>3.5</td>
<td>43 %</td>
</tr>
<tr>
<td>Injectable</td>
<td>0 - 120</td>
<td>10</td>
<td>1.4</td>
<td>18 %</td>
</tr>
</tbody>
</table>

Rapport sur l'utilisation des antibiotiques (Cécile Ferrouillet)
Conclusions of Survey

• Start with a good sorting of the pigs
• Observation (take the time!)
• Act quickly if there is a problem
  • Isolation of sick pigs
  • ↑ time to intervention = lower treatment success
    = significance at the herd level
Thank You!