The Danish approach to pig production - quality pays

Nicolaj Nørgaard, Pig Research Centre
Danish Agriculture & Food Council
Strong will / desire

Regulatory framework

Quality pays
Danish Pig Production - 30 Million Pigs in 2013

- 150-year-old industry based on co-operative model: Food Safety, High Veterinary Level, Premium Quality, Uniformity, Animal Welfare, Security of supply
  - 90% of Danish pig meat is exported to 140 countries
  - 10 million live pigs exported in 2013
  - DanAvl genetics has increasing sale worldwide
  - Non-commercial trials and recommendation in Pig Research Centre
  - Independent advice service
Danish Pig Meat Export

- Germany
- Russia
- Eastern Europe
- Japan
- UK
- Japan
- Italy
- Sweden
- UK
- France
- Germany
- US (ribs)

28.05.2013
Benefits of the Co-Operative System

- Commercial interest of producers “beyond the farm gate”
- Trust/stable relationship between producer and abattoir
- Joint Research Programmes
- Excellent communication, information flow
- Easy assimilation of quality initiatives
- Low transaction costs

INTEGRATED PRODUCTION SYSTEM
Board of Danish Pig Research Centre
- 12 Pig Producers
Danish Pig Research Centre – an Expert Organisation

We are here to develop the best products for our owners, the Danish pig producers, and to maximise our customers’ benefits.

- Competitiveness
- Environment
- Animal welfare
- Food safety and health
- Knowledge in work

Advisory related activities
- Management and communication
Danish Pig Research Centre

Trials for 15 million Euro per year
Operating in 200 commercial farms

Knowledge transfer

Advisory service
Two-Level Advisory System

Danish Pig Research Centre

Advice

Production

Research & Development

Int. Partners

Universities

Companies
GUIDELINES

As little as possible, but as much as needed

– English
– Danish
– Russian

vsp.lf.dk

Link til Smartphone:
Antibiotics for swine (kg)
2009-Q1 2013

Yellow card 2010

New 2013 limits
Use of Antibiotics per kilo Meat
International comparison

Gram antibiotics pr kg meat-all species

Norway, Sweden, Finland, Denmark, Germany, UK, Czech Republic, Switzerland, France, Netherlands, USA

28.05.2013
Animal Welfare Challenges - Area of Discussion (aims)

1. Rooting material / straw
2. No tail ducking
3. Castration
## Animal Welfare
- Area of Discussion (aims)

### Lower mortality, pct.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sows</td>
<td>12,8</td>
<td>9,0</td>
</tr>
<tr>
<td>Piglets (incl. stillborn)</td>
<td>22,4</td>
<td>20,0</td>
</tr>
<tr>
<td>Weaners</td>
<td>2,9</td>
<td>2,5</td>
</tr>
<tr>
<td>Slaughter pigs</td>
<td>3,4</td>
<td>3,0</td>
</tr>
</tbody>
</table>
Animal Welfare Challenges - Area of Discussion (aims)

1. Rooting material / straw
2. No tail ducking
3. Castration
4. Lower mortality
5. Loose sows (total life cycle)
Loose-Housed Lactating Sows

- Improved welfare for sows
- Increased milk uptake for piglets
- More uniform piglets at weaning
- Improved image

10 per cent loose-housed lactating sows by 2020
Reduced environmental impact per kg, %

- NH3-loss: 1990-2007 - 61%
- Phosphorus: 1985-2010 - 51%
- Nitrate: 1985-2010 - 47%
DanAvl – a Unique Breeding System

Danish Pig Research Centre
- owner of the DanAvl concept and brand
Complete Three-Way Crossbreeding System

The development is based on knowledge-sharing, analyses and research
Weighting of Traits in the Breeding Objective of DanAvl LL/YY

Economic contribution

- Feed conversion ratio: 42%
- Lean meat percentage: 7%
- Daily weight gain 30-100 kg: 11%
- Daily weight gain 0-30 kg: 2%
- Survival rate: 5%
- Killing out percentage: 2%
- LP5: 27%
- Longevity: 4%
Weighting of Traits in the Breeding Objective of DanAvl Duroc

Economic contribution with Genomic Selection

Value – 
**DKK/UNIT/FINISHER**

**DKK 15.66 per year**
Using Genomic Information

20% Genetic progress

Genomic breeding value
Traditional relations

- Brother: 50%
- Cousin: 12.5%
- Relatives: 0%
Genomic relations

62% 9% 5%

Brother Cousin Relatives
Total Piglet Mortality at Day 5 (LP5)

LP5: 25% reduction in 6 years
## DanAvl Average and Top Herds 2012

<table>
<thead>
<tr>
<th>Herd Rank</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Top 25%</th>
<th>Av. 2012</th>
<th>Av. 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaned pigs per year per sow*</td>
<td>35.9</td>
<td>35.8</td>
<td>35.3</td>
<td>35.1</td>
<td>34.8</td>
<td>32.3</td>
<td>29.6</td>
<td>28.8</td>
</tr>
<tr>
<td>Live-born pigs per litter</td>
<td>16.7</td>
<td>16.6</td>
<td>17.3</td>
<td>17.0</td>
<td>16.7</td>
<td>15.8</td>
<td>15.1</td>
<td>14.8</td>
</tr>
<tr>
<td>Weaned pigs per litter</td>
<td>14.8</td>
<td>15.1</td>
<td>15.2</td>
<td>14.9</td>
<td>14.8</td>
<td>14.0</td>
<td>13.1</td>
<td>12.7</td>
</tr>
<tr>
<td>Weight at weaning (kg)</td>
<td>5.5</td>
<td>6.6</td>
<td>6.5</td>
<td>7.0</td>
<td>5.9</td>
<td>6.8</td>
<td>7.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Mortality during lactating period (%)</td>
<td>11.1</td>
<td>8.9</td>
<td>12.0</td>
<td>12.3</td>
<td>11.6</td>
<td>11.6</td>
<td>13.6</td>
<td>13.9</td>
</tr>
<tr>
<td>Farrowing rate (%)</td>
<td>92.8</td>
<td>94.4</td>
<td>92.0</td>
<td>96.3</td>
<td>90.7</td>
<td>90.1</td>
<td>87.0</td>
<td>86.7</td>
</tr>
</tbody>
</table>
How to Produce 38 Piglets per Sow per Year?

• 1. ‘Quality’ genetics
• 2. ‘Quality’ management
• 3. ‘Quality’ housing systems

✓ Culling/replacement
✓ Selection from birth to mating
✓ Body condition
✓ Feeding
✓ Heat detection
✓ Mating strategies
✓ Nurse sows
## Efficiency – Finisher Herds (30-107 kilo live weight)

<table>
<thead>
<tr>
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<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top 25%</td>
<td>Av.</td>
</tr>
<tr>
<td>Daily weight gain, g</td>
<td>985</td>
<td>906</td>
</tr>
<tr>
<td>Feed conversion</td>
<td>2.51</td>
<td>2.67</td>
</tr>
<tr>
<td>Kg feed per kg live weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average slaughter weight hot, kg</td>
<td>82.4</td>
<td>81.8</td>
</tr>
<tr>
<td>Average lean meat, %</td>
<td>60.4</td>
<td>60.4</td>
</tr>
<tr>
<td>Dead and culled, %</td>
<td>2.6</td>
<td>3.4</td>
</tr>
</tbody>
</table>
# First Russian Multiplier herd

<table>
<thead>
<tr>
<th>Sows</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaned / sow /year</td>
<td>32.5</td>
</tr>
<tr>
<td>Litter / sow /year</td>
<td>2.35</td>
</tr>
<tr>
<td>Born alive / litter</td>
<td>14.5</td>
</tr>
<tr>
<td>Weaned / litter</td>
<td>14.0</td>
</tr>
<tr>
<td>Suckling period, days</td>
<td>27.0</td>
</tr>
<tr>
<td>Pre-weaned mortality</td>
<td>3%</td>
</tr>
</tbody>
</table>

## Weaners

| Average weight of weaning, kg | 6.5 |
| Average weight transfer to fattening, kg | 20.4 |
| Feeding days / animal | 40 |
| Mortality | 0.6% |
| Daily gain, g | 345 |
| FCR, kg/kg | 1.58 |

## Growers

| Average weight sold | 112 |
| Feeding days / animal | 82 |
| Mortality | 2.25% |
| Daily gain, g | 1.120 |
| FCR, kg/kg | 2.30 |
Beeindruckende Produktionsergebnisse über einen Zeitraum von 19 Monaten:

500 Sauen mit Ferkelaufzucht bis 25 kg.
Abferkelquote 90,9 %
Lebend geborene Ferkel 15,4 pro Wurf / 36,2 pro Sau und Jahr
Säugetage 25,8
Abgesetzte Ferkel 13,7 pro Wurf / 32,4 pro Sau und Jahr
Saugferkelverluste 10,6 %
Würfe pro Sau und Jahr 2,36

36,2

Lebend geborene Ferkel pro Sau und Jahr
Beeindruckende Produktionsergebnisse über einen Zeitraum von 9 Monaten:

180 Sauen
Lebendgeborene Ferkel: 34,6 pro Sau und Jahr

Ergebnisse Mast:
(Durchschnitt der Sauen und Eber)
Tageszunahmen: 1080g
Futterverwertung: 1:2,45
Anfangsgewicht: 31 kg

Schlachtergebnisse:
Schlachtgewicht: 94 kg
Sauen: 0,99 Indexpunkte
Eber: 0,98 Indexpunkte

1080g
Tageszunahmen
Concluding remarks

Quality pays:
Yes - not only for the pig industri, but also for Denmark

Farm turnover to EUR 1.5 mio.
Slaughtering and food processing turnover to EUR 2.2 mio
Tax income will fund at least 8 public sector employees.
Thank You!