MODERN BOAR STUDS AND AI

Darlington Pig Discussion Group November 2013
The First Rattlerow Pigs – 1954

(Rattle Row was a 16th Century name of the area where the first Lawson farm was started)
Comparison of volume and sperm concentration by species

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>VOLUME OF EJACULATE IN ml</th>
<th>CONCENTRATION (Million/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boar</td>
<td>100 - 500</td>
<td>250 – 1000</td>
</tr>
<tr>
<td>Stallion</td>
<td>40 – 80</td>
<td>100 – 250</td>
</tr>
<tr>
<td>Bull</td>
<td>0.5 – 5</td>
<td>500 – 2750</td>
</tr>
<tr>
<td>Tom</td>
<td>0.25 – 0.5</td>
<td>5000 - 15000</td>
</tr>
<tr>
<td>Man</td>
<td>2 - 6</td>
<td>20 - 400</td>
</tr>
</tbody>
</table>
History of Artificial Insemination.

1400 – Arabic Chief inseminating a mare.

1678 – Spallanzani, first to report “sperm cells”.

1784 – a bitch inseminated had 3 pups.

1800 – First human insemination.

1951 – Japanese first use of commercial AI in pigs. (Conception 3-25%).
### Netherlands (98% AI)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sows</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Number of AI doses sold</td>
<td>3,500,000</td>
</tr>
<tr>
<td>Cycles per sow per year</td>
<td>2.35</td>
</tr>
<tr>
<td>Doses per cycle</td>
<td>1.6</td>
</tr>
<tr>
<td>Farrowing Rate</td>
<td>86%</td>
</tr>
<tr>
<td>Total piglets born per litter</td>
<td>13.9</td>
</tr>
<tr>
<td>Live piglets born per litter</td>
<td>12.9</td>
</tr>
<tr>
<td>Piglets weaned per sow per year</td>
<td>26.2</td>
</tr>
</tbody>
</table>

*Results are based on 2010 records (Dutch association of Cooperative Pig AI centres year report, Wageningen 2010).*
RATTLEROW GENE DISTRIBUTION CENTRES
Long Meadow AI, Cambridgeshire. Tel: 01733 270368
Dairy Drove AI, Cambridgeshire. Tel: 01733 270368
Ellerholme AI, South Yorkshire. Tel: 01302 772950
Bogower AI, Scotland. Tel: 01302 772950

RATTLEROW FARMS LIMITED PIG BREEDING DEVELOPMENT
Hill House Farm: Stradbroke: Eye: Suffolk IP21 5NB: UK
Tel: +44 (0) 1379 384304  Fax: +44 (0) 1379 388272
Website: www.rattlerow.co.uk   Email: rattlerow@rattlerow.co.uk
Dedicated to supplying genetics from Rattlerow’s best selling commercial sire lines....
Personnel on a typical 100 Boar Stud

Manager – Lab, Office and Collection.

Assistant Manager – Laboratory, Office and Collection.

Boar Technicians X3 – Temp staff on busy days only.

Laboratory Staff X3 – Temp staff on busy days only.

Courier Drivers X2 – Temp staff on busy days.

TOTAL 10
HEALTH MONITORING - EC STATUS

• Quarantine x 2 (Farm and Stud)
• Daily monitoring by boar technician
• Centre inspection sheet/Boar action Form
• Weekly visit by DEFRA approved vet
• Quarterly visits by Rattlerow veterinarian.
• Quarterly visits by DEFRA approved vet

• Statutory monthly blood test checks for:
  Aujeszky, Brucellosis, Classical Swine Fever and PRRS
• Boars vaccinated for Erysipelas, Clostridia
• Semen is monitored but not distributed from unhealthy animals
COLLECTIS Technology

Disposable Liner For AV

Disposable cone filter and plastic collection bag.

Air Pressure
The challenges for managing a modern Boar Stud are many ........

• Require highly specialised staff
  • Office
  • Lab
  • Animal Husbandry

• Maintain high hygienic standards.

• Difficult working hours and deadlines.

• Attention to detail and quality control.

Embrace technology and design studs which provide an optimum environment for boars and the best facilities for processing and distribution.
Typical Genetic Pyramid
Genetic Flow

AI CENTRE

GENETIC NUCLEUS

MULTIPLICATION

COMMERCIAL

♀ Gilts
♂ Boars
S Semen
Semen Collection
April 2003 - Ellerholme Stud, Doncaster, 90 Boars.
More efficient, hygienic, economical and a better working environment for staff.
First Stud in the UK to have air conditioned boar accommodation.
Boar Stud Temperatures July/August 2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Max Outside</th>
<th>Max In Stud</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/07/13</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>08/07/13</td>
<td>35</td>
<td>23</td>
</tr>
<tr>
<td>10/07/13</td>
<td>30</td>
<td>21</td>
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<tr>
<td>15/07/13</td>
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<td>22</td>
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<td>17/07/13</td>
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<td>22/07/13</td>
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<td>25/07/13</td>
<td>31</td>
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<tr>
<td>29/07/13</td>
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<td>22</td>
</tr>
<tr>
<td>03/08/13</td>
<td>35</td>
<td>23</td>
</tr>
<tr>
<td>06/08/13</td>
<td>30</td>
<td>22</td>
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LABORATORY AND ADMIN
Rattlerow are proud to have been first in introducing new concepts and AI technologies into the UK market.

Automate – all in one catheter.

Rattlerow’s dynamic “clean flow” collection area design.

GTB 1000 Packaging

[Images of pigs and equipment]
Future AI Technologies?

Single insemination. “Time capsule”.
Micro encapsulation
- Antibiotic free extenders, storage at + 4° C.

- Catheters with motility enhancing gels “Golden Gel”. (Caffeine and Calcium).

- Dual stage semen tube – low concentrated doses (500 million/dose).

- Single Insemination – Ovugel.

- PCI or post cervical insemination.

- Sex sorting – don’t hold your breath!
Do not compromise boar fertility, semen quality and semen storage

“Almost half of on-farm semen storage units were found to produce unacceptable semen storage temperatures...........”

Young, Dewey and Friendship (2005)
RATTLEROW ARTIFICIAL INSEMINATION
Delivering Genetic Improvement