GILT ISOLATION AND ACCLIMATION MANAGEMENT

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Pork production

- **Isolation & Acclimation**: 30 to 120 days pre-breeding
- **Gilt Nursery**:
- **Gilt Grow-Finish**
- **Gestation**: ≤ P1
- **Lactation**: ≥ P2
- **Wean Breeding**
- **Nursery**
- **Grow-Finish**
- **Market**
- **Further Processing**
- **Consumption**

- **Cull sows post-weaning and cull boars**
  - Market, render, burial, compost, incinerate
Gilt development

Effect on breeding herd efficiency

- NBA/sow/lifetime
- NPD
- Utilization of crates
- Culling rate - 43%
- Mortality - 5.9%
Isolation and Acclimation

- **Isolation (Quarantine)**
  To prevent disease spread from incoming gilts to the breeding herd

- **Acclimation**
  Managed time necessary to familiarize gilts to life in the breeding herd
Isolation

- Several hundred feet or more away from herd
- 3 to 6 weeks only
  - Blood test for PRV and Brucellosis
  - Vaccinate for erysipelas
  - Observe for clinical disease, scours, and mange
- Use separate boots and overalls when handling
- Have extra person care for them, or do boar chores at end of day and do not return to breeding herd
- Gilts purchased at 6 months of age
  - Bred 1 month after arrival
Blood test results are interpreted as follows with a veterinarian's advice:

- PRV - cull
- Brucellosis - cull
- TGE – maybe cull; contact supplier to determine when boar was exposed
- Leptospirosis – vaccinate (+ sample is desired)
- Hemophilus – cull
- PRRS may cull
- Parvovirus - vaccinate (+ sample is desired)
- Bordetella bronchiseptica - cull
- AR - cull

Disposal of animals showing clinical signs of disease should be done after consulting a veterinarian.

- Vaccinate with all vaccines used on sows
- Treat for parasites
Factors to manage

+ Time
+ Reproduction
+ Facilities
+ Season
+ Nutrition
+ Disease
+ Soundness
+ Culling
Management

+ Husbandry
+ Experience or background
+ Observation skills
+ Record keeping skills
+ Knowledge
+ Training
+ Practice
+ Supervision
  - Observing for health changes
  - Treating for illness, etc.
  - Fitness monitoring
  - Soundness assessment
  - Culling decisions
Time

+ **Isolation**
  
  Monitor disease
  
  Minimum of 30 days

+ **Acclimation**
  
  60 to 120 d
  
  - Cool down or recovery

+ **When to move in and out?**
  
  Desired age at breeding minus isolation and acclimation
Reproduction

+ Identify puberty and estrus cycles
+ Factors
  - Stimulation
  - Facilities
  - Season
  - Nutrition
  - Disease, parasites and mycotoxins
  - Exogenous hormones
  - Genotype
Distribution of age at puberty

Average age: 180 days
Standard deviation: 23.8 days
Minimum age: 135 days
Maximum age: 276 days
Number of gilts: 244
Breed: Large White x Landrace
All gilts born within a 7-week period

Source: Levis, EC 97-274
Puberty Stimulation

- Transportation
- Mixing
- Vaccination
- Boar exposure in isolation/acclimation
  Induction of earlier pubertal heat
- Initiate puberty stimulation at 160 d of age
  Sell anestrous gilts as market hogs
Effect of full boar or fence-line contact on age of puberty

![Bar chart showing age at puberty for full boar and fenceline contact in different studies.](chart)

- **Study 1**
  - Full boar: 160 days
  - Fenceline: 190 days

- **Study 2**
  - Full boar: 170 days
  - Fenceline: 180 days

- **Study 3**
  - Full boar: 180 days
  - Fenceline: 200 days

*abc (P < .01); AB (P < .02)*, D. Levis
Quality of Boar Exposure

+ Mature Boars
  High Libido

+ Constant and adequate supply
  Gilt: Boar ratio of 15:1
  • Limit to 1 hr per day
  Full physical contact
  • Boar in pen with gilts (15 min)
  Twice daily
  • Greatest response early morning

+ Neutral area
Hormonal intervention

- Anestrous gilts
  PG-600®
- Cycling gilts
  Matrix™ (approved for gilts)
  Prostaglandins (no label approval)
Facilities

+ Facilities
  Ideally separate barns – 1500 ft or more

+ Avoid poor reproduction and injury
  Poorly cast cement slats
    ▶ Too rough or too smooth
  Flooring improperly cleaned, always wet, or worn

Crowding
  ▶ 10-12 ft²/gilt
  ▶ #/pen ?

Excessive pit gases
Season

- Variation in reproductive performance due to change in temperature, humidity, and (or) light
- Summer vacations
Heat stress

- Pigs feel heat based on both temperature and humidity
  - Thermoneutral zone is 45° to 70° F
  - Humidity between 50 to 60%
  - Heat stress affects reproduction at > 80 ° F
- Establish a larger cyclic gilt pool before heat stress begins
- Provide a “Cool Zone” to reduce anestrus
Effect of duration of light on age at puberty

Duration of light, hrs

Puberty, d

0 9 to 10.8 18

Study 1
Study 2

Nutrition

+ Zearalenone
  Delays puberty and interrupts cycle,
  Normalize 3 to 4 weeks after removal
Nutrition

+ Time to change body condition
  - Full feed lean gilts
    - Increased energy
    - Decrease amino acid concentration
    - Make fatter
  - Limit feed "average-lean" gilts
    - Avoid “too” fat
  - Vitamin E 30 IU/lb
  - Medication
Targeted body condition at breeding

With excellent P1 feeding in gestation and lactation, gilts can be bred at 200 to 210 d of age, 260 to 280 lb, and 15 to 20 mm backfat.

Otherwise wait until 220 to 260 d of age, 300 lb and 20 to 25 mm of backfat.

<table>
<thead>
<tr>
<th>$P_2$ Fat recovery, mm</th>
<th>Feeding protocol (d 30 to 90 of gestation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>60 d at 7.5 lb/d CSBM</td>
</tr>
<tr>
<td>4</td>
<td>60 d at 6.2 lb/d CSBM</td>
</tr>
</tbody>
</table>
Disease

+ Acclimate to expose to PRRS and other diseases (influenza, E. coli, and parvovirus)

  Sentinel animals
  - Shedding pigs
  - Teaser boar
  - Other source of pathogens from destination herd
    » Serum injections, Tissue feedback, Tonsillar scrapings,

Works if 100% of all incoming animals get disease and the protection of immunity from future infection
If gilts are going into a breeding herd with acute PPRS, then acclimation may work short-term to lessen the reproductive devastation of the disease. Gilts with infectious disease may overwhelm the immunity of older sows, and cause active outbreaks. Acclimation does not eliminate PRRS. Closing the herd to new PRRS variants and working to get have a PRRS negative herd is the desired goal.
Example system (Moore et al., 2005)

- AIAO finishing
- In at 25 kg
- 2 wk post-entry serum injection and shedding pigs
- Goal acclimation complete before 130 d of age
- 0.9 m²
- 16 hr of light
- Vaccinations done in “near end of stay in barn”
- At 185 d move to breeding barn
Other management decisions

+ **AIAO**
  By site, barn, room
  Avoid keeping gilts too long

+ **Continuous flow**
  PRRS viral strain drift may cause problems (Roberts, 2001)
  Stale gilts

+ **Gilts in estrus in any week grouped into 1 pen** (L. Batista, 2001)

+ **Seminal plasma application**
Culling

Criteria

- Growth
- Soundness
- Reproduction
  - Estrous activity
  - Vaginal longitude >25 cm
Research needed

Much of what we know is anecdotal