The Crate
(stall, case, cage, box, etc.)
-- *Its History and Efficacy*

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Outline

• What is a crate?

• History of the Gestation Crate
  – In the pig-specific media
  – Use on today’s farms

• Comparison with Group Housing
  – Productivity
  – Behavior
  – Health, Immunity and Endocrine
  – New research on trickle feeding penned gilts/sows
The Gestation Crate

Measurements should be taken in two ways:
1. Center-Center
2. Inside space

Width
19-26”
24”

Length
7’
6.5-8’

Water: either individual ad libitum or watered in “meals”

Feed trough either above or below the floor level
“… 22" and 24" models available to fit your building requirements…”
Why use crates?

• They get the most sows in a given space in a building (better asset utilization)
• They allow for control of individual sow feed intake – you can feed the fat ones less and the lean ones more
• They allow for lower feed intake due to control of the thermal environment and lack of activity
• They prevent social stress
• They protect the workers
• They allow for planned placement of manure in a defined and small location (behind the sow)
What are the “problems” with the crate?

• Public perception is negative
• Sows can not turn around
• Large sows can not make full, unrestricted “normal postural adjustments” in a 2’ X 7’ crate
• Sows can not socially interact
• Sows’ ONF behavior (such as bar biting) are more obvious
• Sows are limit fed (they are often hungry)
• Sows may have an uncomfortable floor if it is not bedded
• Sow mortality is too high
• Shoulder lesions are common
Sow ONF Behaviors

- Cause for consumer concern
- Mechanism: unknown
- May be a stress-induced behavior
- May be a normal behavior expressed regardless of the environment
USA History of Gestation Crate

• 1960’s:
  Gestation crates experimented with on farms, ex., Lubbock Swine Breeders, T. Euel Liner & Roy Poage put first sows in crates in 1964/1965. These crates had a sand area behind so sows could be let out occasionally. By 1969, some sows were continuously confined during gestation.

• Through the 1970’s, feeding stalls are advertised (but not crates)
  “new” in March, 1971
What was the Gestation Housing like in 1968-1971 in the Pork Press?

Pasture ---- or ---- Indoor group housing
USA History of Gestation Crate

• January, 1969 Roy Poage of Lubbock Swine Breeders discussed partial (part-time) confinement of sows during gestation in Hog Farm Management (no longer published).
USA History of Gestation Crate

- February, 1969 first use of a tether in Hog Farm Management (no longer published).
USA History of Gestation Crate

• December, 1969 first use of a crate in Hog Farm Management (no longer published).

SOWS to be bred at Jet Age Swine Inc., are kept in holding crates which face boar holding pens. At signs of estrus, sows are moved to breeding pens. After breeding, they are kept in sow holding pens.
USA History of Gestation Crate

- September, 1970 first use of a tether in National Hog Farmer (NHF) magazine
USA History of Gestation Crate

- May, 1971, first picture of a gestation crate in Michigan in NHF
USA History of Gestation Crate

• February 15, 2000
Gestation Crates make the cover of NHF
USA History of Gestation Crate

…and an associated problem

February 15, 2000
National Hog Farmer

breeding herd efficiency
by Joe Yansickle, Sr. Associate Editor

Sow Mortality Rising

Sow losses climbed from single digits to an annual rate of 10-15% in some herds during the '90s. The cause of the escalating mortalities is multi-faceted.

A variety of factors linked to reproductive physiology, sow management, and herd size appears to have triggered a sharp rise in sow mortality in U.S. herds.

The cause of rising breeding female mortality seems to be from two groups: replacement gilts rushed into a breeding herd and sows kept past their prime.

This issue is a real problem and an increasing expense on most sow farms,
But....

the gestation crate was not a new idea
“…each to contain a pig, and to fit him as near as may be when he is in, he cannot attempt to turn himself round…”

Variations on the standard Crate

- In the turn-around crate, the sows share turning around space
- In the Compart-style, the wide end permits turning
Where does the Gestation Crate stand today in the USA?
USA Pork Producers

• Top 10 USA pork producers have about 1.8 million sows and they market over one-third of all pork – over 90% of the sows are in gestation crates

• 83% of sows farrow in total confinement facilities (USDA-NAHMS, 2000);
  The use of gestation crates was not determined

• The gestation crate is the most common gilt/sow housing system among gestation types of facilities
What does the Public Think?

• Many animal activist groups are opposed to the gestation crate in the USA (see HSUS, PETA, AWI, HFA, Farm Sanctuary, etc.)

• Europe has banned use of the crate in new facilities after Jan 1, 2003 and in all facilities as of Jan 1, 2013.

• Food retailers are questioning the use of the gestation crate.
Industry changes

• Florida, Arizona, Oregon, Colorado, California have banned the gestation crate
• Smithfield announced in Jan 2007 they will phase out the gestation crate; in 2009 they said the phase-out will be delayed until financial times are better
• Alternative “humane” products do not use the gestation crate
... Marc Kaufman, Washington Post staff writer, Monday, June 18, 2001), National Pork Council Vice-President and veterinarian Paul Sundberg was quoted as follows:

"Science tells us that she [a sow] doesn't even seem to know that she can't turn...She wants to eat and feel safe, and she can do that very well in individual stalls."

Such statements demonstrate the industry's ongoing attempts to justify to an uneasy public the methods currently employed in factory farming operations, including gestation crates. However, there is a rising tide of protest against these methods.

Farm Sanctuary, 2002
Bancruelfarms.org, 2002
What do the scientific papers say about the crate?
Hypothesis

Early gilts (1950-1990) were not adapted to the crate; intense selection created a gilt/sow that would have normal reproduction in the crate.
Early work -- 1969

  - No difference in litter size between gilts/sows in crates (2 x 7’) and pens
  - 28% of the gilts failed to express normal estrus in crates compared with 16% in group housing
  - 17% of gilts failed to breed in the crates, compared with only 6% of gilts in group housing
1985 study

  - No difference in litter size between gilts/sows in crates (19.5” X 7’) and pens
  - 12% better farrowing rate for group-penned sows compared with crated sows (66 vs. 78%, P < 0.05)
### Individual vs. group housing systems

*(Backus, 1997)*

<table>
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<tr>
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<th>Crate</th>
<th>Free-access stalls</th>
<th>ESF</th>
<th>Trickle</th>
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<tr>
<td>Pigs born alive</td>
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<td>Oral activity, %</td>
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<td>20.4</td>
<td>9.4</td>
<td>26.7</td>
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Ten studies showing (more or less) no differences in productivity between crates and other sow housing systems


Reasonable Alternatives
Welfare Index Score from Bracke, 2001 in brackets

- Family pens (8.8)
- Outdoor (7.5)
- ESF (6.2)
- Trickle feeders (5.4)
- Group pens with feeding stalls (5.4)
- Crates (stalls) (3.2)
- Tethers (2.5)
Crates vs. Outdoor System

- Basically no difference in sow and litter productivity, indoors and outdoors

Crates vs. Indoor Pens

Issues

• Control of feed intake
• Maintenance of body condition
• Social stress, particularly around feeding
• Sows should eat together (EU requirement) not one at a time
• Room for normal behaviors (social and postural changes)
Trickle Feeding (Biofix)

• Invented in Sweden by Ove Olsson, prior to 1981
• Sows are fed in a slow manner; the feed delivery is timed to the rate of eating of the slowest-eating sow
• Sows quickly learn there is nothing to be gained by stealing neighbor’s feed and feeding is quiet
To determine the effect of trickle and drop feeding for sows in crates and pens on gilt/sow reproductive performance, behavior, immunity, ergonomics and pre-harvest food safety

- Crate, drop feeding
- Crate, trickle feeding
- Pen, drop feeding
- Pen, trickle feeding
Trickle feeding

ongoing study
http://www.pii.ttu.edu

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Sow Housing -- a current issue New!!!