

**Whys and Wherefores  
in the Evolution of  
Sow-Keeping Systems**

***Stanley E. Curtis***  
***University of Illinois***

**“Those who cannot  
remember the past  
are condemned  
to repeat it”**



**reproductive performance**

**Performance Axiom**

**people and pigs**

- 1 -

*state of being*  
**reflects success**  
**in coping**  
**with stressors**

- 2a -

***state of being***  
**determined by**  
**animal response**  
**to stress**

**- 2b -**

***state of being***  
**doesn't necessarily**  
**reflect env't'l quality**

- 3 -

*domestication*  
extremely rare

**Why not antelope?**

**Why not eagles?**

- 4 -

***domestication***

**certain traits**

**favor domestication**

**traits that favor domestication**

- ***social groups & dominance orders***
- ***promiscuous mating***
- ***precocial young***
- ***females accept others' young***
- ***undisturbed by humans***
- ***undisturbed by sudden changes***
- ***omnivorous***
- ***adaptable to many environments***
- ***limited agility***

**- 5 -**

***domestication***

**“animal rights” moot**

**“animal welfare” on**



**- 6 -**

***beware of***  
**quacks**

**History of  
sow-keeping systems  
in the USA  
since the 1950s**

# **sow behavior in natural env'ts**

- ***wild***
- ***feral***
- ***domestic***

***a sow***

**is**

***a sow***

**is**

***a sow***

# 1950s

- *even “big operators”*: small sow herds
- *still*: many in groups of 30+ sows
- *but*: relatedness
- *so*: relatively low social tension
- *still*: policing at feeding
- *still*: some thin, injured sows
- *still*: some fat sows

**What happened next?**

***More importantly: Why?***

**- 1 -**

***structural changes***  
**in production agriculture**

**bigger sow herds**

**- 2 -**

***more sow competition***  
**at feeding time**

- 3 -

***feeding stalls***

**- 4 -**

**improved diets**

***therefore***

**limiting rations to  $\frac{1}{3}$  VFI**

***therefore***

**hungrier sows**

**- 5 -**

***unsuccessful attempts***  
**ad-lib access to**  
**special diets**

- 6 -

***unsuccessful attempts***  
**skip-a-day feeding**

**- 7 -**

***back-end gates***  
**on feeding stalls**

**- 8 -**

***diseconomies***  
**more labor req'd & more cost**

**- 9 -**

***quality of work env't***  
**new generation's notion**

**- 10 -**

***scarcity of farm labor***  
**in general**

**- 11 -**

***scarcity of skilled labor***  
**in particular**

**- 12 -**

***once-a-day feeding***

- 13 -

*weakening*

**herder - sow bond**

*waning*

**individual husbandry**

**- 14 -**

***concerns***

**environmental pollution**

**- 15 -**

***straight - sided crates  
over slotted floors***

- **separated sows**
- **fed individually re body condition**
- **contained manure**
- **protected herders**

**- 16 -**

***alas, too,***  
**opportunity to ignore**  
**a sow's individual needs**

**“push - button farming”**

- 17 -

***unsuccessful attempts***  
**tethering sows**

**- 18a -**

***too-narrow, too short crates***

**inhumane**

**inefficient**

- 18b -

## ***too-narrow, too-short crates***

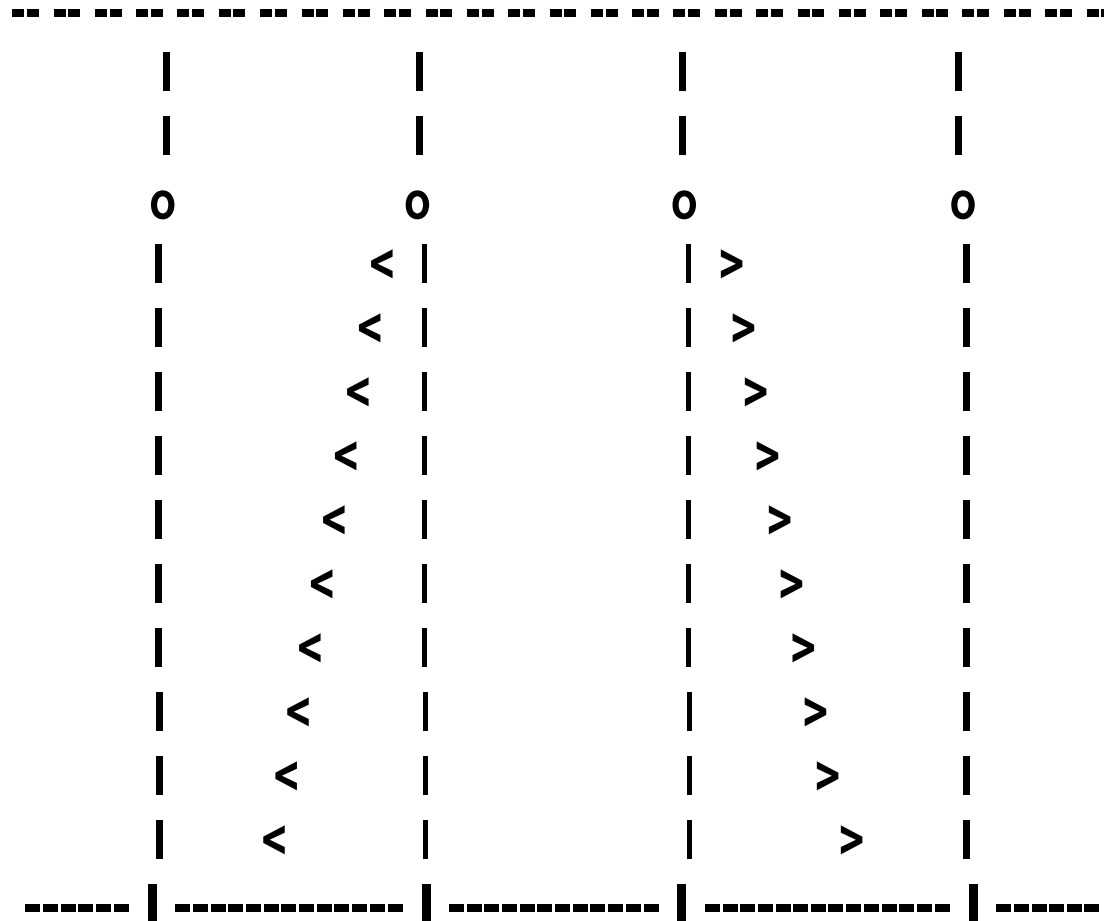
- legitimately criticized by activists
- *but:* painted with too-broad a brush
- industry did not self-police
- properly designed & operated,  
straight crate over slotted floor  
is acceptable

**- 19 -**

***turn - around crate***  
**hybrid of**  
**straight crate & grouping**

# turn – around crate

( *approximate scale* )



# **five freedoms**

- 1 from thirst, hunger, malnutrition**
- 2 from discomfort due to env't**
- 3 from pain, injury, disease**
- 4 from fear and distress**
- 5 to do normal species behavior**

## **turn - around crate**

- 1 minimal fear, discomfort, pain, injury from aggression**
- 2 sows can do normal behavior**
- 3 some social interaction**
- 4 feed can be rationed individually**
- 5 protection of herder from injury**
- 6 efficient manure disposal**
- 7 same footprint as 2' X 7' crate**

***since 1990***  
**many**  
**alternatives to straight crate**  
***have come on scene***

- ***sows in groups***
  - outdoor pasture systems***
  - various hand-feed systems***

- ***sows in groups***
  - deep-bedded hoop structures***
  - various hand-feed systems***

- ***sows in groups***  
***indoors***

***deep-bedded***

***feed broadcast daily***

***shallow feeding stalls***

***drop-feed***

***trickle-feed***

***electronic feeder***

- ***sows in groups***  
***indoors***

***solid or full- or part-slotted floor***

***shallow feeding stalls***

***drop-feed***

***trickle-feed***

***electronic feeder***

- ***straight crate a few weeks,  
then a grouping system***

**But very few  
direct scientific comparisons,  
so jury is still out**



***Whither***  
**should the industry go?**

- 1 -

- **regardless of intuitive opinions of anyone, sow's needs are & will be what they are**
- **before progress, we must know more about those needs**
- **only via science can we learn more**

**- 2 -**

**no gestation system  
will be perfect**

**- 3 -**

- **neither crate nor group pen need be abandoned**
- **identify good features of existing systems & incorporate into composite model**
- **make additional novel tweaks to minimize remaining drawbacks**

**- 4 -**

- **industry must be broad-minded & open-minded**
- **bona fide research & development efforts might find radical solutions**
- **industry must be ready & willing to accept & adopt any & all fruits of bona fide research**

**“Those who cannot  
remember the past  
are condemned  
to repeat it.”**

**One piece of history  
the US pork industry cannot  
afford to repeat  
is the past dearth of  
bona fide scientific research  
on sow-keeping systems.**

- o In research, as in anything else, time is money**
- o Now, we're pressed for time**
- o To get the job done will require more research funding than in the past**

**The NPB's  
strategic planning workshop on  
swine welfare research  
scheduled for this summer  
is a major step in right direction**

