There is overwhelming scientific evidence for prohibiting restrictive farm animal confinement systems – battery cages, gestation crates and veal crates - because of their negative impact on the physical and psychological health of the individual animals, as well as the public safety issues they present. The information below provides scientific support for banning each of the three practices.

**EGG-LAYING HEN CONFINEMENT**

The use of battery cages—small wire enclosures crowding up to ten hens in single units that are frequently stacked in egg production is widely regarded as inhumane for many reasons:

**Physical Impacts:**
- The small size of the cage affords each hen, on average, only 67 square inches of space—less space than the area of a single sheet of letter-sized paper—on which to live her entire life. The space provided is so small that the hens can’t even spread their wings.
- The severe limitation of physical movement leads to metabolic disorders, including disuse osteoporosis and liver damage, and cage layer fatigue, a disease in which the skeletal system can become so weak that hens become paralyzed. Unattended birds die from dehydration and starvation in their cages.
- Egg-laying hens commonly suffer from bone fractures due to calcium continually being leached from their skeletal system to produce eggs, and in the battery cages they do not get exercise that might otherwise increase their strength.

**Psychological Impacts:**
- Hens are naturally inquisitive, active animals with complex social and communicative behavior and cognitive capabilities.
- Caged hens are denied almost all of their natural behavior including nesting, perching, foraging, and dustbathing, all important for hen welfare.
- Nesting is so important to hens that in laboratory behavior experiments they will push through heavily weighted doors to access an enclosed, secluded nest box when they are about to lay an egg.
- Hens in battery cages cannot engage in normal dustbathing behavior, which balances the oil levels in their feathers.
- Caged hens cannot engage in normal ground pecking and scratching in loose substrate, an activity which would occupy 50% of the hens’ waking activity budget in a more natural environment.
- Hens’ feet are adapted to close around a tree-branch or other similarly shaped perch. This is the natural resting position of a bird. Battery cages do not provide places for hens to perch and roost at night.
• Many studies have shown that comfort behavior important for body maintenance and care of feathers, such as stretching, wing-flapping, body-shaking, and preening, are reduced or adversely affected in some way by the battery-cage environment.\textsuperscript{18,19,20}

• Preference testing has demonstrated that hens prefer more space than is typically allotted to them in a conventional battery cage and that when given the opportunity to choose between enclosures that differ in size, they will generally choose the larger enclosure.\textsuperscript{21,22,23,24,25}

**Cage-free alternatives:**

• Commercial-scale egg production can be cage-free. Producers around the country (and around the world) are already embracing barn, aviary and free-range production.

• In barn and aviary systems, the hens are still kept indoors, but they have room to move, loose litter for pecking and scratching, elevated perches, and enclosed nesting spaces. The egg industry’s economic analysis on producing cage-free rather than cage confinement eggs concluded that it adds a producer cost of only 11.75 cents per dozen (i.e., less than a penny per egg more).\textsuperscript{26}

**BREEDING SOW CONFINEMENT**

The use of gestation crates – small, barred cages, approximately two feet wide used to confine breeding sows\textsuperscript{27} – in pork production is also widely considered inhumane for a variety of reasons:

**Physical Impacts:**

• Immobilization, a byproduct of the cage’s small size, atrophies sows’ muscles and bones,\textsuperscript{28} making the most basic movements difficult.\textsuperscript{29} These cages are too small for the pigs to turn around or take more than a step forward or backwards.\textsuperscript{30}

• Lack of exercise and decreased water consumption greatly increases the risk of urinary tract infections.\textsuperscript{31}

• Lack of exercise results in reduced cardiovascular fitness.\textsuperscript{32}

**Psychological Impacts:**

• Research shows that pigs have incredibly vast cognitive and emotional capabilities.\textsuperscript{33,34} Dr. Temple Grandin notes that pigs are social animals,\textsuperscript{35} and normal social interactions are made impossible by gestation crates.

• These animals are unable to perform their natural behavior when confined in gestation crates.\textsuperscript{36,37}

• Sows often resort to stereotypic behaviors, such as repetitively chewing the bars of the cage. This is indicative of psychological distress.\textsuperscript{38}

• Unresponsiveness in sows is another behavioral disorder indicative of poor welfare. Over time, crated sows respond less to external stimuli, including water poured on their backs, sow grunts, and an electronic buzzer.\textsuperscript{39,40}
More humane alternatives to gestation crates are economically viable:

- A variety of group housing systems, including Electronic Sow Feeding (ESF), free access stalls and trickle feeding systems, are already in place and being successfully used in the industry.
- An Iowa State University study found that gestation crates and group housing yielded the same reproductive performance with no significant labor differences. The two-and-a-half year study concluded that group housing cost 11% less per individual pig than gestation crates.\(^{41}\)
- Group housing can match or exceed the productive performance of a gestation crate facility.\(^{42}\)

**VEAL CALF CONFINEMENT**

Veal crates are small, individual cages used to confine newborn calves prior to their slaughter.\(^{43}\) Both the size of the crates and a tether at the calves’ necks prevent them from turning around.\(^{44}\) Similar to battery cages and gestation crates, veal crates cause significant harm:

**Physical Impacts:**

- Due to the cramped conditions, calves are unable to lie down fully on their side, in a comfortable resting position.\(^{45}\)
- Calves raised in an environment with ample space will play vigorously (e.g. they will gallop, buck and kick), but crates prevent all of this locomotive activity.
- Cattle naturally lick all the accessible parts of their bodies, but when tethered to the front of a stall, calves are unable to groom their hindquarters, back legs or tail.
- Prolonged inactivity inhibits muscle development and coordination.\(^{46}\)

**Psychological Impacts:**

- Cattle are social animals and social interaction is especially important for calves raised without their mothers.\(^{47,48}\) Veal crate confinement prohibits access to other calves, as well as the ability to fully groom and explore.\(^{49}\)
- Calves are social animals, and will rub, push and groom each other, but crates limit this important tactile contact or may prevent it altogether.
- Unsocialized calves are more fearful in novel social and environmental situations,\(^{50}\) and in learning experiments, they perform poorly compared to calves that are raised with social companions.\(^{51}\)
- Calves tethered in stalls have higher adrenal responses than calves in group housing arrangements. This is an indicator of chronic stress.\(^{52}\)

**Group housing:**

- Calves can be raised in small social groups in straw-bedded pens instead of confined in veal crates.
- In group housing, calves can socialize, play, and lie down more comfortably in full lateral recumbency. Group housing permits healthy movement, play behavior and exercise.
- Social housing has been shown to improve solid feed intake and weight gain of calves.\(^{53}\)
The American Veal Association has already recommended that its members transition to group housing by 2017. In fact, more than 70 percent of veal producers have already moved to group housing.\(^{54}\)

**HUMAN HEALTH AND FOOD SAFETY ISSUES**

Industrial animal operations put human health at risk because high-density confinement of tens of thousands of animals promotes the spread of disease. For example, numerous studies show that egg operations confining hens in battery cages have higher rates of *Salmonella*, the leading cause of food poisoning-related deaths in America.

- *Salmonella* causes a million illnesses in the US each year.\(^{55}\)
- Study after study shows that forcing chickens to endure confinement inside cages increases the risk of *Salmonella* compared to keeping chickens in a cage-free environment.\(^{56}\)

**SCIENTIFIC AND PUBLIC SUPPORT FOR PHASING OUT INTENSIVE CONFINEMENT**

- There is strong support in the scientific community for phasing out intensive farm animal confinement methods.
  - The Pew Commission on Industrial Farm Animal Protection recommended that all forms of confinement that restrict an animal’s natural movement be phased out. This committee included a former veterinary school Dean and a former U.S. Secretary of Agriculture.\(^{57}\)
  - The LayWel project, a collaborative effort among working groups in seven different European countries, reviewed the science and concluded that battery cages do not provide satisfactory welfare for laying hens.\(^{58}\)
  - The Scientific Veterinary Committee of the European Commission opposes the use of gestation crates and veal crates.\(^{59,60}\)
  - The California Veterinary Medical Association and more than 700 individual California veterinarians supported Proposition 2, a 2008 measure that banned the intensive confinement of egg-laying hens, pregnant sows and calves raised for veal in the state of California.\(^{61}\)
- There is significant public support for ending intensive confinement of farm animals as well:
  - The entire European Union has already banned battery cages,\(^{62}\) gestation crates,\(^{63}\) and veal crates.\(^{64}\)
  - Within the United States, ten states have already passed laws to phase out types of extreme confinement.\(^{65}\)

**INDUSTRY SHIFTING AWAY FROM EXTREME CONFINEMENT**

- In response to public pressure, the industry is moving away from extreme forms of confinement.
  - The United States’ largest pork producer, Smithfield Foods, has already moved the majority of its sows from gestation crate systems to group housings,\(^{66}\) as have several other large producers.
  - More than 60 leading food retailers have condemned cage confinement, mandating better conditions for animals in their supply chain, including McDonalds, Wendy’s and Safeway.\(^{67}\)
REFERENCES


