

# COMMENT

## CONFINED TO A PROCESS: THE PREEMPTIVE STRIKE OF LIVESTOCK CARE STANDARDS BOARDS IN FARM ANIMAL WELFARE REGULATION

By  
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*In recent years, livestock care standards boards have emerged as an innovative way for state agencies to regulate farm animal welfare. Far from improving farm animal welfare, however, these boards are frequently a way to codify existing industry standards. The Ohio Livestock Care Standards Board, for example, had a nominal mission to establish regulations governing the care and well-being of livestock and poultry. Other states have created similar mechanisms for regulating farm animal welfare. This Comment maintains that the Ohio Livestock Care Standards Board regulations merely codify the existing status quo on Ohio factory farms rather than improving the health and welfare of animals. This Comment also discusses the successes and failures of other livestock care standards boards. This Comment then considers ways that livestock care standards boards, or alternative methods, could improve farm animal welfare.*

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*THE QUESTION IS NOT, "CAN THEY REASON?" NOR, "CAN THEY TALK?" BUT RATHER, "CAN THEY SUFFER?"*<sup>1</sup>

*The question is not just, "Do they suffer?" nor, "Are their needs met?" but rather, "Do they have a life worth living?"*<sup>2</sup>

## I. INTRODUCTION

Livestock care standards boards,<sup>3</sup> which are created within state departments of agriculture, are an innovation in animal welfare regulation in the United States. Ostensibly, these state boards create a framework for improving living conditions for farm animals, and they do have this potential.<sup>4</sup> However, because of the political climates in many of the states that have formed these boards and the content of some of the regulations, livestock care standards boards often become a mechanism by which the agriculture industry seeks to codify the status quo on contemporary factory farms.<sup>5</sup>

The United Kingdom is home to the Farm Animal Welfare Committee (FAWC),<sup>6</sup> which is an administrative committee tasked with

<sup>1</sup> Jeremy Bentham, *Introduction to the Principles of Morals and Legislation* ch. XVII, 310 n.122 (Gaunt, Inc. 2001) (comprising a reprint of an edition published by Oxford Clarendon Press in 1823).

<sup>2</sup> Farm Animal Welfare Council, *Final Report*, <http://www.fawc.org.uk/pdf/fawc-final-report-2011-110324.pdf> (Mar. 2011) (accessed Nov. 20, 2011).

<sup>3</sup> Laura Allen, *Another Livestock Care Standards Board*, <http://www.animal-lawcoalition.com/farm-animals/article/1807> (last updated May 30, 2011) (accessed Nov. 20, 2011) (asserting that boards were created as a "way to give agri-business more, if not exclusive control, over how farm animals are treated"); Ohio Livestock Care Standards Bd., *FAQs, What Is the Purpose of the Board?*, <http://ohiolivestockcarestandard-board.gov/apps/faqs/faqs.aspx> (accessed Nov. 20, 2011) (stating that the board creates a uniform set of standards governing the care and well-being of livestock); *infra* pt. II(A) (discussing the development of livestock care standards boards).

<sup>4</sup> See Neil Thapar, *Taking (Live) Stock of Animal Welfare in Agriculture: Comparing Two Ballot Initiatives*, 22 *Hastings Women's L.J.* 317, 332-33 (2011) (discussing the advantages of a "single-purpose" agency regulating livestock care).

<sup>5</sup> See Animal Welfare Inst. (AWI), *Factory Farming*, <http://www.awionline.org/content/factory-farming> (2011) (accessed Nov. 20, 2011) (defining factory farms as "industrialized facilities that have little semblance to traditional family farms, and maximize profits by treating animals not as sentient creatures, but as production units. Raised by the thousands at a single site, animals are confined in such tight quarters that they can barely move, let alone behave normally").

<sup>6</sup> Dept. for Env., Food & Rural Affairs, *Farm Animal Welfare Committee*, <http://www.defra.gov.uk/fawc> (last updated Oct. 4, 2011) (accessed Nov. 20, 2011) (describing FAWC's role as an expert committee providing farm animal welfare advice to the Department for Environment, Food and Rural Affairs and the Devolved Administrations).

promoting farm animal welfare. In the U.S., a committee similar to that of the FAWC, composed of experts rather than individuals with special industry interests, would produce real progress in farm animal welfare regulation.

In lieu of federal protection for farm animals, some states are gradually beginning to promote the welfare of farm animals through anti-confinement legislation.<sup>7</sup> Anti-confinement legislation seeks to eliminate the agricultural industry's worst confinement techniques. However, as a result of industry backlash against this legislation, other states have created industry-dominated livestock care standards boards.<sup>8</sup> These boards present an opportunity for animal advocates to expose the pecuniary motives that drive low welfare standards in animal agribusiness, and to influence administrative processes so welfare standards for farm animals improve.

Part II of this Comment provides background on the legislation creating the Ohio Livestock Care Standards Board (OLCSB), which has served as model legislation for other states, and analyzes the regulations promulgated by the OLCSB. Part III discusses livestock care standards boards in other states. Part IV presents two methods of reform that could ultimately create a higher standard of care for farm animals. This Comment concludes that animal advocates need to get involved in the administrative process of livestock care standards

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in Scotland and Wales); FAWC, *Annual Review 2009–2010*, <http://www.fawc.org.uk/pdf/annualreview09-10.pdf> (last updated 2010) (accessed Nov. 20, 2011) (describing events in 1965, in which the British government appointed a committee to examine the conditions of farm animal welfare); FAWC, *Five Freedoms*, <http://www.fawc.org.uk/freedoms.htm> (last updated Apr. 16, 2009) (accessed Nov. 20, 2011) (describing how a 1965 report containing a concept of “Five Freedoms” led to the creation of the Farm Animal Welfare Council, an independent advisory body established by the British government in 1979, and noting that the concept of the Five Freedoms has influenced high welfare farming standards across Europe); FAWC, *Homepage*, <http://www.fawc.org.uk/default.htm> (last updated Apr. 5, 2011) (accessed Nov. 20, 2011) (noting that the Farm Animal Welfare Council has since become the Farm Animal Welfare Committee (FAWC) due to agency reform in the United Kingdom).

<sup>7</sup> See Elizabeth R. Springsteen, *Farm Animal Confinement Laws*, <http://www.mnbar.org/sections/agricultural-law/Farm%20Animal%20Confinement%20Laws%20%5BRead-Only%5D.pdf> (accessed Nov. 20, 2011) [hereinafter Springsteen, *Farm Animal Confinement Laws*] (describing anti-confinement legislation as laws that “[t]ypically regulate space that certain farm animals must be allowed,” and noting that in the past nine years, seven states have enacted anti-confinement legislation regulating the space allowed for certain farm animals, either by means of a ballot initiative or through the legislature); see also Elizabeth R. Springsteen, *A Proposal to Regulate Farm Animal Confinement in the United States and an Overview of Current and Proposed Laws on the Subject*, 14 Drake J. Agric. L. 437, 440–55 (2009) [hereinafter Springsteen, *Proposal to Regulate*] (describing each state’s anti-confinement legislation and the manner of enactment, and listing in order of enactment the seven states that have enacted anti-confinement legislation: Florida, Arizona, Oregon, Colorado, California, Maine, and Michigan).

<sup>8</sup> See Springsteen, *Farm Animal Confinement Laws*, *supra* n. 7, at Farm Animal Confinement Laws (stating that “several states have adopted related statutes in response to these [confinement] laws”).

boards to ensure that the lives of farm animals improve. This Comment also asserts that animal advocates need to continue to work toward federal regulations to create a farm animal welfare board, like the United Kingdom's FAWC, focused on implementing high-welfare farming methods.

## II. THE BEGINNING OF A TREND: THE OHIO LIVESTOCK CARE STANDARDS BOARD

The Ohio Livestock Care Standards Board (OLCSB) was the first livestock care standards board enacted in the U.S. This Part discusses the events that led up to the enactment of the board and discusses the board's composition and membership.

### A. *Enactment of the Board*

In 2009, Ohio amended the Ohio Constitution, creating the OLCSB.<sup>9</sup> Agribusiness advocates and the former Governor of Ohio, Ted Strickland, supported the measure, which was known as Issue 2.<sup>10</sup> Purportedly, the OLCSB's purpose is to establish standards "governing the care and well-being of livestock and poultry" in the state,<sup>11</sup> but the Issue 2 campaign revealed an underlying purpose behind the OLCSB. The crucial purpose of the board is to "preempt attempts by groups outside the state to impose standards on livestock and poultry production in the state."<sup>12</sup>

Such an attempt occurred in 2008 when California voters approved Proposition 2, a ballot initiative to create anti-confinement legislation regulating the confinement of veal calves, gestating sows, and egg-laying hens.<sup>13</sup> The Humane Society of the United States (HSUS) led the campaign for California's Proposition 2 and won voter approval for farm animal welfare regulation.<sup>14</sup> Some proponents of the agriculture industry view animal advocates, such as HSUS, as extremists who want to impose their values on the industry.<sup>15</sup> Thus, industry members want to act first to maintain control of livestock care stan-

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<sup>9</sup> Springsteen, *Proposal to Regulate*, *supra* n. 7, at 455–56.

<sup>10</sup> Rod Smith, Feedstuffs, *Issue 2 Passes in Ohio*, <http://www.feedstuffs.com/ME2/Default.asp>; search "Issue 2 Passes in Ohio," select Issue 2 Passes in Ohio (last updated Nov. 4, 2009) (accessed Nov. 20, 2011).

<sup>11</sup> Ohio Const. art. XIV, § 1.

<sup>12</sup> Rod Smith, Feedstuffs, *Language Approved for Issue for Ohio Animal Care Board*, <http://www.feedstuffs.com> (Aug. 17, 2009) (accessed Nov. 20, 2011); see also Jack Palmer, The Crescent News, *Issue 2 Touted as a High Stakes, Pre-emptive Strike*, <http://www.crescent-news.com/news/article/4691391> (Oct. 18, 2009) (accessed Nov. 20, 2011) (quoting a state official as saying "[w]e don't want out-of-state activists telling Ohio farmers how to care for their animals") (on file with *Animal Law*).

<sup>13</sup> See Springsteen, *Proposal to Regulate*, *supra* n. 7, at 447–48 (discussing the enactment of California's anti-confinement legislation).

<sup>14</sup> *Id.* at 447.

<sup>15</sup> See Farm & Dairy, *Ohio's Political Rivals—Strickland and Kasich—Denounce HSUS Ballot Plan*, <http://www.farmanddairy.com/news/ohios-political-rivals-strickland-and-kasich-denounce-hsus-ballot-plan/14320.html> (Feb. 24, 2010) (accessed Nov.



dards in each state; the industry succeeded in Ohio.<sup>16</sup> Farm animal advocates need to get involved in livestock care standards boards so a voice speaking for the interests of farm animals can be heard over the din created by the agriculture industry.

Pursuant to constitutional amendment, the OLCSB is a bipartisan, thirteen-member board with no more than seven members from the same political party.<sup>17</sup> The OLCSB includes the Director of the Ohio Department of Agriculture as chairperson, one family farmer appointed by the Speaker of the House of Representatives, and one family farmer appointed by the President of the Senate.<sup>18</sup> The Governor appoints the remaining ten members with the advice and consent of the Senate.<sup>19</sup> There is no requirement that the members be experts in their particular fields, except that two members must be licensed veterinarians and one member must be a dean of an agriculture department of a college or university.<sup>20</sup> One member must merely be “knowledgeable” about food safety;<sup>21</sup> other members are representatives of special interests.<sup>22</sup> Moreover, although the statute calls for the appointment of three family farmers, it does not define “family farmer.”<sup>23</sup> This ambiguity has the potential to mislead the public about the true composition of the OLCSB.<sup>24</sup> For example, the public is likely to be unaware that a “family farmer” could be an individual who runs a family-owned corporation raising thousands of animals.<sup>25</sup>

On its face, Ohio’s amendment appears benign. However, most of the OLCSB’s members represent the agriculture industry, which is interested in “healthy” animals, but not necessarily in those animals’

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20, 2011) (referring to HSUS “extremism” and stating that both candidates agree that it is wrong for HSUS to attempt to overturn the will of Ohio voters).

<sup>16</sup> See Peggy Kirk Hall & Leah F. Finney, *Ohio Voters Approve Livestock Care Standards Board: Now What?* 26 Agric. L. Update 5 (2009) (available at [www.nationalaglawcenter.org/assets/aala/10-09.pdf](http://www.nationalaglawcenter.org/assets/aala/10-09.pdf) (Oct. 2009) (accessed Nov. 20, 2011)) (“The measure [creating the OLCSB] is a direct attempt to preempt efforts by . . . [HSUS], which met with Ohio farm leaders last spring to discuss its intent to propose laws that would prohibit certain livestock management practices in Ohio. Rather than negotiating with HSUS, Ohio’s agricultural interests worked through the Ohio legislature to create an alternative approach to livestock care.”).

<sup>17</sup> Ohio Const. art. XIV, § 1(A)(1), (4).

<sup>18</sup> *Id.* at § 1(A)(1), (3)–(4).

<sup>19</sup> *Id.* at § 1(A)(2) (allowing the governor to appoint ten members: “(a) One member representing family farms; (b) One member who is knowledgeable about food safety . . . ; (c) Two members representing statewide organizations that represent farmers; (d) One member who is a veterinarian who is licensed in this state; (e) The state veterinarian in the state department that regulates agriculture; (f) The dean of the agriculture department of a college or university located in the state; (g) Two members of the public representing Ohio consumers; and (h) One member representing a county humane society”).

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at § (1)(A)(2)(b).

<sup>22</sup> *Id.* at § (1)(A)(2)(a)–(h) (including, for example, “two members of the public representing Ohio consumers”).

<sup>23</sup> Thapar, *supra* n. 4, at 334.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

welfare or behavioral needs.<sup>26</sup> The inclusion on the board of one member of a local humane society is an accommodating gesture; however, local humane societies usually do not work with farm animals, instead focusing on dogs, cats, and pet adoption.<sup>27</sup> Thus, animal advocates, particularly in Ohio, need to be involved in the OLCSB administrative process every step of the way.

### B. Ohio's Livestock Care Standards

The OLCSB has the authority to draft and promulgate rules, and it also holds public hearings. This Section discusses the board's rulemaking procedures. Also, this Section analyzes the first set of effective standards promulgated by the board and provides an in depth analysis of the species-specific standards pertaining to pigs, egg-laying hens, and veal calves.

#### 1. The Process

Before the OLCSB adopted its first set of standards on October 5, 2010,<sup>28</sup> Ohio Governor Ted Strickland, the Executive Vice President of the Ohio Farm Bureau Federation, and other livestock producers reached a compromise with HSUS in June 2010 regarding particular livestock care standards.<sup>29</sup> The purpose of this agreement was to ward off a ballot initiative by HSUS during the 2010 election.<sup>30</sup> The agreement required the signatories to recommend that the OLCSB take action on four critical provisions: downer cattle and humane euthanasia

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<sup>26</sup> See Animal Agric. Alliance, *Myths & Facts*, [http://www.animalagalliance.org/search/Commonly Heard Myths, select Myths & Facts](http://www.animalagalliance.org/search/Commonly%20Heard%20Myths_select%20Myths%20&Facts) (last updated 2011) (accessed Nov. 20, 2011) (discussing how healthy animals are more efficient and how animals in confinement are healthier because they are "protected," but completely disregarding any consideration of the animals' behavioral needs and ignoring the negative effects of intensive confinement on farm animal welfare); see also Thapar, *supra* n. 4, at 334 ("[T]hey speak on behalf of the interests of farmers, not animals.").

<sup>27</sup> Patrick Healy, *NBC Los Angeles: Pulling Back the Curtain to Reveal Who's Attacking the Humane Society*, <http://www.nbclosangeles.com/news/Pulling-Back-the-Curtain-To-Reveal-Whos-Attacking-the-Humane-Society-123294683.html> (June 7, 2011) (accessed Nov. 20, 2011); see Ohio St. U. College of Veterinary Med., *2004 Ohio Survey of Animal Care and Control Agencies*, 4–17, <http://vet.osu.edu/assets/pdf/depts/prevMed/research/2004AnimalCareSurvey.pdf> (2006) (accessed Nov. 20, 2011) (reporting that local humane societies rated "stray/feral cats," "overpopulation," "cruelty/neglect," and "spay/neuter" as the most important animal welfare issues in their communities).

<sup>28</sup> Ohio Dept. of Agric., *Ohio Livestock Care Standards Board Passes Vote on Euthanasia Standards*, [http://ohiolivestockcarestandardsboard.gov/public\\_docs/news/10-05-10%20OLCSB%20Euthanasia%20Standards.pdf](http://ohiolivestockcarestandardsboard.gov/public_docs/news/10-05-10%20OLCSB%20Euthanasia%20Standards.pdf) (Oct. 5, 2010) (accessed Nov. 20, 2011).

<sup>29</sup> Kristy Foster, Farm & Dairy, *Compromise Reached: HSUS Will Not Be Heading to the Ballot this November*, <http://www.farmanddairy.com/news/compromise-reached-hsus-will-not-be-heading-to-the-ballot-this-november/15258.html> (June 30, 2010) (accessed Nov. 20, 2011); Caroline E. Wellman, *Negotiated Regulation: The Ohio Livestock Care Standards Board as a Model Regulatory Process*, 93–94 (M.P.A. thesis proposal, Wright State U. 2011) (available at <http://etd.ohiolink.edu/send-pdf.cgi/Wellman%20Caroline.pdf?wright1302375241> (accessed Nov. 20, 2011)).

<sup>30</sup> Foster, *supra* n. 29, at Why cut a deal?

issues; elimination of veal crates by 2017; prohibition on the issuance of permits for new pork operations using gestation crates; and prohibition on new operations that use battery cage systems for egg-laying hens.<sup>31</sup> Veal crates, gestation crates for pregnant sows, and battery cages for egg-laying hens are methods of confinement that animal advocates often target as the most inhumane systems on factory farms,<sup>32</sup> and they are the only three methods of confinement addressed by anti-confinement legislation.<sup>33</sup>

The OLCSB's extensive rulemaking process involves several steps before rule adoption.<sup>34</sup> First, the OLCSB informs the Technical Research Advisory Committee (TRAC) of its research and informational needs.<sup>35</sup> The TRAC is a group of experts in the fields of veterinary medicine and animal science that works with species subcommittees to provide species-specific information and recommendations to the OLCSB.<sup>36</sup> Pursuant to OLCSB's governing statute, the OLCSB has the authority to adopt rules.<sup>37</sup> However, rules proposed by the OLCSB must also go through the Joint Committee on Agency Rule Review (JCARR) process after the rules are posted on the OLCSB's website for a two-week public comment period.<sup>38</sup> After the JCARR rule-review process, the agency may formally adopt a rule, or JCARR can recom-

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<sup>31</sup> Farm & Dairy, *State Agreement with HSUS Calls for these Recommendations*, <http://www.farmanddairy.com/news/state-agreement-with-hsus-calls-for-these-recommendations/15273.html> (July 1, 2010) (accessed Nov. 20, 2011) (noting that the parties also agreed to recommend to the legislature that it consider stronger puppy mill regulations, stronger cockfighting legislation, and stronger regulation against the breeding and possession of exotic wildlife); Foster, *supra* n. 29, at The deal (asserting that no more permits will be issued for new pork operations using gestation crates).

<sup>32</sup> Gaverick Matheny & Cheryl Leahy, *Farm-Animal Welfare, Legislation, and Trade*, 70 L. & Contemp. Probs. 325, 331 (2007) (describing the inhumane conditions pregnant sows suffer when kept in gestation crates, which are "individual, concrete-floored stalls . . . measuring seven feet long by two feet wide—too small for sows to turn around . . . [where] nearly all of a sow's sixteen-week pregnancy is spent [in the crate]"); AWI, *supra* n. 5, at Chickens (describing how "[f]our or more hens are packed into a battery cage, a wire enclosure so small that none can spread her wings"); HSUS, *Veal*, [http://www.humanesociety.org/issues/confinement\\_farm/facts/veal.html](http://www.humanesociety.org/issues/confinement_farm/facts/veal.html) (Aug. 19, 2010) (accessed Nov. 20, 2011) (describing how veal calves, separated from their mothers when they are only a few days old, are tethered by their necks in tiny, individual crates that do not allow them to turn around for nearly their entire five-month lives).

<sup>33</sup> See Springsteen, *Proposal to Regulate*, *supra* n. 7, at 440–55 (noting that only three animals have been legally protected from confinement throughout the U.S.: pregnant pigs, veal calves, and egg-laying hens).

<sup>34</sup> *Id.* at 456; see also Jt. Comm. on Agency Rule Rev. (JCARR), *Procedures Manual*, 16, <https://www.jcarr.state.oh.us/images/stories/manual.pdf> (last updated Sept. 7, 2011) (accessed Nov. 20, 2011) (discussing JCARR approval process for each rule proposed by OLCSB).

<sup>35</sup> OLCSB, *Process Design*, [http://ohiolivestockcarestandardsboard.gov/public\\_docs/docs/flowchart.pdf](http://ohiolivestockcarestandardsboard.gov/public_docs/docs/flowchart.pdf) (accessed Nov. 20, 2011).

<sup>36</sup> *Id.*

<sup>37</sup> Ohio Rev. Code. Ann. § 904.03(A) (West 2011).

<sup>38</sup> *Id.* at § 904.04(A)(3)(a).

mend the rule for validation or invalidation by the General Assembly.<sup>39</sup>

The primary way animal advocates can represent farm animal welfare interests during the OLCSB's rulemaking process is to actively submit comments.<sup>40</sup> Given that the OLCSB is purportedly dedicated to maintaining a transparent rulemaking process,<sup>41</sup> this is a crucial opportunity for animal advocates to voice farm animal welfare interests. Animal advocates can write letters, send public comments to the agency, send emails to legislators, make phone calls, solicit letters, emails, and phone calls from other animal advocates in the state, and attend the public hearings to voice concerns.<sup>42</sup> Although at times these efforts may seem futile, commenting can effect change, and active participation on the part of animal advocates and constituents helps ensure that the rulemaking process remains democratic.<sup>43</sup>

The story behind the adoption of the OLCSB's veal standard serves as an excellent example of the competing interests at stake in farm animal welfare regulation, and of how active participation in the OLCSB's administrative process can influence the board to adopt or withdraw a rule. On March 1, 2011, the OLCSB reneged on an animal welfare agreement with HSUS,<sup>44</sup> which provided that individual veal crates would be phased out by 2017.<sup>45</sup> The OLCSB voted instead to continue permitting the confinement of veal calves in crates—restricting their ability to turn around.<sup>46</sup> After receiving approximately 4,700 public comments against the vote, the OLCSB reversed its decision, proposing that veal crates be phased out by December 31, 2017.<sup>47</sup>

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<sup>39</sup> JCARR, *supra* n. 34, at 16.

<sup>40</sup> See e.g. Dave Harding, *Ohio Livestock Care Standards Board Votes to Phase Out Veal Crates*, <http://www.progressohio.org/blog/2011/04/ohio-livestock-care-standards-board-votes-to-phase-out-veal-crates.html> (Apr. 5, 2011) (accessed Nov. 20, 2011) (noting that 4,700 public comments urged the board to change its decision on veal regulations).

<sup>41</sup> OLCSB, *Welcome to the Ohio Livestock Care Standards Board*, <http://ohiolivestockcarestandardsboard.gov/> (accessed Nov. 20, 2011) ("Through an open and transparent process, the [OLCSB] is eager to hear from Ohio citizens regarding [livestock care standards]. By doing so, the board is hopeful to strengthen the connection between Ohio's farm families and its consumers.").

<sup>42</sup> See e.g. Register of Ohio, *Public Notice*, [http://www.registerofohio.state.oh.us/pdfs/phn/901\\$12\\_NO\\_137099\\_20110509\\_1259.pdf](http://www.registerofohio.state.oh.us/pdfs/phn/901$12_NO_137099_20110509_1259.pdf) (May 9, 2011) (accessed Nov. 20, 2011) (indicating that the Ohio Department of Agriculture will consider comments on new rules).

<sup>43</sup> E.g. Harding, *supra* n. 40 (demonstrating the impact that public comments can have).

<sup>44</sup> *Id.*

<sup>45</sup> See Farm & Dairy, *supra* n. 31 (noting that the Ohio Department of Agriculture will recommend that the OLCSB adopt the American Veal Association agreement).

<sup>46</sup> See Harding, *supra* n. 40 (noting that OLCSB "reversed a vote taken on March 1 that sanctioned confinement of veal calves in crates so small they're unable to turn around for more than half of their lives before slaughter").

<sup>47</sup> See *id.* (noting that OLCSB reversed the vote after receiving "approximately 4,700 public comments" and that "[t]he [new] agreement stipulates that all calves must be kept in group housing starting in 2017").

At a July 2011 JCARR hearing on the proposed rules, one Ohio veal farmer presented comments and testimony against the elimination of individual veal crates.<sup>48</sup> The lone veal farmer also presented an affidavit signed by thirty-two other Ohio veal producers stating that if the veal standard was passed, they were not likely to continue to raise veal in Ohio after the phase-out date.<sup>49</sup> After that hearing, JCARR delayed consideration of the standard for a month.<sup>50</sup>

In August 2011, the OLCSB resubmitted the veal standard unchanged, although it presented more thorough supporting information.<sup>51</sup> On August 11, 2011, the Ohio Agriculture Director announced that all of the proposed OLCSB standards, including the disputed veal standard, would become effective on September 29, 2011.<sup>52</sup> Thus, despite much back and forth due to comments and testimony at public hearings, individual veal crates will be phased out in Ohio after 2017. The events that led to the adoption of the OLCSB's veal standard demonstrate that public comments and testimony can make a difference.

## 2. *The First Set of Effective Standards*

Before September 2011, Ohio had four effective livestock standards in its administrative code: section 901:12-1 regulated euthanasia of livestock and poultry; section 901:12-2 provided civil penalties; section 901:12-3 provided general considerations for the care and welfare of livestock; and section 901:12-4 provided requirements governing the treatment of disabled and distressed livestock.<sup>53</sup> Revised section 901:12-1 provides acceptable species-specific euthanasia methods in detail, complete with diagrams similar to those found in humane-handling textbooks.<sup>54</sup> Generally, the new regulations duplicate the legal framework already in place, only adding more detailed instructions about existing farm animal husbandry practices.<sup>55</sup> The acceptable eu-

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<sup>48</sup> Kyle Sharp, *Ohio Livestock Care Board Veal Standards Put on Hold, for Now*, <http://ocj.com/livestock/care-board-veal-standards-put-on-hold-for-now> (July 14, 2011) (accessed Nov. 20, 2011).

<sup>49</sup> *Id.*

<sup>50</sup> *See id.* (indicating that approved veal standards “have been put on hold, at least temporarily” by the board).

<sup>51</sup> Kyle Sharp, *Ohio Livestock Care Standards to Take Effect September 29, 2011*, <http://ocj.com/livestock/livestock-care-standards-take-effect-september-29/> (Aug. 11, 2011) (accessed Nov. 20, 2011).

<sup>52</sup> *Id.*

<sup>53</sup> *See* OLCSB, *Effective Standards*, [http://www.agri.ohio.gov/LivestockCareStandards/docs/Livestock%20Care%20Standards%20\(EFFECTIVE\).pdf](http://www.agri.ohio.gov/LivestockCareStandards/docs/Livestock%20Care%20Standards%20(EFFECTIVE).pdf) (accessed Nov. 20, 2011) (listing only these standards).

<sup>54</sup> Ohio Admin. Code Ann. § 901-12-1; *see also* Temple Grandin & Mark Deesing, *Humane Livestock Handling: Understanding Livestock Behavior and Building Facilities for Healthier Animals* 77 (Rebekah Boyd-Owens et al. eds., Storey Publ. 2008) (describing euthanasia methods with diagrams).

<sup>55</sup> *Compare* Ohio Admin. Code Ann. § 901-12-1 (regulating euthanasia methods) with Grandin & Deesing, *supra* n. 54, at 75–79 (describing existing euthanasia methods).

thanasia methods the regulation adopted are already the industry standards, such as death by carbon dioxide, captive bolt gun, blunt force trauma, gunshots, decapitation, electrocution, or maceration.<sup>56</sup> Thus, the regulation essentially codifies routine practices on factory farms.<sup>57</sup>

The Animal Welfare Institute (AWI), an animal advocacy organization,<sup>58</sup> submitted comments to the OLCSB with several recommendations, including bans on death by electrocution or gunshot, and the suggestion that the American Veterinary Medical Association's conditionally acceptable euthanasia methods (electrocution, gunshot, and cervical dislocation in poultry, and a blow to the head for young pigs) be prohibited for routine killing.<sup>59</sup> However, the OLCSB did not implement these suggestions.<sup>60</sup>

Section 901:12-3-01(K) of the regulation defines "humane" as "the care and handling of livestock that seeks to minimize distress through utilization of the standards established by this chapter."<sup>61</sup> This definition is weak and ineffective because any animal husbandry practice that seeks to minimize distress can qualify as "humane."<sup>62</sup> For example, under this definition, tail docking and castration of pigs can be "humane" even if performed without anesthetic<sup>63</sup> as long as the procedures seek to minimize animals' distress.<sup>64</sup>

Section 901:12-3 also provides that handling and sorting devices must be "used humanely,"<sup>65</sup> that Livestock Management Procedures found in the Administrative Code "must be performed humanely,"<sup>66</sup> that "[a]ll practices and procedures pertaining to health/medical treatment of livestock must be done humanely,"<sup>67</sup> and that handling of livestock during transport "must be done humanely."<sup>68</sup> Section 901:12-3-

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<sup>56</sup> See Ohio Admin. Code Ann. § 901-12-1 (permitting these euthanasia methods).

<sup>57</sup> See Grandin & Deesing, *supra* n. 54, at 77 (describing euthanasia methods with diagrams).

<sup>58</sup> See AWI, *Who We Are*, <http://www.awionline.org/about-awi/who-we-are/who-we-are> (accessed Nov. 20, 2011) (indicating that the Animal Welfare Institute's goal is to "alleviate the suffering inflicted on animals by people").

<sup>59</sup> Ltr. from Dena Jones, Farm Animal Program Manager, AWI, to Members of the OLCSB, Ohio Dept. of Agric., *Euthanasia of Farm Animals* 3-6 (June 22, 2010) (available at <http://www.awionline.org/>; search Comments to Ohio, select Farm Animal Policy, select Comments to Ohio Livestock Care Standards Board on Euthanasia (accessed Nov. 20, 2011)).

<sup>60</sup> *E.g.* Ohio Admin. Code Ann. § 901-12-1 (allowing these euthanasia methods).

<sup>61</sup> *Id.* at § 901-12-3-01(K).

<sup>62</sup> *Id.*

<sup>63</sup> David J. Wolfson, *Beyond the Law: Agribusiness and the Systemic Abuse of Animals Raised for Food or Food Production*, 2 Animal L. 123, 134 (1996).

<sup>64</sup> See Ohio Admin. Code Ann. § 901-12-3-01(K) ("handling of livestock that seeks to minimize distress"); see also Ohio Admin. Code Ann. § 4741-1-13(B) (listing "Livestock Management Practices" that must be performed humanely under current regulations).

<sup>65</sup> Ohio Admin. Code Ann. § 901-12-3-03(B).

<sup>66</sup> *Id.* at § 901-12-3-03(G).

<sup>67</sup> *Id.* at § 901-12-3-05(C).

<sup>68</sup> *Id.* at § 901-12-3-06(C).

03 allows for the use of electric prods,<sup>69</sup> as well as dragging disabled or non-ambulatory livestock if “the animal’s position does not permit lifting or another method of movement”<sup>70</sup>—actions that can hardly be labeled as seeking to minimize distress in any animal.<sup>71</sup>

Section 901:12-4 concerns ambulatory and non-ambulatory disabled livestock.<sup>72</sup> While this section provides a fairly elaborate standard governing the treatment of non-ambulatory livestock, it lacks a number of prohibitions necessary to ensure farm animal welfare. For example, AWI submitted public comments to the OLCSB recommending, among other things, that the OLCSB include in its non-ambulatory livestock standard the following requirements: a prohibition on accepting non-ambulatory animals for marketing; a prohibition on transporting non-ambulatory animals to slaughter; a requirement that markets have written policies and equipment to handle non-ambulatory animals; a requirement that non-ambulatory animals be promptly and humanely euthanized or treated; and a requirement that non-ambulatory animals be segregated.<sup>73</sup> However, the OLCSB did not heed these recommendations: the effective standard does not require segregation of non-ambulatory animals;<sup>74</sup> there is no prohibition on accepting non-ambulatory animals for marketing, nor on transporting non-ambulatory animals to slaughter;<sup>75</sup> there is no requirement that

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<sup>69</sup> *Id.* at § 901-12-3-03(D).

<sup>70</sup> *Id.* at § 901-12-3-03(E).

<sup>71</sup> See Global Animal Partnership, *5-Step Animal Welfare Rating Standards for Beef Cattle*, <http://www.globalanimalpartnership.org/wp-content/uploads/2011/01/5-Step-Animal-Welfare-Rating-Standards-for-Beef-Cattle.pdf> (Aug. 4, 2009) (accessed Nov. 20, 2011) (allowing electric prods for use on cattle only “if it is absolutely necessary for the welfare of the animal or the safety of the handler,” forbidding routine use of prods, and allowing the use of prods only on the muscle of the hindquarters); see also Global Animal Partnership, *5-Step Animal Welfare Rating Standards for Pigs*, <http://www.globalanimalpartnership.org/wp-content/uploads/2011/01/5-Step-Animal-Welfare-Rating-Standards-for-Pigs.pdf> (Aug. 13, 2009) (accessed Nov. 20, 2011) (prohibiting use of electric prods on pigs).

<sup>72</sup> Ohio Admin. Code Ann. § 901-12-4 (describing feed and water, management, and health of “ambulatory disabled, non-ambulatory disabled, or distressed livestock”). The section governing treatment of non-ambulatory livestock became part of the OLCSB’s standards as a result of the agreement between HSUS and the agriculture industry. See Farm & Dairy, *supra* n. 31 (describing the agreement between HSUS and the agriculture industry).

<sup>73</sup> Ltr. from Dena Jones, Farm Animal Program Manager, to OLCSB, Ohio Dept. of Agric. Re: *Nonambulatory Animals* 3–4 (July 29, 2010) (available at <http://www.awionline.org>; search Ohio Nonambulatory Animals, select Farm Animal Policy, select Comments to Ohio Livestock Care Standards Board on Nonambulatory Animals (accessed Nov. 20, 2011)).

<sup>74</sup> Ohio Admin. Code Ann. § 901-12-3.

<sup>75</sup> See *id.* at § 901-12-4-03(B)(5) (the regulation does imply that cattle cannot be transported to slaughter because it states that “non-ambulatory disabled livestock must be . . . [e]xcept for cattle, transported to an inspected slaughter plant or a state custom exempt slaughter plant.” The only prohibition on transporting non-ambulatory animals provides that they “must not be loaded for transport to a non-terminal market or collection facility,” which does not include slaughter houses or packing plants.); see also Jim Reynolds, *Treatment of Sick and Injured Animals: Should They Be Moved and If So*,

non-ambulatory animals be promptly euthanized or treated;<sup>76</sup> and there is no requirement that markets have equipment and written policies to handle non-ambulatory animals.<sup>77</sup> The standard provides that “[h]andling and moving of ambulatory disabled, non-ambulatory disabled or distressed livestock must be done in a humane manner.”<sup>78</sup> However, given the practically meaningless definition of “humane” within the regulation,<sup>79</sup> this provision does little to guarantee humane handling and treatment of non-ambulatory animals.

Overall, the first set of standards adopted by the OLCSB lays a foundation upon which later species-specific standards can build. Although not necessarily detrimental to the future of farm animal welfare regulation, Ohio’s standards are not substantial improvements upon the status quo on contemporary factory farms. Nevertheless, although legislation opposing intensive confinement may be more beneficial to farm animal welfare, livestock care standards boards are actively shaping farm animal welfare regulation. Animal advocates should use each board’s rulemaking process to the extent possible to bring about higher welfare standards for farm animals.

### 3. *Species-Specific Standards*

On September 29, 2011, several proposed regulations dealing with the care of livestock became effective in Ohio.<sup>80</sup> An in-depth analysis of each species-specific regulation is beyond the scope of this Comment, but it will discuss regulations regarding pig gestation crates, battery cages, and veal crates, which all contain provisions that follow the trend of recent anti-confinement legislation.<sup>81</sup> The regulation regarding gestation crates provides the following:

(4) Gestation stalls can be used in all existing facilities until December 31, 2025; *after which breeding/gestation stalls can only be used* post weaning for a period of time that seeks to maximize embryonic welfare and allows for the confirmation of pregnancy;

(5) After the effective date of this rule, any new construction designed to house breeding/gestating sows, including new construction on an existing facility, *must not utilize gestation stalls*, except to allow sows to be housed

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How? 28, <http://jrdairymanagementcontest.pbworks.com/f/ReynoldsDownCow.pdf> (accessed Nov. 20, 2011) (briefly defining “terminal market” and “non-terminal market”).

<sup>76</sup> See Ohio Admin. Code Ann. § 901-12-4-03(B) (requiring that non-ambulatory animals be provided care and treatment, but not that care or treatment be prompt).

<sup>77</sup> *Id.* at § 901-12-4; see also *id.* at § 901-12-3-03(D)(4), (E) (allowing for the dragging of non-ambulatory animals).

<sup>78</sup> *Id.* at § 901-12-4-02(B).

<sup>79</sup> *Id.* at § 901-12-3-01(K).

<sup>80</sup> Sharp, *supra* n. 51 (stating that the OLCSB’s proposed rules will become effective on September 29, 2011).

<sup>81</sup> Compare Ohio Admin. Code Ann. § 901-12-8-02 and Ohio Admin. Code Ann. § 901-12-9-03 with Cal. Health & Safety Code § 25990-25995 (West 2010 & Supp. 2011) and Mich. Comp. Laws Ann. § 287.746 (West Supp. 2010).



in breeding/gestation stalls for a period of time that seeks to maximize embryonic welfare and allows for the confirmation of pregnancy.<sup>82</sup>

Notably, the standard implements a phase-out of routine use of gestation crates as housing for pregnant sows. The standard also implicitly prohibits turn-around crates, which are alternatives to gestation crates,<sup>83</sup> because the standard defines “gestation stall” as a housing system that “does not allow [the sow] to turn around and freely enter or exit.”<sup>84</sup> Since turn-around crates allow the sow to turn around, but not to exit, Ohio does not permit this housing system after the phase-out period.<sup>85</sup>

Allowing gestation crates only for “post weaning for a period of time that seeks to maximize embryonic welfare and allows for the confirmation of pregnancy” is a vague standard that is potentially difficult to enforce.<sup>86</sup> Because gestation crates are still allowed on farms, inspectors may not be able to determine if sows are kept in the crates only post weaning and for confirmation of pregnancy.<sup>87</sup> Overall, the OLCBS standard phasing out gestation crates is a positive change for farm animal welfare, but this single change is not enough. Further, the other OLCBS standards do not implement changes that are so positive.<sup>88</sup>

In amending the rules governing the use of battery cages for laying hens, the OLCBS standard does not set a phase-out date for the battery cage system, as other states have.<sup>89</sup> Instead, it mandates the following:

(F) Conventional battery cage systems must meet the following requirements:

...

(3) Systems installed on existing farms after the effective date of this rule must provide for a minimum of 67 square inches per layer;

(4) For systems installed prior to the effective date of this rule, house/barn averaging must result in a minimum average of 67 square inches per layer five years after the effective date of this rule;

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<sup>82</sup> Ohio Admin. Code Ann. § 901-12-8-02 (emphasis added).

<sup>83</sup> See Mindy Ward, Missouri Farmer Today, *Producer Installs Turn-Around Crates for Man and Beast* (available at [http://www.missourifarmertoday.com/news/producer-installs-turn-around-crates-for-man-and-beast/article\\_c341923b-f19a-5e51-9b82-f9459ecaf08d.html](http://www.missourifarmertoday.com/news/producer-installs-turn-around-crates-for-man-and-beast/article_c341923b-f19a-5e51-9b82-f9459ecaf08d.html) (Oct. 1, 2010) (accessed Nov. 20, 2011)) (discussing one farmer’s transition to turn-around crates).

<sup>84</sup> Ohio Admin. Code Ann. § 901-12-8-01(B).

<sup>85</sup> See HSUS, *An HSUS Report: Welfare Issues with Gestation Crates for Pregnant Sows* 6, <http://www.humanesociety.org/assets/pdfs/farm/HSUS-Report-on-Gestation-Crates-for-Pregnant-Sows.pdf> (accessed Nov. 20, 2011).

<sup>86</sup> Ohio Admin. Code Ann. § 901-12-8-02.

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> Compare *id.* at § 901-12-9-03 with Cal. Health & Safety Code § 25990-25995 and Mich. Comp. Laws Ann. § 287.746.

(6) Conventional battery cage systems may not be installed, after the effective date of the rule, on any farm not defined as an existing farm.<sup>90</sup>

This regulation appears to phase out battery cages in Ohio because it actually prohibits a new farm acquired or formed *after the effective date* of the rule from installing battery cages.<sup>91</sup> However, the rule permits existing farms to expand their current battery cage systems.<sup>92</sup> Thus, it is possible that this could create a battery cage monopoly in Ohio, where a few large egg farms consolidate with smaller battery cage farms that go out of business or switch to other housing systems. In the end, this regulation may do little to actually phase out battery cages in Ohio.

The addition of section 901:12-5-03 is an improvement with respect to veal crates because it calls for a phase-out of individual crates by December 31, 2017.<sup>93</sup> Specifically, the regulation provides: “Veal calves will be permitted to be tethered or non-tethered in stalls of a minimum [twenty-four] inches wide and [sixty-six] inches long until December 31, 2017.”<sup>94</sup> Beginning January 1, 2018, tethering calves is permissible to “prevent naval and cross sucking and restraint for examinations, treatments and transit.”<sup>95</sup> Also, the calf must be able to stand, rest in natural postures, groom, eat, lie down comfortably, and turn around.<sup>96</sup> Finally, “[a]fter December 31, 2017, veal calves must be housed in group pens by [ten] weeks of age.”<sup>97</sup> While it would have been a greater improvement for the OLCSB to prohibit individual veal crates within a shorter phase-out period, this regulation makes a reasonable compromise between the wishes of the agriculture industry and animal advocates by implementing a five-year phase-out period for individual veal crates.

The OLCSB was intended in part to be a preemptive measure warding off ballot initiatives concerning farm animal welfare.<sup>98</sup> Moreover, livestock care standards boards generally create an illusion of re-

<sup>90</sup> Ohio Admin. Code Ann. § 901-12-9-03(F)(3), (4), (6).

<sup>91</sup> *Id.* at § 901-12-9-03(F)(6). Notably, Oregon and Washington have each passed legislation requiring a phase-out of battery cages and a complete conversion to larger colony cages for egg-laying hens by 2026. Or. S. 805, 76th Legis. Assembly (2011); Wash. S. 5487, 62nd Legis., Reg. Sess. (Mar. 18, 2011).

<sup>92</sup> Ohio Admin. Code Ann. § 901-12-9-03(F)(5).

<sup>93</sup> *Id.* at § 901-12-5-03(C). With the adoption of this standard, Ohio will be the sixth state, along with Arizona, California, Colorado, Maine, and Michigan, to phase out veal crates. See Springsteen, *Farm Animal Confinement Laws*, *supra* n. 7, at Where Are These Laws in Place. Ohio is also following the recommended policy of the American Veal Association by setting its phase-out completion date for December 31, 2017. See Rod Smith, Feedstuffs Food Link, *Group Veal Pens Called Win-Win*, <http://www.feedstuffsfoodlink.com/ME2/Default.asp>; search Veal Pens, select Group Veal Pens (May 8, 2008) (accessed Nov. 20, 2011) (asserting that veal producers commit to well-being of calves).

<sup>94</sup> Ohio Admin. Code Ann. § 901-12-5-03(C).

<sup>95</sup> *Id.* at § 901:12-5-03(E)(1).

<sup>96</sup> *Id.* at § 901-12-5-03(C), (E).

<sup>97</sup> *Id.* at § 901-12-5-03(C)(4).

<sup>98</sup> *Supra* pt. II(A).

form that may appease some animal advocates and the general public, but do little to change the plight of farm animals on factory farms. The vague definition of “humane” in section 901:12-3 displays how the OLCSB seeks to simultaneously appease those who want to see humane living conditions for farm animals and those who wish to codify the status quo.<sup>99</sup> The OLCSB’s standards are the product of an agreement between the agriculture industry and animal advocates.<sup>100</sup> However, while compromise is admirable and democratic, much more change must occur before farm animals in Ohio have lives worth living.

### III. OTHER STATES

Like Ohio, other states have enacted versions of a livestock care standards board. This Part analyzes statutes creating livestock care standards boards in other states, and it reviews proposed legislation that would create livestock care standards boards.

#### A. *The New Jersey Standards*

New Jersey enacted a statute governing “standards for humane treatment of domestic livestock.”<sup>101</sup> Like the Ohio regulations establishing that state’s livestock care standards board, regulations implementing the New Jersey statute include only minor improvements to welfare standards for farm animals.<sup>102</sup>

The New Jersey regulations provide species-specific standards,<sup>103</sup> giving the impression that the standards are more comprehensive—and thus, more humane. The regulations define “humane” as “marked by compassion, sympathy, and consideration for the welfare of animals.”<sup>104</sup> However, each species-specific section contains an exception for “routine husbandry practices,” which are “those techniques commonly taught by veterinary schools, land grant colleges, and agricultural extension agents.”<sup>105</sup> The regulations also permit mutilations

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<sup>99</sup> *Supra* pt. II(B)(ii).

<sup>100</sup> *Supra* pt. II(B)(i).

<sup>101</sup> N.J. Stat. Ann. § 4:22-16.1 (1998).

<sup>102</sup> *Compare id.* at § 4:22-16.1 with Ohio Admin. Code Ann. §§ 901:12-5, 901:12-8, 901:12-9.

<sup>103</sup> N.J. Admin. Code § 2:8 (West 2011).

<sup>104</sup> *Id.* at § 2:8-1.2(a).

<sup>105</sup> *Id.*; see generally *id.* at § 2:8 (listing the mutilations that are categorized as routine husbandry practices for each species). In *New Jersey Society for the Prevention of Cruelty to Animals v. New Jersey Department of Agriculture*, the New Jersey Supreme Court held that the term “routine husbandry practices” was arbitrary and capricious as defined by the regulations because there was no evidence that the New Jersey Department of Agriculture considered whether the techniques taught at the identified institutions were humane or “have any focus other than expedience or maximization of productivity.” 955 A.2d 886, 905-07 (N.J. 2008). Though the New Jersey Department of Agriculture has proposed new rules eliminating the use of the term “routine husbandry practices,” the substance of the New Jersey regulations pertaining to farm animals

that allow many animals to be housed closely together without causing significant harm to one another.<sup>106</sup>

### B. Enacted Boards

Illinois, Indiana, Kentucky, Louisiana, Utah, Vermont, and West Virginia have all either followed Ohio's lead and enacted their own version of a statute creating a livestock care standards board or delegated the authority to establish or recommend livestock care standards to a specified governmental body.<sup>107</sup> As of August 2011, only the Indiana board and the Ohio Livestock Care Standard Board (OLCSB) have proposed standards and taken public comments.<sup>108</sup> Kentucky's Livestock Care Standards Commission has met several times, and it is likely to adopt Ohio's standards for the sake of financial efficiency.<sup>109</sup>

Although many of the boards appear to create a seat at the table for animal interests by including a member of a local humane society, including representatives of humane societies may actually do little for farm animal welfare; many humane societies are not familiar with caring for these species and thus lack the expertise necessary to discuss farm animal issues.<sup>110</sup> Also, the inclusion of only one member representing animal interests among many others representing interests contrary to animals' interests does not provide adequate representation of animal welfare concerns.

Rather than follow Ohio's model, Indiana granted an existing board the authority to adopt livestock care standards. The statute granting that authority, effective January 1, 2011, simply states, "The [Board of Animal Health] may adopt rules to establish standards governing the care of livestock and poultry."<sup>111</sup> When adopting standards, the Indiana Board of Animal Health (BOAH) may consider the following:

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largely remains the same, except for the fact that the new regulations prohibit the tail docking of cows. 2011 N.J. Register 246526 (Jan. 3, 2011).

<sup>106</sup> See e.g. N.J. Admin. Code § 2:8-7.7(d) (allowing tail docking, which is done because animals in close confinement bite each other's tails).

<sup>107</sup> 20 Ill. Comp. Stat. Ann. 5/5-525 (West 2010); Ind. Code Ann. § 15-17-3-23 (Lexis Supp. 2010); Ky. Rev. Stat. Ann. § 257.192 (Lexis 2010); La. Rev. Stat. Ann. § 3:2093 (West Supp. 2011); Utah Code Ann. § 4-2-7 (Lexis 2006); Vt. Stat. Ann. tit. 6, § 792 (Supp. 2010); W. Va. Code Ann. § 19-1C-3 (Lexis 2011).

<sup>108</sup> See Ind. St. Bd. of Animal Health, *Board Actions*, <http://www.in.gov/boah/2349.htm> (accessed Nov. 20, 2011); see also Ind. Reg. LSA Doc. No. 11-88, <http://www.in.gov/legislative/register/irtoc.htm>; search LSA Doc. # 11-88 (June 30, 2011) (accessed Nov. 20, 2011).

<sup>109</sup> The Farmer's Pride, *Livestock Board Reviews Ohio Program*, <http://thefarmer-pride.com/?p=352> (Apr. 8, 2011) (accessed Nov. 20, 2011).

<sup>110</sup> See e.g. Humane Socy. of W. Mont., *Admissions Policy*, [http://www.myhswm.org/services/surrender\\_animal.htm](http://www.myhswm.org/services/surrender_animal.htm); select Click here to read more about admissions policy (accessed Nov. 20, 2011) (noting that the Humane Society of Western Montana does not accept farm animals).

<sup>111</sup> Ind. Code Ann. § 15-17-3-23.

(1) [t]he health and husbandry of the livestock and poultry, (2) [g]enerally accepted farm management practices, (3) [g]enerally accepted veterinary standards and practices, (4) [t]he economic impact the standards may have on: (A) livestock and poultry farmers; (B) the affected livestock and poultry sector; and (C) consumers.<sup>112</sup>

BOAH's proposed standards do much less than the OLCSB's to improve the living conditions of farm animals. For example, one of the proposed standards provides: "A person responsible for caring for livestock or poultry must provide the animals with an environment that can reasonably be expected to maintain the health of animals of that species, breed, sex and age, raised using the applicable production method."<sup>113</sup> This rule does not provide for a specific standard of care, so it will be very difficult to enforce.

The Animal Welfare Institute (AWI) submitted comments to BOAH concerning these standards, stating:

The Indiana draft standards appear to have been written in order to codify conventional industry practices and not for the purpose of providing for farm animal health and welfare. In fact, the addition of the phrase "raised using the applicable production method" to each section of the regulation ensures that just about any treatment practiced by more than one farmer will be considered acceptable.<sup>114</sup>

The AWI comments also recommended four specific standards.<sup>115</sup> More comments and participation are necessary so administrative entities, such as BOAH, will take high-welfare recommendations seriously and implement meaningful welfare improvements for farm animals.

Of all the state boards assembled, Vermont's Livestock Care Standards Advisory Council has the potential to be the most effective at addressing farm animal welfare. Vermont's Livestock Care Standards Advisory Council was created by a statute effective on June 3, 2010, following HSUS's undercover investigation at a veal calf slaughterhouse, which revealed horrible abuse of the calves.<sup>116</sup>

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<sup>112</sup> *Id.*

<sup>113</sup> I.R. 11-88.

<sup>114</sup> Dena Jones, *Comments to Indiana Board of Animal Health on Care Standards for Livestock and Poultry 2*, <http://www.awionline.org/search> Comments to Indiana, *select* Farm Animal Policy, *select* Comments to Indiana Board (June 7, 2011) (accessed Nov. 20, 2011).

<sup>115</sup> *Id.* at 3-6.

<sup>116</sup> See Brandon Bosworth, *Vermont Takes On Livestock Abuse*, <http://news.change.org/stories/vermont-takes-on-livestock-abuse> (Apr. 29, 2010) (accessed Nov. 20, 2011) (documenting one of the most disturbing examples of abuse at Bushway Packing, Inc., the slaughterhouse where the undercover investigation took place: "[T]he co-owner of the plant shocks and then heaves a downed calf to his feet saying, 'There's nothing wrong with you, Shitbox.' The infant animal, covered in his own diarrhea, staggers and falls hard into the side of the trailer."); see also HSUS, *Petition for Rulemaking* 31-37, [http://www.fsis.usda.gov/PDF/Petition\\_HSUS\\_Humane\\_Handling.pdf](http://www.fsis.usda.gov/PDF/Petition_HSUS_Humane_Handling.pdf) (accessed Nov. 20, 2011) (documenting specifically all of the abuses observed during the HSUS undercover investigation).

Although membership on Vermont's council is industry-dominated like the other state boards, this council provides for membership of both a representative from a local humane society and a "person with experience investigating charges of animal cruelty involving livestock."<sup>117</sup> The inclusion of two animal advocates makes Vermont's council slightly more balanced in terms of representing farm animal welfare interests.<sup>118</sup> In particular, having a member with investigative experience in animal cruelty matters gives Vermont's council an advantage over other state boards.<sup>119</sup> However, if animal advocates remain silent and do not actively participate in the Vermont council's administrative process, this potential for farm animal welfare improvement may never come to fruition.<sup>120</sup> Vermont's council serves only in an advisory capacity, making recommendations and proposing legislation concerning the care and handling of livestock.<sup>121</sup> Thus, it is important for animal advocates to voice their concerns about farm animal welfare so the council knows where many members of the public stand on the issue.

West Virginia's statute creating a livestock care standards board, which became effective on July 1, 2010, is almost identical to that of Ohio.<sup>122</sup> The membership of each board is essentially the same, but West Virginia's statute is not as detailed as Ohio's with respect to the administrative structure of its board.<sup>123</sup>

Kentucky and Utah stray a bit from the model set by Ohio and West Virginia.<sup>124</sup> Both Kentucky and Utah created advisory boards rather than independent entities with authority to adopt and propose regulations.<sup>125</sup> Kentucky's statute created the Kentucky Livestock Care Standards Commission, coming into effect on July 15, 2010.<sup>126</sup> Utah actually created its Agricultural Advisory Board in 1979, but

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<sup>117</sup> Vt. Stat. Ann. tit. 6, § 792.

<sup>118</sup> *Id.*; see also Ky. Rev. Stat. Ann. § 257.192; Utah Code Ann. § 4-2-7(1). The Kentucky and Utah boards lack a member representing a local humane society or any other representative of farm animal welfare interests.

<sup>119</sup> The bill creating Vermont's council also amended section 3306 to include a provision giving the Secretary of Agriculture the authority to impose video monitoring on any slaughter facility that includes false statements on a license application or that fails to comply with any other law under that chapter. Vt. Sen. 295, 2009–2010 Legis. Sess. 19 (Mar. 16, 2010).

<sup>120</sup> At least one animal advocacy organization in Vermont declares on its website that it submits comments to the council, and hopefully others already do the same or will follow suit. See Green Mt. Animal Defenders, *Recent Accomplishments for Helping Animals*, <http://www.greenmountainanimaldefenders.org/accomplishments.php> (accessed Nov. 20, 2011).

<sup>121</sup> Vt. Stat. Ann. tit. 6, § 793.

<sup>122</sup> Compare W. Va. Code Ann. § 19-1C-3, 19-1C-4 with Ohio Rev. Code Ann. § 904.02–03.

<sup>123</sup> Compare W. Va. Code Ann. § 19-1C-4 with Ohio Rev. Code Ann. § 904.02–03.

<sup>124</sup> Compare W. Va. Code Ann. § 19-C-4 with Ky. Rev. Stat. Ann. § 257.192 and Utah Code Ann. § 4-2-7.

<sup>125</sup> Ky. Rev. Stat. Ann. § 257.192; Utah Code Ann. § 4-2-7.

<sup>126</sup> Ky. Rev. Stat. Ann. § 257.192.

amended it in 2010 to give the board authority to recommend livestock care standards.<sup>127</sup> The Kentucky Livestock Care Standards Commission only “make[s] recommendations to the board [of agriculture] to establish, maintain, or revise standards governing the care and well-being of on-farm livestock and poultry.”<sup>128</sup> Meanwhile, Utah amended its statute to delegate to the advisory board the duty only to “advise the commissioner [of the department of agriculture and food] regarding . . . the establishment of standards governing the care of livestock and poultry.”<sup>129</sup> Both entities lack a member representing a local humane society or any other potential representative of farm animal welfare interests.<sup>130</sup> Thus, the compositions of the boards in Kentucky and Utah are least favorable in terms of farm animal welfare reform.

Louisiana has taken action similar to that of Utah, delegating to a previously established state board the authority to adopt rules and establish standards governing the care and well-being of livestock.<sup>131</sup> Louisiana’s statute, effective June 8, 2010, grants authority to the Louisiana Board of Animal Health to “adopt such rules and regulations as may be necessary to establish standards governing the care and well-being” of livestock.<sup>132</sup> The factors the board may consider when establishing such rules are essentially identical to those of Indiana.<sup>133</sup> However, Louisiana goes one step further, preempting any “municipality, parish, local governmental entity or governing authority of any group or association, private or public, having jurisdiction over a specific geographic area” from enacting laws or regulations “establishing standards applicable to the care and well-being” of livestock.<sup>134</sup> Instead, such civic bodies may only request the adoption or amendment of rules and regulations.<sup>135</sup>

Finally, the Illinois Advisory Board of Livestock Commissioners, which became effective on July 12, 2010, consists of twenty-five members, none of whom represent farm animal welfare interests.<sup>136</sup> Rules and regulations pertaining to the care and well-being of livestock are submitted to the Illinois board for approval.<sup>137</sup> The Illinois statute provides the least amount of information regarding the duties and powers of the board.<sup>138</sup>

Absent involvement of animal advocates, the boards and councils established in the wake of the OLCBS are obstacles to reform of farm animal welfare regulation on contemporary factory farms. The boards

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<sup>127</sup> Utah Code Ann. § 4-2-7.

<sup>128</sup> Ky. Rev. Stat. Ann. § 257.196.

<sup>129</sup> Utah Code Ann. § 4-2-7(2)(b).

<sup>130</sup> *Id.* at § 4-2-7; Ky. Rev. Stat. Ann. § 257.192.

<sup>131</sup> La. Rev. Stat. Ann. § 2093.

<sup>132</sup> *Id.*

<sup>133</sup> Compare *id.* at § 2093 with Ind. Code Ann. § 15-17-3-23.

<sup>134</sup> La. Rev. Stat. Ann. § 2095.1.

<sup>135</sup> *Id.*

<sup>136</sup> 20 Ill. Comp. Stat. Ann. 5/5-525.

<sup>137</sup> *Id.*

<sup>138</sup> See *id.* (lacking provisions included in other states’ statutes).

and councils give the impression that action is being taken to assure that farm animals are treated humanely; however, the boards act primarily as a preemptive measure against further anti-confinement legislation and ballot initiatives regarding farm animal living conditions.<sup>139</sup> Nevertheless, these boards are not going away, and it is likely that more states will create similar boards. For example, during the 2011 legislative session, Maryland, Massachusetts, Oklahoma, and Texas each considered bills that would have created livestock care standards boards, but each bill failed to pass.<sup>140</sup> Thus, it is imperative that animal advocates lobby state legislatures to draft bills in which animal welfare is actually improved and participate in the administrative process of each board, because they can assert farm animal interests with the hope that one day high-welfare farming becomes the predominant U.S. farming method.

### C. Other Related Legislation

A few other states have recently enacted legislation preempting local ordinances or regulations governing livestock care standards. In May and June of 2009, Georgia, Oklahoma, and South Carolina passed legislation preempting local and municipal rules that would regulate animal husbandry practices or the care and handling of livestock.<sup>141</sup> On April 21, 2010, Alabama passed similar legislation, reserving to the Department of Agriculture and Industries “the entire subject matter concerning the care and handling of livestock and animal husbandry practices involved in the production of agricultural and farm products on private property.”<sup>142</sup> Wyoming has passed a bill declaring that nothing in that state’s legislation pertaining to the protection of livestock prohibits “[t]he use of Wyoming industry accepted agricultural or livestock management practices or any other commonly practiced animal husbandry procedure used on livestock animals.”<sup>143</sup>

Two bills currently pending in the Massachusetts state legislature and a bill that just died in the New York state legislature are also notable.<sup>144</sup> The two bills in Massachusetts are particularly interesting because they are competing with one another: one bill proposes a Live-

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<sup>139</sup> *Supra* pt. II(A).

<sup>140</sup> See Md. Sen. 254, 2011 Legis., 428th Sess. Gen. Assembly 1 (Jan. 28, 2011); Mass. Sen. 335, 187th Gen. Court, Reg. Sess. (Jan. 19, 2011); Okla. H. 1306, 53rd Sess., 1st Reg. Sess. (Feb. 7, 2011); Tx. H. 334, 82d Legis., Reg. Sess. (Feb. 15, 2011). Oregon had a proposed bill to create a Dairy Animal Welfare Board, but it also failed to pass. Or. H. 3006, 76th Legis. Assembly, Reg. Sess. (Mar. 28, 2011). Additionally, in 2010, Maine enacted legislation requiring the Commissioner of Agriculture, Food, and Rural Resources to develop best management practices for poultry production. S. Res. 267, 124th Legis., 1st Reg. Sess. (May 21, 2009).

<sup>141</sup> See Springsteen, *Proposal to Regulate*, *supra* n. 7, at 457–58.

<sup>142</sup> 2010 Ala. Laws 977, 978.

<sup>143</sup> Wyo. S. File 10, 61st Legis., 2011 Gen. Sess. (2011).

<sup>144</sup> Mass. S. 335, 187th Gen. Court, Reg. Sess.; Mass. S. 786, 187th Gen. Court, Reg. Sess. (2011); N.Y. Assembly 2118, 234th Annual Legis. Sess. (Jan. 13, 2011).



stock Care and Standards Board;<sup>145</sup> the other is an anti-confinement bill titled, “An Act to Prevent Farm Animal Cruelty.”<sup>146</sup> The bill proposing a Massachusetts livestock care standards board is much like the legislation creating the other state boards in terms of membership and duties.<sup>147</sup>

The Massachusetts anti-confinement legislation currently pending contains language similar to that in the California, Maine, and Michigan anti-confinement statutes.<sup>148</sup> The bill declares it unlawful to “tether or confine any covered animal . . . in a manner that prevents such animal from: (1) [l]ying down, standing up, and fully extending his or her limbs; and (2) [t]urning around freely.”<sup>149</sup> These provisions are modest improvements, similar to the improvements made in other states, but the New York bill that just died sought to make even greater improvements.

The New York bill did more than assure that farm animals could lie down, stand up, fully extend their limbs, and turn around freely<sup>150</sup>—it also prohibited excessive breeding, force-feeding and gavage techniques, and overcrowding.<sup>151</sup> This was the third time New York attempted to pass its Prevention of Farm Animal Cruelty Act.<sup>152</sup> Given the recent success of legislation creating livestock care standards boards and the waning of anti-confinement legislation, it is likely that bills creating livestock care standards boards will have more success in the future.<sup>153</sup>

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<sup>145</sup> Mass. S. 335, 187th Gen. Court, Reg. Sess.

<sup>146</sup> Mass. S. 786, 187th Gen. Court, Reg. Sess.

<sup>147</sup> Mass. S. 335, 187th Gen. Court, Reg. Sess.

<sup>148</sup> Compare Mass. S. 786, 187th Gen. Court, Reg. Sess. with Cal. Health & Safety Code § 25990 and Me. Rev. Stat. Ann. 7 § 4020 and Mich. Comp. Laws Serv. § 287.746.

<sup>149</sup> Mass. S. 786, 187th Gen. Court, Reg. Sess.

<sup>150</sup> N.Y. Assembly 2118, 234th Annual Legis. Sess.

<sup>151</sup> *Id.* That this bill sought to prohibit force-feeding is critical because this technique is primarily used in the production of foie gras, which is the fatty liver of ducks and geese used primarily in pâté. HSUS, *An HSUS Report: The Welfare of Animals in the Foie Gras Industry* 1, <http://www.humanesociety.org/assets/pdfs/farm/HSUS-Report-on-Foie-Gras-Bird-Welfare.pdf> (accessed Nov. 20, 2011). There are only four producers of foie gras in the U.S., and two of those producers are in New York. *Id.* Thus, this law would have had the effect of ending the cruel practice of force-feeding for more than half of the birds (more than 250,000 annually) presently produced in the U.S. foie gras industry. *Id.* California has banned the sale and production of force-fed foie gras in that state effective July 1, 2012. See Cal. S.1520, 2004 Reg. Sess. (Sept. 29, 2004) (to be codified commencing with Cal. Health & Safety Code § 25980).

<sup>152</sup> In 2009 and 2010, the New York legislature tried to pass its Prevention of Farm Animal Cruelty Act, but these bills died when each legislative session ended. See N.Y. Assembly 8597, 233d Annual Legis. Sess. (Jan. 19, 2010) (sending the bill to committee); N.Y. Assembly 8597, 232d Legis. Sess. (May 29, 2009).

<sup>153</sup> See *supra* pt. III(B) (discussing the livestock care standards boards recently enacted or amended between 2010 and 2011).

## IV. REFORM

A federal administrative entity tasked with establishing high-welfare farming standards would likely improve farm animal welfare in the U.S. This entity could create care, handling, and housing standards for livestock, considering the particular behavioral needs of each species.

In 2010, Congress considered anti-confinement legislation that would have reformed farm animal welfare regulation.<sup>154</sup> However, the proposed legislation did not pass, and it does not appear that it would pass if proposed again in the near future. The 111th Congress introduced the Prevention of Farm Animal Cruelty Act on March 2, 2010; it would have required federal agencies to purchase animal food products “only from sources that raised the animals free from cruelty and abuse.”<sup>155</sup> However, the bill died in the Subcommittee on Livestock, Dairy, and Poultry within the Committee on Agriculture after having made it successfully through the Committee on Oversight and Government Reform.<sup>156</sup> This bill likely failed because the Committee on Agriculture favors the interests of the agriculture industry.<sup>157</sup>

Nevertheless, a remarkable development has rendered federal anti-confinement legislation a real possibility. In July 2011, the Humane Society of the U.S. and United Egg Producers, a cooperative that represents the majority of the nation’s egg producers,<sup>158</sup> reached an agreement to jointly lobby Congress for federal legislation imposing a transition from battery cage housing systems to colony cage housing.<sup>159</sup> It may be unlikely that a federal bill will actually be introduced and passed as a result of this agreement. However, the overall implications of the agreement are positive for farm animal welfare because the fact that these two historically opposing groups were capable of

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<sup>154</sup> H.R. 4733, 111th Cong. (Mar. 2, 2010) (information about the status of the Prevention of Farm Animal Cruelty Act is available at <http://www.govtrack.us/congress/bill.xpd?bill=h111-4733> (accessed Nov. 20, 2011)).

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> See Wolfson, *supra* n. 63, at 145–46 (discussing how the agribusiness “industry giants” are powerful and efficient lobbyists and have great influence over the legislature).

<sup>158</sup> See United Egg Producers, *About Us*, <http://www.unitedegg.org/> (accessed Nov. 20, 2011) (stating that the cooperative represents “the ownership of approximately 95% of all the nation’s egg-laying hens”).

<sup>159</sup> See Rod Smith, Feedstuffs, *HSUS, UEP Reach Agreement to Transition to Colonies*, [http://www.feedstuffs.com/ME2/Default.asp?search=Transition to Colonies](http://www.feedstuffs.com/ME2/Default.asp?search=Transition%20to%20Colonies), select HSUS, UEP Reach Agreement to Transition to Colonies (July 7, 2011) (accessed Nov. 20, 2011) (noting that colony cages provide more space per bird, allowing between 124 square inches and 144 square inches per bird, rather than the industry standard of approximately 67 square inches per bird); see also Press Release, HSUS *HSUS, Egg Industry Agree to Promote Federal Standards for Hens* [http://www.humanesociety.org/news/press\\_releases/2011/07/egg\\_agreement.html](http://www.humanesociety.org/news/press_releases/2011/07/egg_agreement.html) (July 7, 2011) (accessed Nov. 20, 2011) (discussing legislation aimed at expanding the space hens are currently allotted in large egg production facilities).

reaching an agreement concerning farm animal welfare legislation makes the passage of such legislation a more palpable possibility.

Alternatively, a federal mandate establishing an administrative entity focused on high-welfare farming standards could become part of the Farm Bill. The Farm Bill, approved every five years, governs much of the nation's food and agriculture policy. The Farm Bill governs agricultural commodity and conservation programs, as well as trade, nutrition, and rural development.<sup>160</sup> The Farm Bill's impact cannot be overstated because its policies directly affect public health, the economy, the environment, and potentially animal welfare.<sup>161</sup> It is also principally to blame for the factory farming methods that govern agriculture in the U.S. today.<sup>162</sup> However, the Farm Bill could transform from the source of problems in the agriculture sector to the solution if it mandated better farm animal housing systems and provided assistance to farmers. For example, assistance with the transition from current confinement systems to high-welfare housing systems could follow the example of current environmental conservation funding measures in the bill.<sup>163</sup>

## V. CONCLUSION

Livestock care standards boards are politically effective, and they have the power to either negatively or positively affect the lives of farm animals. These boards will likely prevent the enactment of further state anti-confinement legislation. However, if animal advocates stay involved with the administrative process, rigorous and dedicated advocacy for farm animal welfare could lead the state livestock care standards boards to enact high-welfare regulations.

Recent state legislation pertaining to farm animal welfare suggests that many citizens find contemporary animal husbandry practices unacceptable.<sup>164</sup> Animal confinement systems on today's factory farms do not reflect the traditional animal husbandry practices that existed decades ago.<sup>165</sup> Immobilizing animals through confinement and painfully altering animals through mutilation is not how humans ought to relate to the billions of living beings they consume as food

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<sup>160</sup> See William S. Eubanks II, *A Rotten System: Subsidizing Environmental Degradation and Poor Public Health with Our Nation's Tax Dollars*, 28 Stan. Envtl. L.J. 213, 248 (2009); see also e.g. H.R. 2419, 110th Cong. (May 22, 2008) (enacted).

<sup>161</sup> See Eubanks II, *supra* n. 160, at 214–15 (noting that the Farm Bill has “far-reaching implications for the most salient issues facing our nation today”).

<sup>162</sup> See *id.* at 223–25 (discussing the “Get Big or Get Out” Farm Bill policy under the Nixon Administration).

<sup>163</sup> See H.R. 2419, §§ 2701–2711, 110th Cong. (May 22, 2008) (describing funding measures for environmental conservation).

<sup>164</sup> See Springsteen, *Farm Animal Confinement Laws*, *supra* n. 7, at Where Are These Laws in Place? (listing the states that have enacted confinement laws).

<sup>165</sup> See Pew Commn. on Indus. Farm Animal Prod., *Putting Meat on the Table: Industrial Farm Animal Production in America Executive Summary* 1, [http://www.ncifap.org/\\_images/PCIFAPSmry.pdf](http://www.ncifap.org/_images/PCIFAPSmry.pdf) (2008) (accessed Nov. 20, 2011).

each year.<sup>166</sup> It is time to recognize that farm animals deserve to get up, turn around, lie down, groom themselves, and stretch their limbs—in short, to have lives worth living.

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<sup>166</sup> See HSUS, *Farm Animal Statistics: Slaughter Totals*, [http://www.humanesociety.org/news/resources/research/stats\\_slaughter\\_totals.html](http://www.humanesociety.org/news/resources/research/stats_slaughter_totals.html) (Nov. 7, 2011) (accessed Nov. 20, 2011).

# CSI - Ohio

The Common Sense Initiative

## Business Impact Analysis

Agency Name: Ohio Department of Agriculture

Regulation/Package Title: Livestock Care Standards -

Rule Number(s): 901:12-1-(01-06); 901:12-2-01; 901:3-(01-08); 901:12-4-(01-04);  
901:12-5-(01-03); 901:12-6-(01-03); 901:12-7-(01-02); 901:12-8-(01-03); 901:12-9-(01-04);  
901:12-10-(01-04); 901:12-11-(01-04); 901:12-12-(01-02); 901:12-13-(01-02);  
901:12-14-(01-04); 901:12-15-(01-04);

Date: March 20, 2017

**Rule Type:**

☐ New

☐ Amended

☒ 5-Year Review

☐ Rescinded

The Common Sense Initiative was established by Executive Order 2011-01K and placed within the Office of the Lieutenant Governor. Under the CSI Initiative, agencies should balance the critical objectives of all regulations with the costs of compliance by the regulated parties. Agencies should promote transparency, consistency, predictability, and flexibility in regulatory activities. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

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## **Regulatory Intent**

### **1. Please briefly describe the draft regulation in plain language.**

*Please include the key provisions of the regulation as well as any proposed amendments.*

The comprehensive livestock care standards housed in division 901:12 of the Ohio Administrative Code are meant to be practical for livestock producers of all sizes, scales and production methods and assure better livestock care. In addition, the rules support state's overarching goals of promoting safe and affordable food, and helping to prevent the outbreak of both animal and human diseases.

The rules in division 901:12 of the Administrative Code are up for five year rule review. The rules have been reviewed by the Ohio Department of Agriculture ("Department"), the Ohio Livestock Care Standards Board ("OLCSB"), and the regulated community. The rules are being submitted as requiring no changes.

**Chapter 901:12-1 of the Administrative Code** outlines the humane euthanasia standards for livestock in the state of Ohio. Euthanasia must be performed when the likelihood for recovery of the animal is poor and the condition of the animal cannot be effectively relieved by the best species management and medically appropriate procedures. The rules more specifically are outlined below:

OAC 901:12-1-01 sets forth the definitions and general considerations that are used in the Chapter.

OAC 901:12-1-02 outlines the acceptable inhalant euthanasia agents.

OAC 901:12-1-03 states that all injectable euthanasia agents must be used by or under the direct supervision of a licensed veterinarian.

OAC 901:12-1-04 sets out the physical methods of euthanasia permitted under the chapter.

OAC 901:12-1-05 outlines specific euthanasia methods for specific species.

OAC 901:12-1-06 states that persons responsible for the violation of this chapter are subject to the civil penalties outlined in OAC 901:12-2-01.

**Chapter 901:12-2 of the Administrative Code** outlines the civil penalties for violations to Division 901:12 of the Administrative Code.

### **Chapter 901:12-3 of the Administrative Code – General Requirements**

OAC 901:12-3-01 sets forth the definitions that are used in Division 901:12.

OAC 901:12-3-02 states that all livestock must receive feed and water of sufficient quantity and quality to help ensure maintenance of normal body condition and/or growth.

OAC 901:12-3-03 outlines the general management practices for the handling of livestock.

OAC 901:12-3-04 states that the euthanasia of livestock must be performed pursuant to Chapter 901:12-1 of the Administrative Code.

OAC 901:12-3-05 outlines requirements as they relate to the health of all livestock. This includes obtaining medication from a licensed veterinarian for which the livestock owner has a veterinary-client-patient relationship.

OAC 901:12-3-06 outlines the requirements for the transportation of livestock.

OAC 901:12-3-07 states that nothing in Division 901:12 of the Administrative Code shall be construed to prevent a licensed veterinarian from meeting the standards found in Chapter 4741 of the Revised Code.

OAC 901:12-3-08 states that persons responsible for the violation of this chapter are subject to the civil penalties outlined in OAC 901:12-2-01.

#### **Chapter 901:12-4 of the Administrative Code - Ambulatory Disabled, Non-ambulatory, and Distressed Livestock.**

OAC 901:12-4-01 states that all ambulatory disabled, non-ambulatory, and distressed livestock must have access to water and if maintained for longer than 24 hours, feed.

OAC 901:12-4-02 outlines the management requirements for ambulatory disabled, non-ambulatory, and distressed livestock. Specifically, the responsible party must protect these animals from other livestock, predators, and weather conditions.

OAC 901:12-4-03 states that ambulatory disabled, non-ambulatory, and distressed livestock must have their health closely monitored.

OAC 901:12-4-04 prohibits non-ambulatory disabled livestock from being loaded to transport to a non-terminal market or a collection facility.

#### **Chapter 901:12-5 of the Administrative Code – Veal Calves**

OAC 901:12-5-01 outlines specific definitions used in Chapter 901:12-5 of the Administrative Code and includes definitions of “special fed veal,” “grain fed veal,” and “bob veal.”

OAC 901:12-5-02 states that all veal calves must receive feed and water. If unable to feed or drink on its own, the responsible party must provide assistance.

OAC 901:12-5-03 outlines the management of veal calves. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule outlines the housing structures utilized for veal calves.

#### **Chapter 901:12-6 of the Administrative Code – Dairy Cattle**

OAC 901:12-6-01 states that all dairy cattle must receive feed and water. In addition, all newborn calves must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-6-02 outlines the livestock management practices of dairy cattle. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule outlines the housing structures utilized for dairy cattle.

OAC 901:12-6-03 prohibits the transportation of calves with navels that have not dried after birth.

#### **Chapter 901:12-7 of the Administrative Code – Beef Cattle**

OAC 901:12-7-01 states that all beef cattle must receive feed and water. In addition, all newborn calves must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-7-02 outlines the livestock management practices of beef cattle. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule outlines the housing structures utilized for beef cattle.

#### **Chapter 901:12-8 of the Administrative Code – Swine**

OAC 901:12-8-01 outlines specific definitions used in Chapter 901:12-8 of the Administrative Code and includes definitions of “existing facility” “and “breeding/gestation stall.”

OAC 901:12-8-02 outlines the livestock management practices of swine animals. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule outlines the housing system standards utilized for swine animals.

OAC 901:12-8-03 states that if transportation of a sow with her suckling litter is necessary, the sow must be segregated from all other animals during transport and the litter must be protected appropriately.

#### **Chapter 901:12-9 of the Administrative Code – Poultry Layers**

OAC 901:12-9-01 outlines specific definitions used in Chapter 901:12-9 of the Administrative Code and includes definitions of “cage housing systems,” “cage-free housing systems,” and “existing farm.”

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OAC 901:12-9-02 states that all poultry layers must receive feed and water. The rule does allow for water to be withheld based on the instructions of a veterinarian or specific management practices according to the farm's operating procedures.

OAC 901:12-9-03 outlines the livestock management practices of poultry layers. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule requires that responsible parties must catch, lift, and move poultry humanely. Further, the rule requires the housing systems be designed for environmental conditions, maximum stocking density, and light intensity. Finally, the rule sets out the different requirements for conventional battery cage systems, enriched cage systems, and cage free housing systems.

OAC 901:12-9-04 states that while transporting poultry layers the animals must be allowed to rest without being forced to rest on top of each other.

#### **Chapter 901:12-10 of the Administrative Code – Poultry Broilers**

OAC 901:12-10-01 outlines specific definitions used in Chapter 901:12-10 of the Administrative Code and includes definitions of “conditioning.”

OAC 901:12-10-02 states that all poultry broilers must receive feed and water. The rule does allow for water to be withheld based on the instructions of a veterinarian or specific management practices according to the farm's operating procedures.

OAC 901:12-10-03 outlines the livestock management practices of poultry broilers. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule requires that responsible parties must catch, lift, and move poultry humanely. Further, the rule requires the housing systems be designed for environmental conditions, maximum stocking density, and light intensity. Finally, the rule sets out the different requirements for conventional battery cage systems, enriched cage systems, and cage free housing systems.

OAC 901:12-10-04 states that while transporting poultry broilers the animals must be allowed to rest without being forced to rest on top of each other.

#### **Chapter 901:12-11 of the Administrative Code - Turkeys**

OAC 901:12-11-01 outlines specific definitions used in Chapter 901:12-11 of the Administrative Code and includes definitions of “conditioning.”

OAC 901:12-11-02 states that all turkeys must receive feed and water. The rule does allow for water to be withheld based on the instructions of a veterinarian or specific management practices according to the farm's operating procedures.

OAC 901:12-11-03 outlines the livestock management practices of turkeys. The rule includes requirements that the animals be housed in a clean and safe environment. In addition, the rule requires that responsible parties must catch, lift, and move poultry humanely. Further, the rule requires the housing systems be designed for environmental conditions, maximum stocking density, and light intensity.

OAC 901:12-11-04 states that while transporting turkeys the animals must be allowed to rest without being forced to rest on top of each other.

#### **Chapter 901:12-12 of the Administrative Code - Sheep**

OAC 901:12-12-01 states that all sheep must receive feed and water. In addition, all newborn lambs must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-12-02 outlines the livestock management practices for sheep. The rule includes requirements that the animals be housed in a clean and safe environment.

#### **Chapter 901:12-13 of the Administrative Code - Goats**

OAC 901:12-13-01 states that all goats must receive feed and water. In addition, all newborn kits must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-13-02 outlines the livestock management practices for goats. The rule includes requirements that the animals be housed in a clean and safe environment.

#### **Chapter 901:12-14 of the Administrative Code – Alpacas and Llamas**

OAC 901:12-14-01 outlines specific definitions used in Chapter 901:12-14 of the Administrative Code and includes definitions of “conditioning.”

OAC 901:12-14-02 states that all newborn crias must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-14-03 outlines the livestock management practices for alpacas and llamas. The rule includes requirements that the animals be housed in a clean and safe environment.

OAC 901:12-14-04 requires that the animals must be able to stand so that their backs do not touch the top of the vehicle and that the density of the animals transported must allow them to lay down.

#### **Chapter 901:12-15 of the Administrative Code**

OAC 901:12-15-01 specifically defines equines as including horses, ponies, mules, and donkeys.

OAC 901:12-15-02 states that all newborn foals must be fed colostrum, or a colostrum replacement, within the first twenty-four hours of life.

OAC 901:12-15-03 outlines the livestock management practices for equine animals. The rule includes requirements that the animals be housed in a clean and safe environment.

OAC 901:12-15-04 requires that all suckling foals be transported separately from other animals and must be transported with their dams. Additional transportation requirements and restrictions are listed in the rule.

**2. Please list the Ohio statute authorizing the Agency to adopt this regulation.**

R.C. 904.03

**3. Does the regulation implement a federal requirement? Is the proposed regulation being adopted or amended to enable the state to obtain or maintain approval to administer and enforce a federal law or to participate in a federal program?**

*If yes, please briefly explain the source and substance of the federal requirement.*

No.

**4. If the regulation includes provisions not specifically required by the federal government, please explain the rationale for exceeding the federal requirement.**

Not applicable.

**5. What is the public purpose for this regulation (i.e., why does the Agency feel that there needs to be any regulation in this area at all)?**

In November 2009, Ohio voters passed State Issue 2 approving the creation of the Ohio Livestock Care Standards Board. This vote demonstrated Ohioans' support for keeping the state's number one industry – food and agriculture – vibrant and strong. The board was charged with creating state standards for the care and well-being of livestock in Ohio.

The enabling language required the board to take the following into consideration when developing the standards: Best management practices for the care and well-being of livestock; Biosecurity; Disease prevention; Animal Morbidity and mortality data; Food safety practices, Protection of local, affordable food supplies for consumers; Generally accepted veterinary medical practices, livestock practice standards and ethical standards established by the American Veterinary Medical Association, and; any other factors that the board considers necessary for the proper care and well-being of livestock in this state.

The comprehensive livestock care standards developed by the OLCBS are meant to be practical for livestock producers of all sizes, scales and production methods and will not only

assure better livestock care, but also supports the state's overarching goals of promoting safe and affordable food, and helping to prevent the outbreak of both animal and human diseases.

**6. How will the Agency measure the success of this regulation in terms of outputs and/or outcomes?**

The Department considers the rules successful when there is no increase in violations of the rules annually.

**Development of the Regulation**

**7. Please list the stakeholders included by the Agency in the development or initial review of the draft regulation.**

*If applicable, please include the date and medium by which the stakeholders were initially contacted.*

The Ohio Livestock Care Standards Board ("OLCSB") was statutorily created to adopt rules governing the care and well-being of livestock in this state. The board is composed of thirteen members from farming, veterinary, academic, food safety, animal care and consumer interest backgrounds. Since the rules became effective in 2011, the OLCSB has reviewed three to four chapters of division 901:12 at every meeting. The OLCSB statutorily meets at least three times annually. In addition, the OLCSB has created sub-committees to more closely review portions of the rules and advancements in livestock care and management.

On December 7, 2016, the OLCSB approved that the rules in division 901:12 of the Administrative Code be submitted as no-change rules for the purposes of the five year rule review process. The current composition of the OLCSB is as follows:

Director David Daniels	Chairperson
Dr. Tony Forshey	State Veterinarian
Bryan Black	Consumers
Lisa Hamler-Fugitt	Consumers
William Knapke	Senate Appointee
Dr. Jerry Lahmers	State Farm Organization
Dr. Dr. David LeBourveau	County Humane Society
Dr. Jeff LeJeune	Food Safety Expert
Cy Prettyman	State Farm Organization
Terrence Stammen	Family Farms

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[CSIOhio@governor.ohio.gov](mailto:CSIOhio@governor.ohio.gov)

John Surber

House Appointee

Ryan Zimmerman

Veterinarian

**8. What input was provided by the stakeholders, and how did that input affect the draft regulation being proposed by the Agency?**

On December 17, 2015, the American Society for the Prevention of Cruelty to Animals (“ASPCA”) submitted comments to Dr. Tony Forshey, DVM, State Veterinarian regarding proposed changes to the rules. ASPCA’s proposed changes sought to define terms already used in the rules to more specifically outline the activities that are allowed or not allowed by the rules. Several of these options would move the rules away from a performance-based regulation and closer to a regulation which defines the way the regulated community must conduct its business. In addition, the comments requested changes which would move away from generally accepted agricultural standards.

ASPCA’s comments were submitted to the OLCSB on August 16, 2016. At that time, the members of the OLCSB were asked to read and review the proposed changes with the intention to discuss the comments at the next meeting which was scheduled to be held on December 16, 2016.

On December 16, 2016, the members of the OLCSB were asked if they wished to discuss the comments proposed by ASPCA. The members voted to not incorporate any of the changes requested. Further, the members voted to approve the rules as requiring no changes for the purposes of five year rule review. For those reasons, there have been no changes submitted to these rules.

**9. What scientific data was used to develop the rule or the measurable outcomes of the rule? How does this data support the regulation being proposed?**

In 2011, the Department, members of the industry, and the public worked to develop these rules from a variety of sources and the end-product reflects the industry's current best-practices for livestock care. The department began by looking at existing regulations in other states, and countries. The draft rules were then reviewed and modified by academic veterinary experts, species specific committee comprised of dairy cattle farmers and veterinarians, and the OLCSB itself. Throughout the committee process, feedback was received during the public comment periods at meetings, and at public hearings, and incorporated into the rules. The resulting rules are focused solely on livestock care and are in line with established industry best practices.

**10. What alternative regulations (or specific provisions within the regulation) did the Agency consider, and why did it determine that these alternatives were not appropriate? If none, why didn’t the Agency consider regulatory alternatives?**

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The Department and the OLCSB considered the comments made by the ASPCA however, it was determined that the rules as they currently exist are well established in the agriculture community and achieve the statutory goal of protecting and promoting the welfare of all livestock in the state of Ohio. For those reasons, no regulatory alternatives were incorporated.

**11. Did the Agency specifically consider a performance-based regulation? Please explain.**

*Performance-based regulations define the required outcome, but don't dictate the process the regulated stakeholders must use to achieve compliance.*

The majority of these rules are performance based as they define the required outcome but do not dictate the process. For example, there are several rules which state "Housing must provide a clean and safe environment that promotes the health, welfare, and performance of [animal] at all stages of their lives." This rule is performance based as it defines the outcome (clean and safe environment) without dictating the process for obtaining the outcome.

**12. What measures did the Agency take to ensure that this regulation does not duplicate an existing Ohio regulation?**

The Department is given sole regulatory authority to regulate and adopt these standards under Chapter 904 of the Revised Code.

**13. Please describe the Agency's plan for implementation of the regulation, including any measures to ensure that the regulation is applied consistently and predictably for the regulated community.**

These rules are already implemented within the industry and the Department works with all stakeholders in order to educate and inform them of the regulations.

**Adverse Impact to Business**

**14. Provide a summary of the estimated cost of compliance with the rule. Specifically, please do the following:**

**a. Identify the scope of the impacted business community;**

All owners and individuals responsible for the care of livestock in the state of Ohio.

**b. Identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance); and**

There are no license, registration, or permit fees associated with these rules. The rules outline general standards which require responsible parties to provide access to feed and water, provide for a clean and safe environment that promotes the health, welfare, and performance of animals, and to perform management practices in a humane manner. This generally requires the use of antibiotics, pain medication, and other

accepted management practices in consideration of the animal's age, weight, environmental conditions, and safety. Further, the rules outline species specific standards which take into account each species' biologic needs to meet those requirements.

**c. Quantify the expected adverse impact from the regulation.**

*The adverse impact can be quantified in terms of dollars, hours to comply, or other factors; and may be estimated for the entire regulated population or for a "representative business." Please include the source for your information/estimated impact.*

The cost of compliance to the industry is expected to be minimal at most, and few farmers are expected to see increased costs due to these rules. In 2011, the Department, members of the industry, and the public worked to develop these rules from a variety of sources and the end-product reflects the industry's current best-practices for livestock care. It was discovered that the majority of farmers in Ohio already met these best practices, and as a result, most farmers did not need to change their current practices. Where changes were needed to comply with the rules, the changes were in management practices and did not require changes to existing infrastructure. This rule did not and continues to not have a cost of compliance for the majority of Ohio's livestock farmers.

**15. Why did the Agency determine that the regulatory intent justifies the adverse impact to the regulated business community?**

As stated above, in November 2009, Ohio voters passed State Issue 2 approving the creation of the Ohio Livestock Care Standards Board. This vote demonstrated Ohioans' support for keeping the state's number one industry – food and agriculture – vibrant and strong. The board was charged with creating state standards for the care and well-being of livestock in Ohio. For these reasons, the Department believes the regulatory intent justifies the minimal adverse business impact.

**Regulatory Flexibility**

**16. Does the regulation provide any exemptions or alternative means of compliance for small businesses? Please explain.**

As the primary purpose of these rules is the promotion of the health, welfare, and safety of livestock in the state of Ohio, there are no exemptions or alternative means of compliance for small businesses.



**17. How will the agency apply Ohio Revised Code section 119.14 (waiver of fines and penalties for paperwork violations and first-time offenders) into implementation of the regulation?**

There are no paperwork violations associated with these rules.

**18. What resources are available to assist small businesses with compliance of the regulation?**

These rules are already implemented within the industry and the Department works with all stakeholders in order to educate and inform them on the regulations.



## Appendix 3

[illegible]

Screenshots from  
Ohio Pork Council's  
Live Virtual Field Trip to an Ohio Pig Farm for  
Middle/High School Students

<https://www.youtube.com/watch?v=LGfyGvroc6A>

Streamed to Ohio Classrooms on May 13, 2021

**Fairfield Pork/Kalmbach Swine Management  
Deshler, Ohio**

**Note: In Appendix 2, other than the first still shot which is from Google Maps, all other still shots are captured from the above referenced video.**

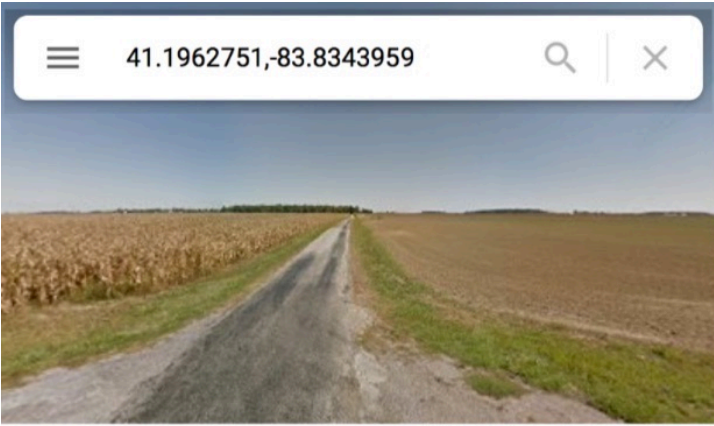
**The still shots alone cannot represent the depth of concern for the welfare of the sows in this Fairfield Pork/Kalmbach Swine operation.**

**The reader is advised to closely examine the entire video for:**

- The behaviors, confinement, and positioning of these pregnant sows inside gestation stalls;
- The floor conditions both inside and outside the stalls (noting that it is not a “normal pig behavior” to leave their waste where they sleep, eat and move about—a fact supported by animal behaviorists);
- The behaviors of those sows within the pens, including evidence of abnormal swine behaviors; and
- The complete lack of enrichment activities for those animals—such enrichment activities which are conclusively recommended by animal behaviorists.

**Whatever argument Kalmbach or any CAFO/CAFF operator may make in a self-serving attempt to justify this, it is irrefutable:**

**Gestation stalls were banned by Ohio law for new CAFF and CAFO construction in 2011. This facility was built in 2016, clearly flouting that law. And a second Kalmbach factory farm that is “identical” was admitted by their Swine Manager in this video.**



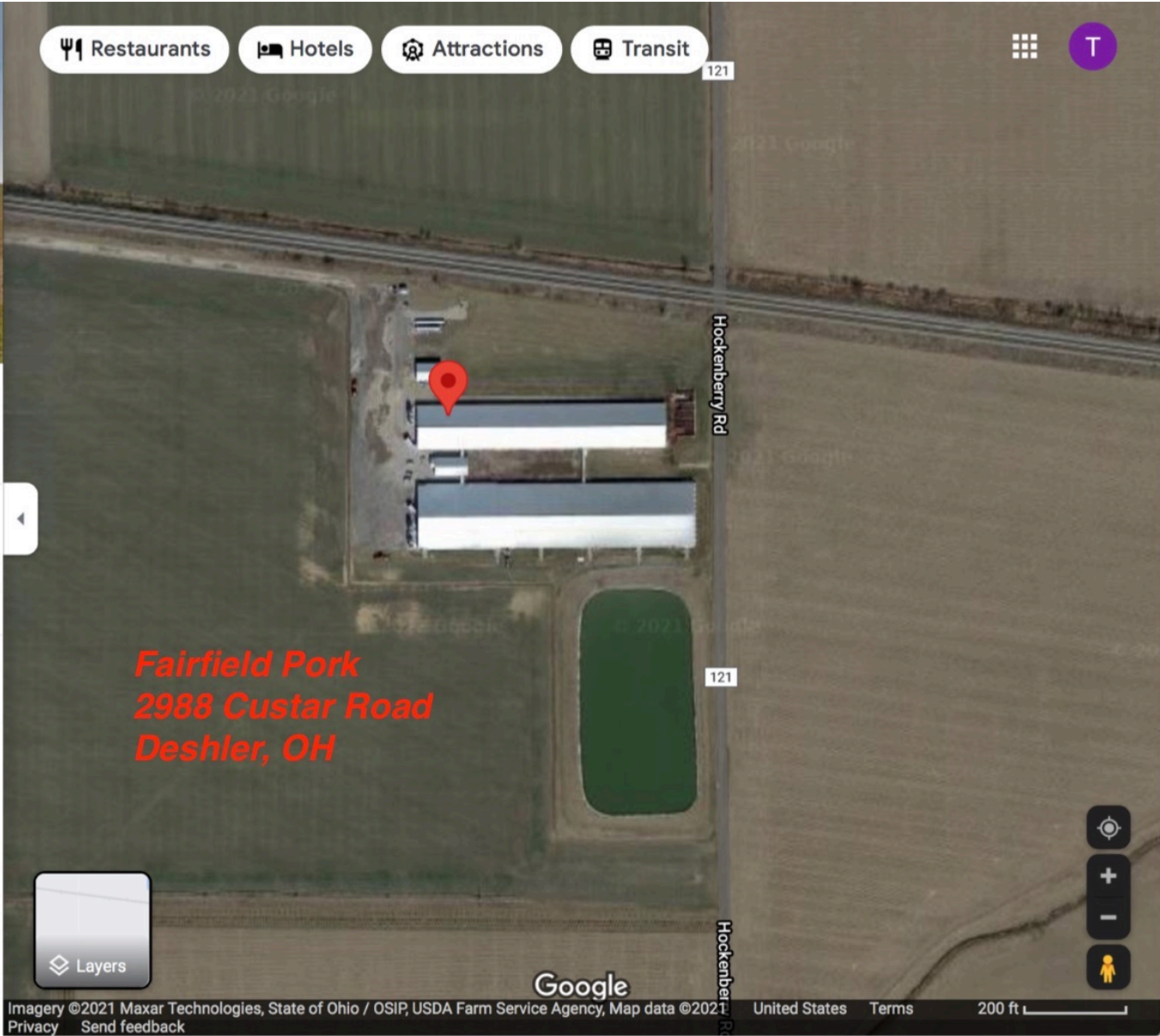
41°11'46.6"N 83°50'03.8"W

41.196275, -83.834396

- Directions
- Save
- Nearby
- Send to your phone
- Share

- Jackson Township, OH
- 55W8+G6 Hoytville, Ohio
- Add a missing place
- Add your business
- Add a label

Photos





## ≡ LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



*Pregnant sow slipping on urine on slatted floor.*

Bill ~~Thy that~~ Swine Production Supervisor

6:53 / 52:45

CC ⚙️ 🖥️ 🔍

## ☰ LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



*Long view of 3 pens each containing 20+ gestation stalls for 500 to 600 lb. pregnant sows.*

Bill ~~Try that~~ Swine Production Supervisor

⏮ ⏪ ⏩ ⏭ 🔊 8:08 / 52:45







***Sow nosing or drinking urine (urophagia); this sow did this for at least 1/2 minute in the video (beginning at 6:09). It is abnormal swine behavior. Other sows seen behaving in a similiar manner in video at this same pool. When given space, swine (including those in groups) will determine a specifed area, removed from sleeping and feeding areas, for defecating and urinating.***

## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



**OH PORK**  
OHIO PORK COUNCIL

virtual  
**farm  
trips**



***Sow cannot move inside farrowing stall - metal bars on her back and sides while lying on hard surface floor.***

zoom

Play (k)

▶ ▶| 🔊 —● 10:27 / 52:45





## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



***Pregnant sows confined in  
sternum-to-floor position.***

Play (k)

Bill Try that - Swine Production Supervisor



13:16 / 52:45



zoom



LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students

***Close up of sows in sternum-to-floor position with back ends against gate.***



Play (k)

Bill Hrychuk - Swine Production Supervisor

19:50 / 52:45

zoom

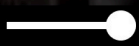
## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



*Filthy stall which pregnant sow must lie in. When given space, swine defecate and urinate away from space where they lie down.*

Play (k)

Bill Try that - Swine Production Supervisor



14:42 / 52:45



zoom



## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



*Close-up of filth  
covering floors of  
gestation stalls.*

zoom

Play (k)

Bill Hyatt - Swine Production Super View

▶ ⏸ 🔊 🔊 22:51 / 52:45

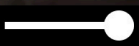
⏸ CC ⚙️ 🖥️ 🔍

## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students



*Filth which confined pregnant sows must live in and walk through over a 20-foot deep manure pit.*

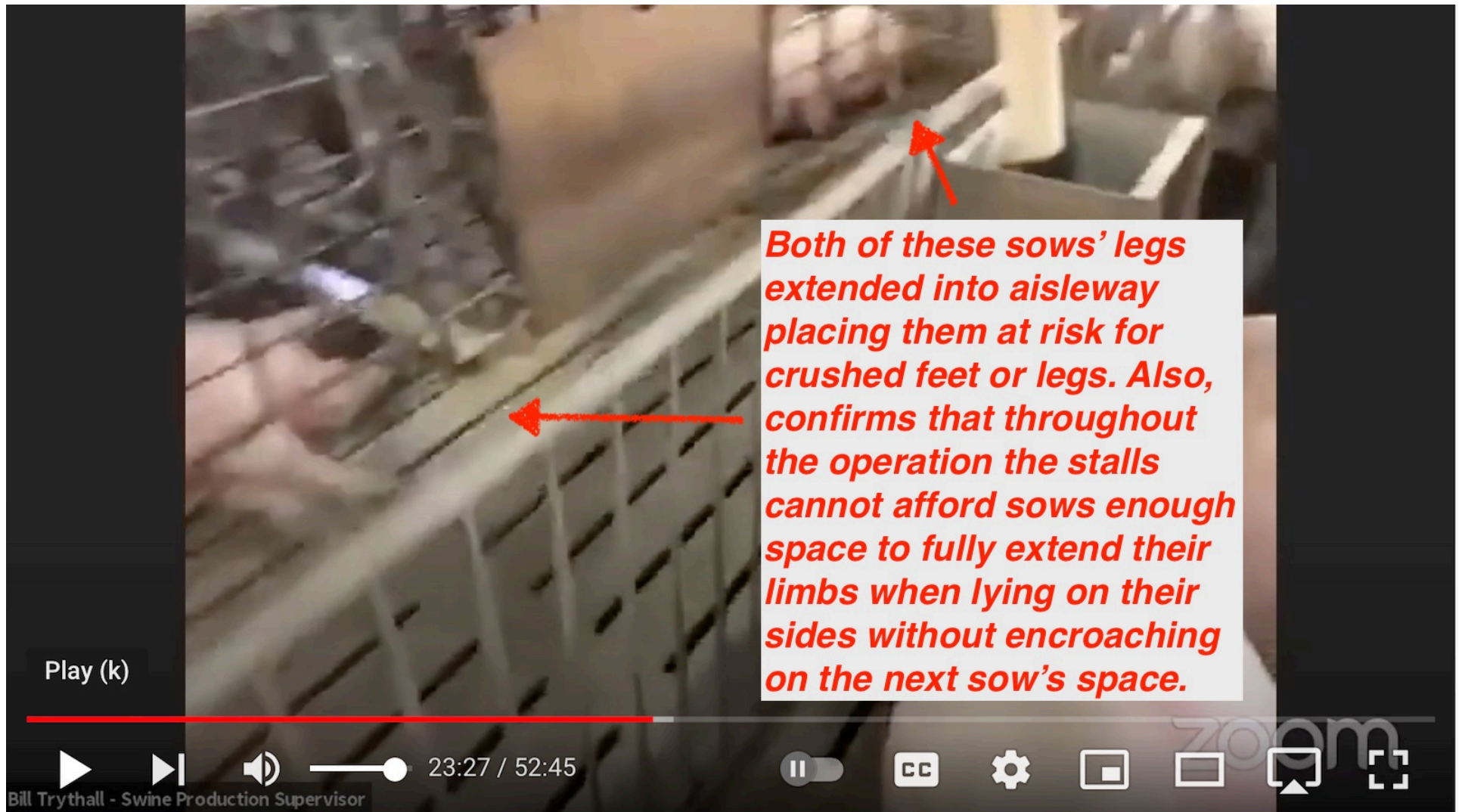
Play (k)



15:15 / 52:45







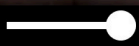
*Both of these sows' legs extended into aisleway placing them at risk for crushed feet or legs. Also, confirms that throughout the operation the stalls cannot afford sows enough space to fully extend their limbs when lying on their sides without encroaching on the next sow's space.*

## LIVE Virtual Field Trip to an Ohio Pig Farm for Middle/High School Students

*Aisle where confined sows in end stalls are at risk for crushed feet and legs as they extend limbs under side of stall.*



Play (k)



23:47 / 52:45







## Free Access Stall

Vissing Agro's free access stall (FAS) is the most robust and appraised product of its kind and the original design has been maintained. The FAS is designed so that the sow can easily move in and out of it. When the sow is inside the FAS, other sows cannot enter the same stall. The FASs can be locked sequentially as well as individually both from the front and rear end of the stall.

It is recommended that the FAS be locked one hour before feeding to achieve low activity around feeding time. The FAS should be opened again after inspection and feeding. The specially designed powerful and animal shaped gate in the rear end of the stall provides easy access for the sow while preventing other sows from jumping into the FAS.

The front gate has been designed so that the staff can manage and handle the sow safely and easily. The sides of the FAS and the low rear gate makes it suitable for AI.

**We call ourselves  
pig experts and  
we stand by that**

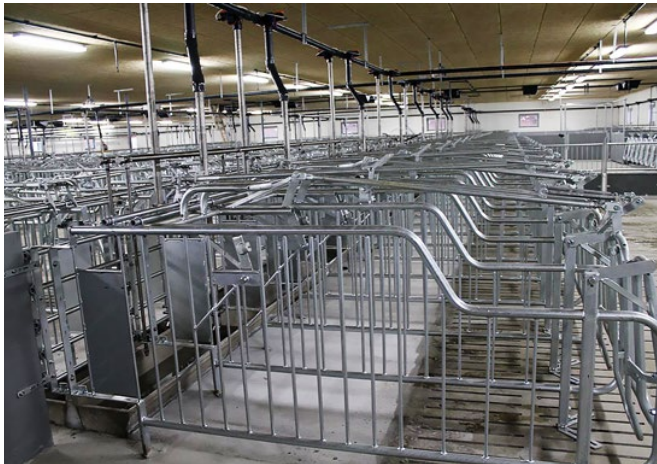




Gestation unit with L-pens and free access stalls



Easy access to sow



Low sides facilitating insemination



Rear gate with easy access for staff

## Facts

- Height: 100 cm
- Width: 60, 65, 70 and 75 cm
- Length: 240-250 cm
- Hot-dip galvanized surface and solid legs
- Fastening in floor with stainless steel bolts
- Water supply via stainless pipe per two sows
- Stainless or polymer concrete trough
- Individual or row-wise locking of FAS
- Manual or automatic opening of rows
- Designed for AI
- Front gate option

## Vissing Agro A/S

Energivej 5, DK-8740 Brædstrup  
[www.vissingagro.dk](http://www.vissingagro.dk)



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# STATIC AND DYNAMIC SPACE USAGE OF LATE-GESTATION SOWS

S. M. Leonard, H. Xin, B. C. Ramirez, J. P. Stinn,  
S. Dutta, K. Liu, T. M. Brown-Brandl



## HIGHLIGHTS

- A calibration procedure was conducted using a Kinect V2 to convert image pixels to physical measurements.
- A total of 61 sows were observed, and their static and dynamic space usage was measured from depth images.
- Equations were developed to predict the length, width, and height of sow space usage.

**ABSTRACT.** *The amount of space provided to individually housed sows has both financial and animal welfare implications. Many U.S. swine producers use stall dimensions based on recommendations published in the 1980s (length  $\times$  width  $\times$  height: 2.13 m  $\times$  0.61 m  $\times$  1.00 m). Limited empirical data are available concerning the space allocation needed to accommodate modern sows housed in stalls during breeding, gestation, or farrowing. This study used a time-of-flight depth sensor to quantify static and dynamic space usage of 61 modern sows in late gestation. A calibration equation was developed to convert image pixels to physical dimensions. Statistical models were developed to relate the length, width, and height of sow space usage to body weight. The dimensions of sow space usage were then predicted. Results showed that free choice space usage of average (228 kg) sows was 1.96 m  $\times$  1.15 m  $\times$  0.93 m (length  $\times$  width  $\times$  height). For 95th percentile (267 kg) sows, space usage was 2.04 m  $\times$  1.12 m  $\times$  0.95 m. The width of space usage was primarily attributed to sow body depth when lying recumbent and the dynamic space used for transitioning between postures. These results help to inform future gestating and farrowing sow housing designs. Further work is needed to understand how restrictions on sow space usage may impact sow welfare and production performance, as well as the space needed to perform behaviors such as defecating, feeding, and turning around.*

**Keywords.** *Animal welfare, Computer vision, Farrowing stall, Gestation stall, Kinect V2, Space allowance.*

Space allocation in breeding, gestating, and farrowing sow housing is an important economic and animal welfare issue for commercial swine producers. Excess space per animal increases barn construction, equipment, and maintenance costs; conversely, inadequate space per animal can lead to reduced sow welfare, development of sores, and reduced productivity (Curtis et al., 1988; Barnett et al., 2011). Many commercial U.S. swine producers

using individual sow stalls implement a standard 2.13 m  $\times$  0.61 m  $\times$  1.00 m (length  $\times$  width  $\times$  height) design (MWPS, 1983). However, the empirical space usage of commercial sows has not been recently evaluated. In modern commercial swine production, there is a trend of an increasing number of piglets born per sow (Stalder, 2017). This trend may suggest that sow body capacity has increased due to advances in genetics and nutrition to accommodate the additional piglets during gestation. In 2011, Danish Landrace  $\times$  Large White sows were determined to have increased on average 0.07 m in body length and 24 kg in weight compared to measurements from a similar sow breed taken in 1994 (Moustsen et al., 2011). Further, Condotta et al. (2018) compared measurements of modern feeder pigs of various commercial sire-lines between 4 and 20 weeks of age to pig dimensions reported in 1968 and found that modern pigs had increased width as well as decreased height and length when standing. These differences in feeder pig dimensions indicate that it is likely that sow dimensions have changed over time as well, highlighting the need to re-evaluate swine space allocations to satisfy modern sow genetics and maintain efficient housing designs.

Traditionally, two types of quantitative methods have been used to assess the physical size of pigs to evaluate housing designs. Contact methods, such as direct measurement (i.e., with measuring tape, ruler, or calipers), depend on

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cooperative animals to achieve low error (Baxter and Schwaller, 1983; Curtis et al., 1989; McGlone et al., 2004; Moustsen et al., 2011). These methods limit the number of pigs that can be observed because they are labor-intensive and can induce momentary distress in the sows (IACUC, 2018). Moreover, contact methods can only evaluate the static space that the sows occupy in one postural position, and they are unable to directly capture the dynamic space usage when sows transition between postures. Accurate dynamic space information is critical for facility design because sows perform these postural transitions when housed in stalls (Baxter et al., 2011). Measurements of static space usage can be extrapolated to dynamic space usage with empirical relationships; however, these relationships were developed based on sow body types from over 30 years ago (Baxter and Schwaller, 1983; Petherick, 1983). There are no modern empirical evaluations of the dimensions of dynamic space usage by sows.

Non-contact methods, such as 2D digital image processing, have been developed to evaluate both static and dynamic space usage of sows. This approach provides the ability to cumulatively evaluate the space occupied by a sow as she performs dynamic postural transitions (Baxter and Schwaller, 1983; Mumm et al., 2019). However, digital imaging methods can result in errors when converting from pixel measurements to physical dimensions. The conversion factor between pixels and physical units differs based on the distance between the sow and the camera. This distance fluctuates as the sow transitions between postures and is difficult to assess in digital images. One solution to this challenge associated with 2D images is capturing 3D depth images. The distance between the animal and the depth sensor can be calculated for each image individually, enabling dynamic conversion factors based on the precise distance from sow to sensor. Depth imaging systems have been applied to feeder pigs to remotely measure static space usage and estimate individual pig body weights (Condotta et al., 2018; Pezzuolo et al., 2018). These systems can reliably capture animal dimensions, as demonstrated by Shi et al. (2020), who reported less than 5% relative error in measurements of length, width, height, and depth of body of finishing pigs when measured with a depth imaging system and compared to manual measurements. However, no recent literature has implemented depth imaging systems to evaluate the dynamic space usage of sows.

Therefore, the objectives of this study were to: (1) develop the relationship between pixels and physical measurements using a Kinect V2 time-of-flight depth sensor (Microsoft Corp., Redmond, Wash.), (2) quantify the static and dynamic space usage of modern commercial sows in late gestation when housed in an open pen, and (3) develop a statistical model relating sow body weight to static and dynamic space usage. This information is expected to enable an improved understanding of modern sow space usage and inform guidelines for individual sow stall dimensions.

## MATERIALS AND METHODS

### SENSOR CALIBRATION

The Kinect V2 is a time-of-flight depth sensor and was selected due to its depth image ( $512 \times 424$  pixels) and digital

image ( $1920 \times 1080$  pixels) capture capabilities. The sensor has a manufacturer-recommended range of 0.5 to 4.5 m (Microsoft, 2014).

A calibration procedure and regression analysis determined the relationship to convert pixel measurements to physical dimensions, as well as compensation for potential distortion induced by the Kinect V2. One Kinect V2 was suspended from the ceiling in a laboratory setting to capture depth images. Rigid foam insulation (0.019 m thick) was used to create calibration rectangles of various dimensions to simulate sow size. Calibration rectangles were individually placed in multiple configurations within the viewable area of the Kinect V2 to develop the calibration regression equation. The parameters chosen for evaluation were representative of the extrema of anticipated values based on preliminary data.

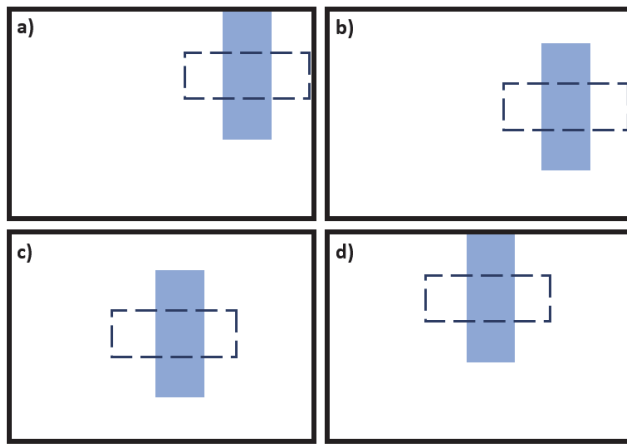
Three calibration rectangle widths ( $W_R$ ; 0.50, 0.60, and 0.70 m) were selected based on the most common U.S. gestation sow stall width (0.60 m) and were varied to encompass a  $\pm 0.10$  m range (MWPS, 1983). Preliminary manual measurements of sow body lengths ranged from 1.50 to 1.90 m; thus, three calibration rectangle lengths ( $L_R$ ; 1.50, 1.70, and 1.90 m) were chosen to represent the anticipated range. Combinations of the three  $W_R$  values and three  $L_R$  values resulted in nine sizes of calibration rectangles.

Data collection in a commercial facility would require mounting the Kinect V2 at 2.18 m above the floor (as constrained by ceiling height). Therefore, 2.18 m was used as the maximum distance between the Kinect V2 and the calibration rectangles during sensor calibration. The minimum calibration distance was 1.27 m, as determined by preliminary measurements of standing sow heights. Additionally, a middle distance of 1.73 m was used between the Kinect V2 and the calibration rectangles.

Four locations within the viewable area of the depth image (corner, side, center, and top) were tested to verify potential data distortion on the long axis ( $x$ -direction) and short axis ( $y$ -direction) of the images (fig. 1). For each position, the calibration rectangles were placed such that their centroid would be in the same location regardless of size or orientation. The long axes of the calibration rectangles were placed in two orientations: parallel to the  $x$ -direction of the image, and parallel to the  $y$ -direction of the image. In each configuration, the calibration rectangles were supported underneath at both ends and in the middle to ensure that the entire calibration rectangle was at a uniform height. Twelve depth images were taken of each possible configuration, six of which were randomly selected for analysis.

Combinations of all the factors yielded 216 possible configurations. In some cases, the entire calibration rectangle was not within the viewable area of the depth image of the Kinect V2; thus, some configurations were excluded from analysis. The 150 usable combinations are shaded in table 1.

An algorithm developed in MATLAB (R2017a, MathWorks, Natick, Mass.) was used to process the depth images. The algorithm isolated the calibration rectangle in the image and calculated the maximum  $x$  and  $y$  measurements in pixels. Pixel measurements were divided by the actual calibration rectangle dimensions (mm, measured with a tape measure),



**Figure 1.** Placement of calibration rectangle within the viewable image area of the Kinect V2 (thick black line). Calibration rectangles were placed in four positions: (a) corner, (b) side, (c) center, and (d) top. Images were taken with the long axis of the calibration rectangle parallel to the *x*-direction (dashed rectangles) and *y*-direction (solid rectangles) of the image. Three rectangle widths (0.5, 0.6, and 0.7 m) and three lengths (1.5, 1.7, and 1.9 m) were tested. All position and orientation combinations were evaluated with the calibration rectangles at distances of 2.18, 1.73, and 1.27 m from the Kinect V2.

and this information was used to develop a regression to relate pixels to physical distances.

## ANIMALS

A total of 61 Landrace × Yorkshire (PIC genetics) gilts and sows, hereafter referred to as sows, in weeks 11 to 15 of gestation were observed in this study. Late-gestation sows were selected because the greatest body dimensions were expected during this period. Each sow was weighed within seven days before or after image data collection. Two 22.7 kg certified calibration weights were used to confirm the accuracy of the scale at each weighing event. Sow body weight (BW) ranged from 169.2 to 281.2 kg with an average of 228.6 kg. Sow parity (P) ranged from 0 (gilts) to P8 (P0 = 10 sows, P1 = 7 sows, P2 = 7 sows, P3 = 9 sows, P4 = 9 sows, P5 = 7 sows, P6 = 5 sows, P7 = 4 sows, and P8 = 3 sows). Sows selected in this study were normally housed in gestation pens in groups of 12 to 15 sows or in individual gestation stalls. Each sow was visually evaluated at the time of

observation and determined to be free of obvious lesions or altered gait.

## EXPERIMENTAL SETUP AND INSTRUMENTATION

Data collection took place in a mechanically ventilated sow facility equipped with evaporative cooling pads. Two identical observation pens with fully slatted concrete floors housed individual sows during the image data collection periods. Each pen had a floor area of 1.8 m × 2.5 m, which provided the sow sufficient space to turn around, lay down, and stand up without touching the pen sides, if desired. Sows were fed just prior to moving to the observation pens. One nipple drinker in each observation pen provided *ad libitum* water. Sows were placed in one of the observation pens for 24 h and were then moved to individual stalls. Data were collected from January 2017 to December 2018, with the distribution of data collection by month shown in table 2. Air temperature and relative humidity were recorded at 15 min intervals with a portable datalogger (MX2300, Onset Computer, Bourne, Mass.) suspended above the observation pens. Environmental condition information was not available for the 2017 collection dates due to equipment failures. The average room air temperature was 19°C (SD = 2°C), and the average relative humidity was 68% (SD = 11%).

One Kinect V2 sensor was suspended from the ceiling 2.18 m above the center of each observation pen. One mini-PC (ZBOX-CI325NANO, Zotac, Duarte, Cal.) was connected to each of the Kinect V2 sensors. Both depth and digital images were collected at 0.5 fps. Depth images had a

**Table 2.** Distribution of data collection by month. Days of data collection differ from the number of sows observed because two data collection pens were used and data from two sows were obtained on four days of collection.

Year	Month	Number of Sows Observed	Days of Data Collection
2017	January	5	5
	May	6	6
2018	May	2	2
	June	3	2
	July	13	10
	August	3	3
	October	15	15
	November	11	11
	December	3	3

**Table 1.** Matrix of all possible calibration configurations with usable combinations shaded. Combinations of three calibration rectangle widths ( $W_R$ ; 0.5, 0.6, and 0.7 m) and three lengths ( $L_R$ ; 1.5, 1.7, and 1.9 m) were tested. Calibration images were captured with the long axis of the calibration rectangle parallel to the *x* and *y* directions of the image. Position within the viewable image area is indicated by P (C = corner, S = side, E = center, T = top), and distance from the Kinect V2 to the calibration rectangle is indicated by D (2.18, 1.73, 1.27 m).

		Long Axis of Calibration Rectangle Parallel to <i>x</i> -Direction of Image									Long Axis of Calibration Rectangle Parallel to <i>y</i> -Direction of Image								
		$L_{R1.5}$			$L_{R1.7}$			$L_{R1.9}$			$L_{R1.5}$			$L_{R1.7}$			$L_{R1.9}$		
		$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$	$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$	$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$	$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$	$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$	$W_{R0.5}$	$W_{R0.6}$	$W_{R0.7}$
$D_{1.27}$	P <sub>C</sub>	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P <sub>S</sub>	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P <sub>E</sub>	x	x	x	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-
	P <sub>T</sub>	x	x	x	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-
$D_{1.73}$	P <sub>C</sub>	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-	-	-	-
	P <sub>S</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-
	P <sub>E</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	P <sub>T</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	-
$D_{2.18}$	P <sub>C</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	P <sub>S</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	P <sub>E</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	P <sub>T</sub>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

viewable floor area of 3.6 m × 2.9 m and were used for data analysis, while digital images were collected solely for animal identification. Images were stored on external hard drives for subsequent processing. One cellular mobile hotspot was connected to both mini-PCs to enable remote monitoring of data collection.

### IMAGE SELECTION CRITERIA

Measurements of space usage were performed on sows in three static postures: static lying (SL), static full lying (SFL), and static standing (SS), as well as two dynamic transitions: dynamic lying down sequence (DLD) and dynamic standing up sequence (DSU) (fig. 2). The SFL and SS postures were chosen for investigation as the two most commonly observed sow postures (Lao et al., 2016; Rosvold et al., 2018). When housed in gestation stalls, the legs of a fully recumbent sow extend into an adjacent stall (MWPS, 1983). Therefore, the SL posture was evaluated as a modification of the SFL images in which the extended legs (i.e., region extending past the elbow and hamhock) were excluded from the analysis. In this manner, the width for the SL posture would provide a measurement of the sow's body depth. Three images of each sow in the desired static posture (lying or standing) were manually selected, with the same images used for SL and SFL. The images used for SL and SFL were chosen when the sow was recumbent, with at least three legs completely visible and the head in profile view. Preference was given to lying images with all legs visible and fully extended. For occurrences of SS, three images were manually chosen when the sow was stationary and standing upright with the legs fully extended, nose pointed forward, and the body oriented reasonably straight from nose to tail. When possible, images taken at various hours throughout the observation period were selected.

Sows occupy various positions and dimensions as they transition between standing and lying; therefore, image

sequences of the transitions from standing to lying (DLD) and from lying to standing (DSU) were analyzed. Three separate sequences were manually chosen for both DLD and DSU. Delineations of the beginning and end of these sequences were modeled after descriptions provided by Baxter and Schwaller (1983). The DLD sequences began with one image of the sow standing upright, continued as she went to her knees in the kneeling position, and was completed with one image of the sow lying down. Conversely, the DSU sequences began with one image of the sow lying, continued as she transitioned to sitting, and ended with one image of the sow standing upright. Dynamic sequences with durations of less than 6 s were discarded to ensure that at least one frame of the transitional posture was captured. Sequences longer than 60 s were also discarded because these longer sequences often encompassed additional behaviors outside the definitions of the transitions described above (e.g., extensive rooting, nosing other sows through the gating). Of the sequences that satisfied the selection criteria, the final dynamic transition choices were made to vary the hour of occurrence of the sequences throughout the data collection period for each sow.

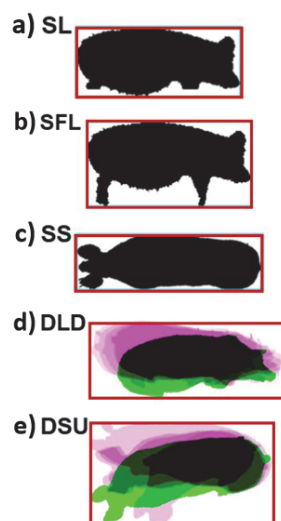
### IMAGE PROCESSING

A MATLAB program was used to isolate the sows in the depth images selected for analysis. First, distance measurements from the Kinect V2 were subtracted from 2.18 m (distance from Kinect V2 to pen floor) to establish the height above the floor. Pixels with a height of less than 0.02 m were eliminated to remove the pen floor and other noise. Gradually increasing height filters were applied to the edges of each image to remove the pen gating and drinker. The largest blob remaining in the image was then selected as the sow, effectively eliminating manure or other objects from the image. The average height of all pixels in the sow blob was calculated in each depth image. The outline of the sow blob was converted to a polygon and then scaled from pixels to physical measurements using the calculated conversion factor based on the average height of all pixels in the sow blob. The scaled polygons were then binarized.

For the static postures, length (L) and width (W) dimensions were measured from the binary sow blob using a bounding box. Static full lying (SFL) evaluated the total space occupied by the sow, with  $W_{SFL}$  measured from the back of the sow to the end of the fully extended legs (fig. 2b). The SL posture evaluated the space occupied by the lying sow based on the assumption that the legs of a fully recumbent sow extend into the adjacent stall; therefore, the SL bounding box excluded the extended legs, and  $W_{SL}$  was measured from the back of the sow to the udder line (fig. 2a). Measurements of  $L_{SS}$  and  $W_{SS}$  were taken on the bounding box for the SS position (fig. 2c).

For the dynamic transitions, each image of the sequence was scaled and binarized with the same process used for the static images. Polygons were scaled around the centroid of the sow in each image. All images in a dynamic sequence were superimposed to determine the maximum space usage for the sequence (figs. 2d and 2e).

In both the static and dynamic analyses, it was assumed that the ears and tails of the sows were flexible and could fit



**Figure 2.** Examples of (a, b, c) three static postures and (d, e) two dynamic transitions assessed in this study with bounding boxes drawn to show the length and width of space usage. Height was also measured but excluded from these figures for clarity. Images are not to scale: (a) static lying (SL) excluding extended legs, (b) static full lying (SFL) including extended legs, (c) static standing (SS), (d) dynamic lying down sequence (DLD), and (e) dynamic standing up sequence (DSU).



within the bounding box created by the bulk of the sow body. If those body parts were the maximizing pixels in any dimension of the bounding box, they were cropped from the image. The L and W of the bounding box used for each posture or transition were measured, as well as the maximum single pixel height (H).

## STATISTICAL ANALYSIS

Statistical analysis was conducted using R statistical software with the car, emmeans, and stats packages (Fox and Weisberg, 2019; Lenth, 2019; R Core Team, 2019). A natural log transformation was performed on the response variables, that is, L, W, and H, as well as the variable BW to correct trends in model residuals. For a given sow and position, the three repeated measurements were averaged for each response dimension. Because some of the response dimensions showed evidence of correlation, the L, W, and H for each position were analyzed simultaneously using a multivariate analysis of variance (MANOVA). Sow parity, weeks in gestation, observation pen, and transformed BW were used as covariates. The date of data collection was excluded from the model because multiple sows were observed on only four of the 57 days of data collection.

## RESULTS AND DISCUSSION

### SENSOR CALIBRATION

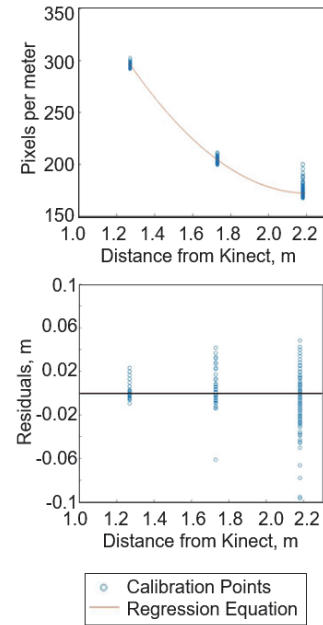
Regression equations were calculated using the measurements in the  $x$ ,  $y$ , and combined  $x$  and  $y$  directions and are shown in table 3. The combined  $x$  and  $y$  direction regression resulted in minimal impact on the conversion accuracy, so both directions were combined for simplicity. The RMSE of this equation resulted in an uncertainty of 0.013 m.

The residual error of the pixel  $m^{-1}$  versus distance from the Kinect V2 equation is shown in figure 3. One outlier was excluded. A quadratic regression was selected because it explained the greatest amount of variation in the data. An increase in variation was observed with increasing distance from the Kinect V2 because the depth sensor becomes noisier with increased distance (Steward et al., 2015). This variation subsequently increased the range of residuals at greater depth distances.

An evaluation of residuals indicated that there were no obvious trends associated with calibration rectangle length, width, orientation, distance from sensor, or location within the image. Depth information output from the Kinect V2 is inherently in millimeters and thus did not require a conversion equation. Distance measurement errors due to height,

**Table 3. Regression equations to convert image pixel measurements to meters were developed using data from calibration rectangle image evaluation. The  $x$  and  $y$  directions of the images were evaluated separately, as well as the  $x$  and  $y$  directions combined. Distance from Kinect V2 to calibration rectangle is represented by  $d$  (m).**

Direction	Regression Equation	Adjusted $R^2$	RMSE (m)	Data Points
$x$	$139.7d^2 - 617.7d + 854.7$	0.9994	0.013	150
$y$	$142.1d^2 - 627.3d + 864.7$	0.9996	0.011	150
Combined $x$ and $y$	$140.9d^2 - 622.5d + 859.7$	0.9995	0.013	300



**Figure 3. Pixel  $m^{-1}$  versus distance from Kinect V2 equation and residuals (actual – predicted). Relationships presented are the result of using all data points in both the  $x$  and  $y$  directions combined.**

orientation, and position within the depth image were negligible (Wasenmüller and Stricker, 2017).

### DATA SUMMARY

A total of 3,530 sow images were analyzed. From the total, 183 images were analyzed for the SFL and SL postures. An additional 183 images were analyzed for SS. Cumulatively, the DLD sequences accounted for 1,770 images with sequences having (average  $\pm$ SD)  $9.4 \pm 4.2$  images. A total of 1,394 images were analyzed for the DSU sequences with sequences having on average  $7.4 \pm 6.7$  images.

### CORRELATION BETWEEN RESPONSE PARAMETERS

There was evidence of varying levels of correlation between the L, W, and H of sow space usage measurements for some of the observed postures and transitions (table 4). The greatest correlation between dimension measurements occurred between  $L_{SS}$  and  $H_{SS}$  ( $r = 0.45$ ). This evidence was used to justify the use of MANOVA because it indicated that the response parameters were related. Sow BW was used as the model input, and L, W, and H of space usage were the response parameters. For all postures and transitions, dimension response parameters were significantly influenced only by

**Table 4. Correlation coefficients between measured length (L), width (W), and height (H) of sow free choice space usage for each of the static postures and dynamic transitions.**

Posture or Transition		Width	Height
Static lying (SL)	Width	-	0.341
	Length	0.069	0.041
Static full lying (SFL)	Width	-	0.288
	Length	0.121	0.023
Static standing (SS)	Width	-	-0.125
	Length	-0.043	0.449
Dynamic lying down (DLD)	Width	-	0.241
	Length	0.085	0.266
Dynamic standing up (DSU)	Width	-	-0.100
	Length	0.221	0.044

BW ( $p < 0.001$  for each model). Sow parity, weeks in gestation, and pen were not significant for any posture or transition.

#### PREDICTING SPACE USAGE BASED ON BODY WEIGHT

Models developed based on the measured sow space usage response parameters (L, W, and H) were used to predict the dimensions of space usage based on BW. The length, width, and height of predicted space usage are referred to as  $L'$ ,  $W'$ , and  $H'$ , respectively. For the static postures (SL, SFL, and SS), the predicted dimensions of space usage closely approximated the sow body dimensions because the sows were not moving. For example,  $L_{SS}'$  was equal to sow body length when standing. This was not the case for the predicted dimensions of DLD and DSU because the dynamic transitions were the maximum extent of sow space usage in multiple postures (fig. 2).

Figure 4 illustrates the predicted space usage dimensions for a range of sow body weights. Corresponding allometric equations were determined by fitting a curve to the predicted space usage values. These equations are shown in table 5

alongside equations presented in other studies. The greatest variation was seen in  $W_{DSU}'$ , and this variation was likely the source of the negative correlation between BW and  $W_{DSU}'$ . For the static postures,  $L_{SS}'$  was less than  $L_{SL}'$  and  $L_{SFL}'$  over the range of sow BW. This decrease could potentially have been caused by differences between the postures, as sows may adopt a greater back curvature when standing, thus reducing their body length and  $L_{SS}'$ .

The space usage prediction equations for SL, SFL, and SS in the present study are similar to previous literature, which reported that the linear dimensions of space usage vary with volume or weight to the one-third power for a static position (Baxter and Schwaller, 1983; Thompson, 1917). The scaling exponent for  $L_{SS}'$  is lower than the anticipated one-third value, indicating that BW has a smaller influence on length of space usage. The proportionality coefficients are similar between SL and SFL, with the marked difference being the decrease in the scaling exponent for  $W_{SL}'$  due to the exclusion of the space occupied by the legs

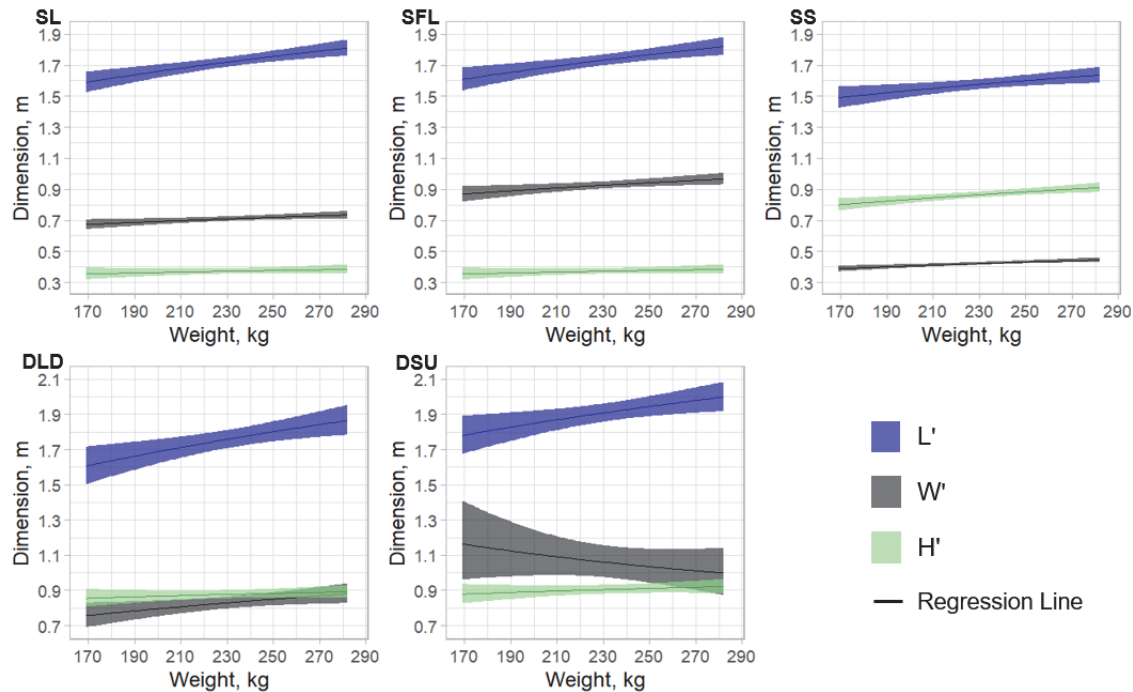


Figure 4. Relationship between sow body weight and predicted dimensions for sow space usage for static postures and dynamic transitions:  $L'$  = predicted length,  $W'$  = predicted width, and  $H'$  = predicted height. Shading indicates 95% confidence interval. Static postures: SL = static lying (excluding extended legs), SFL = static full lying (including extended legs), and SS = static standing. Dynamic transitions: DLD = dynamic lying down and DSU = dynamic standing up.

Table 5. Allometric equations developed for predicting space usage dimensions associated with static postures and dynamic transitions (coefficient of variation is shown in parentheses when available). For comparison, allometric equations from previous literature are also listed.

Posture or Transition	Equations (BW = sow body weight, kg)			Source	Animals	BW Range (kg)
	Length (mm)	Width (mm)	Height (mm)			
Static lying (SL)	$430BW^{0.26}$ (0.45%)	$279BW^{0.17}$ (0.45%)	$161BW^{0.15}$ (1.50%)	Present study <sup>[a]</sup>	61 sows	169.2 to 281.2
Static full lying (SFL)	$465BW^{0.24}$ (0.45%)	$298BW^{0.21}$ (0.63%)	$156BW^{0.16}$ (1.51%)			
Static standing (SS)	$585BW^{0.18}$ (0.46%)	$97BW^{0.27}$ (0.65%)	$217BW^{0.25}$ (0.55%)			
Dynamic lying down (DLD)	$360BW^{0.29}$ (0.65%)	$165BW^{0.30}$ (1.06%)	$560BW^{0.08}$ (0.65%)	Baxter and Schwaller (1983)	10 sows	210 to 215
Dynamic standing up (DSU)	$557BW^{0.23}$ (0.58%)	$5460BW^{-0.30}$ (2.01%)	$557BW^{0.23}$ (0.69%)			
Overall minimum space <sup>[b]</sup>	$384BW^{0.33}$	$126BW^{0.34}$	$177BW^{0.29}$			
Dynamic space	$365BW^{0.33}$	$120BW^{0.34}$	-	Petherick (1983)	-	-
Static standing	$300BW^{0.33}$	$64BW^{0.33}$	$156BW^{0.33}$			
Static standing	$317BW^{0.296}$	$89BW^{0.286}$	$260BW^{0.24}$	Curtis et al. (1989)	208 sows	161.4 to 343.2

<sup>[a]</sup> Equations are for predicted space usage dimensions of length ( $L'$ ), width ( $W'$ ), and height ( $H'$ ).

<sup>[b]</sup> Includes dynamic space usage plus an additional scaling factor for BW adjustments.

of the sow. The equations for  $L_{SL}'$  and  $L_{SFL}'$  are similar but not identical as a result of the calculation method used (for more information, see MATLAB documentation on `regionprops.MajorAxisLength`).

Values fluctuated for the proportionality coefficients and scaling exponents of the dynamic sequences. The negative scaling exponent and large proportionality coefficient for  $W_{DSU}'$  are likely due to the variations seen in these sequences. For each dimension ( $L'$ ,  $W'$ , and  $H'$ ), the greatest values and greatest variation occurred in the standing up sequences. Baxter and Schwaller (1983) also found that standing up sequences required the greatest amount of space, and they attributed the large variation in this dynamic transition to differences in sow stability due to individual clumsiness and floor conditions.

#### IMPLICATIONS OF PREDICTED SOW SPACE USAGE

Predictions of free choice space usage can be used when designing individual stall housing for sows. The correlations observed between sow BW and the predicted space usage dimensions indicate that stall size should consider BW. To better accommodate sows and economic limitations, two different sizes of stalls could be considered. Table 6 displays the predicted dimensions of space usage for average BW (228 kg) and 95th percentile BW (267 kg) sows from this study. When housed in gestation or farrowing stalls, sows occupy static postures and transition between postures, both of which were encompassed by the models developed in this study. Therefore, the space usage implications for sow housing design are based on the greatest dimension values (DSU transition). Similar to the conclusions by McGlone et al. (2004), the predicted stall dimensions are proposed to include the upper limits of the 95% confidence interval. Hence, a stall size that accommodates free choice space usage of small to average sows would have dimensions of 1.96 m  $\times$  1.15 m  $\times$  0.93 m (length  $\times$  width  $\times$  height), and a stall size that accommodates free choice space usage of average to 95th percentile sows would be 2.04 m  $\times$  1.12 m  $\times$  0.95 m. Additional space would be required beyond these dimensions to accommodate feeding and defecating, although the quantification of these behaviors was outside the scope of this study. While the results of this study suggest that larger sows require a smaller stall width for postural transitions, when the amount of variation is considered, it is not advisable to decrease the stall width for larger sows. These results accommodate the free choice space usage of sows, but further work is needed to understand how

space allocations and restrictions influence productivity and animal welfare.

The predicted space usage dimensions are similar to the average measurements of length, width, and height of late-gestation sows measured by Curtis et al. (1989; table 7). The sows measured by Curtis et al. (1989) were heavier than the sows observed in the present study, with an average BW of 244.8 kg and 95th percentile BW of 304.5 kg, compared to 228 and 267 kg, respectively, in the present study. However, all the sows assessed by Curtis et al. (1989) were in week 15 of gestation and included parities 1 through 9. In this study, the weeks of gestation ranged from 11 to 15, and the highest parity was 8. When comparing the dimensions of the free choice space usage predictions to the overall minimum space usage reported by Baxter and Schwaller (1983), the present study shows a 17% decrease in length, 33% increase in width, and 5% increase in height of space usage for an average 228 kg sow. For a 267 kg sow, the present study indicates a 19% decrease in length, 21% increase in width, and 3% increase in height of space usage compared to the dimensions estimated with the Baxter and Schwaller (1983) equations.

McGlone et al. (2004) also measured heavier sows in comparison to the present study, with an average BW of 239.9 kg and 95th percentile BW of 332.7 kg. While the average parity of the sows studied by McGlone et al. (2004) was slightly greater than in the present study, 3.7 compared to 3.5, the reason for the difference in average BW between studies is unclear. For standing sows, a 7% decrease in length, 7% increase in width, and similar height of space usage were found compared to McGlone et al. (2004). The length, width, and height of space usage were 1.59, 0.43, and 0.87 m, respectively, for the present model compared to 1.71, 0.40, and 0.88 m, respectively, for McGlone et al. (2004). The average depth of body reported by McGlone et al. (2004) was 0.58 m, a 22% decrease compared to the prediction of 0.71 m in the present study. However, the measurements reported by McGlone et al. (2004) were taken on standing sows, while the present study measured depth of body for lying sows. These different measurement techniques may have influenced the results.

More recently, Mumm et al. (2019) found that sows in week 13 of gestation required 1.26 and 1.35 m<sup>2</sup> to lay down and stand up, respectively. However, no sow body weights were presented with those measurements and only one sequence of each transition was measured per animal. Moreover, only one calibration image was collected to convert from pixels to physical measurements. In addition, the space usage reported by Mumm et al. (2019) was the projection of

**Table 6. Predicted free choice space usage dimensions and 95% confidence intervals for a 228 kg sow (average body weight) and a 267 kg sow (95th percentile body weight). The largest values for each dimension are shaded.**

Body Weight	Posture or Transition	Predicted Length ( $L'$ , m)		Predicted Width ( $W'$ , m)		Predicted Height ( $H'$ , m)	
		Value	95% CI	Value	95% CI	Value	95% CI
Average sow (228 kg)	Static lying (SL)	1.72	[1.68, 1.75]	0.71	[0.69, 0.72]	0.37	[0.36, 0.39]
	Static full lying (SFL)	1.73	[1.69, 1.76]	0.93	[0.90, 0.95]	0.37	[0.35, 0.39]
	Static standing (SS)	1.57	[1.54, 1.61]	0.42	[0.41, 0.43]	0.86	[0.84, 0.88]
	Dynamic lying down (DLD)	1.75	[1.70, 1.81]	0.83	[0.79, 0.86]	0.88	[0.86, 0.90]
	Dynamic standing up (DSU)	1.91	[1.85, 1.96]	1.06	[0.98, 1.15]	0.90	[0.88, 0.93]
95th percentile sow (267 kg)	Static lying (SL)	1.79	[1.74, 1.83]	0.73	[0.71, 0.75]	0.38	[0.36, 0.40]
	Static full lying (SFL)	1.80	[1.75, 1.84]	0.96	[0.93, 0.99]	0.38	[0.36, 0.40]
	Static standing (SS)	1.62	[1.58, 1.66]	0.44	[0.43, 0.45]	0.90	[0.87, 0.92]
	Dynamic lying down (DLD)	1.84	[1.77, 1.91]	0.87	[0.82, 0.91]	0.89	[0.86, 0.92]
	Dynamic standing up (DSU)	1.97	[1.91, 2.04]	1.02	[0.91, 1.12]	0.92	[0.89, 0.95]

**Table 7. Length, width, and height dimensions of predicted sow space usage for a 228 kg sow (average body weight) and a 267 kg sow (95th percentile body weight). Predictions are from allometric equations provided by respective sources (table 5). Values from the present study are the upper bound of the 95% CI of the predicted space usage dimensions.**

Body Weight	Position	Length (m)	Width (m)	Height (m)	Source
Average sow (228 kg)	Static standing (SS)	1.61	0.43	0.88	Present study <sup>[a]</sup>
	Dynamic lying down (DLD)	1.81	0.86	0.90	
	Dynamic standing up (DSU)	1.96	1.15	0.93	
	Overall minimum space <sup>[b]</sup>	2.30	0.80	0.85	Baxter and Schwaller (1983)
	Dynamic space	2.19	0.76	-	
	Static standing	1.80	0.38	0.94	Petherick (1983)
	Static standing	1.58	0.42	0.96	Curtis et al. (1989)
95th percentile sow (267 kg)	Static standing (SS)	1.66	0.45	0.92	Present study
	Dynamic lying down (DLD)	1.91	0.91	0.92	
	Dynamic standing up (DSU)	2.04	1.12	0.95	
	Overall minimum space <sup>[b]</sup>	2.43	0.84	0.89	Baxter and Schwaller (1983)
	Dynamic space	2.31	0.80	-	
	Static standing	1.90	0.40	0.99	Petherick (1983)
	Static standing	1.66	0.44	0.99	Curtis et al. (1989)

<sup>[a]</sup> Using equations for predicted space usage dimensions of length (L'), width (W'), and height (H').

<sup>[b]</sup> Includes dynamic space usage plus an additional scaling factor for body weight adjustments.

the floor area occupied by the sow and not the bounding box dimensions of the space usage, as reported in this study.

In this study, the width of space usage was less than the typical stall width of 0.61 m only for the SS posture (MWPS, 1983). The average  $W_{sl'}$  (sow depth of body) ranged from 0.67 m for a 169 kg sow to 0.73 m for a 281 kg sow. The  $W'$  dimension increased further in the dynamic sequences, suggesting that stalls may restrict sow space usage compared to free choice space. This could have a negative influence on sow health, as Anil et al. (2002) reported that lower ratios of stall width to gestating sow height resulted in increased sow injuries. However, when considering increased sow stall width, it is important to also consider the space usage for turning around. Turning around in stall housing is undesirable because it can present management and hygiene concerns; therefore, stall width considerations include minimizing the opportunity for sows to turn. Bøe et al. (2011) reported that 7 of 16 mid-gestation sows observed could turn around in stalls with a width that was 50% of their own body length. Based on the sow body weights in the present study, 50% of the body length when standing ( $L_{ss'}$ ) would range from 0.75 to 0.82 m. Free choice dynamic space usage of average BW sows had  $W'$  of 1.15 m, making it likely that most sows would be able to turn around with minimal restriction if the stall width were based solely on free choice space usage. It is not uncommon for commercial sows to be able to turn around in traditional gestation stalls with a width of 0.61 m, suggesting that space requirements for turning may also depend on sow flexibility and motivation.

It is unclear what amount of restriction leads to reduced animal welfare or productivity and how restrictions on sow postural transitions relate to restrictions on turning around. It has been shown that when housed in pens 4.0 m long, reducing the pen width from 2.4 m to sow body length results in significant changes in frequencies of turning around, but statistical differences in time spent lying were not detected until the pen width was reduced to 60% of sow body length (Bøe et al., 2011). Anil et al. (2002) determined that the duration of time spent in postural positions and the time required for postural changes were influenced by stall length and width relative to sow length and breadth. These results suggest that space restriction can lead to alterations in sow

behavior. Additional research is needed to determine the relationship between the amount of space restriction and sow production and welfare.

When considering sow stall dimensions, it is important to account for other behaviors that sows exhibit when housed in stalls, such as defecation, urination, and feeding, because these behaviors may require additional length beyond the static and dynamic free choice space usage. Characterization of these behaviors was outside the scope of this study but is important for determining the relationship between space and sow production and welfare. Taylor (1990) designed a feeder 0.4 m wide and 0.41 m deep based on sow head dimensions and recorded feeding motions; however, no recent data are available on sow stall feeder space requirements. Further, nominal stall dimensions are not always indicative of the actual provided area as some manufacturers place feeders within the stated outer dimensions of stalls. The quality of the space provided (i.e., flooring type, partition type, enrichments) can also influence how sows use the space (Baxter et al., 2011). These aspects should be considered and further investigated before creating stall size recommendations based on the free choice space usage data presented here.

## CONCLUSIONS

A computer vision system was developed using a 3D time-of-flight sensor to measure the static and dynamic space usage of 61 modern commercial sows in late gestation. The length, width, and height of the bounding box occupied by the sow were evaluated for three static postures (lying, full lying, and standing) and two dynamic transitions (lying down sequence and standing up sequence). Models were developed to relate space usage to sow body weight and make predictions of sow space usage dimensions. Space usage for the static postures and dynamic transitions for sows of average body weight (228 kg) was 1.96 m × 1.15 m × 0.93 m (length × width × height). Space usage for sows of 95th percentile body weight (267 kg) was 2.04 m × 1.12 m × 0.95 m. This information offers an improved understanding of modern sow space usage and can be used to inform guidelines for individual sow stall dimensions. Further work is needed



to obtain sow space usage for turning around, feeding, and defecating and to evaluate the impact of varying space restrictions on sow welfare and productivity.

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## About Pigs

Pigs are highly intelligent, social animals, displaying elaborate maternal, communicative, and affiliative behavior. Wild and feral pigs inhabit wide tracts of the southern and mid-western United States, where they thrive in a variety of habitats. They form matriarchal social groups, sleep in communal nests, and maintain close family bonds into adulthood. Science has helped shed light on the depths of the remarkable cognitive abilities of pigs, and fosters a greater appreciation for these often maligned and misunderstood animals.

### Background

Pigs—also called swine or hogs—belong to the Suidae family<sup>1</sup> and along with cattle, sheep, goats, camels, deer, giraffes, and hippopotamuses, are part of the order Artiodactyla, or even-toed ungulates.<sup>2</sup> Domesticated pigs are descendants of the wild boar (*Sus scrofa*),<sup>3,4</sup> which originally ranged through North Africa, Asia and Europe.<sup>5</sup> Pigs were first domesticated approximately 9,000 years ago.<sup>6</sup> The wild boar became extinct in Britain in the 17th century as a result of hunting and habitat destruction, but they have since been reintroduced.<sup>7,8</sup> Feral pigs (domesticated animals who have returned to a wild state) are now found worldwide in temperate and tropical regions such as Australia, New Zealand, and Indonesia and on island nations,<sup>9</sup> such as Hawaii.<sup>10</sup>

True wild pigs are not native to the New World.<sup>11</sup> When Christopher Columbus landed in Cuba in 1493, he brought the first domestic pigs—pigs who subsequently spread throughout the Spanish West Indies (Caribbean).<sup>12</sup> In 1539, Spanish explorers brought pigs to the mainland when they settled in Florida. Throughout the 17<sup>th</sup> and 18<sup>th</sup> centuries, the colonists brought more pigs to America, and they were often raised as free-roaming animals.<sup>13</sup> These free-range and escaped pigs spread throughout the region that is now the southeastern United States.<sup>14,15</sup> During the 20<sup>th</sup> century, wild boar kept for hunting purposes were transferred west from the Eastern United States, where they interbred with existing populations of feral pigs.<sup>16</sup> They are now found throughout many southern states including Florida, Texas, and California.<sup>17,18,19</sup> Wild pigs have steadily expanded northward, mainly within the Midwest, and are now found in 39 states.<sup>20,21</sup>

### Habitat

Feral pigs and wild boar live in a wide range of habitats including forests, marsh land, scrub brush around watering holes, swamp, and grassland, especially in or near dense cover.<sup>22</sup> They alternate between wooded and open ground,<sup>23</sup> and mostly inhabit areas where the limited ground frost abets their diet of roots and tubers.<sup>24</sup> Heavy snowfalls and freezing temperatures limit the range area of wild boar<sup>25,26</sup> but, they are otherwise able to adapt to a variety of habitats.<sup>27,28</sup> The interbreeding with Eurasian wild boars, who are more rugged and more cold hardy than the domestic pig, may have helped wild pigs move into northern, less temperate regions.<sup>29</sup>

Home range sizes vary widely, from less than 100 ha (0.39 mi<sup>2</sup>) to over 2,500 ha (9.65 mi<sup>2</sup>),<sup>30</sup> depending on food availability and water sources, as well as other factors including their age and gender, and the degree of local human encroachment.<sup>31,32</sup> Pigs and wild boar may travel as much as 15 km (9.3 miles) in a single night.<sup>33</sup> Males are more nomadic, with larger home ranges compared to relatively sedentary female groups.<sup>34</sup>

## Diet

Pigs are omnivores. Although they subsist primarily on plant matter,<sup>35,36</sup> pigs also supplement their diets with occasional small vertebrate and invertebrate animals, such as earthworms, insects, amphibians, reptiles, and rodents. They may also consume carrion when they find it.<sup>37,38,39</sup> Food choices depend on the seasonal availability of edible plant foods in their home ranges,<sup>40,41</sup> and often include berries, roots, tubers, grass, seeds, mushrooms, herbs, and foliage. Acorns may also be an important part of the pig's diet.<sup>42,43,44</sup> In fact, in medieval Britain, domestic pigs were allowed to forage in the forests for acorns, beech mast, and apples every September, a practice known as Pannage. Although it is no longer common, a few farmers in the New Forest of England keep up this traditional land management technique, clearing the ground of acorns, which are poisonous to the resident ponies and cattle.<sup>45</sup>

## Sensory Abilities

Pigs have an acute sense of smell. Their sensitivity to olfactory cues is as good as that of dog's, and pigs use scent to discriminate between familiar and unfamiliar pigs, to identify other specific individuals,<sup>46</sup> and to help them navigate and find hidden food items.<sup>47</sup> Pigs can detect and root out food that is underground<sup>48</sup>—a unique skill that has been exploited since the ancient Babylonian period to find truffles, a subterranean fungus that grows around the roots of broad-leaved trees and is highly prized by gourmet chefs.<sup>49</sup> In an impressive example of co-adaptation, truffles developed the capacity to produce a chemical copy of the active boar testosterone found in saliva. The sow, upon finding the scent, uses her snout to dig out the truffle, thus disseminating its fungal spores and enjoying a treat for her efforts.<sup>50</sup>

Pigs are known to have good hearing capacity,<sup>51</sup> and relatively good vision, but these sensory abilities differ from that of humans. While pigs cannot hear faint sounds as well as people do, they are better able to detect ultrasound, up to approximately 40 to 45kHz. They cannot see as accurately as humans, but have a wider field of vision.<sup>52,53</sup> In laboratory experiments, pigs can use their sense of smell and hearing to discriminate between littermates, even when they can't see them.<sup>54</sup>

## Natural Behavior

Although selective breeding by the pig industry has altered the appearance and physiology of domestic pigs, comparative studies show that their behavioral characteristics are fundamentally the same as those of the wild boar.<sup>55,56</sup> For example, the maternal behavior of domestic sows (female pigs), such as nest building, is seemingly innate and has not changed much despite domestication and artificial selection for such production-related traits important to the pig industry as efficient feed conversion or greater litter size.<sup>57</sup> David Wood-Gush and Alex Stolba, scientists at the University of Edinburgh in Scotland, observed domestic pigs in a semi-natural enclosure over several years and concluded that the social behaviour of the domestic pig still closely resembles that of the European wild boar, *Sus scrofa*.<sup>58,59</sup>

A major factor controlling the time budget of wild pigs is the search for food. When food is abundant, pigs spend less time foraging and more time resting, while in less favorable conditions, the time budget changes to accommodate more time traveling and feeding.<sup>60</sup>

The nasal disc on a pig's snout, while rigid enough to be used for digging, has numerous sensory receptors.<sup>61</sup> Pigs use their snout while exploring and searching for food items, to push objects, to flatten them, for scooping and for leveraging out thick roots.<sup>62,63</sup> Under natural conditions, pigs may spend 75% of their daily activity

engaged in rooting and foraging.<sup>64,65</sup> In contrast, farmed pigs in confinement systems are fed a concentrated diet that can be consumed in as little as 15 minutes per day.<sup>66</sup>

In cold weather, pigs may reduce their foraging activity to conserve energy<sup>67</sup> and be more active during the day, resting during the chillier parts of the night.<sup>68,69</sup> In areas with human disturbance or hunting pressure, they readily adopt more nocturnal patterns as well.<sup>70</sup>

Pigs sleep in communal nests, maintained by adding fresh bedding materials such as branches and grass.<sup>71,72</sup> Members of a group may greet one another with grunting noises and snout contact when they arrive together at the nest site, and segregate the duties of bringing in additional nest materials or arranging them in the nest. Nests are usually situated under the partial cover of branches or bushes, in areas such as ridges where they provide both shelter and an open view.<sup>73</sup>

Pigs use behavior to thermoregulate, or control their body temperature. They have very few sweat glands, and so wallow in water or mud to stay cool and prevent heat stress, and huddle together in their nests to stay warm.<sup>74,75</sup>

Pigs are naturally very hygienic animals and designate discrete sites for defecating and urinating away from their sleeping and feeding areas.<sup>76,77,78</sup> They are usually very clean unless kept in confined conditions where they are unable to choose a separate dunging area.<sup>79</sup> Even piglets as young as five days old will leave their nest to defecate and urinate.<sup>80</sup> Pigs do not usually groom each other,<sup>81</sup> or themselves. Rather, they keep their skin clean by rubbing on hard surfaces,<sup>82</sup> particularly after wallowing, when they may rub off the dried mud on rocks or bushes.<sup>83</sup> Pigs are also natural swimmers.<sup>84</sup>

Domesticated sows reach puberty at 5-8 months of age,<sup>85</sup> and European wild boars typically begin breeding when they are 18-20 months old.<sup>86</sup> For wild boars, breeding is seasonal, in late autumn<sup>87</sup> or early winter.<sup>88</sup> Females in estrus are attracted to boars, who make a 'chant de coeur' (heart song) vocalization<sup>89</sup> and release chemicals in their saliva and urine called pheromones that attract females.<sup>90</sup> Piglets are born in late winter or early spring. Occasionally, a second litter will be born in August or September.<sup>91, 92</sup>

## **Social Habits**

Highly social animals, pigs live in small, matriarchal groups, known as sounders,<sup>93</sup> usually comprised of 1-6 sows and their young.<sup>94</sup> Several generations of offspring may be present in one sounder. The structure of the group may change as young males leave,<sup>95,96</sup> as females farrow (give birth) and return with new litters, as sub-adults disperse, or with the arrival of adult males during the breeding season or in conjunction with an abundant food source.<sup>97</sup> Sub-adults may establish home ranges next to or within that of their mother,<sup>98</sup> forming loose associations with up to 30 members.<sup>99</sup> Feral and wild pigs are not territorial, and their home ranges often overlap.<sup>100</sup> In one study, large herds of nearly 100 animals were observed when several family groups converged on irrigated pastures in California.<sup>101</sup> The size of the core group may be limited by the availability of food.<sup>102</sup>

Juvenile males usually stay with their family groups until the dominant males in the area force the younger males to leave, at around 7-18 months of age, when the sows come into estrus.<sup>103</sup> They may form groups of their own, consisting of one to three animals; however adult males are usually solitary.<sup>104</sup> Males show aggression during the breeding season as they compete for females, but otherwise tolerate the presence of other males.<sup>105</sup>

Pigs belong to relatively stable social hierarchies, which play an important role in maintaining group harmony. Whereas unfamiliar pigs who are intensively confined and crowded in industrial operations will engage in aggressive, agonistic behavior,<sup>106</sup> in the wild, pigs are naturally gregarious animals and group members maintain close contact, often synchronizing their behavior.<sup>107,108</sup> The dominance order is maintained by subordinate animals who simply avoid provoking aggressive interactions.<sup>109</sup> Social recognition, or the ability to identify familiar individuals, is a key to forming these stable relationships.<sup>110</sup>

Within a sounder, two sows may become foraging and sleeping partners,<sup>111</sup> and siblings often maintain social ties into adulthood.<sup>112</sup>

## Communication

Pigs communicate with olfactory, visual, and acoustic signals.<sup>113</sup> Pigs can use odor from urine and facial glands to help them identify other pigs,<sup>114,115</sup> and even pigs who are experimentally blindfolded are able to recognize other individuals in their group, indicating the strength of their other senses.<sup>116</sup> Pigs also communicate by scent-marking prominent features in their home ranges.<sup>117</sup> Stressed pigs communicate danger by releasing alarm substances in their urine, a warning signal that other pigs detect by smell.<sup>118</sup>

Visual signals also communicate information about the state of a pig. Tail and ear movements indicate the emotional state of a pig,<sup>119</sup> and wild boar use signals such as bristle rising, ear position, and back arching to indicate their mood.<sup>120</sup> The tail, especially a piglet's tail, conveys important information about his state. The tail is usually curled, which is a sign of general well-being, but is straight when the pig is distressed, dozing, or sleeping. The tail is elevated and curled during greeting and courting,<sup>121</sup> although a curled tail may simply be the default position.<sup>122</sup> To avoid tail-biting—an abnormal behavior that develops in intensive farming situations—the tails of young pigs are often cut off by producers.<sup>123,124,125</sup>

Pigs display a rich variety of vocal signals with up to 20 different known types of vocalizations including those used during feeding and social behavior and to communicate danger.<sup>126,127</sup> Each vocalization can be further modified in frequency and amplitude, for example, to convey information about the sender such as their size, location, motivation and emotional state.<sup>128</sup> Staccato greeting grunts are given when two pigs are reunited,<sup>129</sup> and pigs give a short, strong alarm vocalization when threatened.<sup>130</sup> They also have a “bark” given during play.<sup>131</sup> If piglets are experimentally removed from the sow's vicinity, they call for their mother, and the quality of the call—its duration and frequency—reliably signal the piglet's state of need, with hungry and weak piglets calling longer and at a higher frequency.<sup>132</sup> When piglets scream, their mother will respond, and when adults scream, group members may arrive to assist.<sup>133</sup>

## Mothering and Piglet Development

In the wild, pregnant sows separate themselves from the group one to two days before farrowing, or giving birth, and begin to search for a suitable nest site.<sup>134</sup> The sow is particular about her nest site and she may examine several different spots before making a choice.<sup>135</sup> She may travel as far as 6 km (3.7 mi) to find a suitable location.<sup>136</sup> Often, she prefers a heavily vegetated, secluded area that is adequately sheltered by branches and other cover,<sup>137,138</sup> for example, under a tree on a slope.<sup>139</sup> She also usually chooses a location near water.<sup>140</sup> The sow constructs a comfortable nest by rooting and pawing out a hollow in the earth, insulating it with grass, leaves, and twigs, and lining it with branches.<sup>141,142,143</sup> The characteristics of the nest change depending on the ambient temperature; sows build well-insulated nests in cold weather and simple, bedded hollows in warmer weather.<sup>144</sup> The nest is usually complete two to four hours before the birth of the piglets,<sup>145</sup> but if no suitable material is available, the sow will continue to attempt to nest after birthing has begun.<sup>146</sup>

Like dogs and cats, pigs are polytocus, bearing multiple offspring at the same time. The average litter size is four to seven piglets.<sup>147,148</sup> The young are well-developed at birth, or precocial, which is rare among polytocus mammals.<sup>149</sup> They are among the most precocial newborns of all ungulate species,<sup>150</sup> but share the undeveloped metabolisms of other nesting mammals,<sup>151</sup> and are therefore susceptible to cold. They can see and hear at birth, and start to walk immediately.<sup>152</sup> Piglets quickly seek their mother's teats, and a teat order is formed on the first day, giving each piglet his or her own specific nursing place for the entire lactation period. Piglets fiercely defend their individual nursing location.<sup>153,154</sup> Newborn piglets lie in body contact to each other or to the mother sow for warmth, but they also prefer to be close to the mother sow, even when environmental temperatures are high.<sup>155</sup> They sometimes fall asleep at the teat or curled up next to their mother's udder after nursing.<sup>156</sup>

As piglets pass by the mother's snout, she learns to recognize them individually within the first day.<sup>157</sup> Early maternal identification of piglets is primarily mediated by olfaction.<sup>158</sup> Piglets can also recognize their mother's scent at one day of age, and also by using olfactory cues, their littermates within a week.<sup>159</sup>

The sow makes a distinct, deep-pitched grunt followed by rhythmic grunting to call the piglets when it is time to nurse. Nursing is episodic, as milk is let down only about 20 seconds every 40-60 minutes. The piglets quickly gather at the udder and suck simultaneously in response to their mother's call.<sup>160</sup> Piglets can distinguish between their own mother's vocalizations and that of other sows. A team of British scientists found that piglets who were only 36 hours old responded to recordings of their mother's calls, but most piglets ignored similar sounds from other sows.<sup>161</sup>

While the sow stays in the nest with her litter, isolated from the sounder for about 1-2 weeks, she is very protective, and this period of exclusive contact with her piglets enables the development of close bonds.<sup>162,163</sup> Exploratory behavior, such as rooting and sniffing at objects, develops within the first few days of life,<sup>164</sup> and the piglets soon begin to follow the sow on short excursions away from the nest.<sup>165,166,167</sup> When separated from their mother, piglets call to her with distinctive vocalizations, and the sow vocalizes in return.<sup>168</sup> The piglets increasingly spend more time, and venture greater distances, away from the nest and, with their mother, abandon the nest where they were born after 7-14 days to join the rest of the group.<sup>169</sup>

Piglets begin to play within the first day of life,<sup>170</sup> and by their second week engage in such group activities as chasing, frolicking, scampering, head tossing, and mock-fighting as well as individual play that includes rooting and mouthing novel objects—activities that continue into adulthood.<sup>171,172,173</sup> The bonds that develop between littermates are strong and are maintained when the sow brings her piglets to rejoin the larger group.<sup>174</sup> Although playful behavior declines with age, fresh straw provided to farm pigs can stimulate even adult pigs to play.<sup>175,176</sup>

Within the sounder, if the other sows are also nursing litters, the mother pigs may share maternal duties (although some sows can also be aggressive toward unfamiliar piglets),<sup>177</sup> and when groups of lactating sows are kept together on a farm, sows may nurse piglets other than their own.<sup>178</sup> At about 8 weeks of age, the piglets are fully integrated in the group, although the social bonds among siblings remain strong.<sup>179</sup> Weaning is a slow and gradual process, and the piglets continue to suckle until 14-17 weeks of age.<sup>180,181</sup>

## **Intelligence and Emotion**

Pigs possess a well-developed, large brain<sup>182</sup> and are widely known to be highly inquisitive, with considerable learning<sup>183</sup> and problem-solving abilities.<sup>184,185</sup> They have an outstanding ability to learn from experience, and combine new information with previously remembered events.<sup>186</sup> They have even been observed to work in collaboration to free themselves from their pens.<sup>187</sup>

After teaching pigs to control a special joystick with their snouts, researchers at Pennsylvania State University found that pigs could learn to play simple matching games by moving the cursor around a computer screen. The pigs demonstrated a capacity similar to primates for learning the task.<sup>188</sup>

In other laboratory experiments, pigs displayed the ability to discriminate between locations with hidden food of different relative value, to remember where these food sites are located, and to use this information to optimize their location choices. This kind of cognitive ability is adaptive, as it would be useful in responding to changing foraging conditions in a natural setting.<sup>189</sup>

Scientists have studied awareness in pigs, in part as a means of establishing the sentient nature of the species. Donald Broom, Professor in the Department of Veterinary Medicine at the University of Cambridge, and his colleagues devised an animal behavior experiment in which pigs had to locate a hidden item using a mirror. After some initial experience looking at and interacting with the mirror, pigs were able to use reflected images to find a food bowl behind a barrier, an accomplishment suggesting they understand where they were positioned

in relation to other features of their environment, and that they can hold that information in their minds while they go find the reward.<sup>190</sup>

Like chimpanzees, pigs can exploit the knowledge of other pigs by following them to a secret or hidden food site.<sup>191</sup> This suggests that pigs may possess high level social cognitive abilities, such as visual perspective taking—the ability to assume what others see—and are able to adjust their own behavior accordingly.<sup>192,193</sup> In behavior research, pigs also show evidence of possessing this ability by avoiding a hidden food site when they are being followed by a more dominant pig who might eat it the treats.<sup>194</sup>

As the editorial staff of *The New York Times* wrote in 2006:

We keep probing the animal world for signs of intelligence—as we define it—and we’re always surprised when we discover it. This suggests that something is fundamentally wrong with our assumptions. There is every reason to value other life-forms as much for their difference from us as for their similarity, and to act accordingly. That may be the only intelligence test worthy of the name.<sup>195</sup>

While pigs normally do very well in cognitive tests, their ability to learn and solve problems in behavioral research is influenced by the environment in which they are raised. When pigs are kept in barren, intensive housing, with little opportunity for interacting with and learning about environmental contingencies, their ability to perform well in operant task trials or mazes is diminished. Thus, pigs may suffer cognitive impairment due to being raised in industrial, agricultural production settings.<sup>196</sup>

Pigs show clear behavioral signs of emotional valence (that is, they experience positive as well as negative emotional states).<sup>197, 198</sup> In one test, pigs performed play behavior only when given access to a rewarding environment, a pen filled with straw that had chocolate covered raisins hidden within, while showing no play behavior in the opposing aversive test environment, an empty pen with temporary social isolation. They also showed more defecating, urinating, and less tail wagging and tail postural changes in the aversive condition. In further behavioral testing, pigs showed signs of “emotional contagion”; pigs that had never before experienced the rewarding or aversive environment showed different behavior depending on the condition a test pig anticipated or experienced. Naïve pigs waited with test pigs in a pen during the presentation of auditory (sound) and visual (light) cues indicating to which environment the test pig would be exposed, and remained in the pen while the test pig was moved to either the rewarding or aversive environment. The naïve pigs tended to hold their tail low during the display of cues preceding exposure of the test pig to the aversive condition and defecated more when the test pig was exposed to the aversive environment. Conversely, the naïve pigs played only when the test pig was in the rewarding environment.<sup>199</sup>

## Conclusion

Pigs are complex, intelligent, social animals, with specific behavioral needs, and they are fully capable of experiencing both a positive and a negative quality of life. Our attitudes towards these animals may stem in part from simple lack of understanding, and this has largely led us to disregard their suffering as they are raised for meat in industrialized agricultural production systems. In these concrete and steel facilities, pigs languish without ever seeing the sky, rooting in mud, foraging on pasture or feeling the sun on their faces. Increasing scientific inquiry into the true nature of these animals continues to uncover their previously unrecognized mental abilities and sociable nature, as well as their capacity to experience pain,<sup>200</sup> and emotions, which are influenced by their physical<sup>201</sup> and social surroundings.<sup>202</sup> As a society, we are ethically obliged to better regard their welfare.

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## *Stories of Applied Animal Behavior*

Created by members of a graduate Foraging Ecology Class  
at the University of Idaho and Washington State University  
under the direction of Drs. Karen Launchbaugh and Lisa Shipley

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# Is Boredom Driving Pigs Crazy?

**By Tammy McCormick Donaldson**, M.S. in Animal Behavior and PhD candidate in Animal Behavior, Washington State University

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## Introduction

The European Union ruled in January of 2003 that pigs must be provided with manipulatable material such as straw, peat moss, and mushroom compost. The reason for such a ruling was that the European ruling body determined that exploration, rooting and manipulation behaviors are deeply embedded in the pigs' evolutionary history and thwarting of these behaviors by restricted movement and non-manipulatable materials is considered cruel. The new European Union (EU) ruling is backed by an accumulation of research findings showing that "environmental enrichment" reduces aggressive and stereotypical behaviors, whereas boring and restrictive environments can predispose to stress, fighting and vices. Environmental enrichment is defined as an improvement in the biological functioning of captive animals by adding something to the environment. Environmental enrichments are thought to decrease stereotypies by increasing foraging behavior by allowing the pigs substrate to manipulate and decrease their time inactive.

## What are Stereotypies?

Stereotypies or fixed repetitive actions are behaviors that appear when the animals are bored or frustrated and the onlooker may regard this as an indicator of poor welfare. Stereotypies are defined as repetitive actions that are invariable in form and serve no obvious function. A common example of a stereotypy is the pacing behavior of large cats in zoos.

## The Problem

Although pork producers would like to decrease the incidence of these destructive stereotypic behaviors in pigs, the current production environments do not allow for increased space or complexity of the enclosures. Producers require an economic incentive to replace current systems with an environment with more foraging opportunity. Therefore, it is essential to investigate how increased foraging opportunities, genetics and learning impact the development and performance of oral stereotypies in the domestic pig. It is also necessary to assess what form of complexity or enrichment would be most appropriate, given the natural behavior of the domestic pig and the cost to the producer. If we can determine that increasing opportunities for foraging can effectively decrease the level of stereotypy and determine a solution that the producer can economically institute within his or her production system, it is possible to improve

the welfare of the domestic pig.

## **Stereotypies and Animal Welfare**

Stereotypies are one of the most intensively studied welfare issues of the domestic pig. These behaviors are often described as abnormal behavior in part because they arise under circumstances in which animals are thought to be "bored" or "frustrated". Some examples of stereotypies in pigs are pacing, bar, biting, vacuum chewing (chewing when nothing is present), and chain chewing. The concern over stereotypies is that these behaviors might serve as indicators of poor welfare and so there have been recent studies to link stereotypic behavior and stress. Stereotypies usually develop in situations characterized by restriction of movement (limited space), and lack of stimulation. In recent years, there has been growing evidence that stereotypies in pigs are specifically related to heightened feeding motivation due to feed restriction. Animals whose feed intake is restricted commonly develop oral stereotypies. Oral stereotypies result from both behavioral restriction and feeding restriction. Pregnant sows are commonly restricted to 60% of their normal ad libitum intake of a standard concentrate diet. This diet represents an extreme restriction in the diet of the pregnant pig.

## **Foraging and Stereotypies**

The increased feeding motivation that brings about stereotypies could be because of the nutrient component of the diet or the lack of foraging substrate. In a study of the effect of food deprivation on the expression of foraging behavior, researchers found that food restriction resulted in an increase in time pigs spent rooting the ground and a decrease in the time spent lying down. These are behaviors that are strongly correlated to stereotypic behavior. The foraging behavior of the pig in a natural environment can consume the majority of their daytime activity. Thus pigs spend a large proportion of their time in exploration and foraging. Given the large impact foraging has on the daytime activities of the pig, it is possible to assume that stereotypies reflect foraging motivation. However, other factors such as learning and heredity may also be important factors in the performance of stereotypies.

## **Are Stereotypies Learned?**

Learning involves the shaping of a behavior such that the animal becomes more efficient at that behavior. In some sense, stereotypies are an extreme form of shaping behavior. Stereotypies arise through sensitization (or heightening awareness), where presence of a strong stimulus such as the sound of the feed cart, results in an enhancement of a reflex response, such as anticipatory mouth movements, to that stimulus. In the formation of feeding stereotypies, feed stimuli (feed cart, hunger) positively sensitize biting. The latency of the response decreases and the number of the responses increase with continued exposure to these stimuli. In this way, stereotypies can be considered to have a learned component. More research is needed to determine if management practices can be modified to reduce the opportunity to learn these abnormal behaviors.

## **Are Stereotypies Genetic?**

There are individual differences in the expression of stereotypy and so it is possible that some genetic component must also be involved. Certain animals may be genetically predisposed to have a higher level of arousal than others. For instance, some strains of pigs have an inherited inability to cope with stress. These pigs are said to have PSS (Porcine Stress Syndrome), which is a metabolic disorder engaged by stress. These pigs become literally immobilized by fear and die. There are possibly other heritable factors like the PSS gene that influence the development

of stereotypic behavior but this has yet to be studied. More research is needed to determine if there are heritable factors that can be manipulated through breeding to reduce stereotypies.

### **Is There a Solution?**

Stereotypy is highly prevalent in our captive domestic pigs. In large commercial production systems, pigs have minimal complexity in their housing systems. The combination of a frustrated feeding motivation combined with a lack of foraging opportunities highly impacts this problem. Increasing foraging complexity while still maintaining appropriate levels of energy and nutrients might help to eliminate the performance of stereotypic behavior in pigs. Improving the genetics of the pig to reduce stereotypic behavior should also be investigated as a possible solution to decrease these abnormal behaviors. The management practices may also be modified to decrease the chance of animals learning to perform this behavior. Future environmental enrichment should take foraging style, genetics and learning of the domestic pig into consideration and, possibly then, these enrichments can prevent stereotypic behavior.

### **References for More Information**

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Learn more about the Foraging Ecology Class by visiting <http://www.cnr.uidaho.edu/range556/>



# SWINE FARM MAP



© 2020 KALMBACH FEEDS SWINE MANAGEMENT

## KALMBACH SWINE MANAGEMENT

7148 Highway 199 Upper Sandusky, OH 43351

419-294-3838 | [Kalmbachfeeds.com](http://Kalmbachfeeds.com)



*Summer Internship*  
**PROGRAM**





**Kalmbach Swine Facilities**  
**Compiled as of December 2021**

## SUMMARY

The original source for this list is the Map for Kalmbach Swine Management Summer Internship Program 2020 found in Appendix 10. Kalmbach Swine Management is a subsidiary division of Kalmbach Feeds, Inc. Kalmbach Feeds clearly meets the industry definition of an “integrator” contracting with multiple swine producers or operators, each with a different name.

There are several very complicated corporate relationships included in this analysis, but Kalmbach Feeds is involved in each.

1. **Highlighted in yellow** are those operations where respective county auditors send property tax billings directly to the Kalmbach Feeds headquarters in Upper Sandusky and taxes are paid by them for all or a portion of the swine facilities and/or residences indicated. It is likely that a significant number of these highlighted facilities are actually owned and controlled by Kalmbach. An extensive deed search would be required to determine if Kalmbach Feeds is the deeded owner of these facilities despite how the name appears at a driveway gate. It is clear that the structure of several County Auditors’ webpages actually confirms Kalmbach as deeded owner of the parcels.
2. [Ohio Secretary of State Business Search<sup>1</sup>](#) shows that Paul Kalmbach (or his wife Cheryl) is listed as the registered agent and/or corporate officer as indicated for those swine facilities described.
3. \* Indicates facilities in the Western Lake Erie Basin (WLEB).

### **Auglaize Pork, Inc.**

27129 Middle Pike, Waynesfield, 45896

**Ohio Secretary of State:** Lists the registered agent as Paul Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Auglaize County Auditor:** Parcel No. [D1202700400](#). 1.544 acres

### **\*Buckeye Pork, Inc. and Kalmbach Properties LLC**

18373 Twp. Road 90, and Twp. Road 40, Forest, 45843

**Ohio Secretary of State:** Most recent filing on this corporation is signed by Paul M. Kalmbach, President.

**Hardin County Auditor:** Parcel Nos. [14-030017.0000](#), (residence, swine facility and cropland) [14-030018.0000](#), (3.3 acre strip adjacent to manure pond) and [01-140019.0000](#) (43.711 acres cropland).

### **Cardinal Pork Limited Partnership**

18196 and 18330 Florence Chapel Pike, Circleville, 43113

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Pickaway County Auditor:** Parcel Nos. [E1500010042100](#) (swine facility and cropland), [E1500010042101](#) (swine facility), [H1800010009401](#) (10 acres of manure ponds), [H1800010009402](#) (2 non-contiguous manure pond edge sections), [H1800010009601](#) (swine facility and additional manure ponds) and [H1800010009602](#) (cropland).

### **Crawford Pork, Inc. and Kalmbach Properties, LLC**

2606 and 2590 Morral-Kirkpatrick Road E, Marion, 43302

**Ohio Secretary of State.** Registered agent for Crawford Pork, Inc. and for Kalmbach Properties, LLC as Paul Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Marion County Auditor:** Parcel Nos. [340060001203](#) (residence Crawford Pork), [340060001200](#) (swine facility and cropland), [340060001201](#) (cropland), [210240001300](#) (cropland), and [210240001301](#) (cropland).

<sup>1</sup> Secretary of State Frank LaRosa. “Search By Business Name.” *Ohio Secretary of State*. <https://businesssearch.ohiosos.gov>. Accessed multiple dates in 2021.

**\*Fairfield Pork, Inc. and McKinley Land Development LLC**

24141 Deshler Road and 2988 Custar Road, Deshler, 43516

**Ohio Secretary of State:** Lists the registered agent for both as Paul Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Wood County Auditor:** Parcel Nos. [G24-309-190000012001](#) (residence Fairfield Pork), and [G24-309-280000007002](#) (swine facility). At the Wood County Auditor's office, tax bills on the first parcel are sent to Kalmbach Headquarters in Upper Sandusky. Tax bills for the second parcel are sent to McKinley Land Development in Pandora, Ohio, which is another Kalmbach division.

**Hardin Pork, Inc., TAD Enterprises LTD (LLC) and Kalmbach Properties LLC**

8217 SR 67 and 8202 SR 67, Kenton, 43326, and TR 40, Blanchard Twp. OH 43326

**Ohio Secretary of State:** Lists the registered agent for Hardin Pork and for Kalmbach Properties as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky. Dana Poland is listed as the registered agent for TAD Enterprises LTD. It is not ascertained the relationship between Kalmbach and TAD Enterprises. The residence owned by Kalmbach's Hardin Pork is directly across SR 67 from the TAD Enterprises swine farm.

**Hardin County Auditor:** Parcel Nos. [26-080020.0000](#) (residence Hardin Pork Inc.); [01-140019.0000](#) (cropland Kalmbach); [26-080018.0000](#) (swine farm TAD Enterprises).

**\*KSM Brencco LLC.**

See address list below.

**Note:** On their 2020 Summer Internship Program Map, Kalmbach identifies two Brencco locations as contract barns for Kalmbach swine, stating those contract barns are in Elida. There are actually four sites in Allen County where Brenneman Brothers, incorporated as Brencco, Inc., have pig facilities and the tax billing for each is directed to their headquarters on Grubb Road in Allen County. Based on this information, it is not able to be ascertained which facility is actually KSM Brencco.

**Ohio Secretary of State:** Lists the registered agent for Brencco, Inc. as Stanley G. Brenneman. However, in January 2019, the Ohio Secretary of State registered KSM Brencco LLC and the registered agent is Paul M. Kalmbach at Kalmbach Headquarters in Upper Sandusky.

**Allen County Auditor:** There are 56 properties owned by Brenneman Brothers. There is one property owned by Brencco, Inc. Four parcels were selected as they are the most likely to be swine facilities (as opposed to cropland, etc.) Of the 4 parcels listed below, none seem to list Kalmbach's Upper Sandusky address as the address for tax payment billing, as do most of the other facilities on this list. Tax billing is directed to Brenneman Brothers or Brencco, Inc. for these 4 facilities in Allen County:

- 5230 Grubb Road North, Elida, 45807, Allen County, Parcel Nos. [35-0100-02-002.001](#) and [35-0100-02002.000](#)
- 4210 N. Grubb Road, Lima, 45807, Allen County, Parcel No. [35-1200-02-002.003](#)
- N. Grubb Road, Delphos, 45833, Allen County, Parcel No: [35-1200-02-002.000](#)
- 4740 N. Grubb Road, Lima, 45807, Allen County, Parcel No: [35-0100-03-007.000](#)

**Logan Pork, Inc.**

5775 Sink Hole Road and 4510 Couchman Road, West Liberty, 43357

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Champaign County Auditor:** Parcel Nos. [D08-04-13-21-00-013-01](#) (swine facility) and [D10-04-13-14-00-004-01](#) (residence Logan Pork).

**\*Noble Pork, Inc.**

18995 Convoy Road, Middle Point, 45863

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Van Wert County Auditor:** Parcel No. [15-039510.0100](#) (residence, Hog Bldg. and Shed)

### **Union Pork, Ltd. and Union Pork, Inc.**

14484 and 14481 Trout Road, Marysville, 43040

**Ohio Secretary of State:** Lists two business registrations using similar names. The first is Union Pork Ltd, incorporated in April 1996 and in the last filing, Paul M. Kalmbach signed the documents to appoint an agent. The second is Union Pork, Inc. where the registered agent is listed as Paul Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Union County Auditor:** Parcel No. [2000100171000](#) (14484 Trout, residence owned by Union Pork) where tax bills are sent to Kalmbach's Upper Sandusky Headquarters. Parcel No. [2000100221000](#) at 14481 Trout, directly across the road from the residence, is a swine farm which the auditor lists as owned by Rinehart-Martino Farm LLC. However, internet searches for "Union Pork", Marysville, repeatedly return results showing the location of Union Pork at 14481 Trout Road, including this report at [Dun & Bradstreet](#). That D&B report lists the contact at the swine farm as Kevin Isler. Additional internet searching indicates that the current resident at Union Pork's residence (owned by Kalmbach) across the street at 14484 Trout Road is "K.... Isler," including this report at [Spokeo](#).

### **Wayne Pork, Inc.**

1964 Paradise Road, Orrville, 44667

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Wayne County Auditor:** Parcel No. [32-00273.000](#) is a sizeable swine facility with ownership listed by the County Auditor as "Robert and Clara Jean Shoup, Trustees." However, a 2020 Wayne County Junior Fair list of [Market Livestock Buyers](#) (pages 12 and 23) shows that 5 animals were purchased at the Junior County Fair by "Kalmbach Swine Management" at "1964 Paradise Road, Orrville, OH 44667." A similar list from the 2021 Wayne County Junior Fair [Market Livestock Buyers](#) (pages 16 and 33) shows that 3 animals were purchased by "Kalmbach Swine Management - Wayne Pork" at the same address.

### **\*Williams Pork, Inc.**

5856 SR 19, Stryker, 43557

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Williams County Auditor:** Parcel No. [064-070-00-016.001](#) (residence and swine facility) .

### **\*Wyandot Pork, LLC**

1600 Township Hwy 107, Carey, 43316 NO MAP

**Ohio Secretary of State:** Lists the registered agent as Paul M. Kalmbach at Kalmbach headquarters in Upper Sandusky.

**Wyandot County Auditor:** Parcel Nos. [9-007500.0000](#), (residence, cropland and swine facility), [9-008000.0000](#) (cropland and swine facility) and [9-007001.000](#) (cropland). In addition to these properties specifically listed by the Wyandot County Auditor under the name of "Wyandot Pork, LLC," Kalmbach Feeds, Inc. headquarters is in Wyandott County, and there are at least 24 additional properties owned by Kalmbach Feeds or a subsidiary in the county, totaling at least 635 acres.



## Summary

Parcel Number **G24-309-280000007002**  
Map Number 309-2800  
Location Address 2988 CUSTAR RD  
Acres 10  
Legal Description IRRG 10A PT COM NWCOR NW  
(Note: Not to be used on legal documents.)  
Land Use 101 - Cash - grain or general farm  
(Note: Land Use is for valuation purposes only. Consult the local jurisdiction for zoning and legal use..)  
Neighborhood 02900 - Jackson Twp  
City Unincorporated  
Township Jackson Township  
School District McComb LSD  
Homestead Reduction: No  
Owner Occupancy Credit: No  
Foreclosure No  
Board of Revision No

## Owners

Owner  
MCKINLEY LAND DEVELOPMENT LLC

Tax Payer Address  
MCKINLEY LAND DEVELOPMENT  
14207 COUNTY RD 16  
PANDORA OH 45877

## Valuation

Assessed Year	2020	2019
Land Value	\$77,800	\$62,300
CAUV Value	\$0	\$0
Improvements Value	\$1,545,500	\$1,405,000
<b>Total Value (Appraised 100%)</b>	<b>\$1,623,300</b>	<b>\$1,467,300</b>
Land Value	\$27,230	\$21,810
CAUV Value	\$0	\$0
Improvements Value	\$540,930	\$491,750
<b>Total Value (Assessed 35%)</b>	<b>\$568,160</b>	<b>\$513,560</b>

## Land

Land Type	Calculated Acres	Actual Frontage	Effective Frontage	Appraised Value (100%)
A0 - Row	0.02	0	0	\$0
AS - SubTotal	9.98	0	0	\$77,840
<b>Total</b>	<b>10.0000</b>			<b>\$77,840</b>

## Improvements

### Card 1

Improvement Code	Description	Length	Width	Total Area	Year Built	Appraised Value (100%)
154	Barn Fr Pole Encl/Slab	64	34	2,176	2016	\$31,260
154	Barn Fr Pole Encl/Slab	16	8	128	2016	\$1,890
154	Barn Fr Pole Encl/Slab	16	8	128	2016	\$1,890
154	Barn Fr Pole Encl/Slab	50	32	1,600	2016	\$20,230
154	Barn Fr Pole Encl/Slab	70	10	700	2016	\$10,330
154	Barn Fr Pole Encl/Slab	209	1	209	2016	\$3,090
141	Barn Hog Finishing	480	84	40,320	2016	\$511,660
141	Barn Hog Finishing	540	120	64,800	2016	\$822,310
30	Porch Frame	16	8	128	2016	\$2,350
<b>Total</b>						<b>\$1,405,010</b>

## Sales

Sale Date	Sale Price	Seller	Deed Type
10/1/2015	\$55,000		Warranty Deed



Recent Sales In Area

Sale date range:

From: 2018-11-16

To: 2021-11-16

Sales by Neighborhood

1500

Feet

Sales by Distance

Tax History

Delinquent payments made after the fall due date will still show due in the year they were originally assessed. If paid, payment will show in the next tax year.

Detail:

Tax Year	Type	Description	Amount
2020 Pay 2021	Property Tax Detail	1st half tax	\$11,517.81
2020 Pay 2021	Special Assessment Detail	DH 2200 M MIDDLE BR JT 1st half tax	\$4.82
2020 Pay 2021	Special Assessment Detail	DH 2319 M RADER JT 1st half tax	\$0.00
2020 Pay 2021	Property Tax Detail	2nd half tax	\$11,517.81
2020 Pay 2021	Special Assessment Detail	DH 2200 M MIDDLE BR JT 2nd half tax	\$4.81
2019 Pay 2020	Property Tax Detail	1st half tax	\$10,299.70
2019 Pay 2020	Special Assessment Detail	DH 2200 M MIDDLE BR JT 1st half tax	\$0.00
2019 Pay 2020	Special Assessment Detail	DH 2319 M RADER JT 1st half tax	\$0.00
2019 Pay 2020	Property Tax Detail	2nd half tax	\$10,299.70
2018 Pay 2019	Property Tax Detail	1st half tax	\$9,993.24
2018 Pay 2019	Special Assessment Detail	DH 2200 M MIDDLE BR JT 1st half tax	\$0.00
2018 Pay 2019	Special Assessment Detail	DH 2319 M RADER JT 1st half tax	\$1.91
2018 Pay 2019	Property Tax Detail	2nd half tax	\$9,993.24
2018 Pay 2019	Special Assessment Detail	DH 2319 M RADER JT 2nd half tax	\$1.90
2017 Pay 2018	Property Tax Detail	1st half tax	\$8,890.63
2017 Pay 2018	Special Assessment Detail	DH 2200 M MIDDLE BR JT 1st half tax	\$0.00
2017 Pay 2018	Special Assessment Detail	DH 2319 M RADER JT 1st half tax	\$3.82
2017 Pay 2018	Property Tax Detail	2nd half tax	\$8,890.63
2017 Pay 2018	Special Assessment Detail	DH 2319 M RADER JT 2nd half tax	\$3.82

Total:

Tax Year	Amount
2020 Pay 2021	\$23,045.25
2019 Pay 2020	\$20,599.40
2018 Pay 2019	\$19,990.29
2017 Pay 2018	\$17,788.90

Treasurer's Tax Bill

Tax Bill

Tax Details

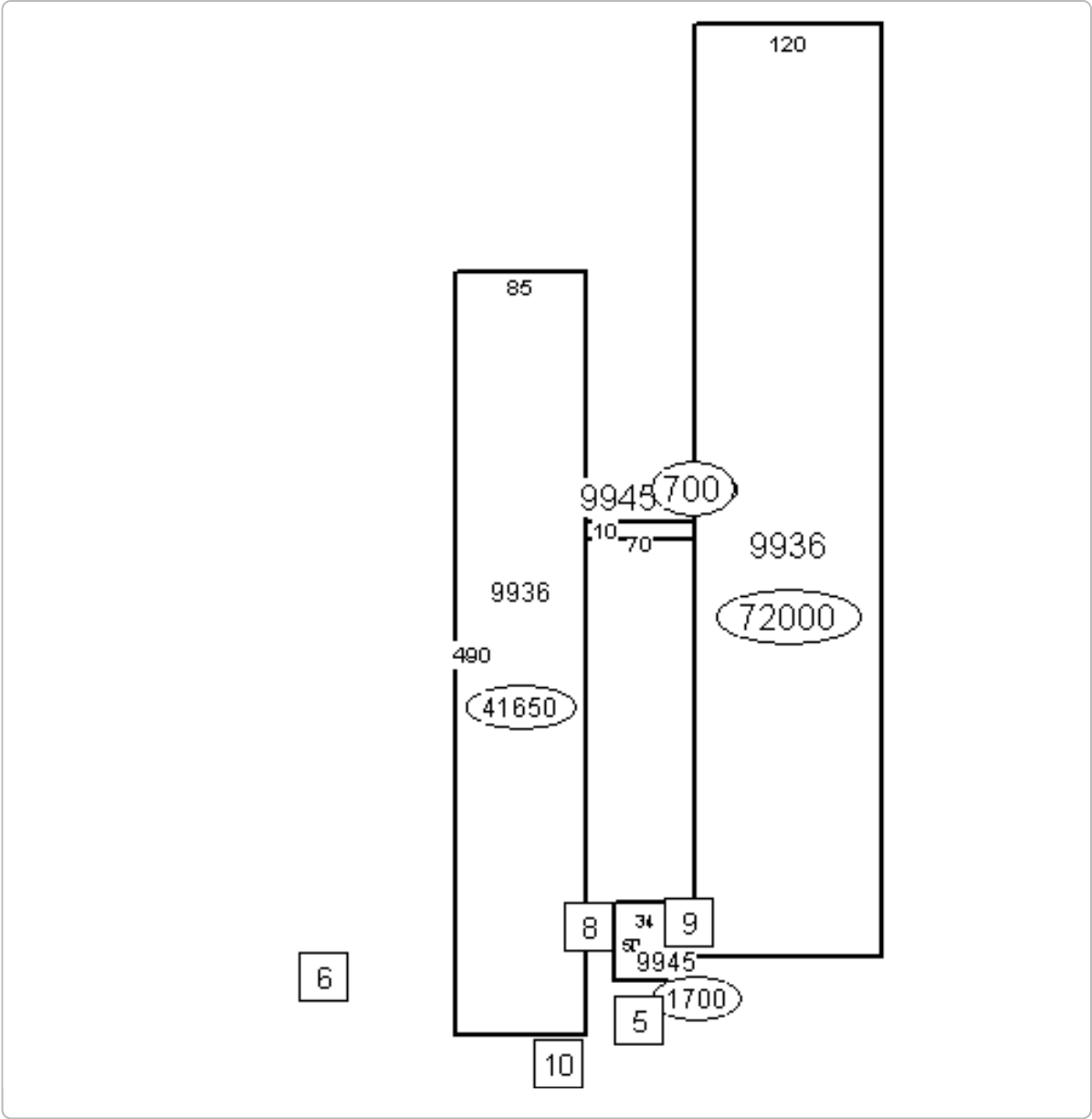
Get a copy of your tax bill and tax distribution. Will direct user to the Treasurer website.

Payments

Detail:			
Tax Year	Payment Date	Paid By	Amount
2020 Pay 2021	2/1/2021	OCR	\$23,045.25
2019 Pay 2020	1/23/2020	OCR	\$20,599.40
2018 Pay 2019	2/5/2019	OCR	\$19,990.29
2017 Pay 2018	1/25/2018	OCR	\$17,788.90

Total:	
Tax Year	Amount
2020 Pay 2021	\$23,045.25
2019 Pay 2020	\$20,599.40
2018 Pay 2019	\$19,990.29
2017 Pay 2018	\$17,788.90

Sketches



## Map



**No data available for the following modules: Ag Soil, Dwellings, Buildings, Additions.**

The information provided by Wood County is provided 'as is' and for reference only. The user expressly agrees that the use of Wood County's web site is at the user's sole risk. Wood County does not warrant that the service will be uninterrupted or error free. Any information published on this server could contain technical inaccuracies or typographical errors. Changes may be made periodically to the tax laws, administrative rules, tax releases and similar materials;

[User Privacy Policy](#)  
[GDPR Privacy Notice](#)

[Last Data Upload: 11/16/2021, 1:19:24 AM](#)

Developed by



Version 2.3.161



DATE	DOCUMENT ID	DESCRIPTION	FILING	EXPED	PENALTY	CERT	COPY
09/09/2015	201525202462	DOMESTIC FOR PROFIT LLC - ARTICLES OF ORG (LCP)	125.00	0.00	0.00	0.00	0.00

**Receipt**

This is not a bill. Please do not remit payment.

WEISMAN YOUNG & RUEMENAPP  
30100 TELEGRAPH ROAD, SUITE 428  
BINGHAM FARMS, MI 48025

# STATE OF OHIO CERTIFICATE

**Ohio Secretary of State, Jon Husted**

**2426940**

It is hereby certified that the Secretary of State of Ohio has custody of the business records for

**MCKINLEY LAND DEVELOPMENT, LLC**

and, that said business records show the filing and recording of:

Document(s)

**DOMESTIC FOR PROFIT LLC - ARTICLES OF ORG**

Effective Date: 09/09/2015

Document No(s):

**201525202462**



United States of America  
State of Ohio  
Office of the Secretary of State

Witness my hand and the seal of the  
Secretary of State at Columbus, Ohio this  
9th day of September, A.D. 2015.

**Ohio Secretary of State**



Form 533A Prescribed by:  
Ohio Secretary of State

**JON HUSTED**  
Ohio Secretary of State

Central Ohio: (614) 466-3910  
Toll Free: (877) SOS-FILE (767-3453)  
[www.OhioSecretaryofState.gov](http://www.OhioSecretaryofState.gov)  
[Busserv@OhioSecretaryofState.gov](mailto:Busserv@OhioSecretaryofState.gov)

Date Electronically Filed: 9/9/2015

## Articles of Organization for a Domestic Limited Liability Company

Filing Fee: \$125

### CHECK ONLY ONE (1) BOX

(1) ☒ Articles of Organization for Domestic  
For-Profit Limited Liability Company  
(115-LCA)

(2) ☐ Articles of Organization for Domestic  
Nonprofit Limited Liability Company  
(115-LCA)

Name of Limited Liability Company

Name must include one of the following words or abbreviations: "limited liability company," "limited," "LLC," "L.L.C.," "Ltd.," or "Ltd"

Effective Date   
(Optional) mm/dd/yyyy

(The legal existence of the limited liability company begins upon the filing  
of the articles or on a later date specified that is not more than ninety days  
after filing)

This limited liability company shall exist for   
(Optional)

Period of Existence

Purpose  
(Optional)

### **\*\*Note for Nonprofit LLCs**

The Secretary of State does not grant tax exempt status. Filing with our office is not sufficient to obtain state or federal tax exemptions. Contact the Ohio Department of Taxation and the Internal Revenue Service to ensure that the nonprofit limited liability company secures the proper state and federal tax exemptions. These agencies may require that a purpose clause be provided.



**ORIGINAL APPOINTMENT OF AGENT**

The undersigned authorized member(s), manager(s) or representative(s) of

MCKINLEY LAND DEVELOPMENT, LLC

Name of Limited Liability Company

hereby appoint the following to be Statutory Agent upon whom any process, notice or demand required or permitted by statute to be served upon the limited liability company may be served. The name and address of the agent is

PAUL M. KALMBACH

Name of Agent

7148 STATE HIGHWAY 199

Mailing Address

UPPER SANDUSKY

City

OH

State

43351

ZIP Code

**ACCEPTANCE OF APPOINTMENT**

The undersigned, \_\_\_\_\_ named herein as the statutory agent

PAUL M. KALMBACH

Statutory Agent Name

for

MCKINLEY LAND DEVELOPMENT, LLC

Name of Limited Liability Company

hereby acknowledges and accepts the appointment of agent for said limited liability company

Statutory Agent Signature

PAUL M. KALMBACH

Individual Agent's Signature / Signature on Behalf of Business Serving as Agent

By signing and submitting this form to the Ohio Secretary of State, the undersigned hereby certifies that he or she has the requisite authority to execute this document.

**Required**

Articles and original appointment of agent must be signed by a member, manager or other representative.

If authorized representative is an individual, then they must sign in the "signature" box and print their name in the "Print Name" box.

If authorized representative is a business entity, not an individual, then please print the business name in the "signature" box, an authorized representative of the business entity must sign in the "By" box and print their name in the "Print Name" box.

PAUL M. KALMBACH

Signature

By (if applicable)

Print Name

Signature

By (if applicable)

Print Name

Signature

By (if applicable)

Print Name

**Appendix 13**

DATE	DOCUMENT ID	DESCRIPTION	FILING	EXPED	PENALTY	CERT	COPY
12/07/2016	201634102710	CO-OPERATIVE - DOMESTIC ARTICLES (ARO)	103.30	0.00	0.00	0.00	0.00

**Receipt**

This is not a bill. Please do not remit payment.

FAIRFIELD PORK, INC.  
STEFAN MCDANIEL  
7148 STATE HWY 199  
UPPER SANDUSKY, OH 43351

# STATE OF OHIO CERTIFICATE

**Ohio Secretary of State, Jon Husted**  
**3965451**

It is hereby certified that the Secretary of State of Ohio has custody of the business records for  
**FAIRFIELD PORK, INC.**

and, that said business records show the filing and recording of:

Document(s)

**CO-OPERATIVE - DOMESTIC ARTICLES**

Effective Date: 12/01/2016

Document No(s):

**201634102710**

United States of America  
State of Ohio  
Office of the Secretary of State

Witness my hand and the seal of the  
Secretary of State at Columbus, Ohio this  
7th day of December, A.D. 2016.

**Ohio Secretary of State**



Form 600 Prescribed by:

**JON HUSTED**  
OHIO SECRETARY OF STATE

Toll Free: (877) SOS-FILE (877-767-3453)  
Central Ohio: (614) 466-3910

[www.OhioSecretaryofState.gov](http://www.OhioSecretaryofState.gov)  
[busserv@OhioSecretaryofState.gov](mailto:busserv@OhioSecretaryofState.gov)

File online or for more information: [www.OHBusinessCentral.com](http://www.OHBusinessCentral.com)

Mail this form to one of the following:

Regular Filing (non expedite)  
P.O. Box 670  
Columbus, OH 43216

Expedite Filing (Two business day processing time.  
Requires an additional \$100.00)

P.O. Box 1390  
Columbus, OH 43216

## Initial Articles of Incorporation for a Cooperative Association

Filing Fee: \$99  
(999-ARO)  
Form Must Be Typed

2016 DEC -1 PM 2:03

First:

Name of Association 

Association name must include one of the following: "cooperative," "coop," "co-operative," "co-op," "association," "assn," "company," "co.," "Incorporated," "inc.," "corporation," or "corp."

Second:

Purpose for which association is formed

To associate farmer producers and others so as to reduce their costs through joint action in procuring services, supplies and equipment and to market their agricultural products. Also, to produce and provide feeder animals and other inputs for its Patrons' agricultural livestock production.

Third:

Location of Principal Office

City

County

State

**Fourth: Names and Addresses of Incorporators** (Note: Pursuant to Ohio Revised Code Section 1729.06, there must be two or more incorporators.)

Name	<input type="text" value="Paul Kalmbach"/>	Address	<input type="text" value="7148 State Highway 199, Upper Sandusky, OH 43351"/>
Name	<input type="text" value="Stefan McDaniel"/>	Address	<input type="text" value="7148 State Highway 199, Upper Sandusky, OH 43351"/>
Name	<input type="text"/>	Address	<input type="text"/>

**Fifth:** Check one of the following:

- ☐ The association will have  directors. (Please provide the number of directors.)
- ☒ The number of directors of the association will be specified in the bylaws.

**Sixth:** Names and Addresses of those who are to serve as directors until the first meeting of members or until the election and qualification of their successors.

Name	<input type="text" value="Paul Kalmbach"/>	Address	<input type="text" value="7148 State Hwy 199, Upper Sandusky, OH 43351"/>
Name	<input type="text"/>	Address	<input type="text"/>
Name	<input type="text"/>	Address	<input type="text"/>

**Seventh:** Is the association being organized with or without capital stock? Please check one of the following and provide the required information.☒ With capital stock

Total Amount of Stock

Number of Shares

Par Value of Shares

Dividend Rights, if any:

Please attach additional share information if required by ORC 1729.07 (A)(7).

☐ Without capital stock

Set forth the general rules by which the property rights and interests of each member are to be determined:

**\*\*Note for Nonprofit Corporations:** The Secretary of State does not grant tax exempt status. Filing with our office is not sufficient to obtain state or federal tax exemptions. Contact the Ohio Department of Taxation and the Internal Revenue Service to ensure that the nonprofit corporation secures the proper state and federal tax exemptions. These agencies may require that a purpose clause be provided.

**\*\*Note:** ORC Chapter 1729 allows for additional provisions to be included in the Articles of Incorporation that are filed with this office. If including any of these additional provisions, please do so by including them in an attachment to this form.



## ORIGINAL APPOINTMENT OF STATUTORY AGENT

The undersigned, being at least a majority of the incorporators of Fairfield Pork, Inc.  
hereby appoint the following to be statutory agent upon whom any process, notice or demand required or permitted by  
statute to be served upon the association may be served. The complete address of the agent is

Paul Kalmbach

Name

7148 State Highway 199

Mailing Address

Upper Sandusky

City

Ohio

State

43351

Zip Code

Must be signed by the  
Incorporators or a  
majority of the  
incorporators

Paul M. Kalmbach  
Signature

85% MDC  
Signature

Signature

## ACCEPTANCE OF APPOINTMENT

The Undersigned, Paul Kalmbach, named herein as the  
Statutory Agent Name

Statutory agent for Fairfield Pork, Inc.  
Association Name

hereby acknowledges and accepts the appointment of statutory agent for said association.

Statutory Agent Signature

Paul M Kalmbach

Individual Agent's Signature / Signature on behalf of Business Serving as Agent

By signing and submitting this form to the Ohio Secretary of State, the undersigned hereby certifies that he or she has the requisite authority to execute this document.

### Required

Articles and original appointment of agent must be signed by the incorporators.

Paul M. Kahnbach  
Signature

If the incorporator is an individual, then they must sign in the "signature" box and print his/her name in the "Print Name" box.

By \_\_\_\_\_

If the incorporator is a business entity, not an individual, then please print the entity name in the "signature" box, an authorized representative of the entity must sign in the "By" box and print his/her name and title/authority in the "Print Name" box.

Paul M. Kalmbach

Print Name

Signature

By \_\_\_\_\_

Stefan McDaniel

Signature \_\_\_\_\_

By \_\_\_\_\_

Print Name \_\_\_\_\_

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

Researched and compiled by Margaret Daly-Masternak, March 2022

## Appendix 14

	"High Volume Dog Breeders" (HVDBs) and "Dog Brokers"	"Concentrated Animal Feeding Facilities" and "Concentrated Animal Feeding Operations" (CAFFs/CAFOs)  Note: In federal laws, the terms used are "Animal Feeding Operations" (AFO) and "Concentrated Animal Feeding Operations" (CAFO). According to the USDA, "A CAFO is an AFO with more than 1000 animal units," with such units not determined by the number of head in each species, but by the combined weight of animals intended for confinement.
Are there provisions in the federal Animal Welfare Act and federal Animal Welfare Regulations protecting animals in these categories?	Yes. Dogs are expressly included in the definition of "animal" for all provisions of the Animal Welfare Act and Animal Welfare Regulations. In fact, they are first in that list of definitions and are referenced no less than 160 times throughout. The combined laws and regulations can be found at the USDA's Animal and Plant Health and Inspection Service (APHIS) here: <a href="https://www.aphis.usda.gov/animal_welfare/downloads/blue_book-ac-awa.pdf">https://www.aphis.usda.gov/animal_welfare/downloads/blue_book-ac-awa.pdf</a>  In those Laws/Regulations, there are discretely detailed requirements for the protection of species: from dogs, to a category titled "Non-Human Primates" which covers "more than 240 species," to exotic animals to marine mammals.	<b>No. Livestock and poultry are expressly excluded in the definition of "animal" for all provisions of the federal Animal Welfare Act and Animal Welfare Regulations</b> , stating: "The term 'animal'...excludes...other farm animals, such as but not limited to livestock or poultry, used or intended for use as food or fiber, or livestock or poultry used or intended for use for improving animal nutrition, breeding management, or production efficiency, or for improving the quality of food or fiber."
What sections of Ohio laws and regulations apply?	Ohio Revised Code (ORC) Section 956 Regulation and Licensing of Dog Kennels Ohio Administrative Code (OAC) Chapter 901:1-6 High Volume Dog Breeders Also citations cross-referenced in the above statutes and rules.	Ohio Revised Code (ORC) Section 903 Concentrated Animal Feeding Facilities and 904 Ohio Livestock Care Standards Board. Also, Ohio Administrative Code (OAC) Chapters 901:10 Livestock Environmental Permitting and 901:12 Livestock Care Standards Board Also citations cross-referenced in the above statutes and rules.
In Ohio, under whose authority and enforcement?	Ohio Department of Agriculture (Where specified in this comparison as "director" it means the ODA director.)	Ohio Department of Agriculture (Where specified in this comparison as "director" it means the ODA director.)

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

Researched and compiled by Margaret Daly-Masternak, March 2022

Are there differences in Sections and Chapters, thereby leading to potential confusion regarding animal welfare?	Not for dog breeders. The law is found in ORC 956 and the regulations are found in OAC 901:1-6	<p>Yes for livestock. When considering livestock confinement in Ohio, the reader must recognize that there are two distinct divisions in each of the ORC and in the OAC which apply.</p> <p>Regarding livestock environmental requirements for water quality and manure management, refer to ORC Section 903 and OAC Chapter 901:10 (these describe animal thresholds, environmental permitting, inspection and complaint processes for environmental violations, etc.)</p> <p>However, when considering the welfare of livestock, one must refer to ORC Section 904 and OAC 901:12. These laws and rules were created to address the creation and authorities of the Livestock Care Standards Board (LCSB) beginning in 2010.</p>
Must have a license per Ohio laws and regulations?	<p>Yes, for both HVDBs and Dog Brokers. (Pet stores must also be licensed.)</p> <p>Both HVDBs' and Dog Brokers' licenses subject to annual renewal, with license fees dependent on how many dogs are being sold (with license fees ranging from \$150 to \$750).</p> <p>For HVDBs to obtain initial license, in their application, they must:</p> <ul style="list-style-type: none"> <li>-- Swear under oath the number of adult dogs they will house and estimate the number of puppies to be housed.</li> <li>-- Submit photographic evidence of the facilities, and the director may have an inspection conducted of the facilities.</li> <li>-- Show proof they have a veterinary-client-patient relationship.</li> <li>-- Show proof of insurance in graduated amounts depending on the number of animals they house.</li> </ul>	<p>Under environmental permitting alone, a license required for "Livestock Manager Certification" (for those managing manure on Major CAFFs which are defined by animal thresholds outlined below).</p> <p>Also for environmental permitting, ONLY permits, not licensure, required in Ohio for CAFFs as follows (CAFFs are also defined by animal thresholds outlined below).</p> <ul style="list-style-type: none"> <li>-- NPDES: National Pollutant Discharge Elimination System permit is a federal permit for those meeting the federal definition of a "Concentrated Animal Feeding Operation" (5-year renewal)</li> <li>-- PTI: A State of Ohio Permit to Install a CAFF (24-month permit; can be extended by the ODA director)</li> <li>-- PTO: A State of Ohio Permit to Operate a CAFF (5-year renewal)</li> </ul> <p>Permit fees range for CAFFs and Major CAFFs between \$250 to \$2,500 for both a substantially greater number of animals and for renewal timelines which are greatly expanded as compared to the licensing requirements for HVDBs and Dog Brokers--5 years vs. 1 year.</p> <p>Under Livestock Care Standards, there are no requirements for licensing regarding animal welfare protections. Livestock and poultry animal welfare is clearly not protected by any required licensing or permitting in the state, no matter the number of animals housed.</p>

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

Researched and compiled by Margaret Daly-Masternak, March 2022

Must have a permit in Ohio?	No permits involved--must be licensed.	<p>Again, there are only permitting requirements associated with environmental factors, NOT animal welfare.</p> <p>Small and medium CAFFs (defined as Concentrated Animal Feeding Operations or CAFOs in Ohio law) are animal feeding facilities which do not require state permitting except as determined by the ODA director. Federal NPDES permitting is under the authority of the director of the Ohio EPA if any small and medium CAFFs are discovered discharging into the waters of the United States.</p> <p>Note: See next item for permitting thresholds required of CAFFs, where larger numbers of animals involved. To avoid permitting and attendant regulatory oversight, many animal feeding facilities purposely keep below these thresholds--known as "one-under CAFOs."</p>
Number of animals permitted to require license/permit in Ohio?	<p>High Volume Dog Breeder: 6 or more breeding dogs along with requirements based on how many dogs/puppies sold per year.</p> <p>Dog Broker: 1 or more dogs intended for resale annually.</p>	<p>Under environmental factors, permits only required for CAFFs or Major CAFFs (unless the director determines otherwise for smaller animal feeding facilities). CAFFs and Major CAFFs meet or exceed thresholds as follows:</p> <ul style="list-style-type: none"> <li>-- 700 mature dairy cattle</li> <li>-- 1,000 veal calves</li> <li>-- 1,000 cattle other than mature dairy cattle or veal calves</li> <li>-- 2,500 swine that each weigh 55 lbs. or more</li> <li>-- 10,000 swine that each weigh less than 55 lbs.</li> <li>-- 500 horses</li> <li>-- 10,000 sheep or lambs</li> <li>-- 55,000 turkeys</li> <li>-- 30,000 laying hens and broilers (involving liquid manure)</li> <li>-- 125,000 chickens other than laying hens (not involving liquid manure)</li> <li>-- 82,000 laying hens (not involving liquid manure)</li> <li>-- 5,000 ducks (involving liquid manure)</li> <li>-- 30,000 ducks (not involving liquid manure)</li> </ul> <p>Major CAFFs are permitted to house 10 times more than each of the above animal numbers.</p>
Background checks of Ohio operator required?	Yes for HVDs.	No background checks for a CAFO operator, a CAFF operator or a Major CAFF operator. CAFF and Major CAFF operators must self-report general background information. This exclusion for background checks applies in both environmental permitting as well as to livestock welfare laws--there are no background checks in either case.



## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

Researched and compiled by Margaret Daly-Masternak, March 2022

Inspection frequency in Ohio?	All HVDBs must be inspected by the state annually. Ohio law further outlines provisions for ODA inspections of an HVDB after a complaint is filed.	<p>Although Ohio law requires the LCSB to "Investigate complaints regarding violations of the rules," the LCSB created no defined process for routine inspection for animal welfare of CAFFs or CAFOs, similar to the required annual inspections for HVDBs. Further, there is no process defined in the Livestock Care Standards for filing a livestock animal welfare complaint, nor is there a process outlined for an ODA inspection and response to any specific complaint.</p> <p>OAC 901:12-2-01(D)(1) merely states: "Where the Ohio department of agriculture (department) determines that the owner of the livestock and a person who has current custody or responsibility of the livestock, (the responsible party) has committed a violation of the standards created by the livestock care board, the department shall inform the person having immediate custody of or responsibility for the livestock of the provisions violated."</p> <p><b>The question must be asked: How can the ODA "make a determination" of an animal welfare violation when no inspection process is defined?</b></p>
Inspections when a complaint is filed?	Yes for both HVDBs and Dog Brokers. Complaint inspection will be conducted without advance notice. If operator refuses or thwarts the inspection, license subject to revocation.	<p>As stated above, there are NO defined process for livestock animal welfare inspections, either routinely nor after complaints.</p> <p>It is significant to note that inspections for complaints to the ODA on environmental permitting violations are allowed, but only if the complaint is in writing, as opposed to <b>oral complaints which are investigated at the discretion of the director</b>. It is also specified in ORC that the inspection occurs as follows: "<b>With the consent of the premises owner</b> and, if the premises owner is different from the livestock owner, the livestock owner, the director or the director's authorized representative <b>may</b> enter at all reasonable times on any premises for the purpose of determining compliance with the rules." If access is denied, "the director <b>may</b> apply for a search warrant." [All emphasis added]</p>

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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<p>If violations are found and proven?</p>	<p>For both HVDBs and Dog Brokers:</p> <ul style="list-style-type: none"> <li>-- Based upon an inspection authorized by the director, animals can be seized if it is determined by the inspection that the dog is being kept in violation of laws/regulations.</li> <li>-- A hearing must be held within five days to determine if the dog(s) must be permanently relinquished.</li> <li>-- ORC describes straightforward penalties which include reimbursement of expenses incurred by the ODA, by local law enforcement, and/or by the attorney general.</li> </ul>	<p>If animal welfare violations are proven, with no defined process for inspections, then civil penalties may be applied</p> <p>It is significant to note that only for environmental violations, ORC 903.16 outlines procedures for determining violations and imposing civil penalties. The considerations afforded to the operators are expansive, requiring a detailed process of specific notifications to owners, time periods for corrective action, and opportunity for adjudication hearings. This is especially significant since there is no hard and fast requirements in the Section stating that the ODA director "shall" do anything regarding violators--only that the director "may" take action.</p> <p>Further, in the OAC regarding environmental permitting, it describes an extensive litany of subjective language, subject to the director's discretion, before a civil penalties for violations by a CAFO/CAFF may be imposed.</p> <p>The ODA rules in OAC Chapter 901:10-5-04(D) regarding civil penalties for environmental violations actually state this: <b>"Comment: In considering economic impact [to the violator], the director may consider such factors as cost of repairs, construction, installation including but not limited to, installation of equipment, monitoring devices, and related operational costs."</b> [Emphasis added]</p>
<p>Has an ORC mandate for written standards of care be created in OAC by a governing agency?</p>	<p>Yes, the director will adopt "standards of care" for HVDBs.</p>	<p>Yes, the Livestock Care Standards Board (LCSB) is charged with adopting rules "governing the care and well-being of livestock in this state."</p> <p>Note: Regarding the use of the term "livestock," as defined in ORC for the establishment of the LCSB, "livestock" primarily means members of any of the following: swine (porcine), cattle (bovine), poultry, goats (caprine), sheep (ovine), horse (equine), alpacas and llamas. Therefore, for purposes of this comparison, "livestock" includes members of the poultry species as well.</p>

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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Has specific exceptions found in Animal Cruelty laws found in ORC Section 959?	No exceptions found in animal cruelty laws regarding dogs.	<p>A variety of animal cruelty laws exempt those owning, housing or slaughtering livestock from the same laws required for other animals, including:</p> <ul style="list-style-type: none"> <li>-- An exemption for livestock slaughter allowing the use of "high altitude decompression chambers." This exemption also introduces ambiguity regarding methods for livestock slaughter which may not "immediately and painlessly" render the animal "initially unconscious and subsequently dead." It references ORC 945, where prohibitions against livestock suffering any needless pain or an inhumane death in slaughter may be weaker in ORC 945.01. Further, the penalty for violating ORC 945.01 is "not more than one hundred dollars," a penalty which has stood since it was adopted in law in 1965.</li> <li>-- An exemption for livestock prior to their slaughter to be provided with "access to shelter from wind, rain, snow, or excessive direct sunlight."</li> <li>-- An exemption which allows a person to keep "cattle, poultry or fowl, swine, sheep or goats in an enclosure without wholesome exercise and change of air."</li> </ul> <p>Livestock species are explicitly listed (with the absence of poultry in the explicit list in the section for "Injuring animals") in laws regarding a prohibition for a person to "maliciously or willfully" kill, injure or poison an animal. Livestock species are conspicuously omitted in a companion law that prohibits a person from abandoning an animal. Laws for Abandoning, Injuring or Poisoning animals in Ohio law became effective in 1953 and have stood unrevised since then.</p>
Required veterinary-client-patient-relationship for every animal in Ohio regulations?	<p>Yes, for HVDBs:</p> <ul style="list-style-type: none"> <li>-- Veterinarian shall visit the facility a minimum of one time per calendar year and conduct a physical exam of each adult dog and puppy at that time.</li> <li>-- Requires only a veterinarian to perform surgical procedures (excepting dew claws and tail docking).</li> <li>-- Veterinarian will provide a written annual plan requiring the breeders' care for all dogs and puppies to include: Exercise, behavior, social needs, and health care.</li> <li>-- Appropriate medical care by a veterinarian including prompt treatment for disease, illness or injury</li> <li>-- Required to comply with vaccination and parasite control programs consistent with recommendations by professional veterinary associations.</li> </ul>	<p>No such relationship is required for livestock, except under the following limited circumstances as found in OAC:</p> <ul style="list-style-type: none"> <li>-- When a producer ships milk which tests positive for drug residue (antibiotics) and only to the extent that the veterinarian and the producer sign a validation form confirming that the producer has reviewed with the veterinarian the "Milk and Dairy Beef Drug Residue Prevention" manual.</li> <li>-- When "prescription, extra-label medications, and animal drugs intended for use in or on animal feed," are to be given to livestock.</li> </ul> <p>In addition to these relationships being required for a HVDB, a valid veterinary-client-patient relationship is required of any owner of a dangerous wild animal holding permits for "wildlife shelter," "wildlife propagation," or a "rescue facility." But that relationship is not required for any species of livestock.</p>

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<p>Has detailed specification for housing in Ohio laws and regulations?</p>	<p>Yes for HVDBs which includes:</p> <ul style="list-style-type: none"> <li>-- Daily inspection for each dog</li> <li>-- Required minimum floor space for each adult dog and puppy calculated by: "length of each dog housed in the enclosure in inches as measured from the tip of the nose to the base of the tail plus nine inches, multiplied by 2"</li> <li>-- Requirement that fecal matter, food waste and dirt are to be removed from dog enclosures daily.</li> <li>-- Requirement for daily cleaning and for bi-weekly disinfecting with safe products</li> <li>-- Requirement for specific flooring to preserve the normal mobility and muscle tone of the dog</li> <li>-- Specific requirements for the width of slats (3.5") and the spacing between slats (.5") for any slatted floor for dog enclosure and that floors must be level. Flooring must be safe for the breed, size and age of each dog, and designed "so that the paw of the dog is unable to extend through and become caught in the flooring."</li> <li>-- Requirement for a solid resting area in any enclosure, accommodating the full length of each dog lying down</li> <li>-- Specific requirements for temperature, ventilation and lighting</li> <li>-- Specific regulations for dogs demonstrating an overly-aggressive nature.</li> <li>-- Required contingency plans for specified emergencies affecting dog housing</li> </ul>	<p>Space is not permitted here to compare all of the troubling differences in rules for HVDBs vs. any livestock species relative to housing rules for those animals. Here are a few:</p> <ul style="list-style-type: none"> <li>-- Rather than specifying rules for measurable space for each livestock species animal, both adult and young, the rules for livestock space allocation are much more arbitrary than for dogs, frequently allowing that "stocking density" need be no greater than to allow an animal to lie down and get back up.</li> <li>-- For all poultry species, maximum stocking densities only require that poultry animals be able to "rest at the same time without being forced to rest on top of each other at all stages of production." Similarly for swine, stocking density specifications only allow the animals to lie down "without having to lie on each other." Even that language specifying animals be allowed enough space to not be lying on top of each other is omitted in the rules for cows, sheep, goats, horses, alpacas and llamas.</li> <li>-- For poultry layers, battery cages are allowed (systems with cages connected in rows and multi-high columns). The minimum space requirements in OAC for a laying hen is 67 square inches. Comparatively, an 8.5 x 11 sheet of paper measures 93.5 square inches.</li> <li>-- Tethering/tying of animals (veal calves, dairy cows) is permitted. For veal calves, specifically to prevent abnormal behaviors which are clearly due to confinement and immediate removal from the mother animal.</li> <li>-- Any mention in rules for cleaning the animals stalls or pens has a non-specific time frame (i.e. "cleaned on a regular basis" or "cleaned as necessary") rather than daily cleaning.</li> <li>-- No specified contingency plans for livestock housing in the event of an emergency.</li> </ul>
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## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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Has detailed specifications for animal socialization and exercise in Ohio laws and regulations?	<p>Yes for HVDBs and Includes:</p> <ul style="list-style-type: none"><li>-- Required daily human contact for all adult dogs and puppies beyond the time given for feeding and cleaning, with interaction that "at a minimum, shall include verbal and tactile stimulation in a positive and beneficial manner"</li><li>-- Required daily visual contact with other dogs and humans</li><li>-- Required to be provided with daily, effective environmental enrichment</li><li>-- Required to provide a minimum of thirty minutes of daily exercise for each dog</li><li>-- Required to provide each dog (12 weeks or older) daily opportunities to safely access the outdoors</li></ul>	<p>Socialization of livestock only specified in rules:</p> <ul style="list-style-type: none"><li>-- For alpacas and llamas</li><li>-- Between veal calves</li></ul> <p>Rules are silent for every other species regarding opportunities for socialization with other animals.</p> <p>Regarding exercise, unspecified "exercise" is only required in rules for:</p> <ul style="list-style-type: none"><li>-- Alpacas and llamas and only if they are confined in box pens</li><li>-- Equine species</li><li>-- Dairy cows, if they are tied or confined in a stanchion</li></ul>
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## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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<p>Has detailed specifications for food and water in Ohio laws and regulations?</p>	<p>Yes in OAC for HVDBs, including specifying for each dog and puppy:</p> <ul style="list-style-type: none"> <li>-- That dogs will be fed at least once daily</li> <li>-- That water and receptacles be both clean and sanitary and continuously supplied</li> <li>-- That food be unspoiled and uncontaminated and be served in clean and sanitary receptacles</li> <li>-- That a nutritional plan be developed with veterinary guidance</li> <li>-- That weekly inspection of all food and water equipment is required</li> <li>-- That food is stored and protected from spoilage, vermin infestation and contamination.</li> </ul>	<p>Scant, non-specific detail for livestock food or water requirements. In General Rules: "Livestock must receive feed and water of <b>sufficient quantity and quality on a regular basis...</b>" [Emphasis added] With some veal calf exceptions, no detailed rules address: feeding frequency, cleanliness of food or the feeding receptacles; veterinary nutritional guidance; or any other comparable matter to that required of HVDBs.</p> <p>Each livestock species has a separate OAC Chapter, typically with "Rules" in these categories: Definitions, Feed and Water, Management, and Transportation. Apparently ODA believes neither is it necessary to address welfare for every species in each category, nor for anything beyond these categories for any species. Examples:</p> <ul style="list-style-type: none"> <li>-- Regarding "Feed and Water," there are no "Rules" specified for the swine species.</li> <li>-- For dairy calves, sheep, goats, alpacas, llamas, and equine, Feed and Water Rules merely state that newborns in the species, "must be fed colostrum, or a colostrum replacement within the first twenty-four hours of life." Nothing more.</li> <li>-- For all poultry including layers, boilers, breeders and turkeys, not only do the "Rules" for Feed and Water give no information on feed at all, they merely specify the conditions under which water may be withheld from these livestock species. Nothing more.</li> </ul> <p>The most extensive Feed and Water "Rules" for Feed and Water are for the veal calf species (due to intentional production of extremely lean veal meat). The American Humane Society says veal are the industry's "unwanted male calves." Two veal-types are produced by extreme feeding restrictions: grain-fed veal and "bob" veal. Despite the "Rule" specifying veal calves be fed "two or more times per day," in both types, industry practice severely limits a veal calf's nutritional consumption. "Bob" veal calves are limited to a liquid-only, low-iron diet which produces the whitest meat possible. Grain fed veal or "red veal" is even less desirable in this industry.</p>
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## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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<p>Allows electric prods for use on animals? Allows branding of animals?</p>	<p>Laws and regulations are silent in the use of electric prods or for branding by any means for dogs.</p>	<p>Yes, allows both for livestock animals.</p> <p>The only livestock species which is mentioned as the exception for electric prod use in all cases is poultry. Further, rather than livestock operators self-regulating for humane standards such that "it should go without saying," there is an explicit prohibition on using electric prods on "sensitive areas including the eyes, ears, nose, vulva, anus, udder or testicles and on non-ambulatory disabled livestock."</p> <p>Branding is permitted, either in the use of a hot iron "or other humane method approved by the director." Freeze branding is approved as another "humane" method. As described by the University of Georgia Extension, in freeze branding, a copper or copper-alloy branding iron is placed in liquid nitrogen (or dry ice with alcohol) for up to 25 minutes when a coat of ice will migrate up the handle. After clipping the animal's fur to "insure good contact" with the hide, the iron is applied (examples are calves for 20 to 24 seconds and cows up to half a minute.) The iron is returned to the liquid nitrogen for another 3-4 minutes before using it again.</p> <p>Branding on the same animal can be done multiple times as it changes ownership.</p> <p>According to the American Veterinary Medical Association, which clearly states that branding is "thermal injury to the skin," they cite at least three studies to conclude that: "Both hot-iron and freeze branding are considered to be painful for ruminants." <a href="https://www.avma.org/resources-tools/literature-reviews/welfare-implications-hot-iron-branding-and-its-alternatives#references">https://www.avma.org/resources-tools/literature-reviews/welfare-implications-hot-iron-branding-and-its-alternatives#references</a></p>
<p>Provides expressly stated Ohio laws and rules in response to human actions which cause pain or harm to the animals involved in the operations?</p>	<p>As applied to HVDBs and Dog Brokers, Ohio laws and rules are silent on inhumane actions as compared to those which apparently must be specified in the laws and rules for livestock operators.</p> <p>There are general provisions in animal cruelty laws and regulations.</p>	<p>Apparently, rules had to be detailed in OAC for the humane care of livestock. This is likely due to a history of specific livestock animal abuses which must be expressly prohibited, rather than by an innate understanding of the sentient quality of the animals involved. Operators "shall not maliciously or recklessly throw, drop or drag livestock...must not pick up and/or carry livestock by ears and tails or pull legs in positions or directions which would cause distress."</p> <p>In the species-specific Chapters of OAC for all poultry types, it expressly states that the birds "are not to be caught, carried or lifted by the head, neck or tail."</p>

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Has Ohio requirements for surgical and medical procedures performed on animals involved in the operations absent a veterinarian?	Only dew claw removal and tail docking.	<p>Various industry standard procedures are performed on livestock by owners. Although not itemized in the Livestock Care Standards, they are itemized in regulations governing livestock exhibitions. Industry materials state that these are also routine procedures performed on livestock confined in CAFOs and include the following. Many are permitted without anesthesia or "pain management":</p> <ul style="list-style-type: none"> <li>-- Tagging</li> <li>-- Ear notching</li> <li>-- Hoof trimming</li> <li>-- Deworming</li> <li>-- Branding</li> <li>-- Artificial insemination including semen collection, preparation and freezing</li> <li>-- Castration. (which does not require anesthesia, instead only "consideration" for "pain management"; even that is not required for piglets)</li> <li>-- Tail docking (except for dairy cattle and horses)</li> <li>-- Non-surgical dehorning (dairy cattle, goats) and tusk removal (swine)</li> <li>-- Teeth clipping (swine) and "fighting teeth" removal (llamas and alpacas)</li> <li>-- Intravenous fluid administration</li> <li>-- In poultry species, beak trimming, removal of the comb, toenail, or dew claw, dubbing (removing the wattles), and caponizing (removing testicles)</li> <li>-- Pregnancy detection other than by rectal technique</li> <li>-- Medication and biological administration</li> <li>-- Phlebotomy</li> </ul> <p>For example, industry standard practices for piglets called "processing" are often routinely done immediately after farrowing (birth): For males, castration without anesthesia and teeth clipping to prevent the growth of tusks; for all piglets: tails are docked and ears are frequently notched merely to track birth order in a litter.</p>
Has Ohio requirements for breeding and restricting total lifetime litters/births?	<p>For HVDBs:</p> <ul style="list-style-type: none"> <li>-- Dog can only be bred if it has maintained normal body condition and been declared healthy by a veterinarian.</li> <li>-- A female dog cannot produce more than eight litters in her lifetime</li> <li>-- Whelping are must be clean and dry, allowing the dam to nurse her puppies while lying fully recumbent, and the are permits the dam to temporarily move away from her puppies.</li> </ul>	<p>Laws and rules are silent on the number of times a livestock animal can be bred in it's lifetime. In the swine industry, a sow can be inseminated and give birth up to 5 times in every two-year period, and a "normal" litter can number up to 14 piglets per each litter. When raised in natural environments, sows typically produce up to 8 piglets per litter.</p> <p>Also silent on assessing body condition of livestock animals before breeding, with no specification for veterinarian to declare animal health prior to breeding. Not every livestock animal has detailed specifications for the area for birthing, and those which do are scant.</p>

## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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In Ohio laws and regulations, when are young animals permitted to be removed from mother (weaned)?	For all adult dogs and puppies kept by a HVDB, adult dogs and puppies are not to be separated until the puppy is at least 8 weeks of age.	Silent in specifying humane weaning of livestock animals. The Industry standard practice forces weaning of piglets at 21 days, for example. Veal calves can be immediately removed from the mother, with no specification that they even receive colostrum from the mother animal, as is at least required for dairy cows, lambs, kids, foals, and crias (alpacas and llamas) in their first 24-hours of life.
Has laws and rules for disposition of an animal if disabled?	Laws and rules for dogs are silent on this matter.	Disabled livestock, whether ambulatory or non-ambulatory can still be sold, can still be transported to a slaughter plant, can be slaughtered on a farm, or can be euthanized. It is disturbing that provisions are included in OAC for livestock which are at a non-terminal market or collection facility and are disabled or distressed. There are no requirements for determining why the animal became disabled. "Fatigued swine" are given two hours to recover, calves who are unable to walk "because they are tired or cold" can have non-specified "intervention treatment" for a non-specified time. Cattle disabled during transport, along with the "fatigued swine" and non-ambulatory calves are disposed of in a choice: Either they are euthanized or "released by authorization from the department"--the ODA. Where are those animals "released" to? It is not specified. What does it mean to "release" a disabled animal?

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<p>What are Ohio's requirements for animal transport?</p>	<p>OAC specifies that "transportation of adult dogs or puppies shall comply with the United States Animal Welfare Act Transportation Standards." It further requires that the transport in commerce only occur if it meets one of two requirements: "transport is to a USDA registered research facility; or, the adult dog or puppy is at least eight weeks of age and has been weaned."</p> <p>It is further specified in OAC that "Adult dog or puppy transportation shall be conducted in a manner that is safe, well-planned, coordinated and which minimizes distress to the adult dog or puppies."</p> <p>Detailed specifications are spelled out in OAC for the type of enclosure for transporting adult dogs and puppies. Included among other requirements:</p> <ul style="list-style-type: none"><li>-- Space and safety requirements</li><li>-- Requirement for leak-proof containment for animal waste, using either solid floor or a collection tray under the enclosure.</li><li>-- Requirement that if using solid floor enclosures, they must contain enough previously unused non-toxic litter to absorb and cover animal waste</li><li>-- Requirement that: The transporter shall have an emergency plan "to include, but not limited to, delays caused by accidents and vehicle malfunctions."</li></ul>	<p><b>Livestock and poultry are expressly excluded from the United States Animal Welfare Act for all requirements, including Transportation Standards.</b></p> <p>OAC rules are conspicuously lacking regarding transport for "livestock" when compared to the detailed requirements for HVDBs:</p> <ul style="list-style-type: none"><li>-- No similar language as applied to HVDBs requiring a "safe, well-planned, and coordinated" transport which "minimizes the distress" of livestock.</li><li>-- No similar specifications for safety in transport, except to say that "transport driver is solely responsible for the welfare of livestock," and that the transport driver must only have a non-specific "emergency action plan."</li><li>-- No specified load density nor criteria for determining the fitness of the livestock for loading and transporting; each decision left up to what may be interpreted, perhaps, as the transport driver as the "responsible party."</li><li>-- No means to keep transport vehicle free from animal waste or requirement to provide any type of litter in transport.</li></ul> <p>With little specification, OAC subjectively states:</p> <ul style="list-style-type: none"><li>-- "Handling of livestock during loading, unloading and transport must be done humanely," except that "ramps, chutes and other means of conveyance used for transporting livestock must be constructed to provide adequate footing and minimize slips and falls."</li><li>-- "During transit, livestock must be suitably protected from adverse weather conditions."</li><li>-- "Livestock, excluding poultry, alpacas, llamas, and equines, must be able to stand in their natural position without touching the top of the transport conveyance." No further provisions made for the excluded species of livestock.</li></ul>
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## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

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How long may an animal be held in confinement in transport without stopping?	Ohio rules and federal laws require that dogs be inspected every 4 hours. Further requirements are that dogs be provided with food and water every 8 hours and that puppies be provided with food and water every 4 hours.	<p>Unlike specific language in rules for HVDBs requiring stopping every 4 hours while in transport for inspection and to provide food and water for the dogs in transport, livestock transporters "are required to stop every 28 hours, unload and provide livestock with food, water and rest for at least 5 consecutive hours, <b>unless</b> the transportation vehicle allows the livestock to lie down and rest and have access to feed and water." Presumably, then, there is no requirement for a transport vehicle to stop, no matter the duration of the transport. [Emphasis added].</p> <p>Ohio's animal cruelty law states that no person shall "Detain livestock in railroad cars or compartments longer than twenty-eight hours after they are so placed without supplying them with necessary food, water, and attention, nor permit such stock to be so crowded as to overlie, crush, wound, or kill each other."</p> <p>Inexplicably and disturbingly, in the next paragraph Ohio's animal cruelty law reads <b>in its entirety</b>: 'Upon the written request of the owner or person in custody of any particular shipment of livestock, which written request shall be separate and apart from any printed bill of lading or other railroad form, the length of time in which such livestock may be detained in any cars or compartments without food, water, and attention, may be extended to thirty-six hours without penalty therefor. <b>This section does not prevent the dehorning of cattle.</b>'</p> <p>Note: It is unthinkable to imagine the distress to an animal already under inordinate stress if a waiver of the "Twenty-Eight Hour Law" is provided so that cattle, sheep or goats can be dehorned while in transport. The American Veterinary Medical Association, whose guidance Ohio's LCSB is required to follow states: "Because castration and dehorning cause pain and discomfort, the AVMA recommends the use of procedures and practices that reduce or eliminate these effects." <a href="https://www.avma.org/resources-tools/avma-policies/castration-and-dehorning-cattle">https://www.avma.org/resources-tools/avma-policies/castration-and-dehorning-cattle</a></p>
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Who may euthanize an animal in Ohio laws and regulations?	<p>There is a discrepancy between ORC and OAC on this matter:</p> <p>-- ORC states "...if euthanasia procedure is required, use a veterinarian to perform the procedure."</p> <p>OAC states, "Euthanasia shall follow the American veterinary medical association guidelines for when and how to conduct euthanasia; and shall be performed only by or under the supervision of a licensed veterinarian."</p>	<p>There are various "acceptable methods" of euthanasia of agricultural animals found in the rules in OAC written by the ODA. Of all of the "acceptable methods" of euthanasia, only one--injectable agents--is required to be performed by a veterinarian or under the direct supervision of a veterinarian. All other methods do not require a veterinarian and include:</p> <ul style="list-style-type: none"> <li>-- Carbon dioxide inhalation</li> <li>-- Injectable agents, including barbiturate derivatives</li> <li>-- Penetrating captive bolt (projectiles with gun powder or compressed air)</li> <li>-- Non-penetrating captive bolt (percussive blow with gun powder or compressed air)</li> <li>-- Blunt force trauma</li> <li>-- Gunshot</li> <li>-- Cervical dislocation</li> <li>-- Decapitation</li> <li>-- Electrocution</li> <li>-- Foam (causing hypoxia)</li> <li>-- Maceration (with mechanical apparatus with rotating blades or projections)</li> </ul>
Has requirements in Ohio laws and regulations for extensive record keeping and maintenance regarding veterinary care and welfare for each animal?	<p>Yes for all HVDBs and for Dog Brokers. (Pet Stores must keep extensive records as well.)</p> <p>HVDBs must "keep and maintain a record of veterinary care for each dog kept, housed, and maintained by the high volume breeder," with records kept and maintained for three years after veterinary care.</p>	<p>Silent on the requirement for CAFFs or CAFOs to maintain records regarding the welfare of animals they produce.</p>



## Comparison: Welfare of Dogs vs. Livestock in Ohio Laws/Regulations

Researched and compiled by Margaret Daly-Masternak, March 2022

<p>Is there a state oversight or advisory board with specified membership, charged with reviewing rules governing animal welfare?</p>	<p>Yes, the Commercial Dog Breeding Advisory Board consisting of:</p> <ul style="list-style-type: none"> <li>-- ODA's state veterinarian and members of:</li> <li>-- A humane society group</li> <li>-- A county dog warden</li> <li>-- A veterinarian</li> <li>-- An animal rescue group</li> <li>-- A professional dog breeding group</li> <li>-- A member of the public</li> </ul>	<p>Yes, Ohio Livestock Care Standards Board has a prescribed membership in the Ohio Constitution, consisting of the director who is chairperson, and these members appointed by the governor:</p> <ul style="list-style-type: none"> <li>-- A member representing "family farms"</li> <li>-- A member knowledgeable about food safety</li> <li>-- Two members representing statewide farming organizations</li> <li>-- A veterinarian</li> <li>-- ODA's state veterinarian</li> <li>-- Dean of agriculture department of a college or university</li> <li>-- Two members of the public representing consumers</li> <li>-- One member representing a county humane society</li> <li>-- One each "family farmer," selected by the House of Representatives Speaker and the Senate President.</li> </ul> <p>Director selects Board's vice-chair. Board is charged with "a review of the rules governing the care and well-being of livestock," whether existing or proposed.</p> <p>Also required is a Concentrated Animal Feeding Facility Advisory Committee, with 16 members appointed by the director, with at least 5 Committee members representing the interests of livestock species producers, and with other specified members. Also 5 ex-officio members, including the ODA director who appoints both chair and vice-chair. Advisory Committee is charged with advising director on the rules governing CAFFs, largely around issues of water quality and manure management.</p> <p>It is unclear which advisory group's recommendations would prevail if they present conflict recommendations to the director.</p>
<p>Must there be a state animal identification registry?</p>	<p>For dogs, there is no requirement for a state registry of animals. However, both dog brokers and pet stores must insure a microchip has been placed in the animals in their possession and must record the identification numbers associated with that animal and keep those records for review at the request of the director or the director's designee.</p>	<p>No. In fact, the Ohio Livestock Care Standards Board is expressly prohibited in ORC 904.09, stating they "shall not create a statewide animal identification system."</p>