

No. 20-72

IN THE
SUPREME COURT OF THE UNITED STATES

JANET L. HIMSEL, MARTIN RICHARD HIMSEL,
ROBERT J. LANNON, AND SUSAN M. LANNON,
Petitioners,

v.

4/9 LIVESTOCK, LLC, CO-ALLIANCE. LLP,
SAMUEL T. HIMSEL, CORY M. HIMSEL, CLINTON S. HIMSEL,
AND STATE OF INDIANA,
Respondents.

**On Petition for Writ of Certiorari to the
Court of Appeals of Indiana**

**BRIEF OF INDIANA FARMERS UNION, FAMILY FARM
ACTION ALLIANCE, FOOD & WATER WATCH,
AMERICAN GRASSFED ASSOCIATION, FARM AID,
HOOSIER ORGANIC MARKETING EDUCATION, DAKOTA
RURAL ACTION, IDAHO ORGANIZATION OF RESOURCE
COUNCILS, IOWA CITIZENS FOR COMMUNITY
IMPROVEMENT, AND MISSOURI RURAL CRISIS CENTER
AS *AMICI CURIAE* IN SUPPORT OF PETITIONERS**

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TABLE OF CONTENTS

TABLE OF AUTHORITIES.....	iii
INTERESTS OF <i>AMICI CURIAE</i>	1
INTRODUCTION.....	5
SUMMARY OF ARGUMENT.....	6
ARGUMENT	7
I. Right-to-farm laws take away local farmers and residents’ ability to defend their land and livelihoods from CAFOs.	7
A. Current right-to-farm laws protect corporate interests, not local farmers. ..	7
B. CAFOs are a recent and growing threat to local farmers.	9
C. The present case demonstrates how right-to-farm laws protect CAFOs that harm neighboring properties.....	11
II. CAFOs significantly interfere with local farmers and residents’ use and enjoyment of property and investment-backed expectations.	14
A. CAFOs negatively affect air quality on nearby properties.	14
i. Odors & Particulate Matter.....	15

ii. Harmful Pathogens	17
B. CAFOs negatively affect water quality on nearby properties.	20
i. Toxic Algae Blooms	21
ii. Harmful Pathogens	22
C. CAFOs negatively affect soil quality on nearby properties.	23
CONCLUSION	26

TABLE OF AUTHORITIES

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INTERESTS OF *AMICI CURIAE*

The Indiana Farmers Union (IFU) works to protect and enhance the economic well-being of family farmers, whether they are long-established or beginning their agricultural journey.¹ IFU is a voice for approximately 1,000 member farmers who are committed to conserving Indiana's natural bounty. IFU advocates for the sustainable production of food, fiber, fuel, and feed. IFU is committed to representing the interests of Indiana farmers on issues such as quality of life in rural communities, sustainability, competitive markets, monopolies and consolidation, conservation, and the environment.

Family Farm Action Alliance (FFAA) is a coalition of family farmers and advocates seeking to protect farming and rural communities from multinational agribusiness monopolies through which powerful corporations increasingly exert control over agriculture, extract wealth from farming communities, and turn farmers into cogs. These monopolies shut down mechanisms for farmers to bring their goods to market independent of the major companies, and then force them to farm on the companies' terms. FFAA promotes research and advances policies that will reverse this trend.

¹ All parties consented to the filing of this brief, and all parties received timely notice of IFU's intent to file an *amicus* brief. No counsel for a party authored any part of this brief, and no person or entity other than *amici* made a monetary contribution intended to fund the preparation or submission of this brief.

Food & Water Watch (FWW) is a national nonprofit organization that mobilizes regular people to build political power to move bold and uncompromised solutions to the most pressing food, water, and climate problems of our time. Factory farming is a priority issue for FWW and its more than one million members and supporters. FWW is engaged in numerous campaigns to hold the factory farming industry accountable for its adverse impacts on rural communities and the environment. FWW has more than 14,000 members and supporters in Indiana.

American Grassfed Association (AGA) supports, advocates, and promotes American grassfed and pasture-based farms and ranches, from farm to marketplace. AGA achieves its mission by maintaining a national standard for animals humanely raised on pasture; advocating for policies that support American grassfed producers and family farms; and partnering with likeminded organizations to strengthen rural economies.

Farm Aid aims to raise awareness about the loss of family farms and to keep farm families on the land. Farm Aid works with local, regional, and national organizations to promote fair farm policies, defend family farm-centered agriculture, and organize against the rise of industrial livestock facilities that negatively impact family farm livelihoods, rural economies, public health, and natural resources.

Hoosier Organic Marketing Education (HOME) is a nonprofit organization dedicated to educating about regenerative and organic agriculture and

certification options, family farm advocacy and community development by connecting farmers to consumers, linking farmers to resources and funding opportunities, and educating consumers about the importance of organic food. HOME also works as a farmer advocate with Farm Aid, providing resources for disaster assistance and support in Indiana.

Dakota Rural Action (DRA) organizes people and builds leadership to protect environmental resources, advocate for resilient agricultural systems, and empower people to create policy change that strengthens their communities and cultures. DRA has members across South Dakota working for healthy and just food and agriculture systems that protect clean air, water, and soil for all the current and future inhabitants of South Dakota.

The Idaho Organization of Resource Councils (IORC) is a democratically controlled, member-based organization. IORC empowers people to improve the well-being of their communities, sustain family farms and ranches, transform local food systems, promote clean energy, and advocate for responsible stewardship of Idaho's natural resources. IORC is dedicated to supporting local farmers and ranchers.

Iowa Citizens for Community Improvement (Iowa CCI) is a grassroots membership organization that believes in a food and farm system that works for farmers, workers, eaters, and the environment, not corporations. Iowa CCI believes factory farms and corporate agriculture are responsible for the decimation of Iowa's rural communities, independent family farmers, and natural resources. Iowa CCI also believes that the farm system belongs in the hands of

many independent family farmers, not a handful of corporations. Iowa CCI organizes everyday people to win policies that put people and the planet before corporate profits.

The Missouri Rural Crisis Center (MRCC) is a statewide farm and rural membership organization committed to preserving family farms, promoting land stewardship and environmental integrity, and striving for social justice and economic opportunity by building unity and mutual understanding between rural and urban groups. MRCC organizes family farms and rural communities to keep industrial livestock operations from replacing family farms and destroying the economies and fabric of rural communities. MRCC also leads efforts to stop legislation that strips rural counties of their ability to protect family farmers and rural residents' health, air, water, and property rights from industrial livestock operations.

INTRODUCTION

Industrial animal operations are a growing threat to rural farmers and residents. Over the past three decades, the shift from independent family farmers to corporate control in the food system has increased the number of industrial animal producers that confine thousands, or even millions, of animals in large, specialized facilities without access to the outdoors. These concentrated animal feeding operations (CAFOs) produce massive amounts of manure, wastewater, odor, dust, and other harmful pollutants, which negatively affect the air, water, and soil in local communities; the viability of local farms; and the health and well-being of local residents. Consequently, the expansion of industrial animal operations decreases local farmers and residents' property values and significantly interferes with their ability to use and enjoy their land, including their ability to farm.

Right-to-farm laws threaten rural farmers and residents' right to protect and defend their land from the adverse environmental, health, and economic impacts of industrial animal agriculture. Although these laws were enacted to protect existing farms from unjustified and costly nuisance actions brought by newcomers "coming to the nuisance," this is no longer true in most states. Due to pressure from corporate interests, these laws have been amended to protect CAFOs that enter otherwise bucolic rural communities, changing their nature completely. Thus, by immunizing CAFOs from nuisance suits, right-to-farm laws take away local farmers and residents' well-established right to protect their use and enjoyment of property from interference.

The *amici curiae* are comprised of organizations whose members include independent family farmers and rural farming communities who have experienced the adverse impacts of industrial animal operations, and who have lost their ability to defend their land and livelihoods due to right-to-farm laws. As industrial animal operations continue to threaten rural communities, economies, and ecosystems, courts must acknowledge when statutes strip away rural farmers and residents' ability to bring nuisance actions against industrial operations that undermine constitutionally protected property interests. Thus, we respectfully request this Court grant the writ of certiorari to protect the long-standing property rights of rural farmers and residents.

SUMMARY OF ARGUMENT

The expansion of industrial animal operations in rural agricultural communities poses serious threats to rural farmers and residents. Industrial animal operations generate significantly more manure, waste, and pollution than family farms, resulting in devastating long-term impacts on local communities, public health, and the environment. Although nearby farmers and residents have the fundamental right to use and enjoy their land without unreasonable interference from industrial animal operations, right-to-farm laws have increasingly been used to prevent rural farmers and residents from defending their land and livelihoods from the adverse effects of industrial animal agriculture. Thus, right-to-farm laws strip away rural farmers and residents' property rights without just compensation.

ARGUMENT

I. Right-to-farm laws take away local farmers and residents' ability to defend their land and livelihoods from CAFOs.

Rural farmers and residents are adversely affected by CAFOs that enter rural communities and interfere with the use and enjoyment of neighboring farms and homes. However, in recent years, right-to-farm laws have been coopted by corporate interests to prevent rural farmers and residents from protecting their property interests and investment-backed expectations by stripping away their ability to bring nuisance suits against CAFOs.

A. Current right-to-farm laws protect corporate interests, not local farmers.

Right-to-farm laws were initially intended to protect family farms from unjustified and costly nuisance lawsuits brought by people who moved next to a farm. In the 1970s, states began enacting right-to-farm laws to protect existing farmland from urban sprawl and development.² As more people from urban areas moved into rural communities, their complaints about local farms also rose.³ To address concerns about the high cost of defending an unjustified nuisance action, states enacted right-to-farm laws to prevent newcomers from moving into an agricultural

² See J. Hand, *Right-to-Farm Laws: Breaking New Ground in the Preservation of Farmland*, 45 U. PITT. L. REV. 289, 290–93 (1984).

³ *Id.*

community and bringing a nuisance lawsuit against an existing family farm using traditional agricultural practices.⁴ If an existing farm significantly changed *after* a resident moved next door, the law typically did not apply because the resident did not voluntarily “come to the nuisance.”

Although states intended to protect existing family farms from unjustified nuisance suits brought by newcomers “coming to the nuisance,” the purpose of right-to-farm laws has been subverted by industry interests in recent years, largely due to lobbying by trade associations like state farm bureaus.⁵ Rather than codify the common-law “coming to the nuisance” defense, right-to-farm laws now shield new CAFOs from nuisance actions brought by local farmers and residents. In most states, right-to-farm laws grant blanket immunity to industrial animal operations that have been in an area for a minimal amount of time, even if the plaintiff moved into their property far before any CAFOs existed. In nearly half of all states, including Indiana, existing family farmers and long-time residents cannot bring a nuisance suit against a new CAFO after its first year of operation, regardless of subsequent changes.⁶

⁴ *Id.*

⁵ See Leah Douglas, *Big Ag is Pushing Laws to Restrict Neighbors’ Ability to Sue Farms*, NPR (Apr. 12, 2019), <https://www.npr.org/sections/thesalt/2019/04/12/712227537/big-ag-is-pushing-laws-to-restrict-neighbors-ability-to-sue-farms>.

⁶ See L. Ashwood, et al., *Property Rights & Rural Justice: A Study of U.S. Right-to-Farm Laws*, 67 J. RURAL STUDIES 120, 127 (2019).

B. CAFOs are a recent and growing threat to local farmers.

Although right-to-farm laws initially protected existing farms using traditional practices, the amended versions protect CAFOs by characterizing the shift from a small, independent farm to a large CAFO as an irrelevant change, rather than an unforeseeable and significant change to the operation and surrounding area. For example, in Indiana, no significant change occurs and thus no nuisance suits are allowed if family-owned cropland is sold to a conglomerate and developed into a CAFO that confines tens of thousands of hogs in massive windowless concrete buildings. In doing so, right-to-farm laws have shifted from protecting existing family farmers from people “coming to the nuisance,” to protecting new CAFOs from existing family farmers and residents who moved in long before the nuisance existed.

CAFOs are vastly different than the traditional family farms that existed several years ago. According to the U.S. Department of Agriculture (USDA), hog farms were traditionally small, independent farms that “fed their hogs crops grown onsite,” and “sold their hogs at local markets.”⁷ Conversely, CAFOs are highly industrialized operations that rely on modern technology, antibiotics, and imported feed to confine thousands of animals in large, specialized facilities.⁸ Without recent technological and pharmaceutical

⁷ WILLIAM MCBRIDE & NIGEL KEY, ECON. RES. SERV., USDA, ERR-158, U.S. HOG PRODUCTION FROM 1992 TO 2009: TECHNOLOGY, RESTRUCTURING, & PRODUCTIVITY GROWTH 5 (2013).

⁸ See *id.* at 5, 17–21.

advancements, it would be impossible to produce animals in large-scale confinement facilities. Thus, CAFOs would have been inconceivable to people who moved to agricultural communities decades ago.

CAFOs were developed in recent decades to maximize profit, speed, production, and market share for corporate owners. CAFOs cut costs by taking advantage of economies of scale and externalizing the true cost of industrial animal production onto local farms and communities. Consequently, the expansion of CAFOs and the corporate-driven industrial model of production threatens the economic viability of independent farms with tighter margins. In 2017, nearly 94 percent of hogs sold in the United States were produced on operations with over 5,000 hogs,⁹ up from 87 percent in 2007,¹⁰ and 65 percent in 1997.¹¹ Indiana is no exception. In 2017, approximately 91 percent of all hogs sold in Indiana were produced on operations with over 5,000 hogs,¹² up from 79 percent in 2007,¹³ and 45 percent in 1997.¹⁴ Thus, right-to-farm laws protect corporate interests by ignoring the fundamental differences between CAFOs and

⁹ NAT'L AGRIC. STAT. SERV., USDA, AC-17-A-51, 2017 CENSUS OF AGRICULTURE: UNITED STATES 24 tbl. 22 (2019).

¹⁰ NAT'L AGRIC. STAT. SERV., USDA, AC-07-A-51, 2007 CENSUS OF AGRICULTURE: UNITED STATES 22 tbl. 22 (2009).

¹¹ NAT'L AGRIC. STAT. SERV., USDA, AC-97-A-51, 1997 CENSUS OF AGRICULTURE: UNITED STATES 35 tbl. 35 (1999).

¹² NAT'L AGRIC. STAT. SERV., USDA, AC-17-A-14, 2017 CENSUS OF AGRICULTURE: INDIANA 24 tbl. 22 (2019).

¹³ NAT'L AGRIC. STAT. SERV., USDA, AC-07-A-14, 2007 CENSUS OF AGRICULTURE: INDIANA 22 tbl. 22 (2009).

¹⁴ NAT'L AGRIC. STAT. SERV., USDA, AC-97-A-14, 1997 CENSUS OF AGRICULTURE: INDIANA 35 tbl. 35 (1999).

independent farms, including their size, ownership, labor, technologies, practices, and values.

In sum, right-to-farm laws have changed in recent years to protect CAFOs that enter rural communities and pollute nearby farms and homes. In doing so, these laws have stripped away rural farmers and residents' ability to bring nuisance suits to defend their property from the harmful effects of large-scale industrial animal production, giving CAFOs freedom to pollute neighboring properties without fear of litigation.

C. The present case demonstrates how right-to-farm laws protect CAFOs that harm neighboring properties.

The present case involves Indiana's Right-to-Farm Act, which was enacted in the early 1980s and amended over time to give immunity to CAFOs. This case demonstrates how right-to-farm laws across the country have been subverted by corporate interests to protect CAFOs that pollute local communities and interfere with the property rights of local farmers and residents.

In 1981, Indiana enacted a right-to-farm law that protected existing family farms from lawsuits brought by newcomers who moved next to a farm, so long as the farm was operating for at least a year without significant changes. *See* IND. CODE § 34-1-52-4(f) (1981). Thus, Indiana's original right-to-farm law codified the "coming to the nuisance" defense.

In 2005, Indiana dramatically altered its right-to-farm law by redefining what constitutes a

“significant change” to an agricultural operation. *Id.* § 32-30-6-9(d)(1) (2005). Under this amendment, a “significant change” no longer includes “[t]he conversion from one type of agricultural operation to another”; the “[a]doption of new technology”; or a “change in the . . . type or size of the agricultural operation.” *Id.* § 32-30-6-9(d)(1)(A), (B), (D). Consequently, local landowners have no legal recourse when a CAFO replaces a small family farm and begins polluting nearby properties, which is precisely what happened to the Petitioners in the present case.

Here, Respondents built a large CAFO with over 8,000 hogs on a field that was previously used to grow crops. The Himsels and Lannons had lived next to the field for decades, and the Himsels had also raised livestock and grown crops on their property, long before the CAFO existed. Since the CAFO began operating, the families have suffered serious adverse impacts. Odors and harmful gases from the decomposing manure and confinement facilities travel through the air at all times of day, preventing the families from going outside or using and enjoying their property as they had when they moved into their homes. Moreover, their property values dropped substantially.

Under Indiana’s original right-to-farm law from 1981, the Himsels and Lannons would have an actionable nuisance claim against the CAFO because the new large-scale industrial hog operation increased odors and air emissions, which significantly interfered with the families’ right to use and enjoy their properties and decreased their property values. Because the families lived in their homes long before

the CAFO existed, the “coming to the nuisance” defense does not apply. Further, the new large-scale industrial hog operation significantly changed almost every aspect of the field it replaced, including the nature and size of the operation and its technologies.

However, Indiana’s amendment from 2005 extinguished any nuisance claims against the new CAFO by granting immunity to CAFOs that replace any agricultural field or farm, even if the CAFO is significantly larger, more industrialized, and more harmful to the community. Under the amended law, the Himsels and Lannons have no legal recourse against the CAFO for interfering with their use and enjoyment of their land.

As the present case demonstrates, right-to-farm laws have shifted from protecting existing farms from unjustified nuisance actions brought by newcomers “coming to the nuisance,” to protecting new industrial animal operations from valid nuisance actions brought by existing farmers and residents who have the right to seek recourse when CAFOs interfere with the surrounding property and decrease property values. Thus, right-to-farm laws like the one in Indiana strip rural farmers and residents of their ability to protect their constitutionally protected property rights and investment-backed expectations from CAFOs.

II. CAFOs significantly interfere with local farmers and residents' use and enjoyment of property and investment-backed expectations.

Unlike traditional family farms, CAFOs produce massive amounts of manure, odor, dust, and other adverse impacts, which negatively affect local air, water, and soil quality, public health and safety, agriculture, and property. As described below, these impacts significantly interfere with local farmers and residents' use and enjoyment of their properties and their investment-backed expectations.

A. CAFOs negatively affect air quality on nearby properties.

CAFOs emit significant amounts of odor, dust, noxious gas, pathogens, and other harmful air pollutants, which travel by wind to neighboring properties and stay in the air for long periods.¹⁵ These emissions decrease local residents' property values and interfere with their ability to use and enjoy their

¹⁵ See, e.g., CLAUDIA COPELAND, CONG. RES. SERV., RL32948, AIR QUALITY ISSUES & ANIMAL AGRICULTURE: A PRIMER 2–5 (2014); J. Schaeffer, et al., *Size, Composition, & Source Profiles of Inhalable Bioaerosols From Colorado Dairies*, 51 ENVTL. SCI. TECH. 6430 (2017) (dairy facilities emit particulate matter and “opportunistic pathogens”); G. Kafle, et al., *Emissions of Odor, Ammonia, Hydrogen Sulfide, & Volatile Organic Compounds From Shallow-Pit Pig Nursery Rooms*, 39 J. BIOSYSTEMS ENGINEERING 76 (2014) (hog facilities emit several gases and odors); D. Williams, et al., *Airborne Cow Allergen, Ammonia & Particulate Matter at Homes Vary With Distance to Industrial Scale Dairy Operations*, 10 ENVTL. HEALTH 72 (2011) (dairy facilities emit several harmful air pollutants in surrounding area).

property by negatively affecting local residents' quality-of-life, health, and well-being. Moreover, these emissions interfere with local farmers' property use and investment-backed expectations by increasing the spread of harmful pathogens, including infectious diseases and antibiotic resistant genes.

These emissions arise from the specialized facilities and technologies on which CAFOs rely to confine animals, store their feed, and manage their waste. The main sources of air emissions from CAFOs are manure storage pits and lagoons, where CAFOs store enormous amounts of manure and waste until they can dispose it on nearby agricultural fields. Manure spread onto agricultural fields is another major emission source.

i. Odors & Particulate Matter

CAFOs produce highly offensive odors and smog in the surrounding area.¹⁶ These emissions significantly interfere with local farmers and residents' investment-backed expectations by decreasing local property values. In a study on the economic impacts of CAFOs on local residents, researchers found that the presence of a new hog CAFO reduced residential sales prices by 23 to 32

¹⁶ See, e.g., COPELAND, *supra* note 15, at 4; S. Trabue, et al., *Odorous Compounds Sources & Transport From a Swine Deep-Pit Finishing Operation: A Case Study*, 233 J. ENVTL. MGMT. 12 (2019) (manure storage produces several odorous compounds).

percent, with the greatest effects on downwind properties.¹⁷

Air emissions from CAFOs are not only annoying and unpleasant to human senses, but they are also harmful to human health. At low concentrations, gases emitted from CAFOs can cause a range of acute symptoms, from skin, eye, nose, and throat irritation, to respiratory and cardiovascular irritation, and headaches.¹⁸ For nearby residents with high exposure, air pollutants from CAFOs can also cause allergies and asthma,¹⁹ and lung and brain

¹⁷ R. Simons, et al., *The Effect of a Large Hog Barn Operation on Residential Sales Prices in Marshall County, KY*, 6 J. SUSTAINABLE REAL ESTATE 93, 109–10 (2014); see also H. Isakson & M. Ecker, *An Analysis of the Impact of Swine CAFOs on the Value of Nearby Houses*, 39 AGRIC. ECON. 365 (2008).

¹⁸ See COPELAND, *supra* note 15, at 3–4; see, e.g., L. Schinasi, et al., *Air Pollution, Lung Function, & Physical Symptoms in Communities Near Concentrated Swine Feeding Operations*, 22 EPIDEMIOLOGY 208 (2011) (air pollutants near hog operations cause acute physical symptoms).

¹⁹ See, e.g., A. Schultz, et al., *Residential Proximity to CAFOs & Allergic & Respiratory Disease*, 130 ENVTL. INT'L 104911 (2019) (residents near CAFOs have higher rates of asthma and allergies); S. Rasmussen, et al., *Proximity to Industrial Food Animal Production & Asthma Exacerbations in Pennsylvania*, 14 INT'L J. ENVTL. RES. & PUBLIC HEALTH 362 (2017); B. Pavilonis, et al., *Relative Exposure to Swine Animal Feeding Operations & Childhood Asthma Prevalence in an Agricultural Cohort*, 122 ENVTL. RES. 74 (2013); see also D. Williams, et al., *Cow Allergen (Bos D2) & Endotoxin Concentrations are Higher in the Settled Dust of Homes Proximate to Industrial-Scale Dairy Operations*, 26 J. EXPOSURE SCI. & ENVTL. EPIDEMIOLOGY 42 (2016).

damage.²⁰ Thus, odors, particles, and other harmful pollutants from CAFOs can interfere with local farmers and residents' ability to go outside.²¹ Moreover, air emissions from CAFOs interfere with local farmers' ability to farm by preventing farmers from working on their land.

ii. Harmful Pathogens

CAFOs emit dust containing harmful microorganisms and pathogens, which can infect livestock on nearby farms and significantly interfere with local farmers' investment-backed expectations. By concentrating thousands of animals in a small area, CAFOs increase the spread of infectious diseases among densely confined animals, and these diseases can spread easily to animals on nearby farms

²⁰ See, e.g., J. Fisher, et al., *Residential Proximity to Intensive Animal Agriculture & Risk of Lymphohematopoietic Cancers in the Agricultural Health Study*, 31 EPIDEMIOLOGY 478 (2020) (residents near CAFOs have higher rates of non-Hodgkin lymphoma and leukemia); K. Kilburn, *Human Impairment From Living Near Hog CAFOs*, J. ENVTL. & PUBLIC HEALTH 1, 4–6 (2012) (residents near CAFOs have higher rates of neurobehavioral and pulmonary impairments); S. May, et al., *Respiratory Health Effects of Large Animal Farming Environments*, 15 J. TOXICOLOGY & ENVTL. HEALTH 524 (2012) (CAFO emissions “produce a wide spectrum of upper and lower respiratory tract diseases”); L. Schinasi, et al., *supra* note 18.

²¹ See V. Blanes-Vidal, et al., *Residential Exposure to Outdoor Air Pollution From Livestock Operations & Perceived Annoyance Among Citizens*, 40 ENVTL. INT'L 44 (2012) (exposure to animal waste odor is “a significant degradation in [rural residents'] quality of life”); V. Blanes-Vidal, et al., *Chronic Exposure to Odorous Chemicals in Residential Areas & Effects on Human Psychosocial Health*, 490 SCI. TOTAL ENVTL. 545 (2014) (exposure to animal waste odor affects rural residents' “psychosocial health and well-being”).

through the air,²² potentially killing livestock and increasing veterinary costs for local farmers. CAFOs also increase the spread of infectious microorganisms between animals and humans (commonly referred to as zoonotic diseases),²³ which can interfere with local farmers' ability to farm.

Moreover, because CAFOs commonly use antibiotics to prevent disease, reduce production

²² See, e.g., A. Hagerman, et al., *Temporal & Geographic Distribution of Weather Conditions Favorable to Airborne Spread of Foot-and-Mouth Disease in the Coterminous United States*, 161 PREVENTIVE VETERINARY MEDICINE 41 (2018) (foot-and-mouth disease can spread between livestock premises by air); C. Theofel, et al., *Microorganisms Move a Short Distance Into an Almond Orchard From an Adjacent Upwind Poultry Operation*, 86 APPLIED & ENVTL. MICROBIOLOGY 1 (2020) (foodborne pathogens from CAFOs can travel to nearby orchards by air); E. Berry, et al., *Effect of Proximity to a Cattle Feedlot on Escherichia coli O157:H7 Contamination of Leafy Greens & Evaluation of the Potential for Airborne Transmission*, 81 APPLIED & ENVTL. MICROBIOLOGY 1101 (2015) (*E. coli* from CAFOs can travel to nearby crops by air).

²³ See B. Jones, et al., *Zoonosis Emergence Linked to Agricultural Intensification & Environmental Change*, 110 PNAS 8399, 8401–03 (2013); see, e.g., J. Schaeffer, et al., *supra* note 15; M. Jahne, et al., *Emission & Dispersion of Bioaerosols From Dairy Manure Application Sites*, 49 ENVTL. SCI. TECH. 9842 (2015) (bioaerosols from manure application pose significant health risks to “downwind receptors”); R. Dungan, *Estimation of Infectious Risks in Residential Populations Exposed to Airborne Pathogens During Center Pivot Irrigation of Dairy Wastewaters*, 48 ENVTL. SCI. TECH. 5033 (2014) (bioaerosols from wastewater irrigation pose greatest infection risks to nearby residents).

costs, and increase animal growth rates,²⁴ they dramatically increase the amount of antibiotic resistant genes and bacteria in the surrounding area.²⁵ By spreading antibiotic resistant genes and bacteria to nearby farms and animals, CAFOs make it more difficult for independent farms to treat infections and prevent outbreaks among livestock.²⁶ Antibiotic residues from CAFOs also significantly interfere with the investment-backed expectations of local farmers who raise antibiotic-free animals.²⁷ Further, antibiotic resistant bacteria and genes from

²⁴ See K. Hoelzer, et al., *Antimicrobial Drug Use In Food-Producing Animals & Associated Human Health Risks*, 13 BMC VETERINARY RES. 211 (2017) (finding that “antimicrobial use on farms or feedlots contributes to the problem of antimicrobial resistance”).

²⁵ See A. George, et al., *Risk of Antibiotic-Resistant Staphylococcus aureus Dispersion From Hog Farms*, RISK ANALYSIS (2020) (“[A]ntibiotic-resistant *S. aureus* can be present in air, soil, water, and household surface samples gathered in or near high-intensity hog operations.”); see, e.g., D. Ferguson, et al., *Detection of Airborne Methicillin-Resistant Staphylococcus aureus Inside & Downwind of a Swine Building*, 21 J. AGROMEDICINE 149 (2016) (methicillin-resistant *S. aureus* (MRSA) was present in air downwind of CAFO); A. McEachran, et al., *Antibiotics, Bacteria, & Antibiotic Resistance Genes: Aerial Transport From Cattle Feed Yards Via Particulate Matter*, 123 ENVTL. HEALTH PERSPECTIVES 337 (2015) (antibiotic resistant genes and bacteria were present in air downwind of CAFOs).

²⁶ See G. Innes, et al., *External Societal Costs of Antimicrobial Resistance in Humans Attributable to Antimicrobial Use in Livestock*, 41 ANN. REV. PUBLIC HEALTH 141 (2020).

²⁷ See M. Davis, et al., *Occurrence of Staphylococcus aureus in Swine & Swine Workplace Environments on Industrial & Antibiotic-Free Hog Operations in North Carolina*, 163 ENVTL. RES. 88 (2018) (multidrug-resistant *S. aureus* (MDRSA) was present in air downwind of CAFO but not antibiotic-free farms).

CAFOs can transfer to humans through the air,²⁸ potentially exposing local farmers to heightened health risks and medical costs, and interfering with their use of property.²⁹

B. CAFOs negatively affect water quality on nearby properties.

CAFOs degrade local water quality by increasing concentrations of manure, nutrients, pathogens, and other harmful pollutants in local water sources. These contaminants decrease local residents' property values and interfere with their use and enjoyment of property by increasing toxic algae blooms and health risks. Moreover, these contaminants interfere with local farmers' property use and investment-backed expectations by reducing their yields and increasing their costs.

²⁸ See A. Arfken, et al., *Comparison of Airborne Bacterial Communities From a Hog Farm & Spray Field*, 25 J. MICROBIOLOGY & BIOTECHNOLOGY 709 (2015) (air emissions from CAFOs and spray fields can spread antibiotic-resistant bacteria and opportunistic pathogens to farmers and nearby residents); J. Casey, et al., *High-Density Livestock Operations, Crop Field Application of Manure, & Risk of Community-Associated Methicillin-Resistant Staphylococcus aureus Infection in Pennsylvania*, 172 JAMA INTERNAL MEDICINE 1980 (2013) (CAFOs significantly increase risk of MRSA and skin- and soft-tissue infections for nearby residents).

²⁹ See, e.g., J. Rinsky, et al., *Livestock-Associated Methicillin & Multidrug Resistant Staphylococcus aureus is Present Among Industrial, Not Antibiotic-Free Livestock Operation Workers in North Carolina*, 8 PLOS ONE 1 (2013); S. Wardyn, et al., *Swine Farming is a Risk Factor for Infection With & High Prevalence of Carriage of Multidrug-Resistant Staphylococcus aureus*, 61 CLINICAL INFECTIOUS DISEASES 59 (2015).

These contaminants enter local water sources through direct discharges to local waterways, or manure applications to local agricultural fields.³⁰ When CAFOs apply excessive amounts of manure to agricultural fields, nutrients in the manure, such as nitrogen and phosphorus, accumulate in the soil, and enter waterways through soil erosion and runoff.³¹ Likewise, when CAFOs apply excessive amounts of manure to croplands, the excess nitrogen can mineralize into nitrate, which is an extremely soluble form of nitrogen that can move through soil with soil water, often leaching into groundwater or surface waters.³²

i. Toxic Algae Blooms

Manure runoff and discharges from CAFOs have several adverse impacts on local farmers and residents' use and enjoyment of property. For example, nutrient loading contributes to oxygen depletion and excessive algae blooms in surface waters, which leads to degraded water quality, fish mortality, and other harmful ecological impacts.³³

³⁰ See, e.g., M. Mallin, et al., *Industrial Swine & Poultry Production Causes Chronic Nutrient & Fecal Microbial Stream Pollution*, 226 WATER, AIR & SOIL POLLUTION 407 (2015); C. Heaney, et al., *Source Tracking Swine Fecal Waste in Surface Water Proximal to Swine CAFOs*, 511 SCI. TOTAL ENVTL. 676 (2015).

³¹ See, e.g., M. Mallin, et al., *supra* note 30.

³² See, e.g., C. Jones, et al., *Livestock Manure Driving Stream Nitrate*, 48 AMBIO 1143, 1143–53 (2019) (nitrate was significantly higher in watersheds with high concentration of livestock).

³³ See EPA, LITERATURE REVIEW OF CONTAMINANTS IN LIVESTOCK & POULTRY MANURE & IMPLICATIONS FOR WATER QUALITY 47–48 (2013).

Algae blooms in recreational and drinking water sources can also produce toxins, such as cyanobacteria (commonly referred to as blue-green algae), which are harmful to livestock and aquatic life, as well as humans.³⁴ Moreover, algae blooms can dramatically reduce the value of waterfront properties.³⁵ Thus, CAFOs decrease property values and significantly interfere with local farmers and residents' right to use and enjoy their properties by increasing toxic algae blooms.

ii. *Harmful Pathogens*

CAFOs cause harmful pathogens to enter local water sources by disposing large amounts of manure and wastewater onto local agricultural fields.³⁶ These

³⁴ *Id.*

³⁵ See D. Wolf & H. Klaiber, *Bloom & Bust: Toxic Algae's Impact on Nearby Property Values*, 135 *ECOLOGICAL ECON.* 209 (2017) (properties near algal-infested waters lost 22 percent of their value).

³⁶ See O. Alegbeleye & A. Sant'Ana, *Manure-Borne Pathogens as an Important Source of Water Contamination*, 227 *INT'L J. HYGIENE & ENVTL. HEALTH* 113524 (2020); see, e.g., L. Casanova, et al., *Antibiotic-Resistant Salmonella in Swine Wastes & Farm Surface Waters*, 71 *LETTERS IN APPLIED MICROBIOLOGY* 117, 120 (2020) ("Salmonella, including antibiotic-resistant Salmonella, are common in hog wastes, and can be found in environmental waters associated with hog CAFOs."); S. Hatcher, et al. *Occurrence of MRSA in Surface Waters Near Industrial Hog Operation Spray Fields*, 565 *SCI. TOTAL ENVTL.* 1028 (2016) (MRSA and MDRSA were present in surface waters near CAFO spray fields); C. Givens, et al., *Detection of Hepatitis E Virus & Other Livestock-Related Pathogens in Iowa Streams*, 556 *SCI. TOTAL ENVTL.* 1042 (2016) (zoonotic pathogens were present in surface waters near manure application sites).

pathogens can adversely affect local residents who rely on the contaminated water source for drinking water or recreation, as well as local farmers who rely on the water source to feed livestock or irrigate crops.³⁷ In addition to finding alternative water sources, independent farmers bear the cost of treating infected livestock and destroying contaminated crops. Therefore, CAFOs interfere with local farmers and residents' property use and investment-backed expectations by increasing pathogen contamination in local water sources.

C. CAFOs negatively affect soil quality on nearby properties.

CAFOs degrade local soil quality by increasing concentrations of manure, nutrients, heavy metals, and other harmful pollutants in nearby agricultural fields and residential properties. CAFOs also threaten soil quality on nearby properties by holding massive amounts of manure in long-term manure storage structures prone to breakage and spillage. Soil contaminants from CAFOs interfere with local farmers' ability to farm by reducing productivity and increasing costs.

³⁷ See, e.g., L. He, et al., *Discharge of Swine Wastes Risks Water Quality & Food Safety: Antibiotics & Antibiotic Resistance Genes From Swine Sources to the Receiving Environments*, 92 ENVTL. INT'L 210 (2016) (vegetables irrigated with swine wastewater can contain antibiotic resistant genes); M. Oliveira, et al., *Presence & Survival of Escherichia coli O157:H7 on Lettuce Leaves & in Soil Treated with Contaminated Compost & Irrigation Water*, 156 INT'L J. FOOD MICROBIOLOGY 133 (2012) (lettuce irrigated with contaminated water can contain *E. coli*).

CAFOs contribute to excessive nutrients and pollutants in the soil on nearby properties by disposing manure and wastewater onto local agricultural fields. For local farmers with tight margins, excessive soil nutrients can threaten their economic viability by reducing crop yields. Further, excessive soil nutrients can reduce forage for animals raised on pastures, potentially increasing feed costs for local pasture-based farms. Moreover, manure from CAFOs can increase soil concentrations of other highly persistent pollutants, such as antibiotic residues, which increase the spread of antibiotic-resistant bacteria on nearby farms.³⁸ Thus, CAFOs interfere with local farmers' property use and investment-backed expectations by decreasing soil productivity and increasing costs relating to feed, soil remediation, and disease prevention.

CAFOs also negatively affect the soil quality on nearby agricultural fields and residential properties by storing massive amounts of manure and waste in long-term storage systems prone to leakage and spillage. When there is an infrastructure failure or heavy rain storm, manure lagoons can spill decades' worth of accumulated waste onto local properties, causing crop destruction, soil degradation, water

³⁸ See, e.g., C. McKinney, et al., *Occurrence & Abundance of Antibiotic Resistance Genes in Agricultural Soil Receiving Dairy Manure*, 94 FEMS MICROBIOLOGY ECOLOGY 1 (2018) (manure applications significantly increase abundance of antibiotic resistant genes in soil).

contamination, and other adverse impacts.³⁹ Further, for local farms with tight margins, the long-term effects include increased disease among livestock,⁴⁰ and reduced crop yields, quality, and revenue.⁴¹ Thus, CAFOs negatively affect local farmers and residents' properties by increasing the risk of manure spills.

³⁹ See M. Carrel, et al., *Pigs in Space: Determining the Environmental Justice Landscape of Swine CAFOs in Iowa*, 13 INT'L J. ENVTL. RES. PUBLIC HEALTH 1, 13 (2016) (areas with "high densities of swine" are "significant hotspots of hog manure spills" with "uneven exposure to the negative impacts of uncontrolled manure release"); see, e.g., Press Release: NC Dep't of Env'tl. Quality, Division of Water Resources Issues Notice of Violation to B&L Farms (Jul. 16, 2020) (hog lagoon breach caused three million gallons of manure to spread "into farms, wetlands, and . . . tributary"), <https://deq.nc.gov/news/press-releases/2020/07/16/division-water-resources-issues-notice-violation-bl-farms>; Wynne Davis, *Overflowing Hog Lagoons Raise Environmental Concerns in North Carolina*, NPR (Sep. 22, 2018), <https://www.npr.org/2018/09/22/650698240/hurricane-s-aftermath-floods-hog-lagoons-in-north-carolina>.

⁴⁰ See S. Haack, et al., *Genes Indicative of Zoonotic & Swine Pathogens are Persistent in Stream Water & Sediment Following a Swine Manure Spill*, 81 APPLIED & ENVTL. MICROBIOLOGY 3430 (2015).

⁴¹ See, e.g., Press Release: NC Dep't of Agric. & Consumer Servs., Flood Crops Cannot Be Used for Human Food (Sep. 21, 2018) ("Farmers whose crops were flooded . . . face not only the prospect of lower yields and loss of quality, but also the reality that those crops cannot be used for human food."), <https://www.ncagr.gov/paffairs/release/2018/Floodedcropscaanntbeusedforhumanfood.htm>.

In sum, CAFOs pose several threats to the property rights of local farmers and residents, including increased odor, air pollution, water contamination, soil degradation, infectious disease, and antibiotic resistance. However, right-to-farm laws strip away local farmers and residents' ability to bring nuisance actions to defend their property from CAFOs, without compensating local farmers and residents for their loss of property rights.

CONCLUSION

We respectfully request this Court grant the writ of certiorari to protect the long-standing property rights of rural farmers and residents.

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