

COVID-19 and Factory Farming:

Rethinking our relationship with farmed animals to reduce the likelihood of the next pandemic and reform the food system.

NOVEMBER 2020

Contents

RETHINKING OUR RELATIONSHIP WITH FARMED ANIMALS TO REDUCE THE LIKELIHOOD OF THE NEXT PANDEMIC AND REFORM THE FOOD SYSTEM	5
Preface	5
Introduction.....	6
REALITIES OF A FOOD SYSTEM RELIANT ON FACTORY FARMING	8
Introduction.....	8
Animals	8
Monocropping.....	9
Workers	11
Environment and climate	12
Human health	13
Zoonotic disease	15
Consolidation	16
Conclusion.....	17
ALTERNATIVE TO A FOOD SYSTEM RELIANT ON FACTORY FARMING	18
Introduction.....	18
Animals	19
Workers	20
Environment and climate	21
Human health	21
Zoonotic disease	23
Farmer autonomy and resilience	24
Conclusion.....	24
POLICY RECOMMENDATIONS	25
Introduction.....	25
PRIMARY POLICY RECOMMENDATION	25
Prohibit factory farming.....	25
Support an alternative, more sustainable, more resilient food system	26
Ensure that animal cruelty laws are effective	28

POLICY RECOMMENDATIONS TO REFORM THE FACTORY FARMING SYSTEM TO REDUCE ZOOBOTIC DISEASE RISK AND PROTECT ANIMALS, THE ENVIRONMENT, WORKERS, AND HUMAN HEALTH 30

Reduce animal density 30

End subtherapeutic use of antibiotics 32

End the use of beta-agonists 33

Stop deregulation of slaughter and line speed increases 36

Increase surveillance against and improve tracing of zoonotic disease 38

Support farm workers and food workers 41

Restrict depopulation and disposal methods 44

Strengthen and enforce environmental regulations and reporting 47

POLICY RECOMMENDATIONS TO HOLD FACTORY FARMS ACCOUNTABLE 48

Require product labeling of externalized costs 48

Require disease insurance 51

Require disaster plans 53

Enhance enforcement of antitrust laws 55

Fund investigations into fraud 57

Divest public funds 58

POLICY RECOMMENDATIONS TO ENSURE A SAFER AND MORE NUTRITIOUS FOOD SUPPLY 61

Shift subsidies 61

Create checkoff programs for plant-based meat, dairy, and eggs 63

Require safer and more nutritious food options in food programs and procurements 65

Promote a plant-based diet 67

ACKNOWLEDGEMENTS 70

About the Animal Legal Defense Fund

The Animal Legal Defense Fund was founded in 1979 to protect the lives and advance the interests of animals through the legal system. To accomplish this mission, the Animal Legal Defense Fund files high-impact lawsuits to protect animals from harm; provides free legal assistance and training to prosecutors to ensure that animal abusers are held accountable for their crimes; supports tough animal protection legislation and fights harmful legislation; and provides resources and opportunities to law students and professionals to advance the emerging field of animal law. For more information, please visit [aldf.org](https://www.aldf.org).



Rethinking our relationship with farmed animals to reduce the likelihood of the next pandemic and reform the food system

Preface

At the time of this paper’s release in November 2020, the nation is still reeling from the effects of a global pandemic that has claimed more than 247,000 lives in the United States alone, with daily cases continuing to rise.¹ Since the COVID-19 crisis began at the beginning of the year, months of shelter-in-place orders have shuttered businesses, putting more than 50 million Americans out of work in May 2020² and upending the livelihoods of working families, particularly affecting Black people, Indigenous people, other people of color and women. Black, Indigenous, and Latine persons are hospitalized and die at higher rates than White persons; Asian Americans report increased discrimination; and women have been bearing the stress of unpaid caretaking responsibilities, often while still engaging in paid work.³ More than six million American households were unable to make housing payments in September 2020, and approximately one-third of families with children are now experiencing food insecurity, with a significant percentage having to rely on food-assistance programs.⁴ Communities of color are also disproportionately impacted by housing and food insecurity, with Black and Latine households being more than twice as likely to experience food insecurity as White households.⁵ The public health and economic crises related to the pandemic have exacerbated existing inequities — reinforcing the reality that certain populations are disproportionately impacted by upheaval events in life based on a variety of intersecting cultural, economic, and historical factors.⁶

Policymakers must be mindful of these disparities and innovate policies to address — and not exacerbate — injustices. To effectively meet the public health challenges raised by pandemics, policymakers must consider not only responses to discrete, individualized health concerns, but also addressing systemic factors that enable and exacerbate pandemics. We must craft humane, equitable, and sustainable policy solutions that will create transformative change across industries and social conditions.

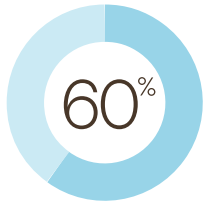
-
- 1 See Bonnie Berkowitz et al., *At Least 237,000 People Have Died from Coronavirus in the U.S.*, WASH. POST, [link here](#) (last updated Nov. 9, 2020); Hannah Ritchie et al., *Coronavirus (COVID-19) Cases: Cumulative Confirmed COVID-19 Cases, United States*, OUR WORLD IN DATA, [link here](#) (last visited Aug. 27, 2020).
- 2 Patricia Cohen, “Still Catching Up”: Jobless Numbers May Not Tell the Whole Story, N.Y. TIMES, June 4, 2020, [link here](#); U.S. Bureau of Labor Statistics, *Labor Force Statistics from the Current Population Survey*, [link here](#) (last modified Nov. 6, 2020).
- 3 ANIMAL LEGAL DEFENSE FUND, COVID-19 AND ANIMALS: RETHINKING OUR RELATIONSHIP WITH ANIMALS TO REDUCE THE LIKELIHOOD OF THE NEXT GLOBAL PANDEMIC 25 (June 2020), available at [link here](#); see also APM Research Lab Staff, *The Color of CoronaVirus: COVID-19 Deaths by Race and Ethnicity in the U.S.*, APMRES. LAB (June 24, 2020), [link here](#); Richard A. Oppel, Jr. et al., *The Fullest Look Yet at the Racial Inequity of Coronavirus*, N.Y. TIMES, July 5, 2020, [link here](#); Gregorio A. Millett, *Assessing Differential Impacts of COVID-19 on Black Communities*, 47 ANNALS OF EPIDEMIOLOGY 37 (2020), [link here](#); Selena Simmons-Duffin & Pien Huang, *CDC Employees Call Out Agency’s “Toxic Culture of Racial Aggressions,”* NPR (July 13, 2020), [link here](#).
- 4 Jessica Menton, *More Than 6M Households Missed Their Rent or Mortgage Payment in September*, USA TODAY, (Oct. 17, 2020); DIANE SCHANZENBACH, NOT ENOUGH TO EAT: COVID-19 DEEPENS AMERICA’S HUNGER CRISIS 2 (Sept. 2020) available at [link here](#).
- 5 Helena Bottemiller Evich, *Stark Racial Disparities Emerge as Families Struggle to Get Enough Food*, POLITICO (July 6, 2020), [link here](#).
- 6 A. Fothergill, *Race, Ethnicity and Disasters in the United States: A Review of the Literature*, 23 DISASTERS 156 (1999); DEBORAH S.K. THOMAS ET AL., SOCIAL VULNERABILITY TO DISASTERS (2d ed. 2013); Bob Bolin & Liza C. Kurtz, *Race, Class, Ethnicity, and Disaster Vulnerability*, in HANDBOOK OF DISASTER RESEARCH 181-203 (2d ed., Havidan Rodriguez et al., eds., 2018); Allana T. Forde et al., *The Weathering Hypothesis as an Explanation for Racial Disparities in Health: A Systematic Review*, 33 ANNALS OF EPIDEMIOLOGY 1 (2019), [link here](#); Zinzi Bailey et al., *Structural Racism and Health Inequities in the USA: Evidence and Interventions*, 389 THE LANCET 1453, 1456 (2017), [link here](#); Neeta Kantamneni, *The Impact of the COVID-19 Pandemic on Marginalized Populations in the United States: A Research Agenda*, 119 J. VOCATIONAL BEHAV., June 2020, [link here](#).

Introduction

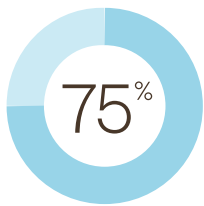
In late 2020, the United States remains in the midst of the global COVID-19 pandemic that was first identified internationally in late 2019 and in the U.S. in January 2020.⁷ Researchers quickly discovered the zoonotic origins of the novel coronavirus.⁸ Zoonotic diseases cause most epidemics and pandemics. An estimated 60 percent of all viruses that infect humans have come from animals, and 75 percent of new infectious diseases in the past decade are zoonotic;⁹ they need only a human–animal interaction to spill over — or “jump” — to human populations.¹⁰

Even in the current crisis, public health officials warn of a new strain of flu carried by pigs in China, which has characteristics of the 2009 H1N1 virus and 1918 pandemic flu.¹¹ In the last 40 years, the worst pandemics were all zoonotic or vector-borne in origin, including the human immunodeficiency virus (HIV), severe acute respiratory syndrome (SARS), avian influenza, swine influenza, Ebola virus, and Zika virus.¹²

There have been three epidemic- and pandemic-level coronavirus outbreaks in the last two decades alone: SARS, Middle East respiratory syndrome (MERS), and COVID-19. Rates of illness and death are staggering and in the last 40 years well surpass rates of illness from non-zoonotic or non-vector-borne pandemics.¹³ And because zoonotic influenza viruses spread rapidly among their animal hosts, have extremely high mortality rates in animals, and can transmit to humans, outbreaks are usually met with the slaughter of entire flocks or herds. In just under a decade (2003–2012), more than 400 million birds were killed worldwide



ESTIMATE OF ALL VIRUSES THAT INFECT HUMANS CAME FROM ANIMALS



OF NEW INFECTIOUS DISEASES IN THE PAST DECADE ARE ZOOBOTIC

- 7 Ritchie et al., *supra* note 1; *Timeline: How the Global Coronavirus Pandemic Unfolded*, REUTERS (June 28, 2020), [link here](#).
- 8 Kristian G. Andersen et al., *The Proximal Origin of SARS-CoV-2*, 26 NATURE MED. 450 (2020); Scripps Research Institute, *COVID-19 Coronavirus Epidemic Has a Natural Origin*, SCIENCE DAILY (Mar. 17, 2020), [link here](#).
- 9 *Zoonotic Diseases*, CDC, [link here](#) (last visited July 13, 2020).
- 10 See DAVID QUAMMEN, SPILLOVER: ANIMAL INFECTION AND THE NEXT PANDEMIC (2012). For a basic primer on zoonotic diseases (diseases caused by pathogens that have jumped from an animal population to humans) and the proliferation and spread of zoonoses, see ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 5–18.
- 11 This virus, G4 EA H1N1, has “demonstrated significant swine to human transmission” and vaccine development for the strain is being accelerated. See Press Release, Blue Water Vaccines Inc., Blue Water Vaccines Announces Development of Vaccine Candidates to Address G4 EA H1N1 Swine Influenza Virus and Streptococcus Pneumoniae (Oct. 29, 2020) ([link here](#)); Honglei Sun, *Prevalent Eurasian Avian-Like H1N1 Swine Influenza Virus with 2009 Pandemic Viral Genes Facilitating Human Infection*, PROC. NAT’L ACADEMY SCI. (July 21, 2020), [link here](#). As a result, the CDC has taken steps to prepare in the event the virus makes the jump to humans and evolves into a pandemic. CDC Takes Action to Prepare Against “G4” Swine Flu Viruses in China with Pandemic Potential, CDC (July 2, 2020), [link here](#). Dr. Anthony Fauci testified in a Senate committee hearing both that the virus resembles previous pandemics and that it is exhibiting “reassortment capabilities,” which would allow it to recombine to generate new viruses. Berkley Lovelace, Jr., *Dr. Anthony Fauci Says New Virus in China Has Traits of 2009 Swine Flu and 1918 Pandemic Flu*, CNBC (June 30, 2020), [link here](#). See also Chengjun Li & Hualan Chen, *Enhancement of Influenza Virus Transmission by Gene Reassortment*, in 1 INFLUENZA PATHOGENESIS & CONTROL 185, 186 (Richard W. Compans & Michael B.A. Oldstone, eds., 2014).
- 12 Vectors, in an epidemiological sense, are living intermediaries who transmit infection from an animal to a human, or between humans. Other than plants and fungi, these vectors are themselves animals. See, *Fact Sheet: Vector-Borne Diseases*, WHO (Mar. 2, 2020), [link here](#).
- 13 See Nicholas Lapan, *Visualizing the History of Pandemics*, VISUAL CAPITALIST (Mar. 14, 2020), [link here](#); Owen Jarus, *20 of the Worst Epidemics and Pandemics in History*, LIVE SCIENCE (Mar. 20, 2020), [link here](#). HIV alone, one of the world’s most infectious diseases, still kills more than 2 million people annually; more than 36 million people are living with HIV. Max Roser & Hannah Ritchie, *HIV/AIDS: Prevalence, New Cases and Deaths from HIV/AIDS, World, 1990-2017*, OUR WORLD IN DATA (Nov. 2019), [link here](#). Ebola, which is extremely contagious and especially deadly, has infected more than 31,000 people and killed almost 13,000. *Ebola Virus Disease*, WHO (Feb. 10, 2020), [link here](#). It is estimated that more than 1.5 million people have been infected with the Zika virus in Brazil alone since the outbreak began in 2015. *Zika Situation Report*, WHO, [link here](#) (last visited Nov. 9, 2020). The 2009 H1N1 pandemic was caused by a novel influenza virus and killed as many as 575,000 people in one year. *2009 H1N1 Pandemic (H1N1pdm09) Virus*, CDC, [link here](#) (last updated June 11, 2019). For more details on the impact of zoonotic pandemics, Maria G. Teixeira, *The Epidemic of Zika Virus-Related Microcephaly in Brazil*, 104 AM. J. PUB. HEALTH 601, 601 (2016), [link here](#); Helen Branswell, *Fear the Camel: Why a Deadly New Virus Will Be So Hard to Stop*, SLATE (May 7, 2014), [link here](#); WHO, *MANAGING EPIDEMICS: KEY FACTS ABOUT MAJOR EPIDEMIC DISEASES 15* (2018), available at [link here](#).

The proliferation of COVID-19 is a result of the lack of infrastructure and foresight on a national and global level.

to combat avian influenza,¹⁴ and in the current pandemic, millions of animals have been slaughtered and disposed of due to meatpacking facility closures.¹⁵

The proliferation of COVID-19 is a result of the lack of infrastructure and foresight on a national and global level. We did not simply overlook this virus or an animal host; we overtly ignored a systemic framework of global disease production and transmission resulting from our multiple and increasing interactions with animals.

To address this worldwide threat, we must develop multidisciplinary policies to mitigate and eliminate the human–animal interactions that lead to exposure — factoring in the conditions animals are held in and the resulting impact on their own health and ability to shed pathogens. We have built a worldwide system with inherent and looming public health risks by encroaching on and destroying wild animal habitat; capturing wild animals for food, products, and entertainment; and raising and killing billions of animals in a global and industrialized food system. Beyond creating a system ripe for animal-to-human disease transmission and proliferation, we are seeing this disease exacerbating existing public health crises,¹⁶ including housing and food insecurity, violence, and inequities in our society, which harm both people and animals.

To prevent the proliferation of zoonotic disease, like COVID-19, as well as respond to the public health crises exacerbated by the COVID-19 pandemic, we recommend urgently and aggressively pursuing policies to protect public health and animals by reducing the threats posed by factory farming conditions.

To best develop and implement these policies, the range of stakeholders involved must include not only subject-matter experts and implementing agencies but also meaningful representation from those communities most impacted by the policies at hand. This approach implies a greater degree of policy success, by virtue of heightened feasibility and buy-in, and policies that will themselves be more equitable. In certain cases, this may call for policy prescriptions further tailored to meet the needs of specific communities in specific circumstances.¹⁷

In addition, emphasis must be placed on the importance of moving away from producing and consuming animal products and toward a sustainable diet. Not only have diets rich in vegetables, fruits, legumes, nuts, and whole grains been shown to reduce the risk of developing coronary heart disease, high blood pressure, diabetes, and certain cancers,¹⁸ but plant-based eating can also help treat these and other underlying conditions that are known to exacerbate the severity of COVID-19 symptoms.¹⁹

14 Maciej F. Boni et al., *Economic Epidemiology of Avian Influenza on Smallholder Poultry Farms*, 90 THEORETICAL POPULATION BIOLOGY 135, 135 (2013), [link here](#).

15 Michael Corkery & David Yaffe-Bellany, *Meat Plant Closures Mean Pigs Are Gassed or Shot Instead*, N.Y. TIMES, May 14, 2020, [link here](#); Victoria O’Sullivan, *Non-Human Animal Trauma during the Pandemic*, POSTDIGITAL SCI. & EDUC., June 16, 2020, [link here](#).

16 See *supra* Preface.

17 For example, communities that exist on the edge of subsistence and farm animals in order to meet their subsistence level will not be able to cease all such animal farming until systems are in place to meet their needs.

18 Katherine McManus, *What Is a Plant-Based Diet and Why Should You Try It?*, HARVARD HEALTH PUB., [link here](#) (last updated Aug. 31, 2020).

19 Susan Levin, *Diet Can Fight Diseases Linked to Poor COVID-19 Outcomes*, Physicians Committee Responsible Med. (Apr. 8, 2020), [link here](#).

Realities of a food system reliant on factory farming

An estimated 99 percent of the 10 billion land animals killed for food annually are confined in factory farms before they are slaughtered.

Introduction

Industrial animal agriculture, also known as confined animal feeding operations (CAFOs) or “factory farming,” sits at the nexus of grave threats to animal protection, human rights, the environment, and human health. Research into the causes of zoonotic disease transmission implicates the way nearly 10 billion land animals and countless aquatic animals (including more than 200 million fishes) are raised in the U.S. each year for food.²⁰ An estimated 99 percent of the 10 billion land animals killed for food annually are confined in factory farms before they are slaughtered, with between 8,000 and 9,000 farms each housing more than 50,000 animals at any given time.²¹

Factory farms are typified by moving animals through an often highly confined, assembly-line-style production process, where hired hands are tasked with achieving owner-defined metrics.

The factory farm industry model has serious consequences for animals, workers, the environment and climate, human health, and communities.

Animals

Animals on factory farms suffer from tremendous physical and mental stress in confinement.²² Approximately 257 million hens annually raised in the U.S. egg industry are confined to battery cages²³ and cannot engage in natural behaviors such as nesting, spreading their wings, or dust bathing, causing behaviors such as pecking and injuring other birds out of frustration and survival instinct.²⁴ Caged hens have been found to have poorer feather cover and more foot lesions than their uncaged counterparts.²⁵ Moreover, 98 percent of pig producers use gestation crates — in which pregnant pigs are essentially immobilized — at least some of the time.²⁶ Pigs housed in gestation crates commonly perform stereotypical behaviors of intense confinement, including repetitive movements and self-mutilation, indicative of boredom, frustration, and depression.²⁷ The stress of being confined can be fatal to pigs.²⁸

20 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 9 n. 37. See also Hannah Ritchie & Max Roser, *Number of Animals Slaughtered for Meat: United States, 1961-2018*, OUR WORLD IN DATA, [link here](#) (last updated Nov. 2019); USDA, 2017 CENSUS OF AGRICULTURE (Apr. 2019), available at [link here](#); NAT'L MARINE FISHERIES SERV., FISHERIES OF THE UNITED STATES: 2017 (Sept. 2018), available at [link here](#).

21 Jacy R. Anthis, *US Factory Farming Estimates*, SENTIENCE INST., [link here](#) (last updated Apr. 11, 2019).

22 See generally Paul Solotaroff, *Animal Cruelty Is the Price We Pay for Cheap Meat*, ROLLING STONE (Dec. 10, 2013), [link here](#).

23 See *Facts & Stats: U.S. Laying Rate*, UNITED EGG PRODUCERS, [link here](#) (last visited Nov. 9, 2020).

24 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 13 (citing H. Mollenhorst et al., *On-Farm Assessment of Laying Hen Welfare: A Comparison of One Environment-Based and Two Animal-Based Methods*, 90 APPLIED ANIMAL BEHAV. SCI. 277 (2005); M.J. Albertosa, *Effects of Cage Height and Stocking Density on the Frequency of Comfort Behaviours Performed by Laying Hens Housed in Furnished Cages*, 13 ANIMAL WELFARE 419 (2004); Ian J.H. Duncan, *The Pros and Cons of Cages*, 57 WORLD'S POULTRY SCI. J. 381, 385 (2001); KAREN DAVIS, *PRISONED CHICKENS, POISONED EGGS: AN INSIDE LOOK AT THE MODERN POULTRY INDUSTRY* 67 (1996)).

25 Allison A. Taylor & J. Frank Hurnik, *The Effect of Long-Term Housing in an Aviary and Battery Cages on the Physical Condition of Laying Hens: Body Weight, Feather Condition, Claw Length, Foot Lesions, and Tibia Strength*, 73 POULTRY SCI. 268 (1994), [link here](#).

26 Lynne Curry, *After a Decade of Promises, Has the Food Industry Made Progress on Gestation Crates?*, CIVIL EATS (2018), [link here](#).

27 *Welfare Implications of Gestation Sow Housing*, AM. VETERINARY MED. ASS'N (Nov. 19, 2015), [link here](#); Mingyue Zhang et al., *Effects of Confinement on Physiological and Psychological Responses and Expression of Interleukin 6 and Brain Derived Neurotrophic Factor mRNA in Primiparous and Multiparous Weaning Sows*, 30 ASIAN-AUSTRALASIAN J. ANIMAL SCI. 1350 (2017), [link here](#).

28 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 13 (citing Lauren Orrico, *Squashing the Superbugs: A Proposed Multifaceted Approach to Combatting Antibiotic-Resistant Bacteria*, 27 J.L. & HEALTH 259, 270 n. 95 (2014)). This is known as “porcine stress syndrome.”

Monocropping is detrimental to the environment and contributes to climate change.

Painful mutilations are routinely performed to reduce the likelihood of conflicts between confined animals. Typically, without anesthesia, birds have their beaks and toes cut (debeaking and detoeing); turkeys have their snoods removed (desnooding); cows raised for meat, as well as sheep and goats, have their horns removed (dehorning); pigs, sheep, and cows raised for milk have their tails removed (tail-docking); and male pigs, sheep, and cows are castrated. In addition to acute distress from the painful procedures, some animals also experience long-term behavioral changes; for example, debeaked birds may spend less time pecking and preening.

Persistent, unnaturally high levels of stress are industry standard across all factory farms, and with this comes a collective weakening of animals' immune systems, making them more susceptible to pathogens, which then may get passed to humans.²⁹

Although farmed animals³⁰ have not been identified as playing a significant role in disease transmission in the case of COVID-19,³¹ the pandemic has had massive implications for their welfare. As the pandemic shut down slaughter and processing capacity, factory farms resorted to mass killings or “depopulation” of tens of millions of animals, often by inhumane methods such as “heat exposure, mass suffocation, and drowning.”³² (Millions of animals on factory farms are routinely killed in similar fashions en masse.)

Monocropping

To feed the billions of animals on factory farms in the U.S., producers rely on monocropping — a system of crop agriculture in which a plot of land is used to cultivate one crop repeatedly over successive seasons, without crop rotation.³³ These monocropping operations focus on fast-growing, high-yield crops that can easily be transported long distances.³⁴ In 2019, corn and soy accounted for nearly 70 percent of crop cultivation in the U.S.,³⁵ but a minority of its production is used to directly feed people.³⁶

29 PEW COMM'N ON INDUS. FARM ANIMAL PROD., PUTTING MEAT ON THE TABLE: INDUSTRIAL FARM ANIMAL PRODUCTION IN AMERICA: EXECUTIVE SUMMARY, available at [link here](#) [hereinafter PEW COMM'N REPORT]; Roberto A. Saenz et al., *Confined Animal Feeding Operations as Amplifiers of Influenza*, 6 VECTOR BORNE & ZOONOTIC DISEASES 338 (2006), [link here](#).

30 Although animals typically farmed for food do not appear to play a significant role in disease transmission, mink farmed for their fur appear to be implicated in the infection of humans. Pien Huang, *Dutch Minks Contract COVID-19 and Appear to Infect Humans*, NPR (Jun. 25, 2020), [link here](#).

31 Experiment results have indicated that pigs, chickens, and ducks are not susceptible to SARS-CoV-2. Jianzhong Shi et al., *Susceptibility of Ferrets, Cats, Dogs, and Other Domesticated Animals to SARS-Coronavirus 2*, 368 SCI. 1016 (2020), [link here](#). But as of publishing date, there is insufficient evidence to draw similar conclusions about cows. Stephen Chen, *Can Cows Catch Coronavirus? German Study Suggests Yes – But No Link to Beef*, SOUTH CHINA POST, Aug. 28, 2020, [link here](#).

32 *Avoiding Prolonged Death for Animals in the Meat Industry: Press Release*, OFFICE U.S. CONGRESSMAN LLOYD DOGGETT (May 4, 2020), [link here](#); Dena Jones, *Suffocating Healthy Farm Animals During a Pandemic Is Not ‘Euthanasia’*, WASH. EXAMINER, May 15, 2020, [link here](#); *Statement on COVID-19-Related Depopulation of Farm Animals*, ASPCA (May 4, 2020), [link here](#); Sophie Kevany, *Millions of Farm Animals Culled as US Food Supply Chain Chokes Up*, THE GUARDIAN, Apr. 29, 2020, [link here](#); Noah Manskar, *Farmers Kill Piglets, Give Sows Abortions as Coronavirus Slams Meat Industry*, N.Y. POST, Apr. 28, 2020, [link here](#); *Ventilation Shutdown Used to “Depopulate” Farm Animals During Pandemic Causes Severe Suffering*, ANIMAL WELFARE INST. (July 1, 2020), [link here](#); Natalie O’Neill, *Pigs Roasted Alive in Coronavirus Mass-Extermination, Probe Uncovers*, N.Y. POST, May 29, 2020, [link here](#).

33 *How Our Food System Affects Public Health*, FOODPRINT, [link here](#) (last visited June 16, 2020).

34 *Id.*

35 In 2019, corn and soy accounted for 87 million and 75 million acres, respectively, out of nearly 237 million total crop acres planted in 2019, for a combined 68.54 percent of all crops planted. See *Crop Acreage: 2019 Acreage Data as of January 1, 2020*, USDA (Jan. 10, 2020), [link here](#).

36 Roughly 40 percent of corn production in the U.S. is designated for ethanol production, and a further 30 percent, plus “leftovers” from fuel distilleries, are used for animal feed. Jonathan Foley, *It’s Time to Rethink America’s Corn System*, SCI. AM. (Mar. 5, 2013), [link here](#). Seventy-five percent of the global soy production is used to feed farmed chickens, pigs, cows, and fish, whereas only 6 percent is used for direct human consumption. Demand for soy in fuel, animal feed, and human consumption has doubled the world soybean production over the past 20 years, much of which has been met by expanding cultivation into new areas, including the Amazon. *Soybeans*, UNION CONCERNED SCIENTISTS (Oct. 9, 2015), [link here](#).

With two-thirds of the calories from crops grown in the U.S. directed to feed animals raised for food, monocropping is inefficient.³⁷ If the demand for animal products does not slow down, the world will need to approximately double its crop production by 2050 to account for the amount of animal feed required to sustain a meat- and animal-product-heavy diet.³⁸

Monocropping is detrimental to the environment and contributes to climate change.³⁹ The practice harms long-term soil health and land quality through depletion of soil nutrients,⁴⁰ leading to overuse of synthetic fertilizers⁴¹ and soil erosion resulting from fields left fallow in the off-season.⁴² Some of the chemicals used in fertilizer are toxic to humans and wildlife, and mis- or over-application can lead to runoff, potentially harming humans and wildlife as well as local vegetation through contaminated water. Nutritional excess in water can lead to algae blooms, which contribute to loss of aquatic life and can contain harmful organisms, making water unsuitable for human consumption.⁴³

Additionally, the inherent reduction in biodiversity and overcrowding of genetically similar or uniform plants can decrease resilience, potentially allowing disease or pests to spread unhindered.⁴⁴ This may be exacerbated by the effects of climate change as the activity and/or range of certain pests increase.⁴⁵

Nonetheless, monocropping is encouraged by billions of dollars each year in federal subsidies for “commodity crops,”⁴⁶ such as corn and soy, and animal agriculture. Between 1995 and 2010, more than \$170 billion was spent subsidizing corn, soybeans, wheat, rice, sorghum, dairy, and animal agriculture.⁴⁷ Corn alone accounted for \$90 billion of that sum, *without* including ethanol subsidies and mandates, which drive up the market price of corn.⁴⁸

37 Emily S. Cassidy et al., *Redefining Agricultural Yields: From Tonnes to People Nourished per Hectare*, 8 ENVTL. RES. LETTER, Aug. 1, 2013, at 3, [link here](#); Jonathan Foley, *A Five Step Plan to Feed the World*, NAT'L GEOGRAPHIC MAG. (2015), [link here](#).

38 Foley, *supra* note 37; *Food Production Must Double by 2050 to Meet World's Growing Population, Innovative Strategies Needed to Combat Hunger, Experts Tell Second Committee*, U.N. Doc. GA/EF/3242 (Gen. Assembly Oct. 9, 2009), [link here](#).

39 Mary Allen, *How Plant-Based Meat Can Help Heal Our Soil While Feeding More People Than Ever*, GOOD FOOD INST. (Nov.14, 2019), [link here](#).

40 Tamar Haspel, *Monocrops: They're a Problem, But Farmers Aren't the Ones Who Can Solve It*, WASH. POST, May 9, 2014, [link here](#).

41 See, e.g., *Industrial Agriculture 101: What Is Monoculture?*, NAT. RESOURCES DEF. COUNCIL, [link here](#) (last visited Nov. 9, 2020); Nina V. Federoff & Drew L. Kershen, *Agricultural Biotechnology – An Opportunity to Feed a world of Ten Billion*, 118 PENN ST. L. REV. 859, 860 (2014); *Air Quality Issues for Dairy Operations*, U. MASS. AT AMHERST, [link here](#) (last visited June 25, 2020); CARRIE HRIBAR, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 4-5 (2010), available at [link here](#).

42 *Industrial Agriculture 101*, *supra* note 41.

43 See, e.g., *id.*; Federoff & Kershen, *supra* note 41; *Air Quality Issues for Dairy Operations*, *supra* note 41; HRIBAR, *supra* note 41.

44 *Monocultures in America: A System That Needs More Diversity*, DEBATING SCI. (Dec. 5, 2017), [link here](#); K.C. King & C.M. Lively, *Does Genetic Diversity Limit Disease Spread in Natural Host Populations?*, 109 HEREDITY, Oct. 2012, at 199, [link here](#).

45 *Monocultures in America*, *supra* note 44.

46 Foley, *supra* note 37. Under 7 U.S.C. § 1518 (2018), “agricultural commodity” includes “wheat, cotton, flax, corn, dry beans, oats, barley, rye, tobacco, rice, peanuts, soybeans, sugar beets, sugar cane, tomatoes, grain sorghum, sunflowers, raisins, oranges, sweet corn, dry peas, freezing and canning peas, forage, apples, grapes, potatoes, timber and forests, nursery crops, citrus, and other fruits and vegetables, nuts, tame hay, native grass, hemp,” and aquacultural species.

47 See Allison Aubrey, *Does Subsidizing Crops We're Told to Eat Less of Fatten Us Up?*, NPR (Jul. 18, 2016, 3:14 PM), [link here](#).

48 Foley, *supra* note 37.

Workers

The factory farming industry has long been rife with “systematic human rights violations.”⁴⁹ Working in a meat plant is one of the most dangerous jobs in the U.S.: workers are more than three times more likely than other workers to become injured while working, and there are an average of two accidental amputations each week.⁵⁰

The inherently violent work of slaughter may contribute to workers suffering a type of post-traumatic stress disorder called participation-induced traumatic stress (PITS) that can occur when a sufferer has directly caused the trauma of another, as seen in combat veterans, executioners, and torturers. Sufferers of PITS exhibit similar symptoms to those who have been the recipients of trauma, such as substance abuse, anxiety issues, depression, and dissociation from reality.⁵¹

These injustices predominantly harm immigrants, low-income communities, and communities of color, who have historically lacked the political power necessary to prevent abuses by the industry.⁵² The Center for Economic and Policy Research estimates that 25 percent of meatpacking workers are Black, and 44 percent are Latine.⁵³

For all these hazards and inequities, workers in the food system are paid less-than-living wages. Laborers in slaughterhouses and meatpacking plants, for instance, “earn low wages, have scant benefits, and have little, if any, job security.”⁵⁴ Similarly, chicken catchers on factory farms make only \$2 for every *thousand* chickens their crew rounds up to send to slaughter.⁵⁵ Likewise, farm workers — who plant, grow, and harvest the produce everyone eats — earn between \$15,000 to \$17,499 per year for individuals and \$20,000 to \$24,999 per family. Farm worker family income has not increased since 2009.⁵⁶ Because these workers are exempt from both the Fair Labor Standards Act and the National Labor Relations Act, they continue to be legally excluded from many fruits of the labor movement.⁵⁷ As a result, they frequently face violence and exploitation at work.⁵⁸ Moreover, they often lack access to health care and paid sick leave as well as housing and transportation that allow for social distancing.⁵⁹

49 *Blood, Sweat, and Fear: Workers’ Rights in U.S. Meat and Poultry Plants*, HUMAN RTS. WATCH (Jan. 24, 2005), [link here](#).

50 Andrew Wasley et al., *Two Amputations a Week: The Cost of Working in a US Meat Plant*, THE GUARDIAN, July 5, 2018, [link here](#).

51 See Michael Leibold, *A Call to Action: Psychological Harm in Slaughterhouse Workers*, YALE GLOBAL HEALTH REV. (Jan. 25, 2016), [link here](#).

52 See, e.g., Christina Cooke, *North Carolina’s Factory Farms Produce 15,000 Olympic Pools Worth of Waste Each Year*, CIVIL EATS, [link here](#) (last visited Nov. 9, 2020).

53 Shawn Fremstad et al., *Meatpacking Workers Are a Diverse Group Who Need Better Protections*, CENTER FOR ECON. & POL’Y RES. (Apr. 29, 2020), [link here](#); see also Brent Orrell, *Hypocrisy Strikes: ‘Essential Workers’ and the Meat Packing Industry*, AM. ENTERPRISE INST. (Apr. 29, 2020), [link here](#).

54 *Lives on the Line*, OXFAM, [link here](#) (last visited Nov. 9, 2020).

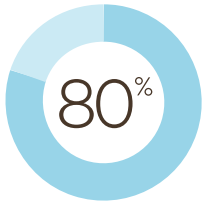
55 *You’re an Essential Worker. Do You Get Essential Protections?*, MARKETPLACE (May 13, 2020), [link here](#).

56 *Low Wages*, NAT’L FARM WORKER MINISTRY (Oct. 2019), [link here](#) (discussing workers in the poultry industry).

57 Theresa Hendricks-Pitsch, *Slighting the Hand that Feeds Us*, 95 MICH. BAR. J., Nov. 2016, at 26, 27; 28 U.S.C. § 152(3) (2018) (NLRA exempting “individual(s) employed as . . . agricultural laborer(s)”; 29 U.S.C. § 213(6) (FLSA exempting “employee(s) employed in agriculture”); see also 29 U.S.C. § 203(f) (FLSA defining “agricultural” as “farming in all its branches and among other things includes . . . dairying . . . the raising of livestock, bees, fur-bearing animals, or poultry, and any practices . . . performed by a farmer or on a farm as an incident to or in conjunction with such farming operations, including preparation for market”); *Sanderson Farms, Inc. v. N.L.R.B.*, 335 F.3d 445, 449 (5th Cir. 2003) (explaining that FLSA’s definition of “agricultural” applies to NLRA exemption); see generally U.S. DEPARTMENT OF LABOR WAGE AND HOUR DIVISION, FACT SHEET #12: AGRICULTURAL EMPLOYERS UNDER THE FAIR LABOR STANDARDS ACT (FLSA) (Jan. 2020), [link here](#).

58 NAT’L CTR. FOR FARMWORKER HEALTH ET AL., STATEMENT ON COVID-19 AND THE RISKS TO FARMWORKERS [4]-[5] (2020), [link here](#).

59 *Id.* at [1]-[2].



MEAT AND DAIRY PRODUCTION ARE SPECIFICALLY RESPONSIBLE FOR ALMOST 80 PERCENT OF AGRICULTURAL GREENHOUSE GAS EMISSIONS (GHGS)

All of these workers are in danger of contracting zoonotic illnesses themselves from contact with infected animals or with contaminated crops, for example, and they can act as bridges for transmission of disease to the communities they live in.⁶⁰ Slaughterhouses, and meatpacking and food processing plants, have been COVID-19 hotspots,⁶¹ facilitating the pandemic's spread.⁶²

Environment and climate

Factory farming is no less destructive to the environment than it is to workers. Experts agree it is putting our planet's climate at risk.⁶³ Animal agriculture is "the single largest anthropogenic user of land, contributing to many environmental problems, including global warming and climate change."⁶⁴ For example, meat and dairy production are specifically responsible for almost 80 percent of agricultural greenhouse gas emissions (GHGs).⁶⁵ Globally, animal agriculture generates 14.5 percent of all GHGs and is the second-largest contributor to human-made GHGs as well as a leading cause of deforestation, water and air pollution, and biodiversity loss.⁶⁶ It has been estimated that if consumption of meat and dairy continues at its current pace, by 2050 the agriculture sector could consume up to 70 percent of the global allowable GHG budget required to hold warming at 2°C.⁶⁷

Factory farms also produce immense amounts of urine, feces, and other animal waste. That waste is typically untreated and infects crops, waterways, and air with nitrogen, phosphorus, ammonia, methane, hydrogen sulfide, and antibiotics, as well as various pathogens, all of which can result in negative health outcomes for surrounding communities and wildlife, including disease.⁶⁸ Manure and pathogen runoff from factory farms include fecal coliforms and *Streptococcus*, *Campylobacter*, *Giardia*, *Cryptosporidium*, and *E. coli* and can contaminate water supplies with these bacteria, potentially impacting aquatic and other wildlife. There is also evidence that viruses can migrate from factory farms to water sources.⁶⁹ A recent report by the U.S. Food and Drug Administration (FDA), for example, linked three recent *E. coli* outbreaks sickening nearly 200 people to nearby cattle-grazing fields, citing manure runoff as a possible source of romaine lettuce contamination.⁷⁰ Manure runoff that invades waterways can also contain excess nutrients such as nitrogen or phosphorus, causing algae blooms that can block sunlight, deplete oxygen in water, harm aquatic wildlife,

60 See Alexandre Caron et al., *Bridge Hosts, a Missing Link for Disease Ecology in Multi-Host Systems*, 46 VETERINARY RES., Jul. 21, 2015, [link here](#).

61 Liz Crampton, *In Absence of Federal Action, Farm Workers' Coronavirus Cases Spike*, POLITICO (June 9, 2020), [link here](#); Leah Douglas, *Mapping Covid-19 Outbreaks in the Food System*, FOOD & ENV'T REPORTING NETWORK (Oct. 30, 2020), [link here](#); Mike Dorning & Jen Skerritt, *Every Single Worker Has Covid at One U.S. Farm on Eve of Harvest*, BLOOMBERG (May 29, 2020), [link here](#); Rong-Gong Lin II, *After 8 Workers Die of COVID-19, Officials Want Merced County Foster Farms Plant Closed*, LA TIMES, Aug. 27, 2020, [link here](#).

62 E.g., Nina Lakhani, *US Coronavirus Hotspots Linked to Meat Processing Plants*, THE GUARDIAN, May 15, 2020, [link here](#).

63 P.J. GERBER ET AL., FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO), ROME, TACKLING CLIMATE CHANGE THROUGH LIVESTOCK: A GLOBAL ASSESSMENT OF EMISSIONS AND MITIGATION OPPORTUNITIES (2013), available at [link here](#).

64 Gowri Koneswaran & Danielle Nierenberg, *Global Farm Animal Production and Global Warming: Impacting and Mitigating Climate Change*, 116 ENV'T L. HEALTH PERSPS. 578, 578-82 (2008), [link here](#).

65 Peter Lehner & Nathan A. Rosenberg, *Legal Pathways to Carbon Neutral Agriculture*, 47 ENV'T L. L. REP. NEWS & ANALYSIS 10,845, 10,847-48 (2017).

66 *Animal Agriculture's Impact on Climate Change*, CLIMATE NEXUS, [link here](#) (last visited Nov. 9, 2020).

67 *Id.*; see also HRIBAR, *supra* note 41; GERBER ET AL., *supra* note 63.

68 HRIBAR, *supra* note 41, at 4, 5.

69 See, e.g., M.D. Sobsey et al., *Pathogens in Animal Wastes and the Impacts of Waste Management Practices on Their Survival, Transport, and Fate*, in ANIMAL AGRICULTURE AND THE ENVIRONMENT: NATIONAL CENTER FOR MANURE AND ANIMAL WASTE MANAGEMENT WHITE PAPERS 609, fig.1 (J.M. Rice et al., eds., 2006), available at [link here](#).

70 INVESTIGATION REPORT: FACTORS POTENTIALLY CONTRIBUTING TO THE CONTAMINATION OF ROMAINE LETTUCE IMPLICATED IN THE THREE OUTBREAKS OF *E. COLI* O157:H7 DURING THE FALL OF 2019, at 1 (2020), available at [link here](#).

and disrupt ecological systems.⁷¹ Ammonia concentration in the air is also a risk factor for humans living in close proximity to factory farms, as it can lead to severe coughing and chronic lung disease.⁷²

Moreover, the methods of disposing of the bodies of depopulated animals are insufficiently regulated. An entire depopulated herd or flock may be buried on-site in unlined trenches and pits, which poses significant risks to the environment and public health as leachates (i.e., liquids) and other pollutants may enter the surrounding soil and groundwater or surface waters.⁷³ Indeed, burial is placed last on the hierarchy of controls for depopulation efforts for the prevention of disease transmission, and is ranked as the worst option among depopulation methods in terms of its impact on pollution and contamination of soil and vegetation.⁷⁴

Human health

As we've seen, the environmental effects from factory farms harm human health, particularly in nearby communities.⁷⁵ Because factory farms are disproportionately sited in Black, Latine, and Indigenous communities and in communities experiencing poverty, those communities disproportionately bear the health impacts of factory farming.⁷⁶

Communities occupied by factory farms are forced to rely on drinking water that factory farms have contaminated.⁷⁷ Public water systems in such communities often have nitrate and coliform levels that exceed federal contaminant limits set by the Safe Drinking Water Act.⁷⁸ The consequences of drinking contaminated water can be severe — particularly for those who have compromised immune systems.⁷⁹ Symptoms of illnesses caused by contaminated water include nausea, vomiting, fever, diarrhea, muscle pain, and kidney failure. Some illnesses can lead to death.⁸⁰ People at high risk of illness or death constitute approximately 20 percent of the population, and they include elders, infants, children, and those who are pregnant, HIV positive, on chemotherapy, or otherwise immunosuppressed.⁸¹

71 HRIBAR, *supra* note 41, at 4.

72 Lidwien A. M. Smit & Dick Heederik, *Impacts of Intensive Livestock Production on Human Health in Densely Populated Regions*, 1 GEOHEALTH 272 (2017), [link here](#); see also HRIBAR, *supra* note 41.

73 See Barnard A. Engel et al., *Evaluation Environmental Impacts*, in NAT'L AGRIC. BIOSECURITY CTR. CONSORTIUM CARCASS DISPOSAL WORKING GRP., *CARCASS DISPOSAL: A COMPREHENSIVE REVIEW* ch. 14 (2004), available at [link here](#) [hereinafter *CARCASS DISPOSAL*].

74 See J. Scudamore et al., *Following the Foot and Mouth Disease Outbreaks of 2001*, 21 SCI. TECH. REV. OF THE OFF. INT'L DES EPIZOOTIES 775 (2002); C.L. Gwyther et al., *The Environmental and Biosecurity Characteristics of Livestock Carcass Disposal Methods: A Review*, 31 WASTE MGMT. 767 (2011), [link here](#).

75 Smit & Heederik, *supra* note 72.

76 See, e.g., Kelley J. Donham et al., *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*, 115 ENVTL. HEALTH PERSPS. 317 (2007); Steve Wing et al., *Environmental Injustice in North Carolina's Hog Industry*, 108 ENVTL. HEALTH PERSP. 225 (2000).

77 See, e.g., D. LEE MILLER & GREGORY MUREN, *CAFOs: WHAT WE DON'T KNOW IS HURTING US* 8, available at [link here](#) (2019) (citing Jackie Wang et al., *Farming Activity Contaminates Water Despite Best Practices*, THE CALIFORNIAN, Aug. 15, 2017, [link here](#)).

78 *Id.* (citing Wang, *supra* note 77; *Drinking Water Contaminants—Standards and Regulations*, EPA, [link here](#) (last visited Nov. 9, 2020)).

79 HRIBAR, *supra* note 41, at 9.

80 *Id.* at 10.

81 *Id.* at 9.

Black, Latine, and Indigenous communities and communities experiencing poverty disproportionately bear the health impacts of factory farming.

Communities occupied by factory farms are also forced to breathe air contaminated by factory farm emissions, causing them to suffer “disproportionate levels of tension, anger, confusion, fatigue, depression, and lack of overall vigor as well as more upper respiratory and gastrointestinal ailments than neighbors of other types of farms and non-livestock areas.”⁸²

Factory farms also contribute to human disease through the food they intentionally produce: meat, dairy, and eggs.⁸³ Animal products are neither necessary nor optimally nutritious.⁸⁴ There are myriad health issues associated with the significant consumption of animal products, especially those sourced from factory farms.⁸⁵ Animal products can increase the risk of heart disease,⁸⁶ stroke,⁸⁷ type 2 diabetes,⁸⁸ Alzheimer’s disease,⁸⁹ numerous forms of cancer,⁹⁰ antibiotic resistance,⁹¹ and even death.⁹² Communities of color in the U.S. suffer additional health impacts, as Indigenous and African-, Asian-, and Latine-American individuals are more likely than White Americans to be lactose intolerant⁹³ (or, as Food Empowerment Project calls it, “lactose normal”⁹⁴) and therefore are more likely to suffer gastrointestinal symptoms and severe declines in quality of life from consuming dairy products.

Factory farmed animal products are particularly risky from a food safety perspective and may also be less healthy. Studies of eggs from free-range hens compared to caged hens on factory farms show a quarter to a third less cholesterol, a quarter less saturated fat, and twice the amount of omega-3 fatty acids.⁹⁵ Farm-raised chickens are considerably leaner and

82 Sarah C. Wilson, Comment, *Hogwash! Why Industrial Agriculture Is Not Beyond the Scope of Clean Air Act Regulation*, 24 PACE ENVTL. L. REV. 439, 445 n.45 (2007).

83 Colin G. Scanes, *Animals and Human Disease: Zoonosis, Vectors, Food-Borne Diseases, and Allergies*, in ANIMALS AND HUMAN SOCIETY ch. 14 (Colin G. Scanes & Samia R. Toukhsati eds., 2018), available at [link here](#); LITERATURE REVIEW OF CONTAMINANTS IN LIVESTOCK AND POULTRY MANURE AND IMPLICATIONS FOR WATER QUALITY, No. 820-R-13-002 (EPA 2013), available at [link here](#).

84 *Healthy Diet*, WHO (Apr. 29, 2020), [link here](#); Cedars-Sinai Staff, *Are Animal Proteins Better for You Than Plant Proteins?*, CEDARS-SINAI BLOG (Jan. 17, 2019), [link here](#).

85 Sunny Brower et al., *Taste and Nutritional Differences of Non-Factory Farmed vs. Factory Farmed Eggs and Poultry* (2013) (unpublished report), [link here](#).

86 Mu Chen et al., *Dairy Fat and Risk of Cardiovascular Disease in 3 Cohorts of US Adults*, 104 AM. J. CLINICAL NUTRITION 1209 (2016), [link here](#) (study concluding that replacing animal fat with vegetable fat, polyunsaturated fat, or whole grains reduces the risk of heart disease by 10 percent, 24 percent, and 28 percent, respectively).

87 Joanna Kaluza et al., *Red Meat Consumption and Risk of Stroke: A Meta-Analysis of Prospective Studies*, 43 STROKE 2556 (2012), [link here](#).

88 Heli E. K. Virtanen et al., *Intake of Different Dietary Proteins and Risk of Type 2 Diabetes in Men: The Kuopio Ischemic Heart Disease Risk Factor Study*, 117 BRITISH J. NUTRITION 882 (2017), [link here](#).

89 Jing Wu et al., *Dietary Pattern in Midlife and Cognitive Impairment in Late Life: A Prospective Study in Chinese Adults*, 110 AM. J. CLINICAL NUTRITION 912 (2019), [link here](#).

90 Véronique Bouvard et al., *Carcinogenicity of Consumption of Red and Processed Meat*, 16 LANCET ONCOLOGY 1599 (2015); Joseph F. Gonzales et al., *Applying the Precautionary Principle to Nutrition and Cancer*, 33 J. AM. COLLEGE NUTRITION 239 (2013); see generally Q&A on the Carcinogenicity of the Consumption of Red Meat and Processed Meat, WHO (Oct. 26, 2015), [link here](#).

91 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 15 (citing *Antibiotic Resistance*, WHO (Feb. 5, 2018), [link here](#); *Antibiotic/Antimicrobial Resistance*, CDC, [link here](#) (last visited Nov. 9, 2020); *Stop Using Antibiotics in Healthy Animals to Prevent the Spread of Antibiotic Resistance*, WHO (Nov. 7, 2017), [link here](#)).

92 Mingyang Song et al., *Association of Animal and Plant Protein Intake with All-Cause and Cause-Specific Mortality*, 176 JAMA INTERNAL MED. 1453 (2016), [link here](#).

93 Patricia Bertron et al., *Racial Bias in Federal Nutrition Policy, Part I: The Public Health Implications of Variations in Lactase Persistence*, 91 J. NAT’L MED. ASS’N 151, 152 (1999); see generally Andrea Freeman, *The Unbearable Whiteness of Milk: Food Oppression and the USDA*, 3 U.C. IRVINE L. REV. 1251 (2013).

94 A genetic mutation that is more common in white Americans allows relatively unimpeded lactose digestion to persist into adulthood. G.B. Vogelsang, *Lactose Intolerance: A Common GI Complaint*, JOHNS HOPKINS MED., [link here](#) (last visited Nov. 9, 2020). However, more than 50 million people in the U.S. — predominantly Black and Brown people — experience lactose intolerance. The Food Empowerment Project describes “people whose bodies do not digest the milk of a non-human animal” as experiencing “lactose normalcy.” *Lactose Intolerance*, FOOD EMPOWERMENT PROJECT, [link here](#) (last visited Nov. 9, 2020).

95 Brower et al., *supra* note 85, at 3.

contain less fat than their factory farmed counterparts.⁹⁶ Significantly higher *Salmonella* rates were found in caged hens when compared to free-range hens.⁹⁷ Beef from cows fed a grain-based diet tends to be higher in saturated fat and lower in nutritional value than beef from cows fed a natural grass diet.⁹⁸ In fact, a federal court in Texas issued the largest criminal penalty in a food safety case — \$17.25 million — over *Listeria*-contaminated ice cream manufactured in unsanitary conditions, which sickened more than a thousand people.⁹⁹

Zoonotic disease

The treatment of animals and workers on factory farms, combined with the impact of industrial agriculture on the environment and marginalized communities, creates a perfect atmosphere for viruses and other pathogens to circulate among animals, mutate, and potentially spill over to human populations.¹⁰⁰ Since 2011, at least 13 disease outbreaks have originated with birds farmed for food.¹⁰¹ In one multistate outbreak in 2018, workers at poultry slaughter facilities in Virginia and Georgia contracted psittacosis, a disease most commonly contracted by inhaling dust containing dried secretions from infected birds.¹⁰² And in another outbreak the same year, 44 people in 11 different states contracted *Salmonella* Enteritidis originating from Gravel Ridge Farms, which raises hens for shell eggs.¹⁰³ In 2003–2004 in several Asian countries, outbreaks of highly pathogenic avian influenza A (H5N1) occurred, resulting in 18 deaths and approximately 100 infections in humans before it was brought under control.¹⁰⁴ Though evidence suggests there is currently limited person-to-person transmission of H5N1 — avian influenza A — and that most cases occur through direct contact with birds raised for food, the Centers for Disease Control and Prevention (CDC) acknowledges that H5N1 has the potential to develop the ability to maintain sustained person-to-person transmission — which would increase the likelihood of a future epidemic or pandemic originating with farmed animals.¹⁰⁵

Beyond the consequences of zoonotic disease outbreak among or from farmed animals, the COVID-19 crisis has demonstrated vulnerability in the factory farming business model to outbreaks among humans, affecting animals, workers, and the environment. The USDA explains: “The immediate and drastic decline in food demand by restaurants and hotel customers isolated farmers and food processors from some of their biggest buyers, especially for meat, dairy, and specialty crops.”¹⁰⁶

⁹⁶ *Id.*

⁹⁷ European Food Safety Authority, *Report of the Task Force on Zoonoses Data Collection on the Analysis of the Baseline Study on the Prevalence of Salmonella in Holdings of Laying Hen Flocks of Gallus gallus*, 15 EFSA J. art. 97, Feb. 2007, [link here](#).

⁹⁸ S.K. Duckett et al., *Effects of Winter Stocker Growth Rate and Finishing System on: III. Tissue Proximate, Fatty Acid, Vitamin, and Cholesterol Content*, 87 J. ANIMAL SCI. 2961 (2009), [link here](#).

⁹⁹ Gillian Friedman, *Blue Bell Is Hit with a \$17.25 Million Penalty over 2015 Listeria Contamination*, N.Y. TIMES (Sept. 17, 2020) [link here](#).

¹⁰⁰ ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 5.

¹⁰¹ *US Outbreaks of Zoonotic Diseases Spread Between Animals & People*, CDC, [link here](#) (last visited Nov. 9, 2020).

¹⁰² *Multistate Psittacosis Outbreaks Among Poultry Plant Workers, 2018*, CDC, [link here](#) (last visited Nov. 9, 2020). Psittacosis commonly causes fever, chills, headache, and cough. It can also cause pneumonia and, in rare cases, death.

¹⁰³ *Outbreak of Salmonella Infections Linked to Gravel Ridge Farms Shell Eggs — Final Update*, CDC (Oct. 25, 2018), [link here](#). *Salmonella* commonly causes fever and diarrhea, and can become severe enough to require hospitalization.

¹⁰⁴ *Outbreaks of Avian Influenza A (H5N1) in Asia and Interim Recommendations for Evaluation and Reporting of Suspected Cases — United States, 2004*, 53 MORBIDITY & MORTALITY WKLY. REP., Feb. 13, 2004, at 97, [link here](#).

¹⁰⁵ *Id.*

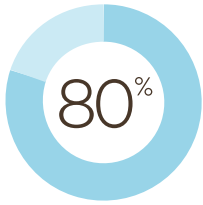
¹⁰⁶ Robert Johansson, *America’s Farmers: Resilient Throughout the COVID Pandemic*, USDA (Oct. 13, 2020), [link here](#).

Consolidation

Since the mid-19th century, more than a million farms have disappeared in the U.S.¹⁰⁷ The consolidation of small, independent family farms¹⁰⁸ into factory-style corporations has created linear systems with long supply chains. The Food and Agriculture Organization of the United Nations (FAO) notes: “Critical parts of food systems are becoming more capital-intensive, vertically integrated and concentrated in fewer hands.”¹⁰⁹ This impacts inputs, like seeds and fertilizers, to marketing and distribution of processed products. Since the mid-1900s, the trend toward centralization has been driven by federally incentivized specialization and technological advances.¹¹⁰

Today, 80 percent of U.S. beef comes from just four corporations: Tyson, Cargill, JBS USA, and National Beef, known collectively as the “Big Four.”¹¹¹ These corporations pioneered vertical integration, which involves owning virtually all means of production required to bring a particular product to market. The Big Four own slaughterhouses, truck fleets, animal feed, animal genes, animals, etc. They are responsible for the slaughter of 26 million of the 30 million cows slaughtered in 2019.¹¹² In fact, 98 percent of U.S. slaughter occurs at only 50 of the 800 federally inspected slaughterhouses.¹¹³

As a result of this consolidation, transportation time and distance have increased¹¹⁴ — profits also travel, going to big, often out-of-state and sometimes international corporations.¹¹⁵ The average piece of produce travels 1,500 miles from farm to table in the U.S., and processed foods, including animal products, travel roughly 1,300 miles.¹¹⁶ This requires more fossil fuels and causes more pollution;¹¹⁷ leads to a greater reliance on processed foods, rather than fresh foods;¹¹⁸ creates or exacerbates the problem of food deserts (areas with limited access to affordable, nutritious food);¹¹⁹ disconnects Americans from where their food comes from;



80 PERCENT OF U.S. BEEF COMES FROM JUST FOUR CORPORATIONS: TYSON, CARGILL, JBS USA, AND NATIONAL BEEF, KNOWN COLLECTIVELY AS THE “BIG FOUR”

107 *How Corporate Control Squeezes Out Small Farms*, PEW TRUSTS (Jul. 18, 2012), [link here](#).

108 Hereafter “family farms.” The vast majority of farms in the U.S are considered “family farms,” which the USDA defines as “any farm organized as a sole proprietorship, partnership, or family corporation. Family farms exclude farms organized as non-family corporations or cooperatives, as well as farms with hired managers.” Small, large, and very large farms, regardless of ownership structure, are further divided by yearly income, with “small farms” and “small family farms” generating less than \$250,000 per year in gross sales. *Small and Family Farms*, USDA, [link here](#) (last visited Aug. 10, 2020); *How Corporate Control Squeezes Out Small Farms*, *supra* note 107.

109 *The Future of Food and Agriculture: Trends and Challenges*, U.N. FOOD & AGRIC. ORG. (2016), [link here](#).

110 See, e.g., JOHN IKERD, *CORPORATIZATION OF THE AMERICAN FOOD SYSTEM* (2012), [link here](#); see also Susan A. Schneider, *A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability*, 34 WM. & MARY ENVTL. L. & POL’Y REV. 935, 943 (2010).

111 Demetri Kalogeropoulos, *Yup, 80% of Our Beef Comes from 4 Producers*, MOTLEY FOOL (Sep. 17, 2015), [link here](#).

112 *Livestock Slaughter: 2019 Summary* 63, USDA (Apr. 22, 2020), [link here](#).

113 Michael Corkery & David Yaffee-Bellany, *The Food Chain’s Weakest Link: Slaughterhouses*, N.Y. TIMES, Apr. 18, 2020, [link here](#).

114 *How Far Does Your Food Travel to Get to Your Plate?*, CUESA, [link here](#); Marne Coit, *Jumping on the Next Bandwagon: An Overview of the Policy and Legal Aspects of the Local Food Movement*, 4 J. FOOD L. & POL’Y 45, 52 (2008).

115 E. Paul Durrenberger & Kendall M. Thu, *The Expansion of Large Scale Hog Farming in Iowa: The Applicability of Goldschmidt’s Findings Fifty Years Later*, 55 HUMAN ORGS. 409 (1996); [link here](#). Marissa N. Bocci, *Acquisition and Disposition of U.S. Agricultural Land by Foreign Investors: Federal and State Legislative Restrictions, Limitations, and Disclosure Requirements*, 23 Drake J. Agric. L. 5, Spring 2018.

116 Coit, *supra* note 114, at 52.

117 See, e.g., Renee Cho, *How Green Is Local Food?*, STATE OF THE PLANET (Sept. 4, 2012), [link here](#); Caroline Evans, *Coronavirus: Food Supply Chains ‘Need a Rethink,’* BBC NEWS (May 3, 2020), [link here](#).

118 See Diane M. Barrett, *Maximizing the Nutritional Value of Fruits and Vegetables*, 61 FOOD TECH., Apr. 2007, at 40, 42, [link here](#).

119 Ryan Schuessler, *Food Deserts in America’s Breadbasket*, AL JAZEERA (June 10, 2015), [link here](#).

and makes the food system more vulnerable to disruption — as with COVID-19 — which risks even greater food insecurity.¹²⁰

Additionally, when animal agriculture is dominated by only a handful of corporations, animals are more likely to be mistreated. The constant drive for increased efficiency and lower margins comes at the expense of the animals involved in the brutal factory farming industry,¹²¹ such as housing animals in smaller cages and crates; feeding them more drugs, like beta-agonists and antibiotics; and killing them in slaughterhouses with faster line speeds. Consolidation has also led to fraudulent and deceptive practices within the animal ag industry, including alleged price-fixing and price-gouging. A 2019 lawsuit,¹²² for example, alleges cattle price-fixing by the Big Four through manipulation of the market with temporary closures and slowing processing speeds at certain slaughterhouses.¹²³

Conclusion

The factory farming business model, bolstered by government subsidies and an often-favorable regulatory environment, allows for — and, in fact, requires — true costs to be externalized.¹²⁴ These quantifiable costs — extreme confinement and other forms of animal cruelty, worker safety, air and water pollution, soil contamination, food safety threats, diet-related disease, antibiotic resistance, pesticide toxicity, processing and shipping, use of finite resources like petroleum, loss of biodiversity, the social and economic decline, and public health outcomes in proximal communities — range in the billions of dollars.¹²⁵ For example, a 2005 study estimated that the price of the U.S.’s reliance on pesticides equals approximately \$10 billion in environmental and societal costs.¹²⁶ One author estimated that these externalized costs total \$37 billion in environmental costs, and \$21 billion in cruelty costs.¹²⁷ Health care costs and climate impacts of factory farming have been estimated to translate to roughly \$2 in external costs for every \$1 of meat and dairy product sold.¹²⁸

The economies of scale used to justify factory farming are an illusion largely hidden from consumers who don’t pay them in the price of their food. The animal suffering, human rights violations, environmental degradation, and resulting danger to public health are anything but illusory.

¹²⁰ Chris J. Macias, *Is the Food Supply Chain Strong Enough to Weather COVID-19?*, UC DAVIS (June 25, 2020), [link here](#).

¹²¹ See, e.g., Mac McClelland, *This Is What Humane Slaughter Looks Like. Is It Good Enough?*, MOD. FARMER, (Apr. 2013), [link here](#).

¹²² Class Action Complaint at 7-9, *Ranchers Cattlemen Action Legal Fund v. Tyson Foods, Inc.* (N.D. Ill., Apr. 23, 2019) (No. 1:19-cv-02726).

¹²³ Joe Fassler, *A New Lawsuit Accuses the “Big Four” Beef Packers of Conspiring to Fix Cattle Prices*, THE COUNTER (April 23, 2019), [link here](#); Bill Bullard, *Under Siege: The U.S. Live Cattle Industry*, 58 S.D. L. REV. 560, 570 (2013).

¹²⁴ *Factory Farming: Assessing Investment Risks*, FAIRR (Aug. 11, 2016), [link here](#).

¹²⁵ See *id.*; Erin M. Tegmeier & Michael D. Duffy, *External Costs of Agricultural Production in the United States*, 2 INT’L J. AGRIC. SUSTAINABILITY 2 (2004), [link here](#); Nicole E. Negowetti, *Exposing the Invisible Costs of Commercial Agriculture: Shaping Policies with True Costs Accounting to Create a Sustainable Food Future*, 51 VAL. U.L. REV. 447 (2017), [link here](#).

¹²⁶ David Pimentel, *Environmental and Economic Costs of the Application of Pesticides Primarily in the United States*, 7 ENV’T, DEV. & SUSTAINABILITY 229 (2005), [link here](#).

¹²⁷ DAVID ROBINSON SIMON, *MEATONOMICS: HOW THE RIGGED ECONOMICS OF MEAT AND DAIRY MAKE YOU CONSUME TOO MUCH— AND HOW TO EAT BETTER, LIVE LONGER, AND SPEND SMARTER* xxv (2013).

¹²⁸ Christina Sewell, *Removing the Meat Subsidy: Our Cognitive Dissonance Around Animal Agriculture*, COLUMBIA J. INT’L. AFF. (Feb. 2020), [link here](#).

Alternative to a food system reliant on factory farming

Introduction

Food production and consumption must shift toward plant-based foods and alternative proteins (including, eventually, “cultivated meat,” grown directly from animal cells),¹²⁹ particularly in the U.S. and other (typically wealthier) countries consuming large amounts of meat,¹³⁰ most of which is factory farmed. The promise of cultivated meat is a future where animal protein can still be a part of people’s diet without animals needing to be continually factory farmed and slaughtered to make it.¹³¹

The means of food production and distribution must also shift. Local or regional food economies associated with diverse farms using agroecological approaches to completely or mostly plant-based¹³² agriculture would be more sustainable and resilient. They would benefit animals, the environment, and communities — while posing *significantly* less risk from zoonotic disease. “Local food” has a destination within a certain proximity of its origin. A local or regional food system means “start[ing] with what is fresh, local, and seasonal” before supplementing with food from a greater distance.¹³³ Local and regional food systems can improve biodiversity, strengthen local economies, and present more sustainable and resilient farm management opportunities.

A sustainable food system means nutritious food is accessible for all and produced in a way that sustains current and future use and ecosystem health.¹³⁴ A resilient food system is able to ensure a secure food supply for all as well as withstand and recover from disruptions or crises.

Agroecology seeks to provide holistic and long-term solutions by applying ecological and social concepts and principles to the design and management of agricultural systems.¹³⁵ The book *Agroecology: The Ecology of Sustainable Food Systems* explains:¹³⁶

An **agroecosystem** is a site or integrated region of agricultural production — a farm, for example — understood as an ecosystem. The agroecosystem concept provides a framework with which to analyze food production systems as wholes, including their complex sets of inputs and outputs and the interconnections of their component parts. Extended even further, agroecosystemic thinking incorporates social systems — as the structures within which humans as food consumers organize food distribution through markets and other means.

Agroecological farming is an integrated approach that optimizes interactions between humans, animals, and the environment while considering social aspects of a sustainable, resilient, and fair food system that provides safe, nutritious, and culturally appropriate

129 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 22 n. 146, 148; Zoë Corbyn, *Out of the Lab and Into Your Frying Pan: The Advance of Cultured Meat*, THE GUARDIAN, Jan. 19, 2020, [link here](#).

130 See Hannah Ritchie & Max Roser, *Meat and Dairy Production: Which Countries Eat the Most Meat*, OUR WORLD IN DATA, [link here](#) (last updated Nov. 2019).

131 Liz Specht, *Modernizing Meat Production Will Help Us Avoid Pandemics*, WIRED (Mar. 13, 2020), [link here](#).

132 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 22 n. 147.

133 *How Far Does Your Food Travel to Get to Your Plate?* *supra* note 114; see also Mette Vaarst et al., *Exploring the Concept of Agroecological Food Systems in a City-Region Context*, 42 AGROECOLOGY & SUSTAINABLE FOOD Sys. 686 (2018), [link here](#).

134 *Sustainable Food and Agriculture*, UN FOOD & AGRIC. ORG., [link here](#) (last visited Oct. 22, 2020).

135 InterDev Nat. Resources Mgmt., *Agroecological Farming Systems*, UN FOOD & AGRIC. ORG., [link here](#) (last visited Oct. 22, 2020).

136 STEPHEN R. GLIESSMAN, *AGROECOLOGY: THE ECOLOGY OF SUSTAINABLE FOOD SYSTEMS* 21 (3d ed. 2014), [link here](#).

food.¹³⁷ For example, integrated crop-animal grazing systems can be self-maintaining and regenerative as well as cost-effective,¹³⁸ allowing animals to forage for their feed and animal manure to serve as fertilizer that promotes soil health and plant growth.¹³⁹ Farming in balance with the environment necessitates that any animal agriculture be integrated with plant agriculture and, importantly, requires a shift to a more plant-focused diet, including a significant reduction in consumption of animal proteins, an increase in plant-based or alternative proteins, and a higher proportion of fruit and vegetables.¹⁴⁰

Such locally controlled, more circular¹⁴¹ (similar to closed loops of natural cycles) agroecological systems benefit animals, workers, environment, communities, and human health — and pose significantly less risk from zoonotic disease than our current factory farming-reliant food system.

Animals

A food system involving farmers utilizing agroecological farming practices would necessitate a decrease in animal consumption; it would be more plant-based and use fewer farmed animals in agriculture. Those animals would be of species or breeds appropriate to the local environment and culture¹⁴² and maintained on pasture or in an otherwise natural outdoor environment, thereby allowing animals to exhibit natural behaviors and leading to healthier animals than when monocrop-fed and in confinement.

Agroecological approaches to animal agriculture involve integrated crop-animal grazing systems,¹⁴³ where cows, for example, primarily live in a large pasture, rather than confined to an indoor facility;¹⁴⁴ allow for animals to forage for their feed; and typically have low labor requirements to maintain.¹⁴⁵ Properly managed grazing systems can be self-maintaining and cost effective;¹⁴⁶ as cows eat grass or other suitable forage, their manure serves as fertilizer,¹⁴⁷ promoting future plant growth and soil health.¹⁴⁸ Utilizing regenerative practices like cover cropping, when crops are grown in non-growing seasons (typically winter months),¹⁴⁹ can

137 *Livestock and Agroecology: How They Can Support the Transition Towards Sustainable Food and Agriculture*, UN FOOD & AGRIC. ORG. (2018), [link here](#); *Agroecology: Resilient & Productive*, PESTICIDE ACTION NETWORK, [link here](#); Shiny Varghese, *Scaling Up Agroecology: A Tool for Policy*, INST. AGRIC. & TRADE POL'Y (Nov. 6, 2013), [link here](#).

138 See Edward N. Ballard, *Beef Cow Costs* 1, 2, PURDUE COLLEGE AGRIC. (Spr. 2003), [link here](#).

139 *Livestock and Agroecology*, *supra* note 137.

140 Brian Machovina et al., *Biodiversity Conservation: The Key Is Reducing Meat Consumption*, 536 SCI. TOTAL ENV'T 419 (2015), [link here](#).

141 GLIESSMAN, *supra* note 136, at 26-27.

142 *Livestock and Agroecology*, *supra* note 137.

143 See *Benefits of Managed Grazing Systems*, PENN. STATE EXTENSION (Apr. 28, 2015), [link here](#).

144 *Id.*

145 Effectively using manure as a natural fertilizer and diversifying crop-grassland rotations enable producers to limit system inputs, adding to the economic benefits of diversifying a producer's assets and reducing production costs and risks. Masayasu Asai et al., *Critical Factors for Crop-Livestock Integration Beyond the Farm Level: A Cross Analysis of Worldwide Case Studies*, 73 LAND USE POL'Y 184 (2018), [link here](#).

146 Feed is one of the most significant costs to raising farmed animals. One study found that, when cows were fed on foraged crops and grass from November to March, producers were able to save between \$90 and \$240 in feed costs per cow, per year. See Ballard, *supra* note 138.

147 Studies have shown that there is no increased pathogen risk from horizontally integrated systems when properly managed. Joshua Nazareth et al., *Food Safety Considerations in Integrated Organic Crop-Livestock Systems: Prevalence of Salmonella spp. and E. coli O157:H7 in Organically Raised Cattle and Organic Feed*, RENEWABLE AGRIC. & FOOD SYS., Dec. 2, 2019, [link here](#).

148 Maryn McKenna, *Is More Cattle Grazing the Solution to Saving Our Soil?*, NAT'L GEOGRAPHIC (Dec. 23, 2015), [link here](#).

149 SUSTAINABLE AGRIC. RESEARCH & EDUC., CONSERVATION TECH. INFO. CTR., AM. SEED TRADE ASS'N, 2017 COVER CROP SURVEY ANALYSIS 19 (2017).

Plant-based and cultivated meat technologies provide an opportunity to create safe, reliable jobs.

improve soil health¹⁵⁰ as well as prevent topsoil loss and help stop nutrient runoff and leaching.¹⁵¹ Such excess nutrients in waterways can have dire consequences for wild animals, causing toxic algae blooms and ocean dead zones, where virtually no fishes or sea life can survive.¹⁵² If integrated into grazing systems, cover crops may also be used to feed animals directly.¹⁵³ Cover crops are currently used on only 3.9 percent of all U.S. cropland,¹⁵⁴ indicating a high potential for expansion.

Additionally, agroecological approaches involve habitat and crop diversification as well as conservation of natural resources (soil, water, etc.), which benefit ecosystem health and dependent wild animals.¹⁵⁵ They are inherently less extractive and create less risk from pollution, pesticides, antibiotics, etc. Moreover, agroecological farming involves intentional stewardship to reduce negative impacts on the natural environment and maximize the value of farmed land as habitat for native species.¹⁵⁶

Workers

Agroecological farming would eliminate workers' exposure to systemic cruelty of animal confinement and its associated exposure to hazardous compounds, like ammonia.¹⁵⁷ The attendant diversification of the food supply would help create more varied sources of income, which can reduce vulnerability,¹⁵⁸ and may require more skilled labor — because it is “knowledge-intensive and generally more labour intensive”¹⁵⁹ — which is often higher-wage. Additionally, the vulnerability of jobs and wages due to commodity price swings is reduced.¹⁶⁰ Recent research has demonstrated that “abuse, low wages, isolation and poor living conditions” for farm workers and food workers are not limited to the factory farming industry¹⁶¹ and do occur in small and medium-sized family farms.¹⁶² However, agroecological approaches are designed to put the “needs of those who produce, distribute and consume food at the heart of food systems.”¹⁶³

Plant-based and cultivated meat technologies also provide an opportunity to create safe, reliable jobs.¹⁶⁴

150 See, e.g., *Cover Cropping to Improve Climate Resilience*, USDA, [link here](#) (last visited Nov. 9, 2020); *Cover Crops—Keeping Soil in Place While Providing Other Benefits*, USDA, [link here](#) (last visited Nov. 9, 2020).

151 *Cover Crops—Keeping Soil in Place While Providing Other Benefits*, *supra* note 150.

152 See David Biello, *Fertilizer Runoff Overwhelms Streams and Rivers—Creating Vast “Dead Zones,”* Sci. AM. (Mar. 14, 2008), [link here](#); *Nutrient Pollution: The Sources and Solutions: Agriculture*, EPA, [link here](#) (last visited Nov. 9, 2020).

153 See, e.g., Marcia DeLonge, *Reintegrating Land and Livestock Agroecological Solutions to Beef System Challenges 1-3*, UNION OF CONCERNED SCIENTISTS (2017), [link here](#).

154 Carl Zulauf & Ben Brown, *Cover Crops, 2017 U.S. Census of Agriculture*, FARMDOC DAILY (Jul. 24, 2019), [link here](#).

155 *Livestock and Agroecology*, *supra* note 137; see GLIESSMAN, *supra* note 136, at 237.

156 GLIESSMAN, *supra* note 136, at 265-71.

157 *Factory Farm Workers*, FOOD EMPOWERMENT PROJECT, [link here](#).

158 *Livestock and Agroecology*, *supra* note 137; *Agroecology: Resilient & Productive*, *supra* note 137.

159 Olivier De Schutter, *Report of the Special Rapporteur on the Right to Food* 9, 11, U.N. Doc. A/HRC/25.57 (General Assembly Jan. 24, 2014), [link here](#).

160 *Agroecology: Resilient & Productive*, *supra* note 137.

161 *Labor and Workers in the Food System*, FOODPRINT, [link here](#) (last visited Nov. 9, 2020).

162 L.V. Anderson, *Limits of the Locavore*, DISSSENT, Spr. 2014, [link here](#) (review of MARGARET GREY, *LABOR AND THE LOCAVORE* (2013)).

163 UN FOOD & AGRIC. ORG., *THE 10 ELEMENTS OF AGROECOLOGY GUIDING THE TRANSITION TO SUSTAINABLE FOOD AND AGRICULTURAL SYSTEMS* 9, (2018), available at [link here](#).

164 Amelia Nierenberg, *Plant-Based ‘Meats’ Catch On in the Pandemic*, N.Y. TIMES, May 22, 2020, [link here](#).

Environment and climate

Agroecological farming would significantly improve resource-use efficiency and resilience by improving water capture and soil health, allowing animal waste to become a beneficial fertilizer at a scale in balance with the land and reducing the demand for feed crops that drive deforestation.¹⁶⁵

Local or regional food economies would require fewer fossil fuels, with a reduced need to transport animal feed and animal waste, regulate indoor climate for animals, or produce synthetic fertilizers.¹⁶⁶ Moreover, regenerative agroecological farming can increase carbon sequestration and have the potential to not only help mitigate climate change but potentially reverse it.¹⁶⁷

Additionally, agroecological approaches seek to conserve and enhance biodiversity¹⁶⁸ — meaning species diversity, genetic diversity (within and between species), and ecosystem diversity.¹⁶⁹ Such biodiversity “fosters critical habitat” for wild animals and plants,¹⁷⁰ benefits pollinators,¹⁷¹ and may increase resilience against pests and disease.¹⁷²

Human health

Compared with factory farming, the resource-use efficiency of agroecological farming, which minimizes waste and pollution,¹⁷³ would lead to fewer associated human health complications, thanks to a reduction in air and water contamination. Similarly, without factory farming’s subtherapeutic use of antibiotics, fewer antibiotics would enter the environment and food chain.

An increase in crop biodiversity could increase consumption of varied fruits, vegetables, and grains, which would improve nutritional outcomes.¹⁷⁴ “Moreover, the genetic diversity of different varieties, breeds, and species is important in contributing macronutrients, micronutrients, and other bioactive compounds to human diets.”¹⁷⁵ With shorter supply chains, fewer animal products and processed foods, and less travel,¹⁷⁶ a local or regional food economy can provide more accessible fresh, nutritious, and plant-forward foods.¹⁷⁷

165 UN FOOD & AGRIC. ORG., *supra* note 163; *Livestock and Agroecology*, *supra* note 137.

166 *Agroecology: Resilient & Productive*, *supra* note 137; RODALE INST., *REGENERATIVE ORGANIC AGRICULTURE AND CLIMATE CHANGE: A DOWN-TO-EARTH SOLUTION TO GLOBAL WARMING* (2014), available at [link here](#).

167 *Livestock and Agroecology*, *supra* note 137, at 9; RODALE INST., *supra* note 166, at 7-13; *Food, Farming and Climate Change: It’s Bigger Than Everything Else*, WORLD FAIR TRADE ORG., [link here](#) (last visited Oct. 22, 2020).

168 *Diversity: Diversification Is Key to Agroecological Transitions to Ensure Food Security and Nutrition while Conserving, Protecting and Enhancing Natural Resources*, UN FOOD & AGRIC. ORG., [link here](#) (last visited Oct. 22, 2020).

169 UN FOOD & AGRIC. ORG., *SUSTAINABLE AGRICULTURE FOR BIODIVERSITY, BIODIVERSITY FOR SUSTAINABLE AGRICULTURE* (2018), available at [link here](#).

170 UN FOOD & AGRIC. ORG., *supra* note 163; *Food, Farming and Climate Change*, *supra* note 167.

171 UN FOOD & AGRIC. ORG., *supra* note 163, at 3.

172 UN ENV’T PROGRAM, *THE ENVIRONMENTAL FOOD CRISIS: THE ENVIRONMENT’S ROLE IN AVERTING FUTURE FOOD CRISES* 66 (C. Nellemann et al., eds., 2009), available at [link here](#).

173 UN FOOD & AGRIC. ORG., *supra* note 163, at 7.

174 *Id.* at 3.

175 *Id.*

176 See, e.g., Cho, *supra* note 117. Local food is typically less processed and does not travel very far, reducing the amount of emissions from processing and transportation. See Evans, *supra* note 117.

177 See Barrett, *supra* note 118; Steve Martinez et al., *Local Food Systems: Concepts, Impacts, and Issues*, Econ. Res. Rep. No. 97 (Econ. Res. Serv. 2010), available at [link here](#).

The World Health Organization (WHO), as part of its goal to improve human health, has released an optimally healthy diet outline.¹⁷⁸ The recommendation includes at least 400 grams of fruits and vegetables per day and does not require any animal products. Notably, the plan states that less than 30 percent of daily energy intake should come from fats and that unsaturated fats, such as those from avocado, nuts, and soy, are preferred over saturated or trans fats, like those typically found in meat, dairy, or processed foods.¹⁷⁹ Proponents of meat consumption often point to animal products' ability to deliver protein effectively; indeed, meat can provide all nine amino acids that are not created by the human body.¹⁸⁰ However, protein from plant sources, such as quinoa or soy-based products, can be just as effective in delivering those same amino acids,¹⁸¹ rendering animal products unnecessary for protein intake.¹⁸²

Now is the time for plant-based foods, including plant-based meat, dairy, and eggs. These foods provide safe, healthy, reliable options for feeding Americans, especially at a time when the vulnerabilities of the animal-based food industry are further exposed by a global pandemic. Meanwhile, people have been inspired to choose plant-based meat as a safe, healthy alternative: plant-based meat sales grew 35 percent during just one month of the pandemic.¹⁸³

The responsible development of local or regional food economies can create support networks for family farmers and local communities, helping reduce the socioeconomic and political vulnerability often seen in rural communities and communities of color.¹⁸⁴

Agroecology and local food systems emphasize social and economic aspects of food systems, such as social justice issues¹⁸⁵ and fair trade practices.

Interest in and support for local food systems is growing, generating “alternative geographies of food,”¹⁸⁶ including “alternative food networks” (AFNs), which shorten supply chains by bringing together farmers and socially conscious consumers.¹⁸⁷ Such networks enable direct-to-consumer sales (e.g., farmers markets, community supported agriculture [CSA] programs, and pick-your-own options),¹⁸⁸ which allow farmers to retain more profits and to reinvest in farm or local community¹⁸⁹ while providing communities with access to fresh,

178 *Healthy Diet*, *supra* note 84.

179 *Id.*

180 Cedars-Sinai Staff, *Are Animal Proteins Better for You Than Plant Proteins?*, CEDARS-SINAI BLOG (Jan. 17, 2019), [link here](#), *supra* note 84.

181 *Id.*

182 Roni A Neff et al., *Reducing Meat Consumption in the USA: A Nationally Representative Survey of Attitudes and Behaviours*, 21 PUB. HEALTH NUTRITION 1835 (2018), [link here](#); see also E. MELANIE DUPUIS, NATURE'S PERFECT FOOD: HOW MILK BECAME AMERICA'S DRINK 5 (2002) (explaining that high animal milk consumption in the U.S. is a historical aberration: Americans began widespread milk consumption only in the mid 19th century, and only then as a food for infants and children).

183 Plant-based meat sales grew 35 percent from April 12 to May 9, 2020. And the sales of uncooked plant-based meats grew a whopping 53 percent. *Nierenberg*, *supra* note 164.

184 See, e.g., *Agroecology: Resilient & Productive*, *supra* note 137.

185 For example, food sovereignty, land rights and stewardship, racial justice, and gendered work issues.

186 Sarah Whatmore & Lorraine Thorne, *Nourishing Networks: Alternative Geographies of Food*, in *GLOBALISING FOOD: AGRARIAN QUESTIONS AND GLOBAL RESTRUCTURING* (David Goodman & Michael J. Watts, eds., 1997).

187 Renata Blumberg et al., *For Food Space: Theorizing Alternative Food Networks Beyond Alterity*, 27 J. POL. ECOLOGY (2020), [link here](#).

188 *Direct Marketing*, USDA, [link here](#) (last visited Nov. 9, 2020).

189 Karen Perry Stillerman, *7 Fun Facts for National Farmers Market Week*, UNION OF CONCERNED SCIENTISTS (Aug. 4, 2017), [link here](#).

nutritious foods. Whereas a typical U.S. farmer receives less than 16 cents per consumer dollar spent¹⁹⁰ — after “off-farm costs,” like marketing, processing, wholesaling, distribution, and retailing — a farmer selling at farmers markets can make more than \$0.90 per consumer dollar spent.¹⁹¹ The number of farmers markets has more than quadrupled since 1994,¹⁹² with more than 10,000 listed in the USDA’s directory.¹⁹³ CSA programs¹⁹⁴ have seen a similar surge in popularity,¹⁹⁵ with at least 7,000 in operation across the U.S. today.¹⁹⁶ As COVID-19 has disrupted the centralized food supply chain, more consumers are turning to local agriculture.¹⁹⁷ CSAs have seen a particularly dramatic increase in community participation.¹⁹⁸

Nor is support of AFNs dependent on a direct-to-consumer model. Indeed, robust avenues already exist to connect local food production with local food consumers through intermediaries allowing for various levels of sophistication.¹⁹⁹

Zoonotic disease

Locally adapted breeds of farmed animals have traits that “help them cope with local feed resources, climates, elevations, practices (e.g. mobility), parasites and diseases.”²⁰⁰ In contrast, factory farming relies on genetically similar animals kept in stressful conditions, often unhealthy and overcrowded, and continually dosed with antibiotics, inviting future antibiotic resistance and zoonotic disease transmission. Similarly, agroecological approaches remove the human hygiene and crowding issues that facilitate disease spread on factory farms. In fact, a recent United Nations report recommended “support[ing] the sustainable management of landscapes and seascapes that enhance sustainable co-existence of agriculture and wildlife” to prevent future pandemics.²⁰¹

190 *The Farmer’s Share*, NAT’L FARMERS UNION [link here](#) (last visited Oct. 22, 2020).

191 Stillerman, *supra* note 189.

192 There were approximately 2,000 farmers markets nationwide in 1994. See Jodi Helmer, *Why Are So Many Farmers Markets Failing? Because the Market is Saturated*, NPR (Mar. 17, 2019), [link here](#).

193 See *Local Food Directories: National Farmers Market Directory*, USDA, [link here](#) (last updated Nov. 5, 2020).

194 “In basic terms, CSA consists of a community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community’s farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production.” Suzanne DeMuth, *Defining Community Supported Agriculture*, NAT’L AGRIC. LIBRARY (Sept. 1993), [link here](#).

195 There was only one operating CSA in the U.S. in 1985. Coit, *supra* note 114, at 60.

196 The data was collected in 2015 by the USDA, so there are likely more CSAs in operation in 2020, but the USDA remains the most accurate database. See *Community Supported Agriculture, Surveys and Statistics*, USDA, [link here](#) (last visited Aug. 6, 2020).

197 E.g., Charity Robey, *Small Farms in N.Y. Are Experiencing a Surprising Boom. Here’s Why*, N.Y. TIMES, June 8, 2020, [link here](#).

198 For example, one farm CSA in California saw a 50 percent increase in sales over the course of just a few days, and another processed 1700 orders in one day. See Hannah Ricker & Mara Kardas-Nelson, *Community Supported Agriculture Is Surging Amid the Pandemic*, CIVILEATS (Apr. 9, 2020), [link here](#). In DC, another CSA saw a 225 percent increase in year over year revenue from January to June between 2019 and 2020. See also Saul Elbein, *The Pandemic Could Actually Strengthen the U.S. Food System*, NAT’L GEOGRAPHIC (Jul. 17, 2020), [link here](#).

199 See FED. RESERVE BANK OF ST. LOUIS, *HARVESTING POWER: THE POWER OF REGIONAL FOOD SYSTEM INVESTMENTS OPPORTUNITY TO TRANSFORM COMMUNITIES 17* (2017), available at [link here](#). The USDA’s Economic Research Service found that more than half of local food sales in 2012 were “generated by farms that marketed all their local production through intermediaries,” whereas 20 percent were generated by farms exclusively using a direct-to-consumer model. *Id.*

200 *Livestock and Agroecology*, *supra* note 137, at 5.

201 DELIA GRACE RANDOLPH ET AL., *PREVENTING THE NEXT PANDEMIC: ZOOONOTIC DISEASES AND HOW TO BREAK THE CHAIN OF TRANSMISSION, A SCIENTIFIC ASSESSMENT WITH KEY MESSAGES FOR POLICY-MAKERS* (2020), available at [link here](#).

Farmer autonomy and resilience

Agroecological approaches “combine science with traditional, practical, and local knowledge of producers,” which can facilitate innovation, enhance farmer and community autonomy and adaptive capacity, and empower people.²⁰² “Farming system stability, resilience, and agricultural livelihood options depend intricately on the available crop varieties and their specific traits.”²⁰³

Establishing and conserving a “diversity of production systems, species and breeds is essential to improve food security and increase resilience.”²⁰⁴ Food systems relying on a diversity of crops and animals well suited to the environment are less vulnerable to droughts, floods, or market shocks.²⁰⁵

Moreover, shortening supply chains builds community connections, which can enhance autonomy and resilience. In fact, farms marketing direct-to-consumer have been “more likely to stay in business than farms that were not.”²⁰⁶

Conclusion

Agroecological farming systems are capable of meeting global food needs with largely plant-based diets both sustainably and efficiently.²⁰⁷ Importantly, these approaches are both holistic and flexible, applicable across environments.²⁰⁸ However, farmers and communities need “political and financial support to shift to an agricultural system that values agro-ecological methods.”²⁰⁹ With a gradual shift toward small, agroecological farming — which the UN asserts “offers far more environmentally sustainable methods that can still meet the rapidly growing demand for food” worldwide²¹⁰ — there is every reason to believe that plant-based agriculture could satisfy global hunger while protecting people and the environment. Effective public policy is crucial to ending the factory farm domination of our food system and supporting a viable alternative food system.

202 UN FOOD & AGRIC. ORG., *supra* note 163, at 2; see also, e.g., Robert Tripp, *Low-Input Technology: An Integrative View*, in BARRY POUND, *AGRICULTURAL SYSTEMS: AGROECOLOGY AND RURAL INNOVATION FOR DEVELOPMENT* (2d ed. 2017); Marie-Angelina Magne et al., *An Integrated Approach to Livestock Farming Systems’ Autonomy to Design and Manage Agroecological Transition at the Farm and Territorial Levels*, in *AGROECOLOGICAL TRANSITIONS* (Jacques-Eric Bergez et al., eds., 2019), available at [link here](#).

203 Eva Weltzien & Anja Christinck, *Participatory Breeding: Developing Improved and Relevant Crop Varieties with Farmers*, in POUND, *supra* note 202, at 297.

204 *Livestock and Agroecology*, *supra* note 137, at 5. See, e.g., Weltzien & Christinck, *supra* note 203, at 296.

205 *Livestock and Agroecology*, *supra* note 137, at 5.

206 Blumberg et al., *supra* note 187, at 2.

207 GLIESSMAN, *supra* note 136; CHRISTOPHER D. COOK ET AL., *FARMING FOR THE FUTURE: ORGANIC AND AGROECOLOGICAL SOLUTIONS TO FEED THE WORLD* 23 (2016), available at [link here](#).

208 See, e.g., Mette Vaarst et al., *supra* note 133; Ahron Lerman et al., *A Sonoran Oasis: Developing a Local Food System for Ajo, Arizona*, CONWAY SCHOOL (2011), [link here](#).

209 RANDOLPH ET AL., *supra* note 201.

210 Nafeez Ahmed, UN: *Only Small Farmers and Agroecology Can Feed the World*, THE ECOLOGIST.ORG (Sept. 23, 2014), [link here](#).

Policy recommendations

Introduction

The risk of exposure to zoonotic diseases today is far greater than even 50 years ago, due in part to the consolidation and industrialization of animal agriculture, and immediate action is needed to mitigate the public health threats posed by factory farming in the global food system.

Ultimately, factory farming *must* be phased out and replaced with a more sustainable and resilient, plant-focused food system with protections for any farmed animals used. Therefore, we recommend pursuing primary policies to achieve this transformative goal.

In the meantime, we also recommend aggressively and urgently pursuing policies to reform the factory farming system to better protect animals, the environment, workers, and human health; to hold corporations in the factory farming industry accountable; and to ensure a safer and more nutritious food supply.

Primary policy recommendation

Prohibit factory farming

To effectively eliminate factory farming, Congress and state legislatures must prohibit building new, or expanding existing, factory farm facilities and establish a timeline to phase them out altogether.

In 2019, the Oregon State Legislature considered a bill to enact a moratorium on new industrial dairies or “mega-dairies” — defined as having 700 or more mature cows without seasonal daily access to pastureland or more than 2,500 cows — to “protect Oregon’s climate, air, water, animals and family farms.”²¹¹ If this bill is passed, Oregon would be the first state in the nation to take such action.²¹² The bill would have also classified these mega-dairies as industrial operations, ending their protection from nuisance lawsuits under the state’s right-to-farm law; required an economic study of mega-dairies’ impact on small- or mid-sized dairies; and tightened air emission and water use restrictions.²¹³ Although milk production in Oregon has reportedly risen over the past 20 years, the number of dairy farms has plummeted from 1,900 in 1992 to 228 in 2019.²¹⁴

In Congress, U.S. Senator Cory Booker (D-NJ) and U.S. Representative Ro Khanna (D-CA) introduced the 2020 Farm System Reform Act, which would place a moratorium on new or expanded large CAFOs and prohibit all large CAFOs by 2040.²¹⁵ Importantly, the Act would also provide for a \$100 billion voluntary buyout program for producers who wish to transition out of the CAFO industry; hold corporate integrators responsible for the pollution caused by factory farms; strengthen the Packers and Stockyards Act; restore mandatory Country of Origin Labeling for beef and pork as well as expand it to dairy products; and prohibit the

211 *Renewed Call for Governor Brown to Enact an Immediate Mega-Dairy Moratorium Comes as State Attempts to Curb Greenhouse Gas Emissions*, STAND UP TO FACTORY FARMS (June 16, 2020), [link here](#); S. 103, 80th Leg. Assemb., 2019 Reg. Sess. (Or. 2019), available at [link here](#).

212 Or. S. 103.

213 *Id.*

214 *Id.*

215 S. 3221, 116th Cong. (2019); H.R. 6718, 116th Cong. (2019).

*A just transition
in agriculture must
address — and not
exacerbate — injustices.*

USDA from labeling imported meat products as “Product of USA.”²¹⁶ Passing this legislation is a vital step in loosening industrial agriculture’s stranglehold on the U.S. food system and creating a more equitable and sustainable future. Congress must pass the Farm System Reform Act expeditiously.

To protect people, animals, and the environment from the abuse, devastation, and looming risks of our precarious food system reliant on the factory farming industry, it is critical that Congress and state legislatures phase out factory farms. We recommend placing an immediate moratorium on building new, or expanding existing, factory farm facilities; pursuing an aggressive phase-out of all factory farms by 2030; and providing funding to support producers’ transition to alternative, more sustainable practices and products.

Support an alternative, more sustainable, more resilient food system

Farming *animals* for food — especially in factory-like conditions — puts public health and our climate at risk and is unnecessary.²¹⁷ To transition away from an unsafe and outdated food system that relies on such practices, governments must prioritize providing support to transitioning and existing farms and facilities with lower risk of disease and disruption than those in the factory farming industry, such as diverse farms facilitating local or regional food economies and utilizing agroecological approaches. Farms and businesses utilizing these lower-risk systems of animal agriculture and low-risk, plant-focused agriculture or developing cultivated meats are vital to creating an alternative, more sustainable, and more resilient food system.

In moving a food system that relies on an unhealthy factory-style treatment of animals toward one that incorporates agroecological approaches, we must be cognizant of a range of stakeholder interests and experiences. These include those of the people who work in both animal- and plant-based agriculture, whether directly or at a processing stage; those who own farms and those fed by farms; those who live far from or near to farms; and, in particular, those marginalized communities and individuals who stand to be particularly impacted by food system changes.²¹⁸ To minimize the negative economic and social impacts of the food system transition, Congress and state governments must provide people and communities with support, safety nets, and social protection. A just transition in agriculture must address — and not exacerbate — injustices.²¹⁹

Currently, financial support for such transitions or expansions may include “(1) subsidies from an operation that buys and markets your animals or animal products under the brand; (2) applicable business expenses tax deductions; (3) private funding from non-profit organizations interested in promoting animal welfare; and (4) federal and state government grants and loans.”²²⁰ However, further support and incentives are needed to meaningfully transition our food system by 2030.

216 *Press Release: Rep. Ro Khanna Introduces House Companion to Sen. Cory Booker’s Farm System Reform Act*, CONGRESSMAN RO KHANNA (May 7, 2020), [link here](#).

217 *See, e.g., Healthy Diet, supra* note 84; *Plant-Based Profits: Investment Risks & Opportunities in Sustainable Food Systems*, FAIRR (Feb. 2018), [link here](#).

218 ACTIONAID, *PRINCIPLES FOR A JUST TRANSITION IN AGRICULTURE* (2019), *available at* [link here](#); Charlotte E. Blattner, *Just Transition for Agriculture? A Critical Step in Tackling Climate Change*, 9 J. AGRIC., FOOD SYS. & COMMUNITY DEV. 53 (2020), [link here](#).

219 ACTIONAID, *supra* note 218.

220 JAMIE RENNER ET AL., *FARM ANIMAL WELFARE CERTIFICATION GUIDE: A FARMER AND BUSINESS TOOL FOR UNDERSTANDING WELFARE CERTIFICATION PROGRAMS* (2019), *available at* [link here](#).

To effectively transition our food system, federal and state funding must be available to farmers and businesses facilitating local or regional food economies and utilizing agroecological approaches to plant-based agriculture.

In 2019, Vermont became the first state in the nation to pass a law ensuring that state funding is available to “promote and seek expanded markets for” products certified by “independent animal welfare programs.”²²¹ This funding would help support farms and businesses transitioning to practices — or scaling existing operations — that meet certifications requiring minimum standards for the welfare of farmed animals and which explicitly prohibit caging and crating animals.²²²

The 2020 Food Supply Protection Act, sponsored by U.S. Senator Debbie Stabenow (D-MI) with U.S. Senator Lisa Murkowski (R-AK), would authorize the USDA to administer grants and loans to strengthen the food supply chain in response to the COVID-19 crisis and food supply disruptions by “redirecting food to families and helping farmers and processors retool their operations.”²²³ The Act would provide funding through grants, direct loans, and guaranteed loans for food bank infrastructure to help meet demand; for partnerships to redirect excess food to food banks, schools, and nonprofits, reducing food waste; and for small- and mid-sized processors and farmers for infrastructure and equipment to protect workers and meet demand, for example.²²⁴

Section 5(c) of the bill currently requires “[a]n eligible entity that receives a grant, direct loan, or guaranteed loan under this section” to use the funding “for the purpose of responding to the COVID-19 emergency by building flexibility into the food supply chain and incentivizing creative economic solutions to strengthen the farm economy and agricultural communities, protect workers, and minimize food waste through any of the following uses,” of which a list is given.²²⁵ Helping a company that currently produces or sells only animal-based protein, or that currently produces plant foods for use as animal feed, switch to participating in the plant-based or cultivated-meat industry would help accomplish this. As discussed above, a food system incorporating more plant-based foods and alternative proteins can help avoid the disruptions and disease risk associated with the factory farm industry. In addition, it would minimize the food waste that occurs when farmers kill huge numbers of animals without sending them to slaughter, due to backups in the supply chain.

Importantly, the Act implicitly authorizes the USDA to administer such grants and loans for the purposes of transitioning a business model to alternative protein. For example, two of the items currently listed as permitted uses are (1) “Developing new food products to meet a change in demand,” which should include the plant-based proteins that consumers increasingly demand,²²⁶ and (2) “Upgrading technology,” which should include upgrading from the old-fashioned technology of breeding animals for meat to the more modern technology of using a bioreactor to grow animal cells.²²⁷ Preferably, the Act would be amended to *explicitly* expand the list of “uses” in section 5(c) to include “Developing,

221 S. 160, 2019-2020 Reg. Sess. (Vt. 2019), available at [link here](#); Sen. Agric. Committee, S.160. *an Act Relating to Agricultural Development: Section by Section Summary* (Vt. 2020), [link here](#).

222 *Id.*; *Major Victory for Vermont’s Animals, Farmers and Consumers*, ASPCA (June 1, 2019), [link here](#).

223 Food Supply Protection Act of 2020, S. 3840, 116th Cong. (2020), available at [link here](#); *Ranking Member Stabenow Introduces Legislation to Protect America’s Food Supply*, UNITED STATES SENATE COMMITTEE ON AGRIC., NUTRITION, & FORESTRY (May 27, 2020), [link here](#).

224 S. 3840; *Stabenow Introduces Legislation*, *supra* note 223.

225 S. 3840 § 5(c).

226 Julia B. Olayanju, *Plant-based Meat Alternatives: Perspectives on Consumer Demands and Future Directions*, FORBES (July 30, 2019), [link here](#).

227 S. 3840 § 5(c)(3), (5).

producing, or marketing plant-based or cultivated (animal-free) meat, dairy, or eggs; supplying materials to create such products; or taking necessary steps to expand one’s business model into such products.”

The first step in addressing animal suffering in the factory farm context is ensuring that anti-cruelty laws reach those animals.

Congress must pass the Food Supply Production Act. However, under this law, the USDA’s authority would expire when the COVID-19 emergency is lifted. To effectively transition our food system, federal and state funding must be available to farmers and businesses facilitating local or regional food economies and utilizing agroecological approaches to plant-based agriculture. A recent assessment found that “[d]espite its promise, research and development related to agroecology has been thought to command less than two percent of public agricultural research funding in the United States and less than one percent globally.”²²⁸

Congress and states must pass legislation and create programs that provide sufficient financial assistance and support to farmers, businesses, and communities in their transition to or expansion of sustainable and resilient practices supporting more local or regional food economies.

Ensure that animal cruelty laws are effective

The realities that make factory farming a critical vulnerability in the nation’s struggle against zoonotic disease are not dangerous on those points alone. The same operational choices made by factory farms that turn them into an ideal outbreak point for zoonotic disease *also* directly contribute to the suffering of the animals who live under the industry’s control. Factory farmed animals subjected to overcrowding, injury, neglect, and illness are more susceptible to disease and more apt to spread contagion. Addressing this suffering, therefore, not only prevents animal cruelty but also makes for a safer and healthier nation.

The first step in addressing animal suffering in the factory farm context is ensuring that anti-cruelty laws reach those animals.

One of the most brazen ways in which the law fails to grapple with the suffering of factory farmed animals is by simply refusing to acknowledge that they are, in fact, *animals*. South Carolina’s animal cruelty law, for example, forbids the definition of “animal” from applying to poultry;²²⁹ similarly, Arkansas declines to recognize fishes as animals — a category that otherwise extends to every non-human vertebrate.²³⁰ These narrow definitions preclude any possibility of the law being used to protect excluded animals from cruelty within factory farms. Jurisdictions with such definitions should replace them with definitions that reflect reality: animals are animals. A wide range of existing statutes stand as examples of laws that do just that: in Kentucky, “‘Animal’ includes every warm-blooded living creature except a human being”;²³¹ in Nevada, “‘Animal’ does not include the human race, but includes every other living creature”;²³² in Michigan, “‘Animal’ means a vertebrate other than a human being.”²³³

228 Marcia S. DeLonge et al., *Investing in the Transition to Sustainable Agriculture*, 55 ENVTL. SCI. & POL’Y 266 (2016), [link here](#).

229 S.C. CODE ANN. § 47-1-40(C) (2019).

230 ARK. CODE ANN. § 5-62-102 (2020).

231 KY. REV. STAT. ANN. § 446.010 (2020).

232 NEV. REV. STAT. § 574.050 (2019).

233 MICH. COMP. LAWS § 750.50 (2020).

Even when farmed animals are recognized by cruelty law (thus acknowledging that causing them suffering is a wrong), loopholes often act to limit — or even prevent — cruelty law from being used to address the conditions they live in. Carveouts that exempt common industry practice,²³⁴ for example, in effect allow the factory farms themselves to decide what treatment of animals under their care is or is not illegal. Other carveouts put farmed animals beyond the reach of specific portions of the cruelty code — preventing, for example, an otherwise general requirement that animals kept “in an enclosure [be provided with] wholesome exercise and change of air” from being used to ensure the health and well-being of animals on factory farms.²³⁵ These exemptions should be eliminated as a means not only of preventing animal suffering but of buttressing against the risk of zoonotic disease.

While states with cruelty law exemptions can make themselves safer and more humane by removing those carveouts, other states have steeper hills to climb to delegitimize cruel and dangerous treatment of farmed animals. Those states do not begin from the proposition that treating animals cruelly is presumptively wrong, and permitted only under specific, select circumstances where society has weighed the factors and made the conscious decision to tolerate the suffering and dangers involved. Rather, by building loopholes into the very elements of animal crimes, those states present various forms of cruel treatment toward animals as *never wrong to begin with*. Under these legal regimes, for example, in order to succeed with a criminal cruelty case, the prosecution must be able to show beyond a reasonable doubt that a farmed animal’s suffering could not be justified — without the law providing any limits on what sorts of justification are valid.²³⁶ The result is that industrial convenience, fractional cost cutting and other rationales are allowed to take priority over those states being able to address dangerous and cruel treatment in factory farm settings. Jurisdictions with this sort of statutory language must amend their cruelty codes to specifically define what conduct is *never wrong to begin with*.

Even when the law addresses animal suffering in the factory farm context, barriers hamper effective application of those laws. Animal cruelty cases often come with the sort of complexities — such as victims who cannot testify and the need for specialized forensic testimony — more often associated with homicides or child sex abuse cases. These challenges compound when the scale of the case involves mass amounts of animal victims, multiple layers of people making the decisions that result in cruelty, or — as can be the case in factory farm cruelty — both.

Factory farms are industrial facilities where multiple layers of workers, management, and sometimes corporate entities choose how the animals in their care will be treated. While workers on the factory farm floor may be more viscerally connected with illegal and dangerous animal suffering, all those who engage in illegal conduct with a culpable mental state should be held to account. When, for example, corporate policies amount to knowingly permitting the illegal suffering of animals under its care, the corporation itself should be held accountable. While factory farm corporations are generally prosecutable under various

234 *E.g.*, NEB. REV. STAT. § 54-907 (2020) (exempting “[c]ommonly accepted animal welfare practices with respect to livestock animals...[and] [c]ommonly followed practices occurring in conjunction with the slaughter of animals for food or byproducts...”).

235 OHIO REV. CODE ANN. § 959.13 (2020).

236 *E.g.*, CAL. PENAL CODE § 599b (2020) (“‘cruelty’ include[s] every act, omission, or neglect whereby unnecessary or unjustifiable physical pain or suffering is caused or permitted”); N.Y. AGRIC. & MKTS. LAW § 350 (2020) (“‘Torture’ or ‘cruelty’ includes every act, omission, or neglect, whereby unjustifiable physical pain, suffering or death is caused or permitted.”).

jurisdictions' rules for imputing knowledge and conduct to a corporate actor, states should underscore this and encourage responsible corporate stewardship by amending their cruelty statutes to explicitly note that the same rules for criminal liability that apply to corporations in other cases are in effect for animal cruelty cases.

Between a multitude of animal victims, the potential need for white-collar prosecution expertise, the likelihood that specialized forensic work will be required, and the intricacies of cruelty law, cases arising from suffering in factory farms can strain or exceed the justice system resources of the under-resourced communities where those factories are located. States and the federal government should remedy this by making training and resources available in order to aid communities in bridging this gap — as they already do in addressing other crimes.²³⁷ Most notably, creating dedicated animal cruelty special prosecutor positions allows local prosecutors to call on an expert for assistance when cases like this arise. Such issue-focused special prosecutor positions have become common in other legal spaces — ranging from insurance fraud to domestic violence — where logistic and statutory challenges make specialized expertise particularly impactful. Indeed, the two states that currently have animal cruelty special prosecutors — Oregon and Virginia — have seen success in addressing cruelty directed at farmed animals.²³⁸

Policy recommendations to reform the factory farming system to reduce zoonotic disease risk and protect animals, the environment, workers, and human health

Reduce animal density

The arithmetic of the factory farming business model demands overcrowding. The average broiler chicken house (sometimes called a “growout house”), for example, holds approximately 20,000 birds at any particular moment. This means each bird is typically afforded less than one square foot of space. Most U.S. producers have more than one broiler house on the farm, and those with production contracts typically average 500,000 per year.²³⁹ The high densities of animals in factory farms create an elevated risk of disease for humans. One study found a correlation between the density of chickens and pigs in agricultural operations and, respectively, acute myeloid leukemia and acute lymphoblastic

237 *E.g., OVW Fiscal Year 2019 STOP Formula Grant Program Solicitation*, OMB No. 1122-0020 (Dept. of Justice 2019), available at [link here](#) (Office on Violence Against Women grant program); *Adult Drug Court Discretionary Grant Program FY 2016 Competitive Grant Announcement*, OMB 1121-0329 (Dept. of Justice 2016), available at [link here](#); *Research on the Abuse, Neglect, and Exploitation of Elderly Individuals, Fiscal Year 2020*, OMB 1121-0329 (Dept. of Justice 2020), available at [link here](#); *Virginia Sexual & Domestic Violence Victim Fund (VSDVVF)*, VA. DEP'T CRIM. JUST. SERVICES, [link here](#) (last visited Oct. 29, 2020). California's Central Valley Rural Crime Prevention Program (CVRCPP) distributes state funds via grants to county DAs and sheriffs for the express purpose of combatting agricultural crimes. CAL. PENAL CODE ANN. §§ 14170–14174 (2020). Counties may supplement those grant funds from their own coffers. *See, e.g., Rural Crime*, KERN CO. SHERIFF'S OFFICE, [link here](#) (last visited Oct. 29, 2020) (“The Rural Crime Investigation Unit (RCIU) is a collaborative program designed to have experienced investigators work directly with stake-holders in the agricultural, livestock and oil production industries... a percentage of the funding for the Kern County Sheriff's Office Rural Crime Investigation Unit is provided by the State of California [via the CVRCPP], but the majority of funding for this unit is provided through Kern County general funds.”).

238 For example, in Virginia, the Attorney General's Animal Law Unit has successfully prosecuted cases involving the criminal abuse of factory farmed chickens. Jordan Miles, *Three Convicted in Animal Abuse*, CHARLOTTE GAZETTE, June 23, 2017, [link here](#). In what proved to be one of the most complex animal cruelty cases ever to be brought in the state, Oregon's Animal Cruelty Deputy District Attorney secured convictions involving over a hundred severely neglected cows. Lynne Terry, *2 Columbia County Residents Convicted of Animal Neglect in Abuse of Cattle*, THE OREGONIAN, Oct. 7, 2014, [link here](#).

239 JAMES M. MACDONALD, THE ECONOMIC ORGANIZATION OF U.S. BROILER PRODUCTION (Econ. Research Serv., Econ. Info. Bulletin No. 38, 2008), available at [link here](#).

States must urgently adopt minimum standards for the welfare of farmed animals and prohibit the sales of products that do not meet those minimum standards.

leukemia in children living within close proximity to the facility.²⁴⁰ In the same way that close contact among humans facilitates the transmission of zoonotic diseases like COVID-19 between them, scientists have found that microbe transmission occurs in animal populations who engage in close contact.²⁴¹

Evidence suggests that disease transmission rates may be lowered by reducing the density of animals on factory farms.²⁴² Alternative systems with lower stocking densities typically better enable animals to engage in natural behaviors, reducing stress and susceptibility to disease. For example, cage-free systems for egg-laying hens and crate-free systems known as “group housing” for breeding pigs and calves raised for veal allow the animals to fully stretch their limbs, turn around, and lie down — behaviors they are unable to perform in intensive confinement (i.e., battery cages, gestation crates, or veal crates, respectively). Systems that allow animals to spend time outdoors (e.g., pasture-raised) typically allow the animals to move and exhibit more natural behaviors like foraging, which can improve animal health — making them less vulnerable to disease.²⁴³

Policy trends demonstrate an effective approach to reducing density on factory farms: phase out the use of extreme confinement systems for farmed animals *and* the sale of products (i.e., meat and eggs) from farmed animals raised in extreme confinement.²⁴⁴ California, Colorado, Massachusetts, Michigan, Oregon, and Washington have passed such laws relating to egg-laying hens and the sale of eggs.²⁴⁵ California and Massachusetts go further with laws that also cover gestating pigs and calves raised for veal, as well as the sale of veal and pork products.²⁴⁶ Regardless of how strictly (or not) the confinement laws as written are interpreted, they have effectively established cage-free conditions for hens and group housing for gestating pigs and calves raised for veal as the minimum standard. Even more states have enacted laws phasing out confinement alone.²⁴⁷ These state-led advancements improve the welfare of farmed animals and will effectively reduce animal density at factory farms and help reduce the likelihood of zoonotic disease transmission.

240 Benjamin J. Booth et al., *Livestock and Poultry Density and Childhood Cancer Incidence in Nine States in the USA*, 159 ENV'T'L RES. 444 (2017), [link here](#).

241 *Even Animals Benefit from Social Distance to Prevent Disease, Research Shows*, SCIENCE DAILY (May 11, 2020), [link here](#).

242 Yoko Hayama et al., *Potential Impact of Species and Livestock Density on the Epidemic Size and Effectiveness of Control Measures for Foot-and-Mouth Disease in Japan*, 78 J. VETERINARY MED. SCI. 13 (2015), [link here](#).

243 AYSHA AKHTAR, ANIMALS AND PUBLIC HEALTH: WHY TREATING ANIMALS BETTER IS CRITICAL TO HUMAN WELFARE 88 (2012).

244 Elizabeth R. Rumley, *States' Farm Animal Confinement Statutes*, NAT'L AGRIC. L. CENTER, [link here](#) (last visited July 14, 2020); *Farm Animal Anti-Confinement Legislation*, ANIMAL WELFARE INST., [link here](#) (last visited July 14, 2020); Jackie Linden, *Group Sow Housing: More Space or Less Sows?*, PIG SITE (2014), [link here](#).

245 CAL. HEALTH AND SAFETY CODE §§ 25990, 25995-25996.3 (2020); COLO. REV. STAT. ANN. §§ 35-50.5-102, 35-21-301; H.R. 20-1343, 2020 Reg. Sess. (Colo. July 1, 2020); MASS. GEN. LAWS ch. 129 §§ 1-1 To 1-11 (2019); MICH. COMP. LAWS § 287.746 (2020); 2020 Mich. Pub. Acts 20-22; OR. REV. STAT. §§ 600.150, 632.840 (2020); WASH. REV. CODE §§ 69.25.065, 69.25.107 (2019).

246 CAL. HEALTH AND SAFETY CODE §§ 25990, 25995-25996.3; MASS. GEN. LAWS ch. 129 §§ 1-1 To 1-11.

247 In total, as of August 2020, 10 states have passed laws phasing out the use of gestation crates for pigs: ARIZ. REV. STAT. § 13-2910.07 (2020); CAL. HEALTH & SAFETY CODE § 25991(d)(3); COLO. REV. STAT. §§ 35-50.5-101 to 35-50.5-103; FLA. CONST. amend. X, § 21; ME. STAT. tit. 7, § 4020(1)(C) (2019); MASS. GEN. LAWS ch. 129 §§ 1-1 to 1-11 (2019); MICH. COMP. LAWS § 287.746; OHIO ADMIN. CODE 901:12-8 (2020); OR. REV. STAT. § 600.150; 4 R.I. GEN LAWS § 4-1.1-3 (2020). Nine states have passed laws phasing out the use of veal crates for calves: ARIZ. REV. STAT. § 13-2910.07; CAL. HEALTH & SAFETY CODE § 25991(d)(2); COLO. REV. STAT. §§ 35-50.5-101 to 35-50.5-103; 302 Ky. ADMIN. REGS. 21:030 (2020); ME. STAT. tit. 7, § 4020(1)(C); Ch. 333, MASS. GEN. LAWS ch. 129 §§ 1-1 to 1-11; MICH. COMP. LAWS § 287.746; OHIO ADMIN. CODE 901:12-5; 4 R.I. GEN LAWS § 4-1.1-3. Eight states have passed laws phasing out the use of battery cages for hens: CAL. HEALTH & SAFETY CODE § 25991(d)(4); 2020 Colo. Sess. Laws 1017; MASS. GEN. LAWS ch. 129 §§ 1-1 to 1-11; MICH. COMP. LAWS § 287.746; OHIO ADMIN. CODE 901:12-9; Ch. 686, 2019 Or. Laws _____; R.I. GEN. LAWS §§ 4-1.1-1 to 4-1.1-6; WASH. REV. CODE § 69-25-065.

States must urgently adopt minimum standards for the welfare of farmed animals and prohibit the sales of products that do not meet those minimum standards. We recommend that state legislatures phase out cage and crate systems and, instead, mandate outdoor access for farmed animals — such as free-range or pasture-raised — as well as sufficient shelter for protection from weather, based on the animal’s species, breed, age, and physical condition. Pasture-raised animals are able to freely roam and graze, peck, or forage. They manage their own feed and spread their own manure, which typically requires less specialized equipment than cage systems.

End subtherapeutic use of antibiotics

The regular practice of giving animals continuous low doses of antibiotics in feed or drinking water at factory farms increases the prevalence of antibiotic-resistant microbes.²⁴⁸ This subtherapeutic use of antibiotics — with doses too low to effectively treat disease²⁴⁹ — is used under the pretext of disease “prevention” to quickly grow animals to turn into food.²⁵⁰ The WHO warns of a “post-antibiotic era”²⁵¹ and recommends that farmers and the food industry halt the routine use of antibiotics to promote growth and prevent disease in healthy animals.²⁵²

There are a variety of pathways for antibiotic resistance from factory farming to transmit to human communities — including through workers into their homes and communities, similar to COVID-19.²⁵³ Other pathways include runoff into nearby ground and surface water,²⁵⁴ ventilation blowing pathogens out of factory farm facilities,²⁵⁵ crops contaminated by manure used as fertilizer,²⁵⁶ and contaminated meat sold to consumers.²⁵⁷ Additionally, recent studies have shown that antibiotic-resistant bacteria and antibiotic-resistant genes can jump from animals on factory farms to workers and adjacent communities. For example, a study of veterans in rural Iowa found that the risk of antibiotic-resistant *Staphylococcus aureus* (a bacteria species) was 88 percent higher among veterans living within one mile of high-density

248 See generally Maryn McKenna, *BIG CHICKEN: THE INCREDIBLE STORY OF HOW ANTIBIOTICS CREATED MODERN AGRICULTURE AND CHANGED THE WAY THE WORLD EATS* (2017); Maryn McKenna, *Farm Animals Are the Next Big Antibiotic Resistance Threat*, WIRED (Sept. 19, 2019), [link here](#).

249 In contrast, antibiotic administration at approved doses is used in disease treatment.

250 McKenna, *Farm Animals Are the Next Big Antibiotic Resistance Threat*, *supra* note 248.

251 *Antibiotic/Antimicrobial Resistance*, *supra* note 91.

252 *Stop Using Antibiotics in Healthy Animals to Prevent the Spread of Antibiotic Resistance*, *supra* note 91.

253 See Lance B. Price et al., *Elevated Risk of Carrying Gentamicin-Resistant Escherichia Coli Among U.S. Poultry Workers*, 115 ENVTL. HEALTH PERSPS. 1738 (2007), [link here](#); see also Mary J. Gilchrist et al., *The Potential Role of Concentrated Animal Feeding Operations in Infectious Disease Epidemics and Antibiotic Resistance*, 115 ENVTL. HEALTH PERSPS. 313 (2007), [link here](#); Jessica L. Rinsky et al., *Livestock-Associated Methicillin and Multidrug Resistant Staphylococcus aureus Is Present Among Industrial, Not Antibiotic-Free Livestock Operation Workers in North Carolina*, 8 PLoS ONE, July 2, 2013, [link here](#); Tara C. Smith et al., *Methicillin-Resistant Staphylococcus aureus in Pigs and Farm Workers on Conventional and Antibiotic-Free Swine Farms in the USA*, 8 PLoS ONE, May 7, 2013, [link here](#); P. Gerber et al., *Poultry Production and the Environment: A Review*, UN FOOD & AGRIC. ORG., [link here](#).

254 See Amy R. Sapkota et al., *Antibiotic-Resistant Enterococci and Fecal Indicators in Surface Water and Groundwater Impacted by a Concentrated Swine Feeding Operation*, 115 ENVTL. HEALTH PERSPS. (2007), [link here](#).

255 See Jochen Schulz et al., *Longitudinal Study of the Contamination of Air and of Soil Surfaces in the Vicinity of Pig Barns by Livestock-Associated Methicillin-Resistant Staphylococcus aureus*, 78 APPLIED & ENVTL. MICROBIOLOGY 5666 (2012), [link here](#); see also Shawn G. Gibbs et al., *Isolation of Antibiotic-Resistant Bacteria from the Air Plume Downwind of a Swine Confined or Concentrated Animal Feeding Operation*, 114 ENVTL. HEALTH PERSPS. 1032 (2006), [link here](#); Amy Chapin et al., *Airborne Multidrug-Resistant Bacteria Isolated from a Concentrated Swine Feeding Operation*, 113 ENVTL. HEALTH PERSPS. 137 (2005), [link here](#).

256 Carl Wepking et al., *Prolonged Exposure to Manure from Livestock Administered Antibiotics Decreases Ecosystem Carbon Use Efficiency and Alters Nitrogen Cycling*, 22 ECOLOGY LETTERS 2067 (2019).

257 See Joshua R. Hayes et al., *Prevalence and Antimicrobial Resistance of Enterococcus Species Isolated from Retail Meats*, 69 APPLIED & ENVTL. MICROBIOLOGY 7153 (2003), [link here](#); see also S. M. Donabedian et al., *Molecular Characterization of Gentamicin-Resistant Enterococci in the United States: Evidence of Spread from Animals to Humans through Food*, 41 J. CLINICAL MICROBIOLOGY 1109 (2003), [link here](#).

pig factory farms.²⁵⁸ Another study of nearly 450,000 Pennsylvania residents found elevated rates of antibiotic-resistant bacterial infection for people living near pig factory farms or cropland where pig manure was applied.²⁵⁹

There have been some attempted policy reforms in this area, but they have not gone far enough. In 2013 guidance from the FDA, all animal-drug producers were asked to voluntarily withdraw labels authorizing the use of medically important antibiotics for “growth promotion” purposes.²⁶⁰ Reportedly, all producers followed that guidance by the end of 2016.²⁶¹ Nevertheless, the FDA still authorizes the use of many of these drugs for “disease prevention” without diagnosis,²⁶² which factory farm producers now use to describe the same constant, low-dose, widespread administration of antibiotics that they previously called “growth promotion.” According to the FDA’s 2018 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals, 96 percent of medically important antibiotics sold or distributed for use in farmed animals were administered via feed or drinking water. Although sales and distribution have decreased since the peak year (2015), they increased 9 percent since the prior report (2017).²⁶³

In alignment with the recommendation from the WHO, federal and state governments must immediately prohibit the subtherapeutic use of antibiotics for both growth promotion and disease prevention in healthy animals. This is vital to ensuring that valuable antibiotics remain viable for use in treating diseases in human populations and sick-animal populations. The current routine subtherapeutic use of antibiotics in animal agriculture is setting the stage for a looming public health crisis where we find that our most effective drugs no longer work.

End the use of beta-agonists

Producers often feed drugs called beta-agonists to animals during the “finishing” stage of growth — the final period of weight gain before slaughter — to encourage a last-minute increase in muscle mass and overall body weight of the animals, earning producers more money per animal.²⁶⁴ The drugs shift a farmed animal’s energy balance toward skeletal muscle growth as opposed to fat deposition.

258 Margaret Carrell et al., *Residential Proximity to Large Numbers of Swine in Feeding Operations Is Associated with Increased Risk of Methicillin-Resistant Staphylococcus Aureus Colonization at Time of Hospital Admission in Rural Iowa Veterans*, 35 *INFECTION CONTROL & HOSP. EPIDEMIOLOGY* 190 (2014), [link here](#).

259 Joan A. Casey et al., *High-Density Livestock Operations, Crop Field Application of Manure, and Risk of Community-Associated Methicillin-Resistant Staphylococcus aureus Infection in Pennsylvania*, 21 *JAMA INTERNAL MED.* 1980 (2013), [link here](#).

260 Guidance for Industry on New Animal Drugs and New Animal Drug Combination Products Administered in or on Medicated Feed or Drinking Water of Food-Producing Animals, 78 Fed. Reg. 75,570 (Dec. 12, 2013).

261 *Timeline of FDA Action on Antimicrobial Resistance*, FDA, [link here](#).

262 *New Animal Drugs and New Animal Drug Combination Products Administered in or on Medicated Feed or Drinking Water of Food-Producing Animals: Recommendations for Drug Sponsors for Voluntarily Aligning Product Use Conditions with GFI #209, GFI #213* (FDA 2013), available at [link here](#).

263 *FDA-TRACK: Progress on FDA’s Support of Antimicrobial Stewardship in Veterinary Settings*, FDA, [link here](#) (last updated June 30, 2020).

264 J.P. Wang et al., *Technical Note: A Monoclonal Antibody-Based Immunoassay for Determination of Ractopamine in Swine Feeds*, 84 *J. ANIMAL SCI.* 1248 (2006), [link here](#). Indeed, one beta-agonist, ractopamine, is specifically approved for these uses. 21 C.F.R. §§ 558.500(e)(1)(i), 558.680(e)(1) (2020). 33

Discharges of beta-agonists into the environment not only degrade water quality but also harm wildlife.

Beta-agonists increase the concentrations of the stress-hormone norepinephrine in target animals, which in turn accelerates the production of foodborne pathogen virulence factors like adhesins and toxins.²⁶⁵ Adhesins facilitate infection by allowing pathogens to attach to the intestinal lining. *Campylobacter* and *E. coli* O157:H7 both increase the expression of virulence factors when exposed in vitro to norepinephrine.²⁶⁶ Norepinephrine exposure also likely increases the adherence of toxin-producing *E. coli* to porcine colonic mucosa²⁶⁷ and may cause a 10,000-fold increase in growth of toxin-containing bacteria such as *Salmonella*.²⁶⁸ Norepinephrine in target animals also increases the growth of the pathogen *Yersinia enterocolitica*.²⁶⁹ Nearly 100,000 people in the U.S. get sick from foodborne *Yersinia* every year, and all such related outbreaks reported in the U.S. from 1999 to 2008 were attributed to pork production.²⁷⁰

Beta-agonist usage also risks harm to the environment. Farmed animals excrete approximately 95 percent of the beta-agonist they ingest in the first three days after consumption.²⁷¹ Once in the environment, the drug can then contaminate ground and surface waters through manure lagoon leakage or when land-applied manure runs off into waterways. Uneaten animal feed treated with beta-agonists can also be buried in the ground, further causing the drugs to enter the environment. Discharges of beta-agonists into the environment not only degrade water quality but also harm wildlife.²⁷²

Companies are responding to COVID-19 pandemic-related meatpacking plant bottlenecks by depopulating entire herds and flocks of healthy animals at factory farms, often then burying the dead animals en masse.²⁷³ Contaminants, like beta-agonists and the daughter compounds into which they degrade, may leach from burial pits through the soil into the groundwater.²⁷⁴ Leachate pollutants from dead farmed animals include *inter alia*, nitrate, ammonia, chloride, and agents found in animal waste.²⁷⁵

Beta-agonist drugs are responsible for severe farmed animal suffering. By FDA's own count, the beta-agonist ractopamine has caused more adverse events in pigs than any other animal drug on the market, including trembling, lameness, broken limbs, reluctance or inability

265 J.N. Marchant-Forde et al., *The Effects of Ractopamine on the Behavior and Physiology of Finishing Pigs*, 81 J. ANIMAL SCI. 416 (2003), [link here](#); Mark Lyte, *Microbial Endocrinology and Infection Disease in the 21st Century*, 12 TRENDS IN MICROBIOLOGY 14 (2016), [link here](#); M.J. Toscano et al., *Cultivation of Salmonella Enterica Serovar Typhimurium in Norepinephrine-Containing Medium Alters in Vivo Tissue Prevalence in Swine*, 43 J. EXPERIMENTAL ANIMAL SCI. 329 (2007), [link here](#).

266 P. Freestone & M. Lyte, *Stress and Microbial Endocrinology: Prospects for Ruminant Nutrition*, 4 ANIMAL 1248 (2010), [link here](#).

267 Benedict T. Green et al., *Adrenergic Modulation of Escherichia Coli O157:H7 Adherence to the Colonic Mucosa*, 287 AM. J. PHYSIOLOGY GASTROINTESTINAL & LIVER PHYSIOLOGY 238 (2004), [link here](#).

268 Freestone & Lyte, *supra* note 266.

269 M. Lyte & S. Ernst, *Catecholamine Induced Growth of Gram Negative Bacteria*, 50 LIFE SCI. 203 (1992), [link here](#).

270 E. Scallan et al., *Foodborne Illness Acquired in the United States—Major Pathogens*, 17 EMERGING INFECTIOUS DISEASES 7 (2011), [link here](#); Michael B. Batz et al., *Ranking the Disease Burden of 14 Pathogens in Food Sources in the United States Using Attribution Data from Outbreak Investigations and Expert Elicitation*, 75 J. FOOD PROTECTION 1278 (2012), [link here](#).

271 *Safety Evaluation of Ractopamine: Scientific Opinion of the Panel on Additives and Products or Substances used in Animal Feed*, 7 EUROPEAN FOOD SAFETY AUTHORITY J. 1041 (2009), [link here](#).

272 Adrieli Sachett et al., *Ractopamine Hydrochloride Induces Behavioral Alterations and Oxidative Status Imbalance in Zebrafish*, 81 J. TOXICOLOGY & ENVTL. HEALTH, PT. A 194 (2018), [link here](#).

273 See *infra* notes 369-401 and accompanying text.

274 Dyan L. Pratt & Terrance A. Fonstad, *Geochemical Modelling of Livestock Mortality Leachate Transport Through the Subsurface*, 162 BIOSYSTEMS ENGINEERING 67 (2017), [link here](#).

275 Hilda H. Hatzell, *Effects of Waste-Disposal Practices on Ground-Water Quality at Five Poultry (Broiler) Farms in North-Central Florida, 1992-93*, WRI Rep. 95-4064 (USGS 1995), available at [link here](#).

to move, stiffness, hyperactivity, collapse, and death.²⁷⁶ The beta-agonist zilpaterol, for example, was voluntarily withdrawn by its drug sponsor, Merck, because slaughterhouses throughout the U.S. reported concerns about non-ambulatory, slow, and difficult-to-move cows and cows with severely deteriorated hooves.

By increasing both classes of stress hormones, beta-agonists may impair immune function in animals. Researchers have found that pigs fed the drugs had increased cortisol concentrations when handled aggressively compared with pigs not fed the drug.²⁷⁷ An increase in cortisol concentration in pigs has been shown to suppress a variety of immune function parameters, such as the proliferation and function of stimulated white blood cells.²⁷⁸ Highly stressed animals exhibit behavioral problems and have difficulty socializing with other animals, resulting in more social hierarchy issues and fights within a flock or herd. Some reports indicate animals on beta-agonists become so aggressive and hyperactive that they must be medicated to calm them down for shipping to slaughter.²⁷⁹ This combination of the drugs' physical and psychological adverse events contribute to increased risk of pigs going down — i.e., becoming non-ambulatory — at the slaughterhouse and during transport.²⁸⁰

According to the Center for Food Safety, ractopamine is banned or restricted in 160 countries — only the U.S. and 25 other major meat-producing nations allow its use.²⁸¹ In the U.S., ractopamine is fed to an estimated 60–80 percent of pigs.²⁸² In fact, the U.S.'s use of ractopamine was cited as an agricultural trade issue in a 2019 Congressional Research Services Report due to “bans and trade restrictions ... imposed by several foreign markets on U.S. ractopamine-fed pork.”²⁸³ According to the 2020 National Trade Estimate Report on Foreign Trade Barriers, the European Union, China, Taiwan, and Thailand ban or restrict U.S. meat exports produced with ractopamine.²⁸⁴ In fact, the USDA has established an export verification program, “Never Fed Beta-Agonists,” to certify that certain meat products are “derived from animals that were never fed beta-agonists and [are] free of beta agonist residues.”²⁸⁵ The shrinking global market for meat containing beta-agonist residues calls into question the supposed economic advantages of farmed animal producers using beta-agonists.

The FDA must withdraw approval of the entire class of beta-agonist animal drugs and deny any future applications of such drugs, removing them from the market. Until the FDA takes necessary action, state governments must immediately ban their use.

276 Helena Bottemiller, *Dispute over Drug in Feed Limits U.S. Meat Exports*, FOOD & ENV'T REPORTING NETWORK, [link here](#) (last updated Mar. 23, 2012).

277 B.W. James et al., *Effect of Dietary L-Carnitine and Ractopamine-HCl (Paylean) on the Metabolic Response to Handling in Growing-Finishing Pigs*, 91 J. ANIMAL SCI. 4426 (2014), [link here](#).

278 Johanna de Groot et al., *Long-Term Effects of Social Stress of Antiviral Immunity in Pigs*, 73 PHYSIOLOGY & BEHAV. 145 (2001), [link here](#).

279 See, e.g., Dick Courtheyn et al., *Recent Developments in the Use and Abuse of Growth Promoters*, 473 ANALYTIC CHIMICA ACTA 71 (2002), [link here](#).

280 See M.J. Ritter et al., *Review: Effects of Ractopamine Hydrochloride (Paylean) on Welfare Indicators for Market Weight Pigs*, 1 TRANSLATIONAL ANIMAL SCI. 533, 535 (2017), [link here](#).

281 *Ractopamine Factsheet*, CENTER FOR FOOD SAFETY (Feb. 2013), [link here](#).

282 *Id.*

283 ANITA REGMI, MAJOR AGRICULTURAL TRADE ISSUES IN THE 116TH CONGRESS (Cong. Research Serv. No. R45728, 2019), available at [link here](#).

284 U.S. TRADE REPRESENTATIVE, 2020 NATIONAL TRADE ESTIMATE REPORT ON FOREIGN TRADE BARRIERS (2020), [link here](#).

285 *Never Fed Beta-Agonists Program*, USDA, [link here](#) (last visited Nov. 9, 2020).

Stop deregulation of slaughter and line speed increases

High-speed slaughter increases animal suffering, threatens consumer and worker safety, and poses serious environmental risks. In the U.S., most slaughterhouses²⁸⁶ are subject to inspection by USDA's Food Safety and Inspection Service (FSIS).²⁸⁷ The federal Humane Methods of Slaughter Act (HMSA)²⁸⁸ requires that the slaughtering and handling of certain farmed animals at slaughter be conducted only by "humane methods"²⁸⁹ and that covered animals such as pigs and cows be stunned into unconsciousness before being slaughtered.²⁹⁰ Notably and disappointingly, the USDA has not construed the HMSA to include birds.²⁹¹

FSIS regulations set maximum slaughter line speeds based on the number of animals per hour FSIS inspectors are able to inspect.²⁹² For example, federal regulations long imposed a maximum line speed limit of 1,106 pigs per hour.²⁹³ In 1997, however, FSIS established a pilot program known as the Hazard Analysis and Critical Control Point (HACCP)-Based Inspection Models Project (HIMP), purportedly to modernize and increase efficiency of FSIS's inspections in pig, chicken, and turkey slaughterhouses.²⁹⁴ Under this pilot program, the FSIS permitted slaughterhouses to exceed the regulatory cap on slaughter line speeds.²⁹⁵

In 2018, the FSIS published a proposed rule to establish the so-called New Swine Slaughter Inspection System (NSIS), effectively allowing pig slaughterhouses nationwide to join the HIMP program.²⁹⁶ The agency determined that 40 high-volume slaughterhouses — responsible for 92 percent of total pig slaughter in the U.S. — were expected to adopt the new inspection system.²⁹⁷ Opposition to the proposal was overwhelming, coming from FSIS inspectors, slaughterhouse workers, veterinarians, consumer advocacy organizations, public health advocates, animal protection groups, labor unions, and individuals living downstream from pig slaughterhouses, among others.²⁹⁸ Only the benefiting "swine slaughter establishments, trade associations representing the pork industry, and a few private citizens supported the proposed rule."²⁹⁹ Nevertheless, in October 2019 the USDA finalized the high-speed slaughter rule largely as proposed.³⁰⁰

286 *Meat, Poultry and Egg Product Inspection Directory*, USDA, [link here](#) (last visited Nov. 9, 2020).

287 USDA, FSIS GUIDELINES FOR DETERMINING WHETHER A LIVESTOCK SLAUGHTER OR PROCESSING FIRM IS EXEMPT FROM THE INSPECTION REQUIREMENTS OF THE FEDERAL MEAT INSPECTION ACT 2 (2018), available at [link here](#).

288 7 U.S.C. §§ 1901-1907 (2018).

289 *Id.* § 1901.

290 *Id.* § 1902; 9 C.F.R. § 313.2(f) (2020).

291 Cynthia F. Hodges, *Detailed Discussion of Humane Methods of Slaughter Act*, ANIMAL LEGAL & HIST. CENTER (2010), [link here](#).

292 9 C.F.R. § 310.1.

293 *Id.*

294 *HACCP-Based Inspection Models*, USDA, [link here](#) (last updated July 12, 2019).

295 USDA, EVALUATION OF HACCP INSPECTION MODELS PROJECT (HIMP) FOR MARKET HOGS 12 (2014), available at [link here](#); USDA, EVALUATION OF HAACP INSPECTION MODELS PROJECT (HIMP) 11 (2011), available at [link here](#).

296 Modernization of Swine Slaughter Inspection, 83 Fed. Reg. 4780 (proposed Feb. 1, 2018) (amending 9 C.F.R. pts. 301, 309, 310).

297 *Id.* at 4801.

298 See *Docket No. FSIS-2016-001: Modernization of Swine Slaughter Inspection*, REGULATIONS.GOV, [link here](#) (last visited Nov. 9, 2020); *USDA's Radical Changes to Slaughterhouse Food Safety Inspections Endanger Consumers and Workers*, NAT'L EMP. L. PROJECT (Nov. 9, 2020), [link here](#).

299 Modernization of Swine Slaughter Inspection, 84 Fed. Reg. 52,300, 52,311 (Oct. 1, 2019) (amending 9 C.F.R. pts. 301, 309, 310).

300 *Id.* at 52,300.

Although the meat industry has claimed that it is “not how fast the lines move, it is how well they are ‘crewed’ that is important,”³⁰¹ government audits broadly condemned the HIMP pilot program for threatening food safety. The USDA’s Office of Inspector General (OIG), for example, found the HIMP model could carry “a higher potential for food safety risks” versus traditional government inspection.³⁰² The OIG found that three of the 10 plants with the most food safety violations were part of the HIMP program and that the slaughterhouse with the single highest rate of violations — nearly 50 percent more than the plant with the second highest number — was in the pilot program.³⁰³

The program was also criticized for increasing the risk of inhumane animal handling and slaughter, in violation of the HMSA.³⁰⁴ A 2015 undercover investigation conducted by Animal Outlook (formerly Compassion Over Killing) in one of the HIMP pilot slaughterhouses documented many instances of inhumane handling and slaughter as workers attempted to keep animals moving in pace with high-speed lines.³⁰⁵ The investigation showed conscious pigs being dragged; over-utilization of electric prods to drive animals; routine beatings with paddles and gates; forcefully driving pigs over one another; conscious pigs being dragged from the mouth by a metal hook; and numerous animals being improperly stunned, in apparent violation of the HMSA.³⁰⁶ The USDA called the incidents “appalling and completely unacceptable” and stated that had they “been observed by FSIS inspectors, they would have resulted in immediate regulatory action against the plant.”³⁰⁷

As with the cruel pig-handling practices, evidence suggests that inhumane treatment of chickens increases with line speeds.³⁰⁸ Faster shackling of chickens onto the slaughter line can cause careless and abusive handling, leading to intense suffering and broken bones, bruised legs, and other injuries.³⁰⁹ Faster shackling also increases the chance that birds will be improperly shackled, leading to improper stunning, and, finally, entering the scalding tank or being slaughtered while still fully conscious.³¹⁰

Since the poultry line speed waiver system was implemented, dozens of chicken slaughter plants have received waivers. In April 2020 alone, 15 chicken slaughter establishments received waivers,³¹¹ a record for the most in a single month — and during the early acceleration phase of the COVID-19 pandemic.

During the COVID-19 pandemic, when the CDC recommends keeping workers in processing plants at least six feet apart to prevent spread of disease, it is difficult to fathom how a properly socially distanced workplace could possibly increase line speeds with fewer

301 *Meat Industry Facts at a Glance*, AM. MEAT INST. 3 (Feb. 2009), [link here](#).

302 FSIS — Inspection and Enforcement Activities at Swine Slaughter Plants, Audit Rep. No. 24601-0001041, at 17 (USDA 2013), available at [link here](#).

303 *Id.*

304 See Lebwohl, *supra* note 51.

305 *Hormel: USDA-Approved High Speed Slaughter Hell*, ANIMAL OUTLOOK, [link here](#).

306 *Id.*

307 Mike Hughlett, *USDA Investigating Hormel Supplier’s Treatment of Pigs*, STAR TRIBUNE, Nov. 11, 2015, [link here](#).

308 Kimberly Kindy, *USDA Plan to Speed Up Poultry-Processing Lines Could Increase Risk of Bird Abuse*, WASH. POST, Oct. 29, 2013, [link here](#).

309 Temple Grandin, *Welfare During Transport of Livestock and Poultry*, in *IMPROVING ANIMAL WELFARE: A PRACTICAL APPROACH* 115–38 (Temple Grandin, ed., 2010).

310 Nicole Erwin, *Too Fast for Safety? Poultry Industry Wants to Speed Up the Slaughter Line*, NPR (Oct. 27, 2017), [link here](#).

311 *Salmonella Initiative Program (SIP) Participants Table*, USDA, [link here](#) (last updated June 3, 2020).

workers than typical in the same amount of space without sacrificing both food and worker safety.³¹² The USDA's deregulation of slaughter has coincided with outbreaks of COVID-19 at slaughterhouses nationwide.

To protect workers, prevent farmed animal suffering, and mitigate the public health risks posed by high-speed slaughter lines, FSIS must immediately halt implementation of the NSIS, revoke regulatory waivers to slaughterhouses, and suspend new waivers indefinitely. In July 2020, the Safe Line Speeds in COVID-19 Act was introduced in both chambers of Congress, sponsored by U.S. Representative Marcia Fudge (D-OH) and U.S. Senator Cory Booker (D-NJ).³¹³ It would suspend current or new line speed waivers and prohibit the USDA from using federal funding for increased line speeds for the duration of the COVID-19 pandemic.³¹⁴ Congress must promptly pass the Safe Line Speeds in COVID-19 Act to protect farmed animals and slaughterhouse workers. We also recommend that Congress consider similar legislation applying *beyond* the COVID-19 pandemic to ensure that workers continue to remain safe.

Increase surveillance against and improve tracing of zoonotic disease

In the U.S., animals raised for food often travel across state lines and national borders, sometimes multiple times, which can enable a localized disease threat to spread domestically and globally.³¹⁵ Given the significant capacity of farmed animals to host and transmit zoonotic disease, surveillance against zoonotic disease and transparency in the food supply chain would enable accurate identification of threats and reduce the potential for catastrophic public health consequences from animal agriculture.

Meaningful surveillance against disease would involve a mandatory, nationwide program that identifies individual animals at birth and tracks their health, movement, and interactions with other animals until slaughter *and* tracks the food products from those animals through the supply chain to point-of-sale. Currently, animal identification systems track animals prior to slaughter and other systems track some products after slaughter and processing. However, expanding these and linking them is critical to facilitating a swift response when infectious disease is identified in an animal or in the food system. When infectious disease is identified, the number of animals infected can be reduced by tracing that individual's movements and interactions with other animals to identify and quarantine exposed animals and workers. When a consumer is sickened, the number of humans infected can be reduced by tracing that food product (e.g., meat) back to the infected animal(s) or the facility and other potentially affected food products can be located. Although such a system would not entirely prevent these threats to animal or human health, it would facilitate recalls, contain the spread of disease, and help authorities stem future incidents.

In 2013, the USDA implemented the Animal Disease Traceability (ADT) program, which is described as "our best protection against a devastating disease outbreak."³¹⁶ This program tracks the movement of certain animals raised for food across state and tribal borders. It requires that, at the time an animal crosses a border, the animal be (1) officially identified and (2) accompanied by an Interstate Certificate of Veterinary Inspection (ICVI) or other

³¹² *Interim Guidance from CDC and the Occupational Safety and Health Administration (OSHA), Meat & Poultry Processors, Coronavirus Disease 2019*, CDC, [link here](#) (last updated Oct. 29, 2020) [hereinafter *Interim Guidance*].

³¹³ H.R. 7521, 116th Cong. (2020), S. 4338, 116th Cong. (2020).

³¹⁴ H.R. 7521; S. 4338.

³¹⁵ See, e.g., *Interstate Movement of Cattle, Horses, Swine, Sheep and Goats*, USDA, [link here](#) (last modified June 2, 2020); *Livestock and Meat International Trade Data*, USDA, [link here](#) (last modified Nov. 5, 2020).

³¹⁶ *Animal Disease Traceability*, USDA, [link here](#) (last updated June 2, 2020).

Federal and state policymakers must collaborate to ensure comprehensive surveillance against disease threats from animal agriculture, including by strengthening the Animal Disease Traceability program.

movement document.³¹⁷ States have the flexibility to choose their own identification methodology and database storage and exercise control over those databases³¹⁸ but are expected to maintain documentation for two to five years, depending on the animal,³¹⁹ as well as provide quarterly compliance reports to USDA's Animal and Plant Health Inspection Service (APHIS).³²⁰ Mandatory identification for farmed animals who cross borders *measurably improves tracing*, reducing both the number of animals and response time involved in a disease investigation.³²¹

Nevertheless, existing shortcomings in ADT limit its usefulness. First, nearly one-third of interstate cattle movement is unaccounted for because “feeder cattle” (young, castrated male cows and female cows who have not yet birthed a calf who are considered mature enough to be fattened prior to slaughter) are exempt from the identification requirement — as are all animals in aquaculture.³²² Second, the program applies only to animals moving *interstate*, not *intrastate*, making source tracing difficult.³²³ Since herds and flocks tend to have multiple congregation and dispersal points throughout their lives, an infected cow who has never traveled out of state — and is therefore not subject to ADT identification — could *easily* infect another cow who is transported across state lines.³²⁴ Third, identification standards vary from state to state³²⁵ and primarily rely on visual tags, rather than electronic identification systems, which hinders compliance and monitoring³²⁶ because tags by themselves are an unreliable identification method as they are susceptible to loss, damage, removal, unreadability, and transcription errors³²⁷ and are not required for all animal populations or all individual animals within a herd or flock. Reliance on visual tags, manual sorting, and paper records is cumbersome for workers, creates stress on the animals,³²⁸ and increases tracing time because authorities cannot easily search a comprehensive electronic database.

Notably, on September 23, 2020, the FDA proposed a food-tracing rule, under the FDA Food Safety Modernization Act (FSMA), “to help the Agency rapidly and effectively identify recipients of foods to prevent or mitigate foodborne illness outbreaks and address credible threats of serious adverse health consequences or death resulting from foods being

317 9 C.F.R. pt. 86 (2020).

318 See, e.g., NORTH CAROLINA DEP'T OF AGRIC. AND CONSUMER SERVICES, *ADVANCING ANIMAL DISEASE TRACEABILITY (ADT) ROADMAP FOR NORTH CAROLINA: A THREE YEAR PLAN 7* (2016), [available at link here](#); COLORADO DEP'T OF AGRIC., *ADVANCING ANIMAL DISEASE TRACEABILITY ROAD MAP FOR COLORADO: A THREE YEAR PLAN* (2020), [available at link here](#); CALIFORNIA DEP'T OF FOOD AND AGRIC., *ADVANCING ANIMAL DISEASE TRACEABILITY ROADMAP FOR STATE OF CALIFORNIA: A THREE YEAR PLAN 4-5* (2019), [available at link here](#).

319 9 C.F.R. § 86.3(b).

320 See, e.g., NORTH CAROLINA DEP'T OF AGRIC. AND CONSUMER SERVICES, *supra* note 318, at 7; COLORADO DEP'T OF AGRIC., *supra* note 318; CALIFORNIA DEP'T OF FOOD AND AGRIC., *supra* note 318 at 4-5.

321 See, e.g., USDA, *ANIMAL DISEASE TRACEABILITY REPORT 17-18* (Apr. 2017), [available at link here](#).

322 *Id.* at 23-24; see USDA, *OVERVIEW OF THE UNITED STATES CATTLE INDUSTRY 4*, 10 (2016), [available at link here](#). Although APHIS does implement a program for aquaculture producers to improve health management, protect and expand aquaculture business opportunities, promote and facilitate trade, and improve resource protection and sustainability, the Commercial Aquaculture Health Program Standards (CAHPS) is voluntary, which risks our overlooking of potentially billions of fish and other aquatic animals who may be reservoirs of disease. 9 C.F.R. § 86.1; USDA, *supra* note 321, at 23; see also, Gorka Bidegain et al., *Marine Infectious Disease Dynamics and Outbreak Thresholds: Contact Transmission, Pandemic Infection, and the Potential Role of Filter Feeders*, 7 *ECOSPHERE*, Apr. 2016, [link here](#).

323 USDA, *supra* note 321, at 22.

324 *Id.* at 22.

325 *Id.* at 9.

326 *Id.* at 5.

327 *Id.* at 22; Ali Ismail Awad, *From Classical Methods to Animal Biometrics: A Review on Cattle Identification and Tracking*, 123 *COMPUTERS & ELECTRONICS IN AGRIC.* 423, 426 (2016).

328 USDA, *supra* note 321, at 23.

adulterated or misbranded.”³²⁹ It would mandate recordkeeping standards for “persons that manufacture, process, pack, or hold foods,” including “tracking events in the supply chain for these designated foods, such as growing, shipping, receiving, creating, and transforming the foods.”³³⁰ The tentative food traceability list includes some cheeses, shell eggs, finfish, crustaceans, mollusks and other bivalves, as well as various fruits and vegetables.³³¹ Noticeably missing are many meat and dairy products, as well as liquid eggs, which represent a majority of eggs sold. Ensuring that these products are covered may require expanding the scope of the statute.

Federal and state policymakers must collaborate to ensure *comprehensive* surveillance against disease threats from animal agriculture, including by strengthening the Animal Disease Traceability program. Strengthening the ADT program to make it more effective in tracing and preventing the spread of zoonotic disease is critical for animal and human health. Specifically, ADT should identify animals at birth, require identification for feeder cattle, and identify animals *regardless* of interstate travel. Since the USDA’s FSIS oversees meat products shipped *from* federally inspected slaughter plants,³³² it is reasonable to extend their jurisdiction to shipments of live animals who could contribute to disease to those slaughter plants, as well. Although not without cost and other risks,³³³ the program must also shift to a purely electronic identification and records system and, critically, *integrate* its live animal identification system prior to slaughter with existing product tracking systems after slaughter and processing (e.g., barcodes), enabling comprehensive tracing through the supply chain from farm to consumer.³³⁴ Linking these systems could also enable consumers to hold factory farms accountable for externalized costs beyond public health and food safety, such as the treatment of animals or environmental standards, by granting consumers greater access to knowledge about where their food comes from.³³⁵ Finally, ADT must allow greater access to identification, movement, and veterinary records to ensure transparency and accountability, which would protect both producers — who are concerned about liability for contamination after they have control of the animals — and consumers.³³⁶ Accessibility of ADT databases is currently under state control and limited. To better accomplish the goal of tracing animal disease through the food system, this data must be opened up to federal and state public health officials. It should also be made available to the public via close to real-time agency publication online.

329 Requirements for Additional Traceability Records for Certain Foods, 85 Fed. Reg. 59,984 (proposed Sept. 23, 2020).

330 *Id.*

331 *Id.*

332 *Slaughter Inspection 101*, USDA, [link here](#) (last modified Aug. 9, 2013).

333 See USDA, *supra* note 321, at 23; Awad, *supra* note 327, at 427.

334 See GEOFFREY S. BECKER, ANIMAL IDENTIFICATION AND MEAT TRACEABILITY (Cong. Res. Serv. No. RL 32012, Jan. 18, 2007), available at [link here](#).

335 See DANIEL BUSKIRK ET AL., DEVELOPMENT OF A FARM TO CONSUMER TRACEABILITY MODEL 6, 9, 12 (2014), available at [link here](#) (reporting on a Michigan RFID tracking pilot program and noting that consumers increasingly expect tracing systems that allow them to track food origin).

336 BECKER, *supra* note 334 (citing Roxanne L.B. Clemens & Bruce A. Babcock, *Meat Traceability: Its Effects on Trade*, 8 IOWA AGRIC. REV. 8, 9 (2002)).

Support farm workers and food workers

Workers on farms and in slaughterhouses, meatpacking plants, and food processing facilities — collectively, farm workers and food workers — are particularly vulnerable to zoonotic diseases.³³⁷ These workers can contract zoonotic illnesses after contact with infected animals or with contaminated crops or surfaces, and they can transmit these diseases to others.³³⁸

As in previous pandemics,³³⁹ farm workers and food workers are particularly at risk of infection. As of late October 2020, more than 72,000 cases of COVID-19 have been confirmed among workers at farms and production facilities plus meatpacking and food processing plants — and at least 327 workers have died.³⁴⁰ In May 2020, Doctors Without Borders traveled from farm to farm to test workers and found a 35 percent positive rate when the national positivity rate was closer to 6 percent.³⁴¹ Notably, this was the first time the organization, which typically works in conflict zones, provided services in the U.S.

Workers on farms who bring “fruits, vegetables and other crops to homes across the nation”³⁴² are “uniquely vulnerable” to COVID-19 infection because they are typically forced to “live, commute and work in cramped, overcrowded and unsanitary conditions.”³⁴³ Similarly, the CDC describes the “distinctive factors” that affect meat and poultry workers’ risk for exposure, including distance between workers, duration of contact, type of contact, ride-sharing and public transportation, and contact with fellow workers in community settings.³⁴⁴ They are also near one another when clocking in or out, during breaks, or in locker rooms.³⁴⁵

Workers in slaughterhouses typically stand one foot apart while on the processing line, for up to 12 hours a day. The COVID-19 pandemic underscores the degree to which faster line speeds that require densely packed workers endanger workers.³⁴⁶ One of the most dangerous jobs in slaughterhouses is that of a “sticker,” the worker who slits the throat of the animal being slaughtered. When a stunner on the slaughter line improperly stuns an animal because they do not have time to ensure unconsciousness, that same conscious, terrified animal hurdles toward a sticker, quite literally kicking and screaming, risking injury and death for both.³⁴⁷

337 Andrea L. Steege et al., *Pandemic Influenza and Farmworkers: The Effects of Employment, Social, and Economic Factors*, 99 AM. J. PUB. HEALTH S308 (2009), [link here](#).

338 See Alexandre Caron et al., *Bridge Hosts, a Missing Link for Disease Ecology in Multi-Host Systems*, 46 VETERINARY RES., Jul. 21, 2015, [link here](#).

339 Steege, *supra* note 337.

340 Douglas, *supra* note 61; Crampton, *supra* note 61; Lin, *supra* note 61; Mike Dorning & Skerit, *supra* note 61. *Every Single Worker Has Covid at One U.S. Farm on Eve of Harvest*, BLOOMBERG (May 29, 2020), [link here](#).

341 Crampton, *supra* note 61.

342 NAT’L CTR. FOR FARMWORKER HEALTH ET AL., *supra* note 58, at [1].

343 Teresa Romero & Diana Tellefson Torres, *United Farm Workers (UFW) & UFW Foundation, “Uniquely Vulnerable” Farm Workers on Frontline of COVID-19 Deserve Protections of FARM Laborers Protection Act*, SI SE PUEDE (June 23, 2020), [link here](#).

344 *Interim Guidance*, *supra* note 312.

345 *Id.*

346 Eric Schlosser, *America’s Slaughterhouses Aren’t Just Killing Animals*, THE ATLANTIC (May 12, 2020), [link here](#).

347 See Lebwahl, *supra* note 51.

The federal government has declined even to institute minimum, mandatory safety standards, choosing instead to attempt to force workers to return to work in unsafe conditions and “leaving it to farmers’ discretion whether to enact any safety measures at all.”

Many farm workers and food workers have been declared “essential”³⁴⁸ and bear high risk of COVID-19 infection due to their often cramped working conditions.³⁴⁹ Nevertheless, the federal government has declined even to institute minimum, mandatory safety standards, choosing instead to attempt to force workers to return to work in unsafe conditions³⁵⁰ and “leaving it to farmers’ discretion whether to enact any safety measures at all.”³⁵¹ Instead of making sensible safety standards mandatory, the federal government has instituted voluntary “guidelines.”³⁵² Moreover, the CDC may have actually watered down safety recommendations from a meat processing plant that had already been shut down for a COVID-19 outbreak.³⁵³ One poultry plant worker reportedly told a community support representative, “They call us essential, but they treat us as if we’re expendable.”³⁵⁴

As a result of this federal inaction,³⁵⁵ states, counties, and municipalities have had to step up, creating a patchwork of minimum requirements and penalties³⁵⁶ for violations. For example, local public health officials in Merced County, California, have had to order the closure of a poultry processing plant after its “repeated failure to heed advice on testing and other measures needed to contain the outbreak,” which has already claimed the lives of eight workers and sickened more than 10 percent of its 3,500 workers.³⁵⁷ Similarly, at a Tyson pork processing plant in Waterloo, Iowa, which had been “less than cooperative” with the local sheriff and county public health officials in requests to temporarily close the facility, more than a thousand workers, representing one-third of employees, tested positive for COVID-19.³⁵⁸

To protect farm workers and food workers and slow the spread of COVID-19, the federal government must (1) where possible and practicable, shutter slaughterhouses and meat processing plants — especially those with high rates of COVID-19 — while ensuring that workers still get paid; and (2) mandate strict minimum standards at farms and facilities remaining operational during the COVID-19 crisis. Those farms and facilities failing to comply must be required to close immediately and may not reopen until they demonstrate full compliance. Certain minimum standards for workers should also apply beyond the pandemic during any state of emergency or permanently.

348 *Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response*, CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY 8 (May 19, 2020), [link here](#).

349 See Douglas, *supra* note 61; Steege, *supra* note 337.

350 Exec. Order No. 13,917, 85 Fed. Reg. 26,313 (Apr. 28, 2020).

351 Crampton, *supra* note 61.

352 See Interim Guidance, *supra* note 313.

353 Memorandum from Michael Grant, CDC National Institute for Occupational Health and Safety, to Joshua Clayton, South Dakota Department of Health, *Strategies to Reduce COVID-19 Transmission at the Smithfield Foods Sioux Falls Pork Plant* (Apr. 22, 2020) (CDC Smithfield Report version 2), available at [link here](#).

354 Lin, *supra* note 61 (quoting unidentified Foster Farms worker).

355 In September 2020, the Occupational Safety and Health Administration (OSHA) issued its first COVID-19-related meatpacking plant citation after more than a thousand employees tested positive. Ximena Bustillo, *U.S. Issues First Covid-19 Fine to Meatpacking Plant Totalling \$13,500*, POLITICO (Sep. 10, 2020), [link here](#).

356 For example, in September, many months after the initial COVID-19 outbreak, Iowa regulators issued their first fine to a meatpacking plant, one where nearly 40 percent of the workforce tested positive for the virus. The \$957 fine was for “a minor recordkeeping infraction.” Ryan J. Foley, *Iowa Fines Beef Plant \$957 After Huge Coronavirus Outbreak*, ASSOCIATED PRESS (Sept. 24, 2020), [link here](#). The California Division of Occupational Safety and Health has issued more than \$400,000 in combined fines against a food manufacturer and its staffing company for allegedly “failing to protect workers at two plants from COVID-19. Angela Childers, *Cal/OSHA Issues \$400,000 Fine to Food Plants for COVID Violations*, BUS. INS. (Sept. 10, 2020), [link here](#).

357 Dan Brekke & Alexandra Hall, *Foster Farms Ordered to Shut Down COVID-19-Stricken Central Valley Poultry Plant*, KQED (Aug. 27, 2020), [link here](#).

358 Ana Swanson, David Yaffe-Bellany and Michael Corkery, *Pork Chops vs. People: Battling Coronavirus in an Iowa Meat Plant*, N.Y. TIMES, May 10, 2020, [link here](#).

The COVID-19 crisis has resulted in an unprecedented situation where healthy farmed animals are being killed by the millions — not to halt the spread of disease in animals but because of the U.S. government’s mismanagement of a disease outbreak in humans.

Minimum standards for farms, slaughterhouses, meatpacking plants, and food processing facilities must require adherence to the CDC’s most current guidance on preparing workplaces for COVID-19.³⁵⁹ Additionally, free and adequate personal protective equipment (PPE) must be available for each worker, including an appropriately fitted new respirator for each worker at the start of each shift, new latex gloves whenever requested or necessary, and training on proper donning and doffing procedures for protective equipment in a language each worker understands. Workstations and work environments must be reconfigured to add physical barriers to separate workers from each other.³⁶⁰ Additional requirements must include adequate separation in living and sleeping environments when housing is provided; changes in farm or production practices to allow all workers to consistently maintain appropriate physical distance, which can be accomplished with staggered arrival and break times and additional time clocks and break areas;³⁶¹ the availability of touch-free hand-washing stations, which is already required,³⁶² or individual hand sanitizers with at least 60 percent alcohol;³⁶³ and, where possible, “cohorting” — grouping workers together for the same shifts with the same coworkers, which reduces the number of individuals who come in contact with each other and the number of individuals who must be quarantined if one person falls ill.³⁶⁴ Moreover, farm workers and food workers must be guaranteed free and frequent COVID-19 testing, free medical treatment, free mental health treatment,³⁶⁵ a living wage, hazard pay,³⁶⁶ at least two weeks of paid sick leave *in addition to* COVID-19 paid leave for the duration of isolation for workers who test positive for COVID-19 and for the duration of quarantine for workers who were in close contact with an infected individual, and protection from furlough and retaliation.³⁶⁷ Critically, there must also be regular inspections of farms and facilities as well as effective enforcement of these minimum standards.

359 See Guidance on Preparing Workplaces for COVID-19, No. 3990-03 (OSHA 2020), available at [link here](#).

360 *Interim Guidance*, *supra* note 312.

361 *Id.*

362 29 C.F.R. § 1910.141(d) (2020).

363 *Show Me the Science: When and How to Use Hand Sanitizer in Community Settings*, CDC, [link here](#) (last updated Mar. 3, 2020).

364 *Interim Guidance*, *supra* note 312.

365 See *The Importance of Mental Health Resources for Essential Workers Now and in the Future*, OSHA (June 5, 2020), [link here](#); *Pandemics Can Be Stressful*, CDC (Jul. 1, 2020), [link here](#).

366 Hazard, hardship, or “hero” pay is a concept wherein dangerous jobs would pay more than an equivalent safe job. To date, lawmakers have not passed any measure to increase pay for workers asked to keep going to work during this highly contagious health crisis. Although some individual companies did create hazard pay — typically around \$2 extra an hour or a one-time bonus — a survey by the Economic Policy Institute found that fewer than a third of people leaving their homes to work during the pandemic received additional pay or benefits. Additionally, many of those companies who voluntarily created these policies have since ended them. Alina Selyukh, *When Essential Workers Earn Less Than the Jobless: “We Put the Country on Our Back,”* NPR (July 1, 2020), [link here](#). The HEROES Act includes hazard pay for essential workers and would establish a fund to award grants to employers who would then provide “pandemic premium” pay for essential workers. H.R. 6800, 116th Cong. (2020).

367 See, e.g., Romero & Tellefson Torres, *supra* note 347; Jocelyn Sherman, *Kern Co. Farm Workers Expose Grievances as COVID-19 Cases Surge & Primex Farms Fails to Protect Them*, UFW (June 29, 2020), [link here](#); Mai Hoang & Lex Talamo, *Increasing Number of Yakima Valley Farmworkers Are Walking Out to Protest Conditions During COVID-19 Pandemic*, SEATTLE TIMES, May 14, 2020, [link here](#).

Restrict depopulation and disposal methods

Depopulations are a common occurrence when disease strikes a flock or herd of farmed animals at a factory farm.³⁶⁸ In 2015, for example, a Highly Pathogenic Avian Influenza (HPAI) outbreak at chicken and turkey facilities in 15 states³⁶⁹ led to the depopulation of more than 48 million birds to halt the spread of disease.³⁷⁰ In 2019, the U.S. animal agriculture industry was again put on high alert as African swine fever swept across Asia and Europe, and millions of pigs were killed.³⁷¹

The COVID-19 crisis has resulted in an unprecedented situation where *healthy* farmed animals are being killed by the millions — not to halt the spread of disease in animals but because of the U.S. government’s mismanagement of a disease outbreak in humans.³⁷² Due to working conditions that make social distancing virtually impossible, slaughterhouses across the country have become hotspots for COVID-19 outbreaks.³⁷³ More than 30 slaughterhouses closed temporarily in the spring to deal with outbreaks of COVID-19, creating a backlog of farmed animals who could not be transferred to slaughter.³⁷⁴ That backlog resulted in the mass depopulation of farmed animals; 2 million healthy chickens in Delaware and Maryland were killed,³⁷⁵ tens of thousands of healthy pigs have been killed in Minnesota,³⁷⁶ and 1.5 million healthy chickens were killed in North Carolina,³⁷⁷ among many others. The threat of mass depopulation is unlikely to abate during the pandemic, even as slaughter and processing facilities reopen.³⁷⁸

There are several methods used to depopulate farmed animals in factory farms, each with its own inherent risk for animal suffering. Federal law gives USDA’s APHIS authority to depopulate farmed animals to stop the spread of disease, and APHIS recommends certain depopulation measures with animal care and worker psychology in mind. Importantly, APHIS distinguishes between “euthanasia,” which it considers “transitioning an animal to death as painlessly and stress-free as possible,” and “depopulation,” by which “large numbers of animals must be destroyed quickly and efficiently with as much consideration given to the welfare of the animals as practicable.”³⁷⁹ APHIS recognizes that a painless death for the animals is *not* the main priority with depopulation. Depopulation methods include, but are not limited to, gunshot; captive bolt gun; electrocution; inhaled agents, such as carbon dioxide; suffocation by water-based foam; and ventilation shutdown.³⁸⁰

Depopulation
methods include:
gunshot
captive bolt gun
electrocution
inhaled agents,
such as carbon dioxide
suffocation by
water-based foam
ventilation shutdown

368 *Highly Pathogenic Avian Influenza (HPAI), Depopulation and Disposal*, USDA (Jan. 2016), [link here](#); Am. VETERINARY MEDI. ASS’N, *AVMA GUIDELINES FOR THE DEPOPULATION OF ANIMALS 4* (2019), available at [link here](#) [hereinafter *AVMA Depopulation Guidelines*].

369 JOEL L. GREENE, *UPDATE ON THE HIGHLY-PATHOGENIC AVIAN INFLUENZA OUTBREAK OF 2014-2015* (Cong. Research Serv. No. R44114, 2015), available at [link here](#).

370 *Id.*

371 Tom Polansek, *Disease That Killed Millions of China’s Pigs Poses Global Threat*, REUTERS (Jan. 16, 2020), [link here](#).

372 Dylan Matthews, *The Closure of Meatpacking Plants Will Lead to the Overcrowding of Animals. The Implications are Horrible*, VOX (May 4, 2020), [link here](#).

373 *Interim Guidance*, *supra* note 312.

374 H. Claire Brown & Jessica Fu, *We’re Mapping COVID-19-Related Slaughterhouse Closures and Re-Openings*, THE COUNTER (Apr. 21, 2020), [link here](#).

375 Matthews, *supra* note 372.

376 Andy Fies, *Hog Farmers Face Devastating Decision over Euthanizing Herds*, ABC NEWS (May 7, 2020), [link here](#).

377 Associated Press, *North Carolina Farmers Start Euthanizing 1.5 Million Chickens After Meat Plant Outbreaks During Coronavirus Pandemic*, WXII12 (May 24, 2020), [link here](#).

378 David Pitt, *Slaughterhouses Reopen but Farmers Still Euthanizing Pigs*, ASSOCIATED PRESS (May 29, 2020), [link here](#).

379 *Mass Depopulation and Euthanasia — Avian Euthanasia*, USDA (2015), [link here](#).

380 *AVMA Depopulation Guidelines*, *supra* note 368, at 4.

The circumstances and methods of depopulation are insufficiently regulated.

Scientific studies show that of all methods used for depopulation, ventilation shutdown and water-based foam are particularly inhumane. Ventilation shutdown is achieved by sealing off all openings to an animal agriculture facility, which causes an increase in temperature and humidity to the point where farmed animals die from hyperthermia and hypoxia.³⁸¹ In some cases, additional heat or humidity is added to facilities to hasten the depopulation process, but it typically takes up to an hour for animals to start dying, and often two or three hours at increased temperatures and humidity for a whole herd or flock to succumb.³⁸² Instead of being rendered unconscious before they are killed, animals who die by ventilation shutdown are able to feel and perceive the pain and distress caused by excessive temperature increase and lack of oxygen.³⁸³ Water-based foam, meanwhile, involves pumping foam into a building housing farmed animals to suffocate and drown them.³⁸⁴ The foam covers the animals and blocks their airways, which is “extremely stressful”³⁸⁵ and is “equivalent to death by drowning or suffocation.”³⁸⁶ Unlike nitrogen foam, which kills animals “within seconds,”³⁸⁷ water-based foam leaves animals fully conscious as they suffocate and drown, and it can take more than 10 minutes for animals to die. APHIS policy permits the use of water-based foam to stamp out animal disease.³⁸⁸

The circumstances and methods of depopulation are insufficiently regulated. There are many ongoing efforts to remove ventilation shutdown and water-based foam from the American Veterinary Medical Association (AVMA) Depopulation Guidelines³⁸⁹ due to animal welfare concerns.³⁹⁰ Both the AVMA and the USDA recommend that ventilation shutdown be used only as a “last resort” and that other methods be considered first.³⁹¹ The World Organisation for Animal Health (OIE), a global, science-based authority on animal welfare, does not permit ventilation shutdown.³⁹² While there are certain depopulation methods deemed unacceptable by APHIS, ventilation shutdown and water-based foam are not currently among them. APHIS does encourage producers to use recommended methods whenever possible, but there

381 *What Are the Animal Welfare Issues with Mass Killing of Poultry Using Ventilation Shutdown?*, RSPCA, [link here](#) (last updated Nov. 27, 2019).

382 *Id.*

383 *Id.*; see, e.g., *AVMA Depopulation Guidelines*, *supra* note 369; see also Krista N. Eberle-Krish et al., *Evaluation of Ventilation Shutdown in a Multi-level Caged System*, 27 J. APPLIED POULTRY RES. 555 (2018), [link here](#).

384 Letter from Lloyd Doggett, Representative, U.S. House of Representatives et al., to Sonny Perdue, Secretary, U.S. Department of Agriculture, *Avoiding Prolonged Death for Animals in the Meat Industry* (May 4, 2020), available at [link here](#).

385 Letter from Alesia Soltanpanah, Executive Director, World Animal Protection U.S. to Dr. Janet D. Donlin, Executive Vice President and CEO, AVMA, *Urging AVMA to Address Cruel Depopulation Methods 2* (Apr. 22, 2020), available at [link here](#) [hereinafter Soltanpanah Letter].

386 A. B. M. Raj et al., *Novel Method for Killing Poultry in Houses with Dry Foam Created Using Nitrogen*, 162 VETERINARY REC. 722, 722 (2008), [link here](#) (comparing different forms of foam and noting that water-based foam raises significant animal welfare concerns and is therefore unlikely to be considered an acceptable method of “depopulation” in Europe).

387 *Id.*

388 USDA, HIGHLY PATHOGENIC AVIAN INFLUENZA RESPONSE PLAN: THE RED BOOK 5-44 (May 2017), available at [link here](#).

389 AVMA Depopulation Guidelines, *supra* note 368, at 4.

390 See, e.g., Soltanpanah Letter, *supra* note 386; *Statement on COVID-19-Related Depopulation of Farm Animals*, ASPCA (May 4, 2020), [link here](#); see also *Animal Welfare Advocates Criticize Proposal Allowing Killing of Animals by Live Burial, Baking*, ASPCA (Apr. 13, 2017), [link here](#).

391 *AVMA Depopulation Guidelines*, *supra* note 368, at 4; *Ventilation Shutdown Evidence & Policy*, USDA (2015), [link here](#); As to ventilation shutdowns, the AVMA explains that “[t]he most compelling reason to use [them] when all other methods have been ruled out is that, when done properly, it may provide a quicker death, potentially eliminating the chance for the animals to die over a longer period of time from distressing and devastating disease” (emphases added). AVMA Depopulation Guidelines, *supra* note 369, at 4.

392 TERRESTRIAL ANIMAL HEALTH CODE art. 7.6.1 (World Org. for Animal Health 2016), [link here](#).

are few, if any, consequences for producers who choose depopulation methods that are not recommended. In May 2020, video footage of thousands of pigs suffering and dying during ventilation shutdown was captured at a facility for Iowa's largest pork producer, Iowa Select Farms.³⁹³

Congress must mandate greater transparency surrounding depopulation and disposal.

The federal government does not require reporting on the method of depopulation and disposal or the number of animals depopulated per farming operation.³⁹⁴ Furthermore, because public disclosure of depopulation methods is not currently required, it is unknown how often producers are using ventilation shutdown or water-based foam to kill their animals. Transparency surrounding depopulation is necessary to evaluate the circumstance and ensure that meaningful action is taken to prevent the same situation from recurring during the next zoonotic disease outbreak or other state of emergency.

Instead, the federal government is currently compensating producers for depopulating farmed animals without ensuring oversight of or transparency in depopulation. The USDA is authorized to compensate producers for farmed animals who are killed due to disease outbreak.³⁹⁵ For example, APHIS was allocated \$700 million in funding to control the spread of HPAI, nearly \$200 million of which went directly to indemnity payments.³⁹⁶ During the COVID-19 pandemic, producers have urged Congress to fund the cost of depopulation and reimburse associated loss of marketable farmed animals.³⁹⁷ In May 2020 and again in October 2020, the U.S. House of Representatives passed COVID-19 stimulus legislation, known as the HEROES Act, which would mandate that the USDA make payments to producers to offset the losses from depopulation of farmed animals related to the pandemic.³⁹⁸ Similarly, a COVID-19 appropriations bill introduced in the U.S. Senate in July 2020 included funding for depopulation.³⁹⁹

Congress must prohibit the use of unnecessarily cruel depopulation methods, including ventilation shutdown and water-based foam, and mandate greater transparency surrounding depopulation and disposal. Such transparency must involve requiring producers to report to the USDA the circumstance requiring depopulation and the reason euthanasia was infeasible; the number and species of animals killed; the method and date of depopulation; any unforeseen challenges or failures to fully depopulate a flock or herd and the animal welfare implications; and the method of disposal and reason for that method. Also pursuant to transparency, the USDA must make such reports available to the public via close to real-time, online agency publication.⁴⁰⁰

393 Glenn Greenwald, *Hidden Video and Whistleblower Reveal Gruesome Mass-Extermination Method for Iowa Pigs Amid Pandemic*, THE INTERCEPT (May 29, 2020), [link here](#).

394 See USDA, NAT'L ANIMAL HEALTH EMERGENCY MANAGEMENT SYSTEM, NAHEMS GUIDELINES: MASS DEPOPULATION AND EUTHANASIA (Aug. 2015), [link here](#).

395 7 U.S.C. § 8306(d) (2018).

396 Greene, *supra* note 369.

397 Crampton, *supra* note 61.

398 Health and Economic Recovery Omnibus Emergency Solutions Act, H.R. 6800, 116th Cong. (2020); The Heroes Act, H.R. 8406, 116th Cong. (2020).

399 S. 4320, 116th Cong. S. 4320 (2020).

400 For example, the Animal Legal Defense Fund along with a coalition has suggested that the USDA establish an online database of recipients of USDA COVID-19 relief funds, resources, and/or any other forms of support as part of an emergency rulemaking petition. Petition for Emergency Rulemaking, *Animal Legal Defense Fund v. Perdue* (USDA 2020), available at [link here](#).

Strengthen and enforce environmental regulations and reporting

Factory farms have long sought and often secured exemptions from environmental regulations and reporting standards. The U.S. Environmental Protection Agency (EPA) exempts factory farms from air emissions compliance under the Clean Air Act via a 2005 voluntary agreement from the animal agriculture industry to participate in the National Air Emissions Monitoring Study (NAEMS), which was funded in part by the animal agricultural facilities participating in the study.⁴⁰¹ In 2019, the EPA published a final rule exempting factory farms from reporting air emissions from animal waste under the Emergency Planning and Community Right-to-Know Act.⁴⁰² The EPA had previously tried to exempt factory farms from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), after which Congress amended the statute to include the exemption.⁴⁰³ Factory farms have also been emboldened to pollute groundwater despite the Clean Water Act, due to the EPA's overly narrow interpretation of which factory farms are not required to obtain permits under the law.⁴⁰⁴

Moreover, during this global pandemic, the EPA has loosened enforcement of the already-insufficient regulations for factory farms, which will further exacerbate the public health threat they pose. For example, during the pandemic, the EPA will not reclassify factory farms based upon the number of animals they maintain (above or below a certain threshold) nor subject them to corresponding regulations.⁴⁰⁵ In addition, the EPA will not seek penalties for “violations of routine compliance monitoring, integrity testing, sampling, laboratory analysis, training, and reporting or certification obligations”⁴⁰⁶ and will not ask facilities to account for missed reporting duties where the violation is shown to be caused by the COVID-19 pandemic.⁴⁰⁷ Public health risks from animal agriculture have been further exacerbated by the FDA's loosening of reporting requirements and enforcement due to COVID-19.⁴⁰⁸ Accounting has revealed that, in sum, recent rollbacks of climate regulations “will cause the United States to pump an extra 1.8 billion tons of greenhouse gases into the atmosphere between now and 2035, at a time when scientists say the world needs to slash its carbon pollution dramatically to avoid catastrophe.”⁴⁰⁹

Factory farms must be required to adhere to strict pollution reporting standards and regulations as well as increase transparency so that they can be held accountable for their pollution, which endangers public health and contributes to environmental degradation and climate change. Closing factory farm loopholes⁴¹⁰ will help hold them accountable for the

401 Animal Feed Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958 (Jan. 31, 2005).

402 Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions from Animal Waste at Farms, 84 Fed. Reg. 27,533 (June 13, 2019) (amending 40 C.F.R. §§ 355.31, 355.61).

403 *Id.*

404 33 U.S.C. §§ 1251-1388 (2018).

405 Memorandum from Susan Parker Bodine, Assistant Administrator, EPA Office of Enforcement and Compliance Assurance, to All Governmental and Private Sector Partners, *Covid-19 Implications for EPA's Enforcement and Compliance Assurance Program 6* (March 26, 2020), available at [link here](#).

406 *Id.* at 3.

407 *Id.*

408 See Laura Reiley, *FDA Rolls Back Food Rules for 5th Time During Pandemic*, WASH. POST, May 27, 2020, [link here](#).

409 Zack Coleman and Alex Guillén, *Trump's Climate Change Rollbacks to Drive Up U.S. Emissions*, POLITICO (Sep. 17, 2020), [link here](#).

410 See *Waterkeeper Alliance v. EPA*, 399 F.3d 486, 496 (2d Cir. 2005) (distinguishing between actual and potential discharge under the Clean Water Act); *Environmental Protection Agency, Summary of the Second Circuit's Decision in the CAFO Litigation*, EPA, [link here](#) (last accessed Nov. 9, 2020); *Clean Water Act (CWA) Compliance and Monitoring*, EPA, [link here](#) (last modified Nov. 9, 2020).

emissions and waste they generate, thereby helping reduce the risk of pathogenic spread from factory farms to public air and waterways, including by making a disease outbreak easier to trace back to its source — or, at a minimum, raising public awareness about the hazard.

In 2017, California took an important step in the right direction in committing to regulate the dairy industry’s methane emissions. Animal agriculture is responsible for more than half of the state’s methane emissions, of which the dairy industry represents a majority.⁴¹¹ “This is believed to be the first time that a governmental body (state or otherwise) will regulate greenhouse gas emissions from animal agriculture, positioning California to become a leader in combatting climate change.”⁴¹² Charged with improving air quality and already regulating GHGs in the transportation and energy sectors, it’s the California Air Resources Board, within California’s Environmental Protection Agency, that is responsible for adopting and implementing these regulations.⁴¹³

To help protect the environment and public health from the factory farming industry, Congress and state legislatures, along with regulatory agencies, must close loopholes on pollution reporting for factory farms as well as enhance regulations, enforcement, and transparency. Agencies tasked with oversight must make reports as well as inspection and enforcement records publicly available via close to real-time agency publication. At the federal level, access to records could take the form of a searchable database, similar to USDA APHIS Animal Care Search Tool.⁴¹⁴ To comply with OIE reporting requirements, the United States Animal Health Association, American Association of Veterinary Laboratory Diagnosticians, and USDA APHIS together collect data from state health officials about the presence of reportable livestock diseases, but access to that data is extremely limited.⁴¹⁵ Accomplishing real-time, comprehensive access to disease and pollution data may require new and heightened regulations and reporting mandates for factory farms.

Policy recommendations to hold factory farms accountable

Require product labeling of externalized costs

Consumer preferences can shape what goods are on the market as well as the processes used to bring them to market, if there is sufficient transparency to allow consumers to make informed decisions.⁴¹⁶ Traditional drivers of food purchasing decisions, like taste, price, and convenience, are being expanded to include other values (or “evolving drivers”⁴¹⁷), such as health, safety, and environmental and social impact — as well as brand transparency.⁴¹⁸

Public education and product labeling have popularized cruelty-free cosmetics, conflict-free diamonds, and fair-trade coffee, for example. However, many labels are industry-controlled or without substance, and corporations have eroded label trust through greenwashing and, in

411 GHG Short-Lived Climate Pollutant Inventory, CAL. AIR RESOURCES BOARD, [link here](#) (last visited Nov. 9, 2020).

412 Stephen Wells, *Legally Brief: California Air Resources Board Commits to Regulate Methane Emissions by Dairy Industry*, Animal Legal Defense Fund (June 29, 2017), [link here](#).

413 *Id.*; GHG Short-Lived Climate Pollutant Inventory, *supra* note 411.

414 *Animal Care Search Tool*, USDA, [link here](#) (last visited July 31, 2020).

415 *About NAHRS*, USDA, [link here](#) (last visited Nov. 9, 2020).

416 See, e.g., LABEL INSIGHT, *HOW CONSUMER DEMAND FOR TRANSPARENCY IS SHAPING THE FOOD INDUSTRY: THE 2016 LABEL INSIGHT FOOD REVOLUTION STUDY* (2016), available at [link here](#).

417 Jack Ringquist et al., *Capitalizing on the Shifting Consumer Food Value Equation*, DELOITTE (2016), [link here](#).

418 See, e.g., LABEL INSIGHT, *supra* note 416; Ringquist et al., *supra* note 417.

some cases, deceptive or false advertising. Unsurprisingly, consumers are losing faith in the accuracy of labels. A recent survey revealed that three in four respondents do not trust the accuracy of food labels.⁴¹⁹

However, people are still hungry for more product information to “make informed purchas[ing] decisions,” including what is in their food and how it is made.⁴²⁰ Millennials especially will seek more information online and, if they don’t find what they’re looking for, will move on to a different product.⁴²¹ This means that product transparency could present an opportunity for brands as well as people.⁴²²

In some cases, especially those related to serious public health risks or environmental implications, governments mandate disclosure of important product information on labels.

Beginning in the 1960s, for example, Congress mandated a health warning label on cigarette packages.⁴²³ Various states and municipalities have considered legislation requiring warning labels or ingredient disclosures for sweetened or sugary beverages.⁴²⁴ Such warning labels are required in other countries.⁴²⁵ Additionally, California law⁴²⁶ requires businesses to disclose to consumers and/or the public the presence of certain chemicals known to cause cancer or reproductive toxicity⁴²⁷ through a product label or posted warning.

Meanwhile, some states require pet stores to disclose certain information relating to puppies offered for sale on “cage cards.”⁴²⁸ Although these laws are wholly inadequate to protect dogs from the cruelty inherent to the profit-over-welfare business model of commercial breeders (puppy mills), they provide an interesting example in terms of labeling requirements. For instance, Rhode Island law requires pet stores to disclose to a state agency and post on the enclosure of each dog and cat offered for sale information about the animal, including a health certificate signed by a veterinarian, business name and address, federal and state license numbers and inspection reports, and total number of dogs on the premises of the person who bred the animal at the time of sale.⁴²⁹

419 See, e.g., LABEL INSIGHT, *supra* note 416, at 3.

420 Ninety-four percent of survey respondents say “it is important to them that the brands and manufacturers they buy from are transparent about what is in their food and how it is made.” *Id.*

421 Jeff Fromm, *Why Label Transparency Matters When It Comes To Millennial Brand Loyalty*, FORBES (December 13, 2017) [link here](#).

422 See, e.g., LABEL INSIGHT, *supra* note 416, at 7 (“Product transparency presents an opportunity for brands to emerge as the trusted resource consumers expect, and to take back control of their messaging.”); Ringquist et al., *supra* note 417, at 8 (“The Deloitte research shows that about half of consumers surveyed now say they weigh evolving value drivers more heavily in purchase decisions than they do the traditional value drivers. This represents a meaningful and scalable opportunity for industry.”).

423 Federal Cigarette Labeling and Advertising Act of 1965, Pub. L. No. 89-92, 79 Stat. 282; Public Health Cigarette Smoking Act of 1969, Pub. L. No. 91-222, 84 Stat. 87; *History of the Surgeon General’s Reports on Smoking and Health*, CDC, [link here](#) (last visited Nov. 9, 2020).

424 Leah Samuel, *San Francisco Leads the Way as Cities and States Consider Warning Labels on Sugary Drinks*, STAT (May 18, 2016), [link here](#); *Warning Labels*, HEALTHY FOOD AM., [link here](#) (last visited Nov. 9, 2020).

425 Andrew Jacobs, *Sugary Drink Consumption Plunges in Chile After New Food Law*, N.Y. TIMES, Feb. 11, 2020, [link here](#).

426 CAL. HEALTH AND SAFETY CODE, §§ 25249.5-25249.13 (1986).

427 The list, which must be updated at least once a year, has grown to include approximately 900 chemicals since it was first published in 1987. *About Proposition 65*, CAL. OFFICE OF ENV’T L HEALTH HAZARD ASSESSMENT, [link here](#) (last visited Nov. 9, 2020).

428 E.g., CONN. GEN. STAT. § 22-344d(a) (2019); NEV. REV. STAT. § 574.480 (2019); LA. STAT. ANN. § 3:2511 (2018); N.J. STAT. ANN. § 56:8-95 (2019) (effective 2020); R.I. GEN. LAWS § 4-19-4.1 (2019) (effective 2020); VA. CODE ANN. § 3.2-6512 (2020).

429 R.I. GEN. LAWS § 4-19-4.1.

Some companies voluntarily disclose information about a product’s impact on public health, animal welfare, or the environment — through their labels or third-party certification — seeking to set themselves apart from competitors. Food companies are beginning to voluntarily include carbon footprint labels on food, utilizing existing databases and research for hundreds of foods.⁴³⁰ Similar resources also exist for identifying or calculating food product footprints for water.⁴³¹ Methodologies have been proposed to consider externalities more holistically.⁴³²

The government also manages various voluntary certification programs for consumer products. The EPA’s Energy Star program,⁴³³ for example, which promotes energy efficiency, began in 1992 as a voluntary labeling program for office products and then expanded to major appliances, automobiles, homes, apartments, industrial plants, and more.⁴³⁴ The USDA, meanwhile, oversees the Certified Biobased Product label, which lists the percentage of biobased content (ingredients derived from plants and other renewable materials) in products such as detergents, inks, fertilizers, and bioplastics, all in an effort to reduce U.S. reliance on petroleum and reduce adverse environmental and health impacts.⁴³⁵ The USDA is also responsible for the Audit Program for Good Agricultural Practices and the Good Handling Practices — both of which verify an operation’s efforts to minimize the risk of contamination of produce and nuts⁴³⁶ — and organic certification⁴³⁷ for farmed animals, farmed and wild crops, and processed food products.⁴³⁸

Consumers deserve greater transparency about food products, beyond nutrition labels,⁴³⁹ such as information about the significant externalities associated with animal agriculture, to allow them to make more informed choices. One study found that “the use of an easy-to-interpret but comprehensive environmental information label increases the overall eco-friendliness of our subjects’ food consumption by about 5.3 percent relative to the default label used in current markets.”⁴⁴⁰ And, according to a national survey, two-thirds of consumers are “likely to buy meat, eggs and dairy products bearing a welfare certification

430 Emily Laurence, *Why the Food Labels of the Future May Include a Carbon Footprint Score*, WELL + GOOD (Feb. 11, 2020), [link here](#); Brian Kateman, *Carbon Labels Are Finally Coming to the Food and Beverage Industry*, FORBES (July 20, 2020), [link here](#). Food production contributes to more than a quarter of global greenhouse gases. Hannah Ritchie, *Food Production Is Responsible for One-Quarter of the World’s Greenhouse Gas Emissions*, OUR WORLD IN DATA (Nov. 6, 2019), [link here](#). Fertilizer production, manures that emit gases, land conversion that releases carbon dioxide into the atmosphere, farmed animal digestion, transportation, packaging, and food processing all contribute to greenhouse gas emissions from food production.

431 *Food’s Big Water Footprint*, WATER FOOTPRINT CALCULATOR (Apr. 25, 2020), [link here](#); *Water Footprint of Crop and Animal Products: A Comparison*, WATER FOOTPRINT NETWORK [link here](#) (last visited Nov. 9, 2020).

432 A.M. Leach et al., *Environmental Impact Food Labels Combining Carbon, Nitrogen, and Water Footprints*, 61 FOOD POL’Y 213 (2016), [link here](#); *Food and Beverage Sector Guide*, NATURAL CAP. COALITION (2016), [link here](#).

433 Under the authority of the Clean Air Act, 42 U.S.C. § 7403(g) (2018), and the 2005 Energy Policy Act, 42 U.S.C. § 6294a.

434 *ENERGY STAR Major Milestones*, ENERGY STAR, [link here](#) (last visited Oct 22, 2020).

435 *What Is Biopreferred?* USDA, [link here](#) (last visited Nov. 9, 2020).

436 *USDA GAP & GHP Audit*, USDA, [link here](#) (last visited Nov. 9, 2020); *Good Agricultural Practices (GAP) & Good Handling Practices (GHP)*, USDA, [link here](#) (last visited Nov. 9, 2020).

437 7 U.S.C. §§ 6501-6524; 7 C.F.R. pt. 205 (2020).

438 *Organic Certification*, USDA, [link here](#) (last visited Nov. 9, 2020).

439 The Federal Food, Drug, and Cosmetic Act (FDCA) and the Fair Packaging and Labeling Act govern food products under FDA’s jurisdiction. The Nutrition Labeling and Education Act (NLEA) amended the FDCA to require most foods to include nutrition labels, and also calls for food label nutrient content claims and health claims to comply with specific requirements.

440 Pieter Vlaeminck et al., *Food Labeling and Eco-Friendly Consumption: Experimental Evidence from a Belgian Supermarket*, 108 ECOLOGICAL EC. 180 (2014), [link here](#).

label with meaningful standards, even if it meant paying a higher price for those products.⁴⁴¹ Given that the public wants both greater and more reliable information about the food they purchase, and the empiric ability of such information-labeling programs to enable the free market to better provide consumers with the products they seek, it is critical that food externality disclosure not be left to the vicissitudes of self-regulation.

Congress and state governments must create and fund an office within the jurisdiction's consumer protection agency that is empowered to establish a mandatory labeling scheme providing transparency to consumers regarding externalities of meat, dairy, and egg production, including metrics relating to the welfare of animals, worker conditions, environmental and climate impacts, and public health risks. This office should establish quantitative benchmarks and corresponding labels for these externalities — for example, the minimum square footage per animal, maximum methane gas emissions, and use of subtherapeutic antibiotics. Standardized and meaningful metrics on labels can help consumers make better sense of the holistic impact of their food choices.

Accomplishing this may require Congress to amend relevant federal laws, such as the Federal Meat Inspection Act⁴⁴² and Poultry Production Inspection Act,⁴⁴³ to ensure that states have the authority to label consumer food products. Admittedly, there is no easy way to standardize metrics across these various externalities of meat, dairy, and egg production.⁴⁴⁴ Our food system is complex and factors can relate to multiple categories of externalities. For instance, farmed animal confinement has implications for the welfare of animals, worker conditions, environmental and climate impact, and public health risks.

Importantly, transparency alone is not a solution.⁴⁴⁵ It is a tool that allows consumers to make informed choices and influence the market. Transparency reforms do not absolve governments of their responsibility to implement structural reforms to transition our food system and improve access to safer and more nutritious food.

Require disease insurance

Given the significant externalized costs of disease outbreaks, including health care and economic costs, and the forecasted increase in frequency of disease outbreaks from factory farms, their lack of relevant liability is startling. By the end of 2021, it is estimated that COVID-19 could cost private insurers as much as \$547 billion, depending on the rate of infection spread.⁴⁴⁶ Though COVID-19 did not originate in a factory farm, the potential for a factory farm to generate a pandemic of equal or greater magnitude and the havoc it could wreak on the U.S. makes it evident that factory farms should be held accountable for their high-risk operations.

441 Memorandum from Bob Meadow and Joshua Ulibarri, Lake Research Partners to Interested Parties, *Results from a Recent Survey of American Consumers* (June 29, 2016), available at [link here](#); see also *Consumer Perceptions of Farm Animal Welfare*, ANIMAL WELFARE INST. (Feb. 2019), [link here](#).

442 21 U.S.C. §§ 601-695.

443 21 U.S.C. §§ 451-472.

444 Katherine Baker, *Do We Need Sustainability Labels on Food Products?*, PLANET FORWARD (Feb. 27, 2018), [link here](#); Dan Mitchell, *Calculating the Hidden Cost of Industrial Farming*, CIVIL EATS (July 20, 2016), [link here](#).

445 See Andrea Freeman, *Transparency for Food Consumers: Nutrition Labeling and Food Oppression*, 41 AM. J. L. & MED. (2015), [link here](#).

446 The projected cost analysis was performed for a period of two years, the beginning of 2020 through the end of 2021. WAKELY CONSULTING GROUP, LLC., COVID-19 COST SCENARIO MODELING: TREATMENT (June 3, 2020), available at [link here](#).

The conditions on factory farms and the way in which they operate create an inherent risk for outbreak of disease.

Models exist for holding large corporations responsible for extensive damage to the environment and human health. Oil spills, for example, can result in enormous economic loss and significant harm to marine ecosystems,⁴⁴⁷ and ship-sourced spills have been the cause of most marine pollution cases,⁴⁴⁸ so ships and other vessels are required to have pollution cleanup indemnity covering spills of oil or petroleum products to products as well as other toxic substances.⁴⁴⁹ Such coverage protects an owner or operator from legal liability for cleanup.

An EPA booklet for underground storage tank owners and operators explains, “It is particularly important that someone be prepared to pay cleanup costs so that cleanup activities can begin as quickly as possible. Without fast action at contaminated sites, contamination can spread and increase significantly the chance of damaging the environment and human health.”⁴⁵⁰ Because of these risks, companies are required to demonstrate financial responsibility for potential underground storage tank pollution via insurance or alternatives,⁴⁵¹ such as a financial test of self-insurance, corporate guarantee, surety bond, letter of credit, trust fund, state-required mechanisms, or a state fund.⁴⁵²

In California, where the occurrence and severity of wildfires are rapidly increasing,⁴⁵³ electric utilities are held strictly liable for property damage or destruction resulting from a wildfire in which the utility’s infrastructure was found to be the cause of ignition, even if the utility did not act negligently, under a legal doctrine known as inverse condemnation.⁴⁵⁴ Options for wildfire coverage include self-insurance, commercial insurance, and catastrophe bonds.⁴⁵⁵ Damages for recent fires have cost tens of billions of dollars,⁴⁵⁶ and the legislature has approved legislation to create “two models for a fund that would help pay claims beyond the utilities’ insurance coverage.”⁴⁵⁷ In other states, wildfire costs are borne largely by property owners, insurers, and taxpayers (via state and federal disaster assistance programs).⁴⁵⁸

Similarly, factory farm owners should be held responsible for damages incurred as a result of a disease outbreak tied to their facility. The conditions on factory farms and the way in which they operate create an inherent risk for outbreak of disease that simply cannot be avoided by implementing standard industry risk management protocol. The potential for disease

447 *Marine Oil Spills: Oil Pollution, Sources and Effects*, TETHYS (Jan. 1, 2019), [link here](#).

448 GARD GUIDANCE TO THE RULES 2020: RISKS COVERED: RULE 38, POLLUTION, available at [link here](#) (last visited Nov. 9, 2020).

449 Federal Water Pollution Control Act of 1972, 33 U.S.C. §§ 1251-1387 (2018); Water Quality Improvement Act of 1970, Pub. L. No. 91-224, 84 Stat. 91.

450 *Dollars and Sense: Financial Responsibility Requirements for Underground Storage Tanks*, No. 510-K-18-001 (EPA July 2018), available at [link here](#).

451 40 C.F.R. pt. 280, subpt. H (2020).

452 *Financial Responsibility for Underground Storage Tanks: A Reference Manual* 12, No. 510-B-00-003 (EPA Jan. 2000), available at [link here](#).

453 Since 1972, the area of California land that is burned annually by wildfires has increased fivefold, and this trend can be attributed to a warming climate. Robinson Meyer, *California’s Wildfires are 500 Percent Larger Due to Climate Change*, THE ATLANTIC (July 16, 2019), [link here](#).

454 CAROLYN KOUSKY ET AL., FINANCING THIRD PARTY WILDFIRE DAMAGES: OPTIONS FOR CALIFORNIA’S ELECTRIC UTILITIES (2019), available at [link here](#).

455 *Id.*

456 The liability includes damages related to the Camp Fire, which was the deadliest wildfire in California’s history, killing at least 86 people. David Faber, *California Utility PG&E Faces at Least \$30 Billion Fire Liability*, Sources Say, CNBC (Jan. 7, 2019), [link here](#).

457 Ivan Penn & Peter Eavis, *California Lawmakers Give Utilities a Backstop on Wildfire Liability*, N.Y. TIMES, July 11, 2019, [link here](#).

458 KOUSKY ET AL., *supra* note 454, at 3.

outbreak at factory farms does not lie in negligent behavior; it arises from the fundamental model of a factory farm in and of itself — the mere existence and operation of factory farms puts society at risk for another pandemic.

Disease outbreak insurance would help hold factory farm owners accountable for the outbreaks they enable, just as Pacific Gas and Electric was held accountable for the Camp Fire and other wildfires in 2017 and 2018.⁴⁵⁹ BP was held accountable for the biggest oil spill to ever occur in U.S. waters.⁴⁶⁰

Factory farming corporations must be required to demonstrate adequate financial responsibility to halt outbreaks and compensate third parties for injuries or damages associated with outbreaks via insurance. Congress and states must pass legislation tasking relevant agencies with developing regulations that identify certain necessary provisions for zoonotic disease liability insurance, including third-party compensation, minimum amounts of coverage, and specific reporting requirements.

Require disaster plans

The ongoing COVID-19 pandemic has exposed gross inadequacies in the U.S. disaster preparedness and mitigation framework, particularly in relation to farmed animals on factory farms.

Many recent emergencies,⁴⁶¹ such as natural disasters, have resulted in deaths of untold numbers of animals held in exploitative facilities.⁴⁶² In the wake of Hurricane Katrina, Congress passed the 2006 PETS Act, which requires some animals be included in state and local governmental disaster contingency plans.⁴⁶³ However, the PETS Act protects only certain household pets and service animals; it excludes many other animals dependent on people's care, including certain types of companion animals as well as animals on factory farms, in zoos, at puppy mills or other commercial breeding facilities, and at research facilities.⁴⁶⁴ The PETS Act is implemented within the National Response Framework (NRF), executed through the Federal Emergency Management Agency (FEMA).⁴⁶⁵ The effectiveness of the PETS Act has been called into question by several studies.⁴⁶⁶

459 Peter Eavis & Ivan Penn, *California Says PG&E Power Lines Caused Camp Fire that Killed 85*, N.Y. TIMES, May 15, 2019, [link here](#); New York Times interactive map [link here](#).

460 In 2010, the BP Deepwater Horizon oil rig released over 130 million gallons of crude oil into the Gulf of Mexico, killing 11 workers and millions of marine animals. Joan Meiners, *Ten Years Later, BP Oil Spill Continues to Harm Wildlife – Especially Dolphins*, NAT'L GEOGRAPHIC (April 17, 2020), [link here](#).

461 Here, the terms “disaster” and “emergency” are used to describe events that significantly disrupt normal operations and would reasonably be expected to pose a risk to the welfare of the animals housed in the facility.

462 Wayne E. Wingfield et al., *You Have a Disaster Plan But Are You Really Prepared?*, 51 ILAR J. 164 (2010), [link here](#).

463 Pets Evacuation and Transportation Standards Act of 2006, 42 U.S.C. § 5121 (2018) (requiring that, to receive federal funding, state and local disaster plans include pets and service animals). The Act covers only the listed household pets and does not apply to reptiles other than turtles, to fish or to horses. *PETS Act: Companion Animals Affected by Natural Disasters*, Animal Legal Defense Fund, [link here](#) (last visited Nov. 9, 2020). Several states' disaster response laws now include animals. Map of States With Disaster-Planning Laws, ANIMAL LEGAL & HISTORICAL CENTER, [link here](#) (last visited Nov. 9, 2020).

464 PETS Act, *supra* note 463.

465 Erica LaVoy, *The PETS Act and Beyond: A Critical Examination of the PETS Act and What the Future of Disaster Planning and Response for Animals Should Be*, 40 MITCHELL HAMLINE L. J. PUBLIC POL'Y & PRACTICE 67 (2019), [link here](#).

466 See, e.g., *id.*; Steve Glassey, *Did Harvey Learn from Katrina? Initial Observations of the Response to Companion Animals during Hurricane Harvey*, 8 ANIMALS, Mar. 30, 2018, [link here](#); S. Decker et al., *Emergency and Disaster Planning at Ohio Animal Shelters*, 13 J. APPLIED ANIMAL WELFARE SCI. 66 (2010).

Emergency preparedness
is key to effective and
cost-efficient response.

Moreover, no U.S. law currently requires private actors to engage in disaster or emergency response planning for farmed animals.⁴⁶⁷ The NRF requires emergency response teams to consider individuals responsible for companion animals and service animals, as well as for animals on farms, in zoos, or at research facilities.⁴⁶⁸ But the NRF applies only to governmental agencies participating in “operations requiring a coordinated federal response.”⁴⁶⁹

Though the AVMA Depopulation Guidelines note the importance of disaster preparedness, there is no comprehensive standard for farmed animals.⁴⁷⁰ Several industry associations provide guidance on disaster planning and “destruction” of farmed animals, but none appear to mandate (or even recommend) disaster preparedness or include protections for, or a requirement to save, healthy animals.⁴⁷¹

Considering the increasing global rate of zoonotic disease⁴⁷² and the projected rise in both frequency and intensity of natural disasters expected to result from climate change,⁴⁷³ it is vital that governments invest in robust emergency preparedness plans that include minimum standards for both public and private actors. Emergency preparedness is key to effective and cost-efficient response.⁴⁷⁴

The PETS Act can be amended to enhance the effectiveness of disaster preparedness for all animals. In addition to critically assessing and enhancing the effectiveness of the PETS Act, Congress must establish minimum standards of disaster preparedness and protections for farmed animals.⁴⁷⁵ Congress should also expand the Act to ensure that it protects *all* companion animals⁴⁷⁶ and mandate disaster plans for *all animals* kept at facilities such that they rely on people for their care, such as animals in zoos, at puppy mills or other commercial breeding facilities, and at research facilities — as well as on factory farms.

For example, the PETS Act could be amended to establish a task force, composed of representatives of relevant federal agencies (such as FEMA and the USDA) and state agencies, and considering input from local authorities and other stakeholders, including

467 PETS Act, *supra* note 463.

468 NATIONAL RESPONSE FRAMEWORK 26 (4th ed. 2019), available at [link here](#); see also *Hazard Mitigation Plan Requirement*, FEMA, [link here](#) (last visited Nov. 9, 2020).

469 NATIONAL RESPONSE FRAMEWORK, *supra* note 468, at 4.

470 AVMA Depopulation Guidelines, *supra* note 368, at 13–14 (requiring adherence to the AVMA Animal Welfare Principles, AVMA, [link here](#) (last visited Nov. 9, 2020), in depopulation decision-making).

471 E.g., *Farm Crisis Operations Planning Tool*, AM. ASS’N OF SWINE VETERINARIANS, [link here](#) (last visited Nov. 9, 2020) (leaving discretion on depopulation to facility management); *Animal Husbandry Guidelines for U.S. Egg-Laying Flocks*, UNITED EGG PRODUCERS (2017), [link here](#) (setting out voluntary guidance for depopulation process and methods); see also *Coronavirus and USDA Assistance for Farmers*, USDA, [link here](#) (last visited Nov. 9, 2020) (describing government financial and other assistance to farmers depopulating animals).

472 ANIMAL LEGAL DEFENSE FUND, *supra* note 3, at 6.

473 *How Can Climate Change Affect Natural Disasters?*, USGS [link here](#) (last visited Nov. 9, 2020) (projecting that global warming would lead to a greater number and intensity of natural disasters); see also Hannah Ritchie & Max Roser, *Natural Disasters*, OUR WORLD IN DATA (2019), [link here](#).

474 AVMA Depopulation Guidelines, *supra* note 368 (emphasizing the importance of emergency preparedness planning); Arthur Lee Jones et al., *Cattle Assessment On-Site During Emergencies*, 34 VETERINARY CLINICS OF N. AM. FOOD & ANIMAL PRACTICE 233, 243 (2018).

475 LaVoy, *supra* note 465, at 73 (suggesting that the PETS Act should prohibit all breed-based discrimination in evacuation centers, and livestock insurance plans should exclude or limit coverage in situations involving animal cruelty or animal abandonment).

476 “Household pet” is defined by FEMA as “a domesticated animal, such as a dog, cat, bird, rabbit, rodent, or turtle that is traditionally kept in the home for pleasure rather than for commercial purposes . . . household pets do not include reptiles (except turtles), amphibians, fish, insects/arachnids, farm animals (including horses) and animals kept for racing purposes.” *Emergency Planning for Household Pets and Service Animals* 8, FEMA, [link here](#) (last visited Oct. 30, 2020).

organizations dedicated to the welfare and protection of animals.⁴⁷⁷ This task force would develop and administer a framework of emergency and disaster preparedness and mitigation for all facilities holding animals, which would be integrated within FEMA's National Preparedness Goal (NPG) structure.⁴⁷⁸ This detailed framework — tailored to the facility type as well as number, type, and density of animals held — could draw on existing guidance, such as the 2012 Rule, and other materials relating to animal research and agricultural facilities.⁴⁷⁹

Enhance enforcement of antitrust laws

The Big Four outsource the growth of the animals precisely because it is the most volatile and unpredictable part of the business.⁴⁸⁰ By shifting the risk onto farm owners and operators, who may take out large loans to finance the building of the factory-style enclosures warehousing animals, the Big Four can conveniently remove these expenses from their balance sheets while still retaining control over the farms. In economics, this is known as captive supply, and in agribusiness, it is the law of the land.⁴⁸¹

It is also surprisingly easy to get large loans from banks for setting up farming operations.⁴⁸² The Farm Service Agency (FSA) is a division of the USDA that guarantees these farm loans with taxpayer money. Banks lending to farmers are guaranteed more than 90 percent of the loan principal if the farmer goes under, and they often do.⁴⁸³ This loan program has essentially become a taxpayer subsidy that allows for the perpetual exploitation of America's contract farmers, who are virtually trapped in a state of dependence on the Big Four.

Although federal antitrust laws shield consumers from unfair methods of competition, as enforced today, they are woefully insufficient to curb anticompetitive practices in the industry

477 Bonnie V. Beaver et al., *Report of the 2006 National Animal Disaster Summit*, 229 J. AM. VETERINARY MED. ASS'N 943 (2006), [link here](#) (suggesting the formation of a national multi-agency coordination group to lead and coordinate disaster preparedness and response); see also LaVoy, *supra* note 465.

478 The NPG outlines a process to be followed by each community. It includes identification and analysis of risk, assessment of required capabilities, creation and maintenance of the required capabilities, planning to deliver capabilities, capability validation, and review/updates of capabilities. *Emergency Preparedness: Planning and Mitigation*, ECRI INST. (Nov 27, 2018), [link here](#); *National Preparedness Goal*, FEMA, [link here](#) (last visited Nov. 9, 2020).

479 Jones, *supra* note 474; Wingfield, *supra* note 462; Russ Daly & Cynthia Marshall Faux, *Blizzards and Range Cattle: Management Before, During, and After the Storm*, 34 VETERINARY CLINIC FOOD ANIMAL PRACTICE 265 (2018); Jim Cartwright et al., *Renovating Animal Facilities to Withstand Disasters*, 42 LAB ANIMAL F13 (2013); *Frequently Asked Questions: PHS Policy on Humane Use and Care of Laboratory Animals* G9, HIS, [link here](#) (last visited Oct. 22, 2020); *Disaster Planning and Response Resources*, NIH, [link here](#) (last visited Nov. 9, 2020); *Institutional Plans*, AM. ASS'N FOR LABORATORY ANIMAL SCI., [link here](#) (last visited Nov. 9, 2020); Dee Ellis et al., *Communication and Working with Authorities During Natural Disasters*, 34 VETERINARY CLINICS N. AM. FOOD & ANIMAL PRACTICE 223 (2018); Justin W. Waggoner & K. C. Olson, *Feeding and Watering Beef Cattle During Disasters*, 34 VETERINARY CLINICS N. AM. FOOD & ANIMAL PRACTICE 249 (2018); Danelle A. Bickett-Weddle et al., *Foreign Animal Disease Outbreaks*, 34 VETERINARY CLINICS N. AM. FOOD & ANIMAL PRACTICE 341 (2018); C. Vogelweid et al., *Using Site Assessment and Risk Analysis to Plan and Build Disaster-Resistant Programs and Facilities*, 32 LAB ANIMAL 40 (2003) (setting out a framework for increasing animal research facilities' disaster resilience); Gordon Roble et al., *Disaster Planning for Animals in Hazardous Agent Containment Units*, 59 ILAR J. 195 (2019) (proposing a disaster response planning framework); Tasha Thomas, *Guidelines for Hurricane and Disaster Preparation for Animal Facilities*, 36 LAB ANIMAL 28 (2007).

480 Members of the Big Four also experimented with owning the farms outright but found two problems: the capital expenditures for maintenance were too high and hired workers did not work as hard in raising the chickens as contract farmers. The assumption was that contract farmers felt they had to work more since their pay was dependent on how well the chickens were raised. As a result, contract farming became the norm. CHRISTOPHER LEONARD, *THE MEAT RACKET: THE SECRET TAKEOVER OF AMERICA'S FOOD BUSINESS* 71 (2014).

481 *Role of Captive Supplies in Beef Packing*, USDA (May 1996), [link here](#).

482 Research has found that several dozen people with modest assets all placed \$20,000 worth of expenses when applying to the same bank for a farm loan, even though some families had no children and others had seven. The bank accepted every single application.

483 *History of USDA's Farm Service Agency*, USDA, [link here](#) (last visited Oct. 22, 2020); see also LEONARD, *supra* note 480, at 71.

or preserve farmer autonomy.⁴⁸⁴ These laws essentially prohibit companies from colluding to control the marketplace.⁴⁸⁵ The two departments charged with enforcement are the Federal Trade Commission's (FTC) Bureau of Competition and the Department of Justice's (DOJ) Antitrust Division.⁴⁸⁶ In addition to these departments, individuals can also bring claims under these laws.⁴⁸⁷

The first antitrust law passed in the U.S. was the Sherman Act, which prohibits unreasonable restraints on trade.⁴⁸⁸ The FTC Act, meanwhile, created the FTC and gave it the power "to prevent persons, partnerships, or corporations . . . from using unfair methods of competition . . . and unfair or deceptive acts or practices in or affecting commerce."⁴⁸⁹ If a person or company violates the Sherman Act then they also violate the FTC Act.⁴⁹⁰ The FTC Act can also cover violations that may not necessarily violate the Sherman Act.⁴⁹¹ The Clayton Act covers actions that harm competition that are not prohibited by the Sherman Act, such as mergers or acquisitions.⁴⁹²

The 1921 Stockyards and Packers Act was passed as a direct result of the high level of consolidation in the meat industry at the time.⁴⁹³ One of the agencies that eventually arose as a result was the Grain Inspection, Packers and Stockyards Administration (GIPSA), which was meant to act as the USDA's de-facto antitrust enforcer when it came to violations of the Act.⁴⁹⁴ In 2017, this agency was merged into the USDA's Marketing Service, which is largely responsible for providing quality analysis and promoting international trade.⁴⁹⁵ Although GIPSA has not been effective at preventing consolidation, the fact that the agency has been scrapped strongly implies that consolidation in the agribusiness industry is not a high priority for the current administration.

Congress should fund a division within the DOJ that is solely focused on antitrust in the agricultural sector, and that division should adopt the previous mandate of GIPSA. The DOJ previously released a report on the antitrust workshops that the Obama administration initiated in 2010⁴⁹⁶ that stated the importance of preserving farmer autonomy and curbing anticompetitive practices in the industry. The DOJ should revisit that report and begin taking enforcement actions to reverse as much as possible the trend of monopolization that has gripped the industry for decades.

484 LEONARD, *supra* note 480, at 290–95; U.S. DEPT. OF JUSTICE, COMPETITION AND AGRICULTURE: VOICES FROM THE WORKSHOPS ON AGRICULTURE AND ANTITRUST ENFORCEMENT IN OUR 21ST CENTURY ECONOMY AND THOUGHTS ON THE WAY FORWARD (2012), available at [link here](#).

485 See U.S. DEPT. OF JUSTICE, *supra* note 484.

486 *FTC Fact Sheet: Antitrust Laws: A Brief History*, FTC, [link here](#) (last visited Nov. 9, 2020).

487 Paul H. Saint-Antoine et al., *Private Antitrust Litigation in the United States: Overview*, THOMSON REUTERS PRACTICAL LAW (Mar. 1, 2019), [link here](#) (last visited Nov. 9, 2020).

488 *Antitrust Laws*, FTC, [link here](#) (last visited Nov. 9, 2020).

489 15 U.S.C. § 45(a)(2) (2018).

490 *Id.*

491 *Id.*

492 *FTC Fact Sheet, supra* note 486; *Antitrust Laws, supra* note 488.

493 *Packers and Stockyards Act Reform*. ORG. COMPETITIVE MARKETS, [link here](#) (last visited Nov. 9, 2020).

494 *About GIPSA: History and Mission*. USDA, [link here](#) (last visited Nov. 9, 2020).

495 MIAN K. SHARIF ET AL., FOOD PROCESSING FOR INCREASED QUALITY AND CONSUMPTION: HANDBOOK FOR BIO ENGINEERING. ch. 15 (2018) available at [link here](#).

496 LEONARD, *supra* note 480, at 290–95.

Oversight of the agricultural sector is critical to preventing fraud and curbing market abuse.

Fund investigations into fraud

The factory farming industry has a history of fraudulent spending of taxpayer dollars. The Government Accountability Office revealed that the U.S. government is likely overpaying for school meal programs, with high improper payment rates for the National School Lunch Program and School Breakfast Program,⁴⁹⁷ which may be indicative of fraud. An Iowa animal feed seller receiving federal subsidies committed, between 2010 and 2017, the largest organic labeling scam in history, selling \$142 million of grain-based animal feed to producers, who then sold a billion dollars' worth of mis-labeled "organic" meat.⁴⁹⁸

Recently, there have been various lawsuits alleging price-fixing and price-gouging. In April 2020, for instance, the Texas Attorney General and a California-based group brought a lawsuit against the largest egg producer in the U.S. for inflating prices by 300 percent.⁴⁹⁹ In August 2020, the New York Attorney General brought a lawsuit against one of the largest egg producers in the U.S. for price-gouging after the price of eggs sold to grocery stores and supermarkets reached a 500 percent markup during the pandemic.⁵⁰⁰ (Unlike cattle prices, which are determined on the open commodities markets, egg prices remain largely determined by a private actor via a largely opaque internal market reporting system.⁵⁰¹)

Oversight of the agricultural sector is critical to preventing fraud and curbing market abuse. The federal government spends more than \$20 billion annually on agriculture subsidies,⁵⁰² which help prop up the factory farming industry.⁵⁰³ The federal government also funds programs that support families and communities in need, like the food stamp and school lunch programs.⁵⁰⁴ However, a large portion of government food purchases come from factory farms⁵⁰⁵ and include meat and dairy surplus not sold through traditional retail channels.⁵⁰⁶ As of 2009, the school lunch sector is highly concentrated, with only eight companies holding 75 percent of all school lunch contracts.⁵⁰⁷

497 *School Meals Programs: USDA Has Reported Taking Some Steps to Reduce Improper Payments but Should Comprehensively Assess Fraud Risks*, GAO-19-389 (GAO May 2019), available at [link here](#).

498 *Field of Schemes Fraud Results in Over a Decade in Federal Prison for Leader of Largest Organic Fraud Case in U.S. History*, U.S. Attorney's Office, N.D. Iowa, (Aug. 19, 2019), [link here](#); Ryan J. Foley, *Leader of Largest Organic Food Fraud Gets 10 Year Term*, ASSOCIATED PRESS (Aug. 16 2019), [link here](#).

499 *Press Release: AG Paxton Files Lawsuit to Halt Price Gouging by Cal-Maine Foods, Inc.*, ATT'Y GEN. OF TEX. (Apr. 23, 2020), [link here](#).

500 *Attorney General James Sues One of the Nation's Largest Egg Producers for Price Gouging During the Coronavirus Pandemic*, N.Y. ATT'Y GEN. OFFICE (Aug. 11, 2020), [link here](#).

501 *Reporting Methodologies*, URNARBARRY, [link here](#) (last visited Oct. 22, 2020).

502 U.S. DEP'T AGRIC., FY 2021 BUDGET SUMMARY 1 (2020), available at [link here](#).

503 R. Jason Richards & Erica L. Richards, *Cheap Meat: How Factory Farming Is Harming our Health, the Environment and the Economy*, 4 KY. J. EQUINE, AGRIC. & NAT. RESOURCES L. 31, 35–36 (2012).

504 *Food & Nutrition Service*, USDA, [link here](#) (last visited Oct. 29, 2020).

505 Roby Ziperstein, *School Food, Inc.: The Contracting of America's National School Lunch Program and Its Nutritional Consequences*, CORNELL POL'Y REV. (Mar. 15, 2012), [link here](#).

506 Kate Adamick, *School Lunches: Helping Kids Eat Commodities*, THE ATLANTIC (April 27, 2010), [link here](#).

507 Ziperstein, *supra* note 505.

Given the vast sums that the federal government spends on agriculture annually, the pandemic-related increase in spending,⁵⁰⁸ and the extensive influence of the industry lobby,⁵⁰⁹ as well as the industry's history of abuse, establishing greater oversight to prevent and deter fraud is prudent.

Considering the harmful impacts of price fluctuations, especially on an already-vulnerable food supply chain, further exacerbated by a pandemic,⁵¹⁰ Congress must create and fund an office within the DOJ that is solely responsible for pursuing fraud, misuse, and price-fixing within the agriculture sector. The newly formed office would be responsible for pursuing fraud and price-fixing actions. In particular, the office should investigate potential misuse of public funds by agricultural entities that accept subsidies and cattle price-fixing by beef producers.

Investigations of taxpayer-funded fraud — those resulting from the misuse of public funds — when properly enforced, can produce a net return on taxpayer dollars. Proper enforcement would involve strong enforcement penalties, such as fines. The fines must be large enough to deter similar conduct from occurring in the future. The Solicitor General's Office within the U.S. Department of Health and Human Services, which prosecutes Medicare fraud, for example, returned four dollars for every dollar spent in 2019.⁵¹¹ Like the health care sector, the agriculture sector receives substantial subsidies and assistance from government programs. Given the particular increased risk of abuse and that Americans bear the externalized costs of the factory farming industry,⁵¹² Congressional action is paramount.

Divest public funds

Governments often invest public money via stocks, bonds, and other securities. In the U.S., government-run pension funds routinely hold mutual funds or exchange-traded funds, which bundle securities like stocks, bonds, or commodities. Some of these funds are invested in corporations engaged in the factory farming industry.

Investments in the factory farming industry are particularly vulnerable to short- and long-term risks. Short-term risks may include “reputational or regulatory backlash against any investee company involved in factory farming.”⁵¹³ Long-term risks may also significantly affect the financial performance of corporations throughout the factory farming-reliant food supply, including factory farms, food retailers, and even restaurants.⁵¹⁴ A recent report detailed 28 environmental, social, and governance (ESG) issues associated with investing in the factory farming industry, including disease outbreaks, poor animal welfare,

508 The GAO found that Congress appropriated \$2.6 trillion in response to the COVID-19 pandemic through relief laws that were enacted as of June 2020. *COVID-19: Opportunities to Improve Federal Response and Recovery Efforts*, GAO-20-625 (GAO Jun 25, 2020), available at [link here](#).

509 Leah Douglas, *Antitrust in Food and Farming Under President Trump*, 13 J. FOOD L. & POL'Y 78, 79–81 (2017); see also, e.g., Michael Grabell & Bernice Yeung, *Emails Show the Meatpacking Industry Drafted an Executive Order to Keep Plants Open*, PROPUBLICA (Sept. 14, 2020), [link here](#) (“[E]mails obtained by ProPublica show that the meat industry may have had a hand in its own White House rescue: Just a week before the order was issued, the meat industry's trade group drafted an executive order that bears striking similarities to the one the president signed.”).

510 Disruptions during the current pandemic have included food-service suppliers facing abrupt order cancellations from restaurants — leading many to discard their produce since it is not packaged for retail sale; farmers bringing less produce to market due to understaffing issues caused by a lack of migrant labor; and shortages at certain supermarkets due to food-processors running their facilities at lower speeds. Ignacio Felix et. al., *US Food Supply Chain: Disruptions and Implications from COVID-19* MCKINSEY (Jul. 2, 2020), [link here](#); see also, Jill Hobbs, *Food Supply Chains During the Pandemic*, 62 CANADIAN J. AGR'L ECON. 171 (2020), [link here](#).

511 *Health and Human Services and the Department of Justice Return \$2.6 Billion in Taxpayer Savings from Efforts to Fight Health Care Fraud*, HHS (Apr. 6, 2018), [link here](#).

512 Richards & Richards, *supra* note 503, at 43–44, 47–48; see also ANIMAL LEGAL DEFENSE FUND, *supra* note 3.

513 *Factory Farming: Assessing Investment Risk*, *supra* note 124.

514 *Id.*

excessive antibiotic use, deforestation, biodiversity loss, water pollution, and human rights, among others.⁵¹⁵

Divestiture — the act of selling off investments, such as those directly and indirectly connected to factory farming — is not without financial risk, and there are complexities associated with monitoring an evolving mix of investments to ensure compliance with a prohibition on investing in corporations with certain types of affiliations. However, a food system reliant on factory farming poses far greater risks to public health, the welfare of animals, and our planet. It is financially *irresponsible* for governments to continue to invest public dollars into such a risky and unsustainable system.

In 2019, more than \$12 trillion was invested in socially responsible ways.⁵¹⁶ Socially responsible investing is a strategy whereby investments are made in socially responsible companies and refused to or divested from socially irresponsible companies (sometimes called “sin stocks”) — essentially, consideration is given to a company’s purpose and not only its profitability.⁵¹⁷

Divestiture campaigns can be an effective tool in shaping social policy, although they may have a limited direct impact on a company’s share prices.⁵¹⁸ They have, for example, succeeded in shifting investments from companies involved in the fossil fuel industry and to clean energy companies as well as raising awareness about the climate crisis.⁵¹⁹ Impactful models for legislation requiring divestiture exist, and it is incumbent upon governments to divest from the factory farming industry. They have a fiduciary and moral responsibility to do so.

In 2015, California became the first state to require public employee pension funds to divest from companies that generate at least half of their revenue from coal mining by July 2017.⁵²⁰ The California Public Employees’ Retirement System (CalPERS), the state’s main public pension fund, divested from 14 coal companies worth \$14.7 million when sold. Three companies were able to show new plans for transition to alternative energy production, so CalPERS maintained a stake in those companies worth \$11.2 million.⁵²¹ The California State Teachers’ Retirement System (CalSTRS), the world’s largest educator-only pension fund, described the divestment as aligning with the fund’s “long-term global perspective and its

515 *Id.*

516 US SIF FOUNDATION, REPORT ON US SUSTAINABLE, RESPONSIBLE AND IMPACT INVESTING TRENDS 2018 (2018), available at [link here](#).

517 See e.g., IMPACT INVESTING IN SUSTAINABLE FOOD AND AGRICULTURE ACROSS ASSET CLASSES, [link here](#).

518 William MacAskill, *Does Divestment Work?*, NEW YORKER, Oct. 20, 2015, [link here](#).

519 Monica Tyler-Davies, *A New Fossil Free Milestone: \$11 Trillion Has Been Committed to Divest from Fossil Fuels*, 350.ORG (Aug. 6, 2020, 11:22 AM), [link here](#).

520 CA SB-185 Public Retirement Systems: Public Divestiture of Thermal Coal Companies, CAL. LEGIS. INFO. (2015-2016), [link here](#); Rory Carroll, *Coal Divestment Bill Passes California State Legislature*, REUTERS (Aug. 6, 2020 11:24 AM), [link here](#).

521 Adam Ashton, *California Pension Fund Divests From Coal As Industry Rebounds*, SACRAMENTO BEE, Aug. 6, 2020 11:33 AM, [link here](#).

fiduciary duty.”⁵²² By 2020, commitments from states,⁵²³ cities,⁵²⁴ and institutions⁵²⁵ have paved the way for \$14 trillion in fossil fuel divestment.⁵²⁶

In May 2019, U.S. Senator Jeff Merkley (D-OR) introduced the Retirement Investments for a Sustainable Economy Act (“RISE Act”), recognizing that pension and retirement funds are “vulnerable to distinct risks relating to climate change.”⁵²⁷ The RISE Act would provide a “Climate Choice” investment option under the federal Thrift Savings Plan — a contribution plan for U.S. civil or uniformed service employees and retirees — that would not include investments in any fossil fuel companies.⁵²⁸

Considering the myriad risks from the factory farming industry to public health as well as animals and the environment, Congress, states, and municipal governments must divest public pension or retirement funds and other government investment funds from factory farming corporations within two years and prohibit new investments of public monies or assets in factory farming corporations. To accomplish this, governments should develop and maintain a publicly available exclusion list — accessible online and searchable — of such corporations directly or indirectly engaged in the factory farming industry. Entities included on the list should be able to challenge their status through proving their inclusion has been in error or by providing clear and convincing evidence that within two years that they will no longer meet the list criteria.⁵²⁹

522 Ricardo Duran, *CalSTRS Takes Action to Divest of All Non-U.S. Thermal Coal Holdings*, CALSTRS (Aug. 6, 2020 11:35 AM), [link here](#).

523 State legislatures in Maine, New York, Vermont, and Hawaii have considered legislation that requires divestiture of state-owned or -controlled investments in the fossil fuel industry. L.D. 1461, 126th Legis. (Me. 2014), [link here](#); S. S2126, 2019-2020 Leg. Sess. (N.Y. 2019), [link here](#); S. 28, 2015-2016 Sess. (Vt. 2015), [link here](#); H.B. 1511, 28th Legis. (Haw. 2015), [link here](#).

524 Cities such as Providence, Rhode Island, and Seattle, Washington, have passed non-binding resolutions encouraging divestment of public funds from many of the world’s 200 largest fossil fuel-producing companies. Providence, R.I., Res. 10030 (2013), [link here](#); Seattle, Wash., Res. 31757 (2017), [link here](#).

525 Of more than a thousand private institutions known to have made commitments to divesting from fossil fuels, 32 percent are faith-based, 15 percent are philanthropic, 15 percent are educational, 13 percent are government, 13 percent are pension fund, 6 percent are for-profit corporations, 4 percent are NGO, and 1 percent are health care institutions. *Divestment Commitments*, GoFOSSILFREE.ORG (Aug. 6, 2020 11:40 AM), [link here](#).

526 *Id.*; see also Becky L. Jacobs & Brad Finney, *Defining Sustainable Business: Beyond Greenwashing*, 37 VA. ENVTL. L.J. 89, 112 (2019).

527 Retirement Investments for a Sustainable Economy Act of 2019, S. 1460, 116th Congress.

528 *Id.*

529 For example, New York’s Fossil Fuel Divestment Act would place fossil fuel producers on its list based on the following risk factors: the percentage of revenue derived from fossil fuel production, the percentage of global fossil fuel production for which the company is responsible, and the potential future carbon dioxide emissions contained in the company’s reported coal, oil, or gas reserves. Any producer placed on the list may be removed if they present clear and convincing evidence that they will no longer be producing fossil fuels and will no longer meet list criteria by 2030, or if they show their inclusion was in error. S. 2126-A, 2019-2020 Reg. Sess. (N.Y. 2019), [link here](#); Liz Krueger, *Krueger And Ortiz Introduce Updated Fossil Fuel Divestment Act*, NYSenate.gov (Aug. 6, 2020 11:46 AM), [link here](#).

Policy recommendations to ensure a safer and more nutritious food supply

Despite the well-documented negative health impacts of consuming animal products, the federal government heavily subsidizes the meat and dairy industries.

Shift subsidies

Despite the well-documented negative health impacts of consuming animal products, the federal government heavily subsidizes the meat and dairy industries. Specifically, the federal government dumps billions of taxpayer dollars into the industry each year in the form of subsidies.⁵³⁰ This government support is not going to small farmers but is instead further enriching the large, multinational corporations that constitute the massively consolidated and vertically integrated⁵³¹ meat and dairy industry.

Federal farm subsidies were created during the Great Depression to help families keep their farms. In 1933, Congress passed the Agriculture Adjustment Act as part of President Franklin Roosevelt's New Deal. Farm subsidy programs are intended to "supplement adverse fluctuations in revenues and production, and purchase farmers' insurance coverage, product marketing, export sales, and research and development."⁵³²

Today, Congress establishes national food and agricultural policy in part through periodic omnibus "Farm Bills" passed roughly every five years. The most recent Farm Bill was passed in 2018.⁵³³ The Congressional Budget Office (CBO) estimates that total spending for agriculture and nutrition programs will be \$867 billion over the 2019–2028 period.⁵³⁴ The Farm Bill contains numerous programs and subsidies to enhance the viability of otherwise unprofitable farming industries, including the dairy industry. For instance, Section 1401 authorized a new voluntary Dairy Margin Coverage (DMC) program, providing coverage to dairy producers in the form of payments when the national average income-over-feed cost margin falls below a coverage level selected by a farmer.⁵³⁵ Farmers who participate in the DMC program can participate in other programs to mitigate their financial risk, including the Livestock Gross Margin for Dairy Producers Program⁵³⁶ and the Dairy Revenue Protection Program.⁵³⁷ The Internal Revenue Code also provides favorable federal income tax treatment to farmers.⁵³⁸

Despite the benefits of plant-based meat, eggs, and dairy, which include less land and water use and lower GHGs, the Farm Bill provides no subsidies to plant-based commodities.⁵³⁹

Despite the lack of subsidies, the Good Food Institute estimates that plant-based milks

530 See SIMON, *supra*, note 127, at 89 (describing yearly \$38.4 billion subsidy to meat and dairy industry).

531 Vertical integration is "birth-(or egg-)to-plate corporate control" of all aspects of production and marketing of animal products. John M. Crespi & Tina L. Saitone, *Are Cattle Markets the Last Frontier? Vertical Coordination in Animal-Based Procurement Markets*, 10 ANNUAL REV. 207, 208 (2018).

532 Sewell, *supra* note 128.

533 Agricultural Improvement Act of 2018, Pub. L. No. 115-334, 132 Stat. 4490.

534 Letter from Keith Hill, Director, Congressional Budget Office to K. Michael Conaway, Chairman, U.S. House of Representatives Committee on Agriculture, *Direct Spending and Revenue Effects of the Conference Agreement for H.R. 2, the Agricultural Improvement Act of 2018* (Dec. 11, 2018), available at [link here](#).

535 *Dairy Margin Coverage Program Fact Sheet*, USDA (June 2019), [link here](#).

536 *Livestock Gross Margin Insurance Dairy Cattle: Risk Management Agency Fact Sheet*, USDA (June 2019), [link here](#).

537 *Dairy Revenue Protection: Risk Management Agency Fact Sheet*, USDA (Apr. 2019), [link here](#).

538 See, e.g., *Canceled Debts, Foreclosures, Repossessions, and Abandonments (for Individuals)*, Pub. 4681 (IRS 2019); available at [link here](#). The discharge of "qualified farm debt" can in some instances be excluded from income. Favorable tax provisions for farms is beyond the scope of this Memorandum.

539 J. Poore & T. Nemecek, *Reducing Food's Environmental Impacts Through Producers and Consumers*, 360 Sci. 987 (2019), [link here](#).

account for 14 percent of all dollar sales of retail milk,⁵⁴⁰ which reflects a strong consumer preference for plant-based products.

Farm subsidies have become lucrative. In fiscal year 2017, between \$1 million and \$10 million in subsidies went to 400 recipients, including farmers, corporations, and agribusinesses.⁵⁴¹ A government watchdog organization describes farm subsidies as helping create “a new class of millionaires” and being used by “wealthy investors, large corporations, and farm-estate heirs ... to maximize their personal return on investment.”⁵⁴² More recently, records obtained by the Environmental Working Group (EWG) through the Freedom of Information Act (FOIA) revealed that a majority of Coronavirus Food Assistance Program (CFAP) payments went to the largest farm operations.⁵⁴³

Recent USDA reports reveal that there are 60 farm subsidy programs dispensing billions of dollars.⁵⁴⁴ A vast majority of federal farm subsidies are spent on producers raising animals or growing animal feed, rather than on foods for direct human consumption. The U.S. government spends up to \$38 billion annually on subsidies for the meat, egg, and dairy industries, while less than half of 1 percent of that amount is spent subsidizing fruit and vegetable production — this despite yearly retail sales for meat and dairy producers topping \$250 billion.⁵⁴⁵ Between 1995 and 2010, corn alone received \$90 billion in subsidies, excluding ethanol subsidies and mandates, which drive up the market price of corn. According to the USDA, corn is the primary U.S. feed grain, accounting for more than 95 percent of total feed grain production, and most of the crop is used as the main energy ingredient in livestock feed.⁵⁴⁶ In fact, in 2013 nearly half of corn, the largest crop produced in the U.S., was used as animal feed.⁵⁴⁷

During the COVID-19 pandemic, the federal government announced it would provide up to \$16 billion to the agriculture sector and would purchase up to \$4 billion of food from farms, including meat and dairy.⁵⁴⁸ In total, direct farm payments from the government, including trade bailout payments, coronavirus relief checks, and other direct subsidies, are projected to increase by nearly 70 percent in 2020 to \$37 billion;⁵⁴⁹ meanwhile, such government farm payments were already rising pre-pandemic.⁵⁵⁰ Disturbingly, there has been little transparency in dispersal of funds to the factory farm industry.⁵⁵¹

Congress must mandate a shift in subsidies away from the factory farming industry. To achieve this, Congress must (1) reduce subsidies to meat, dairy, and egg producers in the

540 *Plant-Based Market Overview*, GOOD FOOD INST., [link here](#) (last visited Oct. 22, 2020).

541 Adam Andrzejewski, *Mapping the U.S. Farm Subsidy \$1M Club*, FORBES (Aug 14, 2018), [link here](#).

542 *Id.*; *OpenTheBooks Oversight Report: Harvesting U.S. Farm Subsidies*, ISSUU (Aug 7, 2018), [link here](#).

543 Anne Schechinger, *New USDA Records Show Trade Bailout and Coronavirus Payments Went to the Largest Farms*, ENV'T'L. WORKING GROUP AGMAG (Sept. 22, 2020), [link here](#).

544 *USDA Farm Programs: Farmers Have Been Eligible for Multiple Programs and Further Efforts Could Help Prevent Duplicative Payments*, GAO-14-428 (GAO July 2014), available at [link here](#).

545 SIMON, *supra* note 127; Sewell, *supra* note 128.

546 *Feedgrains Sector at a Glance*, USDA, [link here](#) (last visited Oct. 22, 2020).

547 *Id.*

548 Jennifer Mishler, “A Huge Lack of Transparency”: The Problem With USDA’s \$19-Billion Coronavirus Relief Program, SENTIENT MEDIA (Sept. 23, 2020), [link here](#).

549 *Highlights from the September 2020 Farm Income Forecast: Farm Sector Profits Forecast to Increase in 2020*, USDA (Sept. 2, 2020), [link here](#).

550 Ryan McCrimmon, *USDA Expects Higher Farm Income In 2019 Boosted by Trump’s Trade Aid*, POLITICOPRO (Nov. 2019), [link here](#) (subscription required).

551 Mishler, *supra* note 548.

Congress must require greater transparency about where money is going and for what it is being used.

factory farming industry; (2) redirect subsidies from corn for animal feed to grains consumed directly or processed into plant-based meats and dairy; and (3) create programs and subsidies for plant-based foods, including fresh fruits and vegetables as well as plant-based meat, dairy, and eggs. Additionally, Congress must require greater transparency about where money is going and for what it is being used. Such transparency should take the form of a publicly searchable online database for recipients of subsidies or other government funds.⁵⁵²

Create checkoff programs for plant-based meat, dairy, and eggs

The federal government has numerous agricultural product research and promotion programs, known colloquially as “checkoffs.”⁵⁵³ Each checkoff program is dedicated to promoting a specific type of agricultural product, like eggs or mushrooms.⁵⁵⁴ These checkoffs help producers work together to promote their entire industry. They are responsible for developing famous slogans, like “*Beef. It’s What’s for Dinner*” and “*Got Milk?*”⁵⁵⁵

The term *checkoff* comes from “a bookkeeping mechanism indicating the regular payment of fees in order to support an obligation such as union dues.”⁵⁵⁶ The name thus references the fact that checkoffs are generally supported by mandatory dues paid by each producer in a certain industry. Checkoffs are thus a form of forced cooperation.

The USDA explains:

Since 1966, Congress has authorized industry-funded research and promotion (R&P) boards to provide a framework for agricultural industries to pool their resources and combine efforts to develop new markets, strengthen existing markets and conduct important research and promotion activities. The [USDA] Agricultural Marketing Service (AMS) provides oversight, paid for by industry assessments, which helps ensure fiscal accountability and program integrity.⁵⁵⁷

Checkoffs “now cover more than 20 different farm products including beef, pork, cotton, soy, and eggs.”⁵⁵⁸ And “[a]bout \$750 million is collected annually in checkoff taxes.”⁵⁵⁹

While checkoff programs exist for numerous plant foods — like avocados and blueberries —

⁵⁵² For example, the Animal Legal Defense Fund along with a coalition has suggested that the USDA establish an online database of recipients of USDA COVID-19 relief funds, resources, and/or any other forms of support as part of an emergency rulemaking petition. Petition for Emergency Rulemaking, *Animal Legal Defense Fund v. Perdue* (USDA 2020), available at [link here](#).

⁵⁵³ See Cotton Research & Promotion Act, 7 U.S.C. §§ 2101 *et seq.* (2018); Potato Research & Promotion Act, 7 U.S.C. §§ 2611 *et seq.*; Egg Research & Consumer Information Act, 7 U.S.C. §§ 2701 *et seq.*; Beef Research & Information Act, 7 U.S.C. §§ 2901 *et seq.*; Wheat & Wheat Foods Research & Nutrition Education Act, 7 U.S.C. §§ 3401 *et seq.*; Floral Research & Consumer Information Act, 7 U.S.C. §§ 4301 *et seq.*; Subtitle B of the Dairy Production Stabilization Act, 7 U.S.C. §§ 4501 *et seq.*; Honey Research, Promotion, & Consumer Information Act, 7 U.S.C. §§ 4601 *et seq.*; Pork Promotion, Research, & Consumer Information Act, 7 U.S.C. §§ 4801 *et seq.*; Watermelon Research & Promotion Act, 7 U.S.C. §§ 4901 *et seq.*; Pecan Promotion & Research Act of, 7 U.S.C. §§ 6001 *et seq.*; Mushroom Promotion, Research, & Consumer Information Act, 7 U.S.C. §§ 6101 *et seq.*; Lime Research, Promotion, & Consumer Information Act, 7 U.S.C. §§ 6201 *et seq.*; Soybean Promotion, Research, & Consumer Information Act, 7 U.S.C. §§ 6301 *et seq.*; Fluid Milk Promotion Act, 7 U.S.C. §§ 6401 *et seq.*; Fresh Cut Flowers & Fresh Cut Greens Promotion & Information Act, 7 U.S.C. §§ 6801 *et seq.*; Sheep Promotion, Research, & Information Act, 7 U.S.C. §§ 7101 *et seq.*; Section 501 of the Federal Agriculture Improvement & Reform Act, 7 U.S.C. §§ 7401; Commodity Promotion, Research, & Information Act, 7 U.S.C. §§ 7411 *et seq.*; Canola & Rapeseed Research, Promotion, & Consumer Information Act, 7 U.S.C. §§ 7441 *et seq.*; National Kiwifruit Research, Promotion, & Consumer Information Act, 7 U.S.C. §§ 7461 *et seq.*; Popcorn Promotion, Research, & Consumer Information Act, 7 U.S.C. §§ 7481 *et seq.*; Hass Avocado Promotion, Research, & Information Act of 2000, 7 U.S.C. §§ 7801 *et seq.*

⁵⁵⁴ See, e.g., *Research & Promotion Programs*, USDA, [link here](#) (last visited Oct. 22, 2020).

⁵⁵⁵ Ronald A. Parsons, Jr., *Cattle on a Thousand Hills: Reflections on the Beef Checkoff Litigation*, 57 S.D. L. REV. 427 (2012).

⁵⁵⁶ *Id.*

⁵⁵⁷ See *id.*

⁵⁵⁸ Douglas, *supra* note 509, at 84.

⁵⁵⁹ *Id.*

no checkoff program yet exists for plant-based meat, eggs, or dairy. Since these foods play an important role in helping Americans shift toward eating more plants, these foods should receive a checkoff benefit.

For instance, the Commodity Promotion, Research, & Information Act (CPRI) authorizes the USDA to collect assessments on agricultural commodities for the purposes of funding checkoff programs.⁵⁶⁰ CPRI was passed to ensure that “generic promotion, research, and information activities for agricultural commodities be carried out in an effective and coordinated manner designed to strengthen the position of the commodities in the marketplace and to maintain and expand their markets and uses.”⁵⁶¹ The USDA is responsible for overseeing the formation of commodity boards, which are prohibited from lobbying or influencing governmental legislation or policy.⁵⁶²

Far too often, however, commodity boards have illegally used funds to put themselves at an unfair competitive advantage. In 2008, for example, when the American Egg Board (a commodity board focused on the marketing and promotion of eggs) attempted to use \$3 million in federal advertising dollars to oppose the ballot initiative in California that would prohibit the extreme confinement of farmed animals, a federal judge issued an injunction to prohibit it.⁵⁶³ In 2013, the American Egg Board attempted to get government regulators and retailers to take action to halt sales of egg-free vegan Just Mayo brand products.⁵⁶⁴ There has also been extensive litigation over the unlawful purchase by the USDA and the National Pork Board of the slogan, *Pork. The Other White Meat* and related intellectual property from the National Pork Producers Council for \$60 million, an attempt by the commodity board to evade the federal restrictions on the use of pork checkoff dollars.⁵⁶⁵

Today, CPRI creates an uneven playing field for plant-based food products and has even been used to thwart plant-based initiatives and products.

Congress must reform CPRI to ensure that funds are not used to engage in anticompetitive activity and other unfair acts or practices,⁵⁶⁶ including putting plant-based products at a competitive disadvantage. Additionally, the USDA must create checkoff programs for plant-based meat, dairy, and eggs.

Although existing checkoffs generally focus on single-ingredient foods, a multi-ingredient product, like plant-based meat, could meet the statutory definition.⁵⁶⁷ Plant-based meat is surely a “product processed or manufactured from” agricultural or horticultural products,

⁵⁶⁰ 7 U.S.C. § 7416 (2018).

⁵⁶¹ *Id.* §§ 512(a)(6), 7401; 7411-7425.

⁵⁶² *Id.* § 7414(d)(2).

⁵⁶³ Memorandum & Order, *Californians for Humane Farms v. Schafer*, 2008 WL 4449583 (N.D. Cal. Sept. 29, 2008) (No. C 08-03843); Veronique de Turenne, *Chickens Beat Eggs in Proposition 2 Lawsuit*, L.A. TIMES, Sept. 23, 2008, [link here](#).

⁵⁶⁴ Beth Kowitt, *USDA Says American Egg Board’s Anti-Vegan Mayo Campaign Was ‘Inappropriate’*, FORTUNE (Oct. 10, 2016), [link here](#).

⁵⁶⁵ See, Complaint for Declaratory and Injunctive Relief, *Humane Soc’y of the U.S. v. Vilsack* (D.D.C. Sept. 24, 2012) (No. 1:12-cv-1582), available at [link here](#).

⁵⁶⁶ In 2016, Senators Mike Lee (R-UT) and Cory Booker (D-NJ) introduced the Commodity Checkoff Program Improvement Act of 2016 to bring transparency and accountability to commodity checkoff programs. *Press Release: Sens. Lee, Booker Introduce Commodity Check Off Reform Bill*, MIKE LEE (July 14, 2016), [link here](#).

⁵⁶⁷ 7 U.S.C. § 7412(1) (2018). The Commodity Promotion, Research, & Information Act focuses on *agricultural commodities*. The Act defines *agricultural commodities* to include, among other things, (1) “agricultural[and] horticultural . . . products”; (2) “the products of forestry”; (3) USDA Organic products; (4) “other commodities raised or produced on farms, as determined appropriate by the [USDA]”; and (5) “products processed or manufactured from [such] products . . . as determined appropriate by the [USDA].” *Id.*

for instance.⁵⁶⁸ And plant-based protein producers deserve a checkoff program in order to compete on equal footing with their animal-based counterparts, which have their own checkoffs already.

Require safer and more nutritious food options in food programs and procurements

Government food programs and taxpayer-funded procurements should include and incentivize safer and more nutritious foods — plant-based foods, including fresh produce as well as plant-based proteins. Many Americans do not consume animal products for moral, spiritual, and health reasons. Americans who are vegetarian or vegan; don't eat certain types of meat for religious reasons; are part of the majority of the world's population who are lactose normal; or are consuming less meat and dairy for moral, environmental, or health reasons would be much better served by the government offering at least some portion of food free from animal products.

Providing plant-based meat and dairy through government programs and procurements would respect the many Americans who cannot eat the animal products currently sold. This would also help transition the American economy and American workers toward relying less on dangerous factory farming, as more people begin making money from plant-based foods, including plant-based protein. Americans deserve access to a safer, more sustainable protein source.

In 2018, the American Medical Association recommended that the federal government take steps to “incentivize healthful foods and disincentivize or eliminate unhealthful foods.”⁵⁶⁹ Programs like the federal Supplemental Nutrition Assistance Program (SNAP),⁵⁷⁰ the Special Supplemental Nutrition Program for Women, Infants and Children (WIC),⁵⁷¹ and the National School Lunch Program,⁵⁷² among others,⁵⁷³ should incentivize the purchase of safer and more nutritious food and/or leverage their purchasing power to shift the nation's food supply in that direction.

The Good Food Purchasing Program (GFPP), originally developed by the Los Angeles Food Policy Council,⁵⁷⁴ provides a model for food procurement with supply chain transparency and flexible metric-based standards and benchmarks across five core values: nutrition, local economies, environmental sustainability, valued workforce, and animal welfare.⁵⁷⁵ Since it was first adopted by the Los Angeles Unified School District (LAUSD) in 2012, LAUSD reduced its purchase of factory farmed meats by 32 percent, reduced its carbon footprint by 20 percent, and reduced its water footprint by nearly 21 percent per meal.⁵⁷⁶ GFPP is now used by 27 public institutions in 14 U.S. cities, including school systems in Austin, Chicago,

⁵⁶⁸ *Id.*

⁵⁶⁹ *Improvements to Supplemental Nutrition Programs H-150.937*, AM. MED. ASS'N, [link here](#) (last visited Oct. 22, 2020).

⁵⁷⁰ *Supplemental Nutrition Assistance Program (SNAP)*, USDA, [link here](#) (last visited Oct. 22, 2020).

⁵⁷¹ *Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)*, USDA, [link here](#) (last visited Oct. 22, 2020).

⁵⁷² *National School Lunch Program: Feeding the Future with Healthy School Lunches*, USDA, [link here](#) (last visited Oct. 22, 2020).

⁵⁷³ *Food Assistance Programs*, USDA, [link here](#) (last visited Oct. 22, 2020).

⁵⁷⁴ The GFPP is now managed by the Center for Good Food Purchasing, a nonprofit providing support for adoption and implementation of GFPP-model policies. *Who We Are*, CENTER FOR GOOD FOOD PURCHASING, [link here](#) (last visited Oct. 22, 2020).

⁵⁷⁵ *The Good Food Purchasing Standards*, CENTER FOR GOOD FOOD PURCHASING, [link here](#) (last visited Oct. 22, 2020).

⁵⁷⁶ See Good Food Purchasing Program (GFPP), FUTURE POLICY, [link here](#) (last visited Oct. 22, 2020).

Cincinnati, San Diego, San Francisco, and Washington, D.C., which collectively spend nearly a billion dollars on food each year.⁵⁷⁷ In 2019, Boston adopted a GFPP-modeled ordinance,⁵⁷⁸ which applies across City departments and agencies responsible for procuring or providing service contracting of foods, including Boston Public Schools.⁵⁷⁹

Congress, state legislatures, and municipal governments must establish a minimum standard for taxpayer-funded government procurement of food and a flexible framework for further, graduated improvements over time. Such procurements must also include a minimum allocation of plant-based foods and alternative proteins. Additionally, governments must empower food assistance programs to incentivize safer and more nutritious food. The procurement standard and framework for improvement should be publicly disclosed.

In the case of government procurements, food purchases should be evaluated for the food itself as well as how it was produced and the impacts of that production. Minimum standards should be established across various categories, such as nutrition and human health, welfare of animals, environmental and climate impact, worker conditions, community impact, and zoonotic disease risk. For example, such minimum standards should mean a prohibition on procurement of animal products coming from factory farms where animals are locked in cages or crates or are continually fed antibiotics. An effective, flexible framework would allow agencies responsible for procurements to meaningfully improve the standards for food purchases over time, by phasing out contracts with producers who do not meet their standards or are unwilling to improve practices to meet them, for example.

As an immediate step in the right direction, while the economic impact of the COVID-19 pandemic has pushed more American families into hunger, the federal government should provide families with safer and more nutritious food and empower food assistance programs to do so. In addition to purchasing fresh fruits and vegetables, the USDA should include plant-based meat and dairy products in its purchase of meat and dairy products for distribution to food banks and other nonprofits.⁵⁸⁰

The Families First Coronavirus Response Act authorizes the USDA to “purchase commodities for emergency distribution in any area of the U.S. during a public health emergency designation” in 2020.⁵⁸¹ On April 17, 2020, the USDA announced the \$19 billion Coronavirus Food Assistance Program (CFAP).⁵⁸² As part of the program, the USDA committed to “purchas[ing] \$3 billion in fresh produce, dairy, and meat.”⁵⁸³ This includes an estimated \$100 million per month, each, of “fresh fruits and vegetables,” “a variety of dairy products,” and “meat products.”⁵⁸⁴ The USDA is working with distributors and wholesalers to compile these foods, and “provide a pre-approved box of fresh produce, dairy, and meat products

577 *Id.*

578 Boston, Mass., Ordinance 0139 (Jan. 7, 2019), available at [link here](#).

579 *Id.*; *Boston City Council Passes Landmark Food Justice Policy*, CENTER FOR GOOD FOOD PURCHASING [link here](#) (last visited Oct. 22, 2020).

580 Families First Coronavirus Response Act, Pub. L. No. 116–127, 134 Stat. 178 (2020); *USDA Announces Coronavirus Food Assistance Program*, USDA (Apr. 17, 2020), [link here](#).

581 Pub. L. No. 116–127, 134 Stat. 178 (2020).

582 *USDA Announces Coronavirus Food Assistance Program*, *supra* note 580; see also *Purchase of Fruit, Vegetable, Dairy, and Meat Products Due to COVID-19 National Emergency—USDA Food Box Distribution Program*, 85 Fed. Reg. 23,325 (proposed Apr. 27, 2020).

583 *USDA Announces Coronavirus Food Assistance Program*, *supra* note 580; see also *Purchase of Fruit, Vegetable, Dairy, and Meat Products Due to COVID-19 National Emergency—USDA Food Box Distribution Program*, 85 Fed. Reg. at 23,325.

584 *USDA Announces Coronavirus Food Assistance Program*, *supra* note 580.

Governments must empower food assistance programs to incentivize safer and more nutritious food.

The USDA and Department of Health and Human Services (HHS) must encourage Americans to eat more plants and less meat in their 2020–2025 Dietary Guidelines for Americans.

to food banks, community and faith-based organizations, and other nonprofits serving Americans in need.”⁵⁸⁵ These boxes should include plant-based meat and dairy products. On September 21, 2020, the USDA opened an application period for a second round of assistance (CFAP 2). Through CFAP 2, the USDA had made up to \$14 billion available in additional direct support for agriculture producers.⁵⁸⁶ As of October 26, 2020, the USDA has already approved more than 443,000 applications, representing over \$7 billion in payments to producers.⁵⁸⁷

In addition to the USDA’s plans to purchase \$3 billion in fresh produce, dairy, and meat, the USDA has also announced that it “has up to an additional \$873.3 million available in [the Agricultural Adjustment Act] Section 32 funding to purchase a variety of agricultural products for distribution to food banks,” and that the Families First Coronavirus Response Act and the CARES Act “provided at least \$850 million for food bank [assistance], of which a minimum of \$600 million will be designated for food purchases.”⁵⁸⁸

In reforming government procurements, they provide safer and more nutritious food to people and leverage their purchasing power to meaningfully transition the food supply.

Promote a plant-based diet

American citizens deserve information about eating a safer and more nutritious diet, which is based largely or wholly on plant-based foods; emphasizes fresh fruits and vegetables, beans, and grains; includes plant-based meat, eggs, and dairy; and reduces or eliminates intake of animal-based meat, eggs, and dairy products, which too often come from dangerous factory farms.⁵⁸⁹

Released by the federal government every five years to “help Americans eat a healthier diet,” Dietary Guidelines provide an opportunity to promote a more plant-based diet and reflect its benefits. State and local governments also often provide healthy eating tips or programs to residents, many of which already promote eating more plants.

The USDA and Department of Health and Human Services (HHS) must encourage Americans to eat more plants and less meat in their 2020–2025 Dietary Guidelines for Americans.

Official expert recommendations lend support for such a move. In July 2020, the 2020 Dietary Guidelines Advisory Committee issued a Scientific Report, intended to assist USDA and HHS in their creation of the 2020–2025 Dietary Guidelines, which included multiple statements indicating that Americans can generally be healthier by increasing their intake of plants.⁵⁹⁰ For instance, the Report noted evidence indicating that those who eat vegetarian meals may tend to live longer: It found that “[r]educd risk of all-cause mortality was

⁵⁸⁵ *Id.*; see also Notice of Funds Availability (NOFA); Purchase of Fruit, Vegetable, Dairy, and Meat Products Due to COVID-19 National Emergency—USDA Food Box Distribution Program, 85 Fed. Reg. at 23,325.

⁵⁸⁶ Press Release: *More than \$7 Billion Paid in Second Round of USDA Coronavirus Food Assistance Program*, USDA (Oct. 26, 2020), [link here](#).

⁵⁸⁷ *Id.*

⁵⁸⁸ *USDA Announces Coronavirus Food Assistance Program*, *supra* note 580.

⁵⁸⁹ Once cultivated meat, eggs, and dairy become available to consumers, the government should promote these products, as well, because they avoid the harms associated with factory farming. This section doesn’t focus on cultivated meat, however, because it is not yet commercially available.

⁵⁹⁰ USDA, SCIENTIFIC REPORT OF THE 2020 DIETARY GUIDELINES ADVISORY COMMITTEE (2020), available at [link here](#) [hereinafter SCIENTIFIC REPORT].

observed in several studies that examined dietary patterns without animal-products, such as those described as vegetarian, vegan or determined by ‘plant-based’ diet indices.”⁵⁹¹

The Dietary Guidelines should encompass such information — thus, they should promote increased plant consumption and decreased consumption of animal products. Notably, the current version of the Guidelines — 2015–2020 Dietary Guidelines for Americans — already embraces and supports vegetarians and vegans.⁵⁹² For instance, they offer a Healthy Vegetarian Eating Pattern as an option for Americans who prefer it.⁵⁹³

The next version of the Guidelines should go a step farther, encouraging all Americans to choose more plant foods and eat less meat. It should include images of clearly labeled plant-based meat and emphasize plant-based over animal-based proteins.

The current Guidelines already state that eating less meat is associated with reduced risk of cardiovascular disease, obesity, type 2 diabetes, and some types of cancer in adults.⁵⁹⁴ Going forward, the Guidelines should include a stronger statement, similar to what is found in the Scientific Report, indicating that diets lower in meat may help people live longer.⁵⁹⁵ The Guidelines could also explicitly promote shifting to more plant-based foods. For instance, an infographic in the current Guidelines illustrates various shifts a person may make to become healthier — like shifting from high-calorie snacks to nutrient-dense snacks.⁵⁹⁶ Any future version of an infographic could suggest shifting from animal-based protein to plant-based protein.

Lastly, the Guidelines should consider removing dairy from the healthy eating pattern, or else shift the description of dairy to focus more on plant-based dairy. The Guidelines currently say that a healthy eating pattern includes “[f]at-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages.”⁵⁹⁷ It’s great that the guidelines already include soy milk. But it may be unnecessary and even harmful to include dairy as a recommended food group to begin with. A growing number of Americans are lactose normal. In addition, animal-based dairy supports the dangerous factory farming industry.

In fact, Physicians Committee for Responsible Medicine (PCRM) suggests that the new Guidelines “[r]ecommend water instead of milk.”⁵⁹⁸ PCRM discusses numerous health problems associated with dairy.⁵⁹⁹ Additionally, as PCRM points out, dairy’s purported benefits are generally available from other sources: “Calcium is plentiful in beans, leafy green vegetables, tofu, breads, and cereals. Oranges, bananas, potatoes, and other fruits, vegetables, and beans are rich sources of potassium. Legumes and green leafy vegetables are excellent sources of magnesium. The natural source of vitamin D is sunlight, and fortified cereals, grains, bread, orange juice, and plant milks are dietary options.”⁶⁰⁰

591 *Id.* at 508.

592 DIETARY GUIDELINES FOR AMERICANS 2015-2020 (8th ed. 2015), available at [link here](#) [hereinafter *DIETARY GUIDELINES*].

593 *Id.* at 86–88; see also *id.* at 11–12, 14, 18, 35–36 (repeatedly referencing Healthy Vegetarian Eating Pattern).

594 *Id.* at 25.

595 SCIENTIFIC REPORT, *supra* note 590, at 508.

596 DIETARY GUIDELINES, *supra* note 592, at 40.

597 *Id.* at xiii.

598 2020-2025 Dietary Guidelines for Americans Recommendations, PHYSICIANS COMM. FOR RESPONSIBLE MED., [link here](#) (last viewed Oct. 22, 2020).

599 *Id.*

600 *Id.*

The removal of milk would also affect the MyPlate infographic, website, and other materials that the federal government uses to implement the Guidelines.⁶⁰¹ The federal government currently uses an image of a plate and a cup to symbolize healthy eating.⁶⁰² The plate is essentially the modern version of the Food Pyramid that many adult Americans remember.⁶⁰³ The plate is split into four sections, called “Fruits,” “Grains,” “Vegetables,” and “Protein.”⁶⁰⁴ The cup says “Dairy.”⁶⁰⁵ The cup could be removed or replaced with water.

State and local governments should also promote plant-based eating through citizen education programs such as Meatless Mondays and sustainability programs. New York City launched a website, www1.nyc.gov, to remind New Yorkers that eating right can help people “feel good and stay healthy during the COVID-19 pandemic.”⁶⁰⁶ And New York City’s #1 tip for eating right? “Eat More Plants.”⁶⁰⁷ Other cities should emulate New York City’s promotion of plant-based eating at this critical time.

Meatless Monday programs can also help shift residents toward eating more plants.⁶⁰⁸ Municipalities have found different ways to participate in Meatless Monday, such as by serving vegetarian meals in public schools each Monday, urging the public to go vegetarian one day a week, or crediting state employees for eating meat-free meals.

Using the Meatless Mondays slogan, for instance, a Tennessee government organization encouraged state employees to earn prizes by eating meatless meals, trying a new vegetarian recipe, or sending in a picture of themselves with a vegetarian meal.⁶⁰⁹

Regardless of the extent to which schools reopen this year, the government will still distribute food to numerous schoolchildren, government employees, and other residents. Therefore, this would be a great time for other cities to try Meatless Mondays in schools and elsewhere.

601 DIETARY GUIDELINES, *supra* note 592, at 10; *Choose My Plate*, USDA, [link here](#) (last visited Oct. 22, 2020).

602 DIETARY GUIDELINES, *supra* note 592, at 10.

603 See *A Brief History of USDA Food Guides*, USDA, [link here](#) (last visited Oct. 22, 2020).

604 DIETARY GUIDELINES, *supra* note 592, at 10.

605 *Id.* at 10.

606 *Nutrition Tips*, NYC HEALTH, [link here](#) (last visited July 28, 2020).

607 *Id.*

608 See *Meatless Monday*, MONDAY CAMPAIGNS, [link here](#) (last visited Oct. 22, 2020).

609 *Working for a Healthier Tennessee: Meatless Mondays Tracking Sheet*, TENN. STATE GOV’T, [link here](#) (last visited Oct. 22, 2020).

Acknowledgements

The Animal Legal Defense Fund is grateful to our staff and partners for their meaningful contributions.

Stephanie Harris, Senior Legislative Affairs Manager, spearheaded this undertaking. Alicia Prygoski, Legislative Affairs Manager, Chris Berry, Managing Attorney, David Rosengard, Criminal Justice Program Director (Acting), and Stacey Gordon Sterling, Animal Law Program Director, each offered valuable insights and expertise in the development of the manuscript.

We also thank our additional staff researchers, drafters, and reviewers, including (alphabetically) Alene Anello, Staff Attorney; Christine Ball-Blakely, Staff Attorney; Kelsey Eberly, Senior Staff Attorney; Jennifer Hauge, Legislative Affairs Manager; Kim Kelly, Legislative Affairs Director; Nicole Pallotta, Senior Policy Program Manager; Elizabeth Putsche, Communications Director; Kathleen Schatzmann, Senior Legislative Affairs Manager; Mark Walden, Chief Programs Officer; Daniel Waltz, Senior Staff Attorney; and Stephen Wells, Executive Director.

Animal Legal Defense Fund volunteer attorney members, including Jessica Brockaway, Katia Colitti, and Kimberly C. Moore, as well as our Legislative Affairs Program 2020 summer law clerks, including Abigail Adams, Andrei Irimia, Bailey McHargue, Sonia Paauwe, Olivia Suraci, and Jeff Taylor, provided additional assistance. Sonia Paauwe deserves recognition for her constructive contributions. Mark Hawthorne's adroit editing improved the manuscript. Finally, we appreciate Ofra Isler, Project Manager, for her support and Sue Kennedy, Senior Graphic Designer, for her design work.