Preventing the next pandemic by fighting consumerism to improving the treatment of animals through an international treaty

By Jennifer Bass

Introduction

On a factory Farm in the United States (US), a young calf named Stanton clung to life after being held in a stall so filthy that it left him covered head to tail in muck.[1] The excrement was so deep that nine other calves had already drowned in their own waste.[2] The Farm Sanctuary found him "[s]ick and weak, he clung to life, nestled against one of the calves who had already drowned in muck."[3] As is the same with most calves in the dairy industry, Stanton was taken from his mother just days after birth, instead of being weaned off of his mother's milk over an eleven month period.[4] Without this milk he failed to "receive immunity-boosting colostrum" causing him to grow "sick and frail quickly."[5] Thankfully he was rescued by the Farm Sanctuary. However, Stanton's ability to live a new life at a sanctuary is a statistical anomaly to how veal calves spend their short lives, where they will be taken from their mothers and killed at the age of sixteen to eighteen weeks old.[6] The poor conditions and outcomes for animals also result in poor outcomes for humans in the form of the creation and spread of disease.[7]

Across the globe from the Farm Sanctuary a half-mile-long wall covered in 150,000 pink hearts memorializing those lost in the COVID-19 (COVID) pandemic, stands across from Big Ben in London.[8] Many of the hearts feature faded inscriptions for lost loved ones.[9] It takes about ten minutes to walk the length of the wall. These hearts only represent a percentage of the citizens lost to COVID in a very small country.[10] Though most communities are over the worst of COVID, if bird flu mutates to be transferable to humans, we may be at the beginning of the next pandemic.[11] H5N1 and H5N2 bird flu is moving across the world spreading throughout our food systems and in wildlife populations, spreading between farm animals and wild animals.[12] All of the known transfers of bird flu to humans in the US have come from farms.[13] Even more alarming, the flu is also spreading from birds to other species including cows, seals, and has transferred to humans.[14] This transfer has resulted in Cal-

1 Farm Sanctuary, Four Adorable Animals Saved From the Dairy Industry (Feb 12, 2024), https://www.farmsanctuary.org/news-stories/four-animals-saved-from-dairy-industry/.

2 Id.

3 Id.

4 Laura Whalin, Daniel Weary & Marina Keyserlingk, Understanding Behavioral Development of Calves in Natural Settings to Inform Calf Management, 11 Animals (Basel) 2446, 2456 (2021), 10.3390/ani11082446.

5 Farm Sanctuary, Four Adorable Animals Saved from the Dairy Industry (Feb 12, 2024), https://www.farmsanctuary.org/news-stories/four-animals-saved-from-dairy-industry/.

6 Veal From Farm to Table, USDA (Nov. 7th, 2024), https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat-catfish/veal-farm-table.

7 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.

8 Dorian Lynskey, Wall of love: the incredible story behind the national Covid memorial, Guardian (July 18, 2024), https://www.theguardian.com/world/2021/jul/18/wall-of-love-the-incredible-story-behind-the-national-covid-memorial-led-by-donkeys.

9 Id.

10 Statista, Number of novel coronavirus (COVID-19) deaths worldwide as of May 2, 2023, by country and territory (May 2, 2023), https://www.statista.com/statistics/1093256/novel-coronavirus-2019ncov-deaths-worldwide-by-country/.

11 Jaffar Al-Tawfiq, Raghavendra Tirupathi, & Mohamad-Hani Temsah, Feathered fears: Could avian H5N1 influenza be the next pandemic threat of disease X?, New Microbes New Infect (2024), https://pmc.ncbi.nlm.nih.gov/articles/PMC11067483/.

12 Id. see also: Piyush Dey, et al., Immune Control of Avian Influenza Virus Infection and Its Vaccine Development, 11 Vaccines (Basel). 593 (Mar. 4, 2023), 10.3390/vaccines11030593.

13 CDC A(H5N1) Bird Flu Response Update, CDC (Nov. 18, 2024), https://www.cdc.gov/bird-flu/spotlights/h5n1-response-11152024.html.

14 Id.

© Mark Stebnicki from Pexels via Canva.com

ifornia declaring a state of emergency, while "Bird flu is considered by the World Health Organization to be a major pandemic threat."[15]

COVID and the bird flu are zoonotic diseases. COVID has killed over seven million people to date.[16] The stories of every one of these people and their families are intrinsically tied to how animals such as Stanton are treated because poor farming conditions result in the spread of zoonotic disease.[17] COVID is suspected to have originated from an open-air meat market called a "wet market." At wet markets, customers shop for fresh produce and meat from animals ranging from chickens and pigs to wildlife, who are transported and kept in unsanitary and cramped conditions.[18] Due to international pressure, wet markets were forced to close.[19] Yet, across the world, increasing numbers of animals are still held in similar disease-spreading conditions in factory farms.[20] By 2030 the production of animals for food is expected to increase globally by 5.9% for cows, 17.8% for poultry, 13.1% for pigs, and 15.7% for sheep.[21] This article will focus on farms in the US because it is where most of

15 Jacqueline Garget, Could Bird Flu Spark the Next Pandemic - And are we Prepared if it Does?, Cambridge (June 13, 2023), https://www.cam.ac.uk/stories/bird-flu-pandemic.
Governor Newsom takes proactive action to strengthen robust state response to Bird Flu, Governor Newsom (Dec. 18, 2024), https://www.gov.ca.gov/2024/12/18/governor-newsom-takes-proactive-action-to-strengthen-robust-state-response-to-bird-flu/.

16 Number of COVID-19 deaths reported to WHO (cumulative total), WHO (Dec. 22, 2024), https://data.who.int/dashboards/covid19/deaths.

17 Jaffar Al-Tawfiq, Raghavendra Tirupathi, & Mohamad-Hani Temsah, Feathered fears: Could avian H5N1 influenza be the next pandemic threat of disease X?, New Microbes New Infect (2024), https://pmc.ncbi.nlm.nih.gov/articles/PMC11067483/.

18 Ben Westcott & Serenitie Wang, China's wet markets are not what some people think they are, CNN, https://www.cnn.com/2020/04/14/asia/china-wet-market-coronavirus-intl-hnk/index.html.

19 Tanya Lewis, What New Evidence from the Wuhan Market Tells Us about COVID's Origins, Sci. America (Apr. 12, 2023), https://www.scientificamerican.com/article/what-new-evidence-from-the-wuhan-market-tells-us-about-covids-origins1/.
Scott Neuman, U.S. Pressures China to Close Wet Markets Thought to be Source Of COVID-19, NPR (Apr. 23, 2020), https://www.npr.org/sections/coronavirus-live-updates/2020/04/23/842178010/u-s-pressures-china-to-close-wet-markets-thought-to-be-source-of-covid-19.

20 OECD-FAO Agricultural Outlook 2021-2030, OECD/FAO 164 (2021).

21 Id.

the mega farms, which have no formal definition, are located, and there is a lack of regulation compared to Europe.[22]

Increased animal protection and reduced animal consumption would lower the risk of the next pandemic by creating fewer opportunities for the creation and spread of disease.[23] The WHO argues that animal protection could reduce the spread of disease by providing more space per animal, ending the non-therapeutic use of antibiotics, and cleaner living conditions to name a few.[24] The world has run out of space to accommodate the increased demand for animal consumption, but this problem cannot be solved by individuals.[25] Though factory farms take less space for the animals themselves, "half of the world's habitable land is used for agriculture. More than three-quarters of global agricultural land is used for livestock."[26] The decreased use of land for raising animals does not mitigate the land required to feed the increased number of animals.

Given that the world food economy is an integrated industry, dominated by international corporations, a global treaty could be the best solution to prevent the next pandemic. The food industry is powerful and inelastic, which makes it challenging to bring new more humane products to consumers. Products that may help prevent the next pandemic by treating animals more humanely. The problem with improving animal protections on a country scale is that operations are easily moved to other countries. When production is moved, it moves the origin of the pandemic but does not prevent its spread or negative outcomes.

There are no international prohibitions on the mistreatment of domestic animals which includes animals raised for food. The World Organization for Animal Health (WOAH), UN Convention On Animal Health and Protection (UNCAHP), the International Coalition for Animal Protection (CAP), and the World Health Organization (WHO) are working to ratify international treaties or Conventions that include animal welfare provisions.[27] Preferably all of the treaties and conventions would be implemented because they cover different aspects of animal wellbeing, which would result in disease prevention. This change must occur before the mistreatment of animals results in the mass suffering of humanity.

Research shows the next pandemic will likely emerge from factory farms.[28] To prevent the next pandemic animal welfare must be improved, this is possible by overcoming consumerism and leakage through an international treaty. This article will begin by examining consumerism including humane washing, Ag Gag laws, and access to plant-based products. The second section will analyse how the conditions in factory farms create zoonotic diseases and how climate change increases the likelihood of their next occurrence. The third section will walk through previously proposed treaties and currently proposed treaties and offer more provisions that could improve their impact. The global food and animal product system is too substantial and homogenized for individual actors to make an impactful difference. To prevent the next pandemic animal

22 Elise Pohl & Sang-Ryong Lee, Local and Global Public Health and Emissions from Concentrated Animal Feeding Operations in the USA: A Scoping Review, Int J Environ Res Public Health. (July 13, 2024), 10.3390/ijerph21070916.

23 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.
See also: Antoine F. Goetschel, Animal welfare as the basis of One Health: A UN convention on animal welfare, health, and protection poses a realistic solution to improved animal welfare and human health, CABI One Health (Feb 1, 2024), https://www.cabidigitallibrary.org/doi/10.1079/cabionehealth.2024.0003.

24 Zoonoses, WHO (July 29, 2020), https://www.who.int/news-room/fact-sheets/detail/zoonoses.
See also: Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 24 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

25 Hannah Ritchie & Max Roser, Half of the world's habitable land is used for agriculture, Our World in Data (Feb. 16, 2024), https://ourworldindata.org/global-land-for-agriculture.

26 Id.

27 Convention on Animal Protection, art. 1 [hereinafter CAP] (2022), https://assets.website files.com.
See also World Health Organization Convention, Agreement or Other International Instrument on Pandemic Prevention, Preparedness and Response, art. 5 [hereinafter WHO] (2023), https://apps.who.int/gb/inb/pdf_files/inb5/A_INB5_6-en.pdf.

28 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 24 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

welfare must be considered.

Zoonotic Disease Created By Animal Agriculture

A zoonotic disease is when germs spread from animals to people.[29] The germs that cause disease include viruses, bacteria, parasites, and fungi.[30] Six out of ten current diseases can be spread from animals to humans, which is called spillover.[31] Spillover can then be spread back from humans to animals, which is called spillback.[32]

There are several ways diseases are transferred between humans and animals. The first is when the infected human or animal has direct contact with humans or animals or their bodily fluids, for example when humans slaughter animals.[33] The second way diseases are spread is through indirect contact with the places where animals live, for instance when humans are cleaning stalls.[34] The third is vector-born disease when a tick or insect like a mosquito bites a person and spreads disease, these insects are able to multiply quickly in the unclean and crowded conditions on factory farms.[35] The fourth is through foodborne illness–each year one in six Americans becomes ill from eating contaminated food, for example when disease is spread from spreading animal waste onto crops.[36] Finally, diseases can be spread from contaminated drinking water, which is called waterborne illness, for instance when byproducts from factory farms are allowed to enter waterways.[37] All five ways of spreading disease can be increased through factory farming.

The creation of new illnesses cannot be separated from animal health since "[three] out of every [four] new or emerging infectious diseases in people come from animals."[38] The first section will discuss the bird flu, which is likely to be our next major pandemic. The second section will analyse COVID. The final section will discuss why zoonotic diseases are likely to originate in factory farms. [39] The three major reasons are that the conditions the animals are held in promote diseases, the widespread use of antibiotics, and the handling of animal waste. In fact, the 1918 influenza outbreak most likely originated from a farm in the US.[40]

A. H5N1 and H5N2 Bird Flu

Across the US and world, H5N1 has transferred to a broad range of species and has even been contracted by several humans.[41] There have been over 259 reported cases in mammals in the US and animals as remote as seals in Antarctica have contracted the disease.[42] Recently, a man died from H5N2, which is considered a more contagious strain of the flu among humans.[43] As of this writing birds used for food across the country have contracted different strains of the bird flu.[44] Often the flu is

29 Centers for Disease Control and Prevention, Zoonotic Disease (July 1, 2021), https://www.cdc.gov/one-health/basics/zoonotic-diseases.html.

30 David Quammen, Spillover: Animal Infection and the Next Human Pandemic, 19 Emerging Infection Disease 2 (Feb 2013).

31 Id.

32 Id.

33 Centers for Disease Control and Prevention, Zoonotic Disease (July 1, 2021), https://www.cdc.gov/one-health/basics/zoonotic-diseases.html.

34 Id. see also: Farmed Animals, CDC (Apr. 15, 2024), https://www.cdc.gov/healthy-pets/about/farm-animals.html.

35 Id. see also: Elizabeth H. Loh, Targeting Transmission Pathways for Emerging Zoonotic Disease Surveillance and Control, Vector-Borne and Zoonotic Diseases (July 17, 2015), https://doi.org/10.1089/vbz.2013.1563.

36 Id. see also Gauthami Penakalapati, et Al., Exposure to Animal Feces and Human Health: A Systematic Review and Proposed Research Priorities, Environ Sci Technol. (Sep. 19, 2017), 10.1021/acs.est.7b02811.

37 Id. see also: Chryseis Modderman, Reduce water quality issues from manure, Uni.of Minnesota (2020), https://extension.umn.edu/manure-management/reduce-water-quality-issues

38 Id.

39 Jonathan Anomaly, What's Wrong With Factory Farming?, 8 Oxford Press 245, 247(Feb 2014).

40 John M. Barry, The site of Origin of the 1918 Influenza Pandemic and its Public Health Implications, Nat'l Lib of Med. (Jan. 2023).

41 CDC, Influenza: H5N1 Bird Flu: Current Situation Summary (June 6, 2024), https://www.cdc.gov/flu/avianflu/avian-flu-summary.htm.

42 USDA, Detections of Highly Pathogenic Avian Influenza in Mammals (June 4, 2024), https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/mammals

43 Guardian, Mexico man dies from first human case of bird flu strain H5N2 (June 5, 2024), https://www.theguardian.com/world/article/2024/jun/06/mexico-man-dies-from-first-human-case-of-bird-flu-strain-h5n2

44 USDA, Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks (May 29, 2024), https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/commercial-backyard-flocks.

transmitted by migrating birds resulting in the death of millions of birds.[45] A recent development causing alarm is that cows are contracting and spreading the illness,[46] and you can detect the disease in cow's milk and animal products.[47]

Though there is already a vaccine it is questionable that it would be helpful for fighting mutations.[48] Given that the bird flu might be our next pandemic, the scaling up of the vaccine to be used worldwide is another obstacle that the bird flu shared with COVID.[49] There have been multiple cases of the bird flu in humans leaving farm workers and their communities particularly vulnerable to this illness.[50] The development of new diseases leaves us at a place where we need to improve animal welfare such as improving the health and hygiene of animals used for consumption to prevent the next pandemic.[51]

B. COVID-19 Case Study

The Coronavirus is a disease caused by the SARS-CoV-2 virus.[52] The virus was first detected in December 2019 and by March most of the world was quarantining.[53] The virus is highly contagious and transfers between people through close contact,[54] specifically through the small liquid particles transmitted when people cough, sneeze, speak, or breathe,[55] and individuals are the most contagious two days before they develop symptoms.[56] Most people who contract COVID experience mild to moderate symptoms, though it is often fatal.[57] The National Library of Medicine in the US reported that "[g]lobal case fatalities ranged 1.7%–39.0% in February to March of 2020 and fell below 0.3% in July to August 2022."[58] COVID-19 is no longer considered a large threat to human health, mostly because of access to vaccines.[59] Though, the WHO chief reports that "[t]he threat of another variant emerging that causes new surges of disease and death remains, and the threat of another pathogen emerging with even deadlier potential remains."[60] The world needs to move beyond mitigating pandemics by focusing on prevention.

COVID is a case study on how diseases can be created in conditions such as factory farms. When animals are held so close together, anything that is highly contagious and is transferred in similar or different ways than COVID will likely spread very quickly in a factory farm, not only from animals lowered immune systems but from keeping animals so close together that liquid particles are inevitable to spread disease. There is no social distancing for animals that are held in cages that they can not even turn around in, and they are unable sneeze into their elbows. COVID was likely created by the mistreatment of animals, and it is likely how the next pandemic will start.

45 USDA, Detections of Highly Pathogenic Avian Influenza in Wild Birds (June 4, 2024), https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/wild-birds.
Phoebe Weston, Avian Flu May Have Killed Millions of Birds Globally as Outbreak Ravages South America, The Guardian (July 22, 2023 06.00 EDT), https://www.theguardian.com/environment/2023/jul/22/avian-flu-may-have-killed-millions-of-bird-as-outbreak-hits-south-america-aoe.

46 USDA, Highly Pathogenic Avian Influenza (HPAI) Detections in Livestock (June 6, 2024), https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock.

47 Robin Foste & Dani Blum, Bird Flu Virus Found in Beef Tissue, N.Y. Times (May, 24, 2024), https://www.nytimes.com/2024/05/24/health/bird-flu-beef.html.

48 David Nield, Scientists Preparing Bird Flu Vaccines for Humans in Case of Pandemic, (June 7, 2024), https://www.sciencealert.com/scientists-preparing-bird-flu-vaccines-for-humans-in-case-of-pandemic.

49 Jelle J. Feddema, et al., Upscaling Vaccine Manufacturing Capacity - Key Bottlenecks and Lessons Learned, 41 Vaccine 3459 (June 3, 2023), 10.1016/j.vaccine.2023.05.027.

50 CDC, CDC Reports Second Human Case of H5 Bird Flu Tied to Dairy Cow Outbreak (May 22, 2024), https://www.cdc.gov/media/releases/2024/s0522-human-case-h5.html.

51 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 24 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

52 WHO, Coronavirus disease (COVID-19): How is it transmitted? (Dec. 23, 2021), https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-covid-19-how-is-it-transmitted

53 WHO, Coronavirus disease (COVID-19): How is it transmitted? (Dec. 23, 2021), https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-covid-19-how-is-it-transmitted

54 Id.

55 Id.

56 Id.

57 Id.

58 Nobuyuki Horita & Takeshi Fukumoto, Global Case Fatality Rate From COVID19 has Decreased by 96.8% During 2.5 Years of the Pandemic, Nat'l Lib of Med. (Jan. 2023).

59 Id.

60 UN, World Must Be Ready to Respond to Next Pandemic: WHO Chief (May 22, 2023), https://news.un.org/en/story/2023/05/1136912.

C. Why the Next Zoonotic Disease Will Likely Come from a Factory Farm

This section will focus on the three ways that factory farms spread disease. Having so many animals in such a small space is cost effective but also promotes and quickly spreads disease. Are these practices worth the low cost given their environmental effects and ability to create and spread illness? This section will first cover the unhealthy living conditions for animals on factory farms and how the resulting stress promotes disease. The second section will analyse how the overuse of antibiotics strengthens disease. The third section will cover how the mishandling of animal waste spreads disease. The design of factory farms result in the creation and spread of disease.[61]

i. Factory Farm Conditions Promote Disease in Animals

Factory farms create unnatural conditions for animals causing stress which consequently promotes disease.[62] Animals are fed an insufficient diet both in quantity and quality. For example, cows are fed on grains instead of eating their preferred diet of grass.[63] It is common for six-hundred-pound hogs to be raised in two-foot-wide metal cages,[64] and this constant stress of restrained movements and their inability to exhibit natural behaviours, makes the animals prone to disease by lowering their immune systems.[65] Most of the animals are also genetically modified in a way that compromises their health. For example, chickens are excessively inbred or are bred to grow so large that they are unable to walk.[66] Animals often have their offspring taken away from them causing mothers and their children considerable psychological damage as well as not providing the animals with the nutrients they need to be healthy.[67] By lowering animals immune systems, providing cramped unsanitary space, and then over medicating animals it causes Factory farms to become a teaming petri dish that is ripe to form the next pandemic.

Chickens also have a high disease transmission rate resulting from 71% of egg-producing hens being raised in battery cages.[68] "The dimensions of a single compartment in H-type cages typically range from 60-70 cm in length, 55-65 cm in width, and 40-45 cm in height."[69] A H-type cage holds about 9 chickens per compartment.[70] The chickens can barely stand and are unable to spread their wings,[71] and often birds are not able to eat at the same time. "If you're a low-ranking bird—low on the peck order—you tend to get pushed to the back during feeding and you can't get enough food. So often the lowest ranking bird in that cage gets sick and dies."[72]

This pecking order causes a breeding ground for new diseases such as the bird flu, by keeping sick and expired animals in the same cage as animals with lowered immune systems. If a bird contracts bird flu they will become lower on the pecking order and then not have the sustenance to try to fight the disease. Then once they are sick "[i]nfected birds can shed avian influenza A viruses in their saliva, nasal secretions, and feces," close proximity to alive or dead birds with bird flu, can easily infect other birds. [73] In 2022, 131 million farmed

61 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 24 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

62 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 24 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

63 Frederick D. Provenza, Scott L. Kronberg, & Pablo Gregorini, Is Grassfed Meat and Dairy Better for Human and Environmental Health?, Frontiers in Nutrition, 2 (2019).

64 Id.

65 Jonathan Anomaly, What's Wrong With Factory Farming?, 8 Oxford Press 245, 247 (Feb 2014).

66 Jessica Scott-Reid, The "Humanewashing" of America's Meat and Dairy, Explained, Vox (Dec. 12, 2021), https://www.vox.com/22838160/animal-welfare-labels-meat-dairy-eggs-humane-humanewashing.

67 Michael L. Power & Jay Schulkin, Maternal Regulation of Offspring Development in Mammals is an Ancient Adaptation Tied to Lactation, 1 Appl Transl Genom 55 (Dec 1, 2013), 10.1016/j.atg.2013.06.001.

68 Kenny Torrella, The Biggest Animal Welfare Success of the Past 6 Years, in One Chart, VOX (Mar. 23, 2021), https://www.vox.com/future-perfect/22331708/eggs-cages-chickens-hens-meat-poultry.

69 What is the size of a layer chicken cage?, LIVI (Dec. 12, 2023), https://www.poultry-farming.com/blog/what-is-the-size-of-a-layer-chicken-cage.html.

70 Id.

71 Jessica Scott-Reid, The "Humanewashing" of America's Meat and Dairy, Explained, Vox (Dec. 12, 2021), https://www.vox.com/22838160/animal-welfare-labels-meat-dairy-eggs-humane-humanewashing.

72 Id.

73 Avian Influenza in Birds: Causes and How It Spreads, CDC (May 3, 2024), https://www.cdc.gov/bird-flu/

chickens were killed from culling to prevent the spread of this disease.[74] The treatment of egg-laying hens is just one example of how low welfare for animals results in disease in humans.

ii. How the Widespread Use of Antibiotics and Growth Hormones Promote Disease in Humans

The use of antibiotics and growth hormones in factory farms develops and spreads disease. Factory farms are full of inhumane practices such as debeaking, tail docking, and other mutilations that cause constant pain and increases the likelihood of infections.[75] For example, "[i]n the UK, it was estimated that 90% of farmers remove tails, with use of rings most common (86%), followed by surgical (3%) and other methods (2%)," in order to prevent parasitic infection from flies and increase fertility.[76] This amputation is painful and is mostly performed with out anaesthesia or pain killers by farmers not veterinarians.[77] The procedures results in an open wound that are mostly not treated with either stitches or wound gel, causing an increased likelihood of infection.[78] The result of tail docking and other surgical procedures performed in this way causes stress and higher cortisol levels in the animals, there are often mistakes in procedures, and other negative outcomes such as tissue trauma.[79] Studies show that with out antibiotics "[a]lmost 82% of the studied lambs developed signs of wound infection after tail docking."[80] Factory farms in the US combat the infections caused by these procedures by giving all of their animals antibiotics.[81] Even in places such as the EU where preventative antibiotics are prohibited, if mega farms are using surgical practices with out preventing infection then the majority of the animals are likely to need antibiotics anyway.[82]

Antibiotics are used in factory farms to treat infections, prevent infections, and to promote the growth of animals.[83] If one animal contracts an infection, all of the animals are administered antibiotics, which is called a non-therapeutic use.[84] The non-therapeutic use of antibiotics includes preventative antibiotic use and antibiotics used to promote growth.[85] This practice results in bacteria developing resistance to antibiotics, which is then transferred to humans.[86] Antibiotic resistant bacteria can be spread to humans through food and contact with animals, then from person to person or through travel.[87] One example of the spread of an infection to humans is the antibiotic resistant staph infection.[88] According to the Centre for Disease Control (CDC), antibiotic-resistant infections killed five million people worldwide in 2019.[89] The WHO recommends ending all non-therapeutic use of antibiotics to prevent antibiotic resistance in humans.[90] It stated that "[i]f no action is taken today, by 2050, almost all current antibiotics will be ineffective in preventing and treating human disease, "...Scientific evidence clearly demonstrates that overuse of antibiotics in animals can contribute to

virus-transmission/avian-in-birds.html.

74 WHO, Ongoing Avian Influenza Outbreaks in Animal Pose Risk to Humans (Jul y12 2023), https://www.who.int/news/item/12-07-2023-ongoing-avian-influenza-outbreaks-in-animals-pose-risk-to-humans.

75 Kuenzel W.J., Neurobiological Basis of Sensory Perception: Welfare Implications of Beak Trimming, 86 Poultry Science 6, 1276-1277 (2007).

76 Luis Miguel Ferrer, et Al., Impact of a Topical Anaesthesia Wound Management Formulation on Pain, Inflammation and Reduction of Secondary Infections after Tail Docking in Lambs, Animals (Basel) (July 24, 2020), https://pmc.ncbi.nlm.nih.gov/articles/PMC7459688/.

77 Id.

78 Id.

79 Id.

80 Id.

81 Marvi Ali, Antibiotic Resistance and Ineffective Regulations for Factory Farming, 10 Wake Forest J. L. & Pol'y 87, 88 (2019).

82 Luis Miguel Ferrer, et Al., Impact of a Topical Anaesthesia Wound Management Formulation on Pain, Inflammation and Reduction of Secondary Infections after Tail Docking in Lambs, Animals (Basel) (July 24, 2020), https://pmc.ncbi.nlm.nih.gov/articles/PMC7459688/.

83 Id.

84 Id.

85 Id.

86 Marvi Ali, Antibiotic Resistance and Ineffective Regulations for Factory Farming, 10 Wake Forest J. L. & Pol'y 87, 88 (2019).
David L. Smith et al., Animal Antibiotic use has an Early But Important Impact on the Emergence of Antibiotic Resistance in Human Commensal Bacteria, 99 Proceedings of The Nat'l Acad. of Sci. 6434 (2002).

87 Antimicrobial Resistance: Causes and How It Spreads, CDC (Apr. 22, 2024), https://www.cdc.gov/antimicrobial-resistance/causes/index.html.

88 Id.

89 Center for Disease Control and Prevention, National Infection & Death Estimates for Antimicrobial Resistance (Dec 13, 2021), https://www.cdc.gov/drugresistance/national estimates.

90 WHO, Stop Using Antibiotics in Healthy Animals to Prevent the Spread of Antibiotic Resistance (Nov 7, 2017), https://www.who.int/news/item/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance.

the emergence of antibiotic resistance."[91]

Another practice that is prompting disease in farmed animals is the use of growth hormones. For example, the growth hormones recombinant bovine somatotropin (rBST) is used to increase milk production in cows.[92] RBST is a genetically engineered version of naturally occurring BST.[93] Injecting rBST into cows causes an increase in infection from mastitis, an udder infection, and infections of the injection sites.[94] Though many countries have banned the use of rBST it is still used in the US.[95] The use of antibiotics to fight these infections increases the amount of antibiotics in the milk sold to consumers.[96] RBST also reduces the lifespan of cows and has a 50% increased risk of clinical lameness.[97] Lameness is defined as a "painful condition that affects the locomotor system of cattle and has a detrimental effect on health, welfare, and productivity."[98] The growth hormone increases bad outcomes for humans while putting the cows through unnecessary suffering.

iii. How the Handling of Animal Waste Transfers Disease

One of the easiest ways that bacteria spreads from farmed animals to humans is through their waste. [99] Animals are left in small enclosures covered in their own filth, such as the case with Stanton.[100] There is an unimaginable amount of waste created by animals on factory farms each day. Two factory farms can produce as much waste as a medium-sized city.[101] This copious amount of waste is placed into football field-sized pits that the industry calls lagoons.[102] Christine Ball-Blakely provides a working definition for these 'lagoons,' defining them as "Lagoons are vast open-air cesspools filled with untreated manure, urine, and afterbirth. Some lagoons are as large as seven-and-a-half acres and hold 20 to 45 million gallons of waste."[103] When the lagoons overfill, the waste is then sprayed onto local fields implementing the lagoon and spray field system.[104] The USDAs regulations are minimal for building and maintaining anaerobic lagoons.[105]

The mixture that come from lagoons is often sprayed on residents' homes and neighbourhoods, causing large mental and physical health problems.[106] Communities around CAFOS are affected by lowered water, soil, and air quality, as well as poor environmental outcomes.[107] This results in lowering the economic value of land in the area.[108] It also causes poor health outcomes such as higher risk of mortality from cardiovascular disease, poor mental health outcomes, cancers, respiratory disease, lower immune function, and kidney disease. CAFOs are often located in disadvantaged communities.[109] These communities also include workers from the CAFOs that are exposed to traumatic conditions that result in increased levels of violence.[110]

91 WHO Guidelines on Use of Medically Important Antimicrobials in Food-Producing Animals, WHO (Nov. 2017), https://www.ncbi.nlm.nih.gov/books/NBK493702.
92 Joanna K. Sax, Biotechnology and Consumer Decision-Making, 47 Seton Hall L. Rev. 433 (2017).
93 Id.
94 Alexandre Lamas, et. al., Tracing Recombinant Bovine Somatotropin Ab (Use) Through Gene Expression in Blood, Hair Follicles, and Milk Somatic Cells: A Matrix Comparison, 23(7) Molecules 1708, 8 (2018).
95 Id.
96 David L. Smith et al., Animal Antibiotic use has an Early but Important Impact on The Emergence of Antibiotic Resistance in Human Commensal Bacteria, 99 Proceedings of The Nat'l Acad. of Sci. 6434 (2002).
97 Can J Vet Res, A Meta-Analysis Review of the Effects of Recombinant Bovine Somatotropin, Nat'l Lib of Med. (Oct 2003).
98 Gerard Cramer & Laura Solano, Overview of Lameness in Cattle, Merck Manually of Veterinary Medicine (Apr 2023), https://www.merckvetmanual.com/musculoskeletal-system/lameness-in-cattle/overview-of-lameness-in-cattle.
99 Courtney Lee, From Footnote to Forethought: Considering the Consequences of Large-Scale, Industrialized Animal Agriculture in Developing Nations, 25 U.C. Davis J. Int'l L. & Pol'y 101 (June 12, 2019).
100 Id.
101 Id.
102 Id.
103 Christine Ball-Blakely, Cafos: Plaguing North Carolina Communities of Color, 18 Sustainable Dev. L. & Pol'y 4. (2017).
104 Id.
105 Natural Resources Conservation Service Conservation Practice Standard Waste Treatment Lagoon Code 359, USDA (2017), https://www.nrcs.usda.gov/sites/default/files/202210/Waste_Treatment_Lagoon_359_CPS_Oct_2017.pdf.
106 Id.
107 Ji-Young Son, Marie Lynn Miranda & Michelle L Bell, Exposure to concentrated animal feeding operations (CAFOs) and risk of mortality in North Carolina, USA, Sci Total Environ. (Dec. 10, 2022), https://pmc.ncbi.nlm.nih.gov/articles/PMC8530906/.
108 Id.
109 Id.
110 Delcianna Winders & Elan Abrell, Slaughterhouse Workers, Animals, and the Environment: The Need for a Rights-Centered Regulatory Framework That Recognizes

Beyond the local level, spraying animal waste on fields increases infectious foodborne illnesses.[111] The fields sprayed are often used for crops grown for human consumption.[112] These illnesses are often strengthened by the constant use of antibiotics.[113] Some examples of foodborne illnesses attributed to animal products include Listeria, E. coli, Salmonella, and Clostridium.[114] While E. coli is common, many people do not appreciate how devastating it can be. A mother describes her ten-year-old daughter's experience with E. coli: "Her heart was so swollen it was like a sponge. It bled from every pore. The toxins shut down [her] liver and pancreas. Several times her skin turned black for weeks...She had a[n untreatable] brain swell... EEGs revealed thousands of grand mal seizures, which had caused blood clots in her eyes."[115] The mother continued, "[t]hen the neurologists told us she was essentially brain dead."[116] Though her daughter survived she was never the same.[117] Faeces infected with these illnesses are sprayed directly onto crops, and animal products are not always adequately sterilized, allowing disease to transfer strait to consumers.[118] Further, these illnesses can become antibiotic resistant resulting in even bigger damage to individuals and communities.[119] Most food born illnesses could be prevented by the proper treatment of animals and their waste.[120]

The abuse of animals in factory farms has resulted in the bird flu spreading and mutating to be more infectious in humans. Covid likely resulted from animals being similarly treated as animals held in factory farms, because farms are ideal for creating and spreading disease. The first reason is animals being held in densely populated conditions. The second is farms use of antibiotics and growth hormones. The third is the handling of animal waste. The misuse of animals in this way will create more diseases that will spread beyond animals to humans.

Megafarms and Consumerism

Megafarms, which have no formal definition, are called Concentrated Animal Feed Operations (CAFO's) in the US and are defined as industrial farms where a minimum of "1,000 animal units are confined for over 45 days a year."[121] Research performed by Our World in Data suggests that it is likely that most animals in the world killed for food live in factory farms.[122] It is estimated that 99% of farmed animals in the US live in factory farms, making it more likely that the US will be the next source of a major pandemic compared to other countries with less factory farms.[123] "A single facility can contain more than five million animals, a headcount greater than the human population of 27 of the 50 states."[124] These operations treat animals like commodities, packing individuals in as tightly as possible without any consideration of their wellbeing, this treatment causes stress in the animals and increases their likelihood of contracting disease.[125] The commod-

Interconnected Interests, 23 Harvard Human Rights Journal 2 (Nov. 2, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4777015.

111 Cheryl L. Leahy, Large-Scale Farmed Animal Abuse and Neglect: Law and its Enforcement, 4 J. Animal L. & Ethics 63 (May 2011).

112 Id.

113 David L. Smith et al., Animal Antibiotic use has an Early but Important Impact on the Emergence of Antibiotic Resistance in Human Commensal Bacteria, 99 Proceedings of The Nat'l Acad. of Sci. 6434 (2002).

114 USFDA, What You Need to Know About Foodborne Illnesses (Feb 2012), https://www.fda.gov/food/consumers/what-you-need-know-about-foodborne-illnesses.

115 Id.

116 Gail Eisnitz, Slaughterhouse: The Shocking Story of Greed, Neglect, and Inhumane Treatment Inside the U.S. Meat Industry, Prometheus Books, Ch.4. (Nov 2007).

117 Id.

118 Chunming Xu , et Al., Antibiotic-Resistant Escherichia coli from Farm Animal-Associated Sources, Antibiotics (Basel) (Nov. 2, 2022), https://pmc.ncbi.nlm.nih.gov/articles/PMC9686710/.

119 Id.

120 Cheryl L. Leahy, Large-Scale Farmed Animal Abuse and Neglect: Law and its Enforcement, 4 J. Animal L. & Ethics 63 (May 2011).

121 Malcolm Prior, More cattle kept in UK 'megafarms', BBC finds, BBC (Aug. 13, 2024), https://www.bbc.com/news/articles/cy4ldkpz1klo.
USDA, Nutrient Impacts on Water Quality Gain Public Policy Attention (2021), https://www.ers.usda.gov/webdocs/publications/42398/17778_aib771c_1_.pdf?v=0.

122 Hanna Richie, How many animals are factory-farmed?, Our World in Data (Nov. 2024), https://ourworldindata.org/how-many-animals-are-factory-farmed.

123 MeiMei Fox, The Humane League Works to Free Factory Farm Animals From Horrid Conditions, Forbes (Jan. 26, 2023), https://www.forbes.com/sites/meimeifox/2023/01/26/the-humane-league-works-to-free-factory-farm-animals-from-horrid-conditions/.

124 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 10 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

125 Margot J. Pollans, Eaters, Powerless by Design, 120 Mich. L. Rev. 643 (2022).

ification of animals has been caused by consumerism because the increased density was caused by the increased demand for animal products that in turn result in poor health outcomes for consumers.[126]

Especially in the US, companies that own CAFO's are not held accountable for the externalities of their operations.[127] These externalities include degradation of the environment, reduced air quality, water pollution, and deforestation.[128] This degradation is being funded by governments, especially the US.[129] For example, one in five dollars used for raising animals in factory farms comes from the government.[130] The companies are often publicly traded corporations meaning profit is the major driver for their treatment of animals.[131] If corporations choose to lessen animal suffering, it would help their profits because of the increased demand for humane products and could prevent the next pandemic.[132] Half of zoonotic diseases are estimated to have emerged from animal agriculture,[133] and that number will only grow if factory farms continue to grow and spread. Such a large, organised international industry needs global cooperation to prevent humane leakage in the form of a treaty or a globally binding UN Convention to prevent the next pandemic.

This section will focus on corporations and what guides their behaviours. The first part focuses on corporate social responsibility. The second part focuses on consumerism and what is furthering it including humane washing, Ag Gag Laws, and lack of access to animal-based alternatives. If corporations were held accountable for their actions for their treatment of the environment and animals, then it would open the market so consumers would have more access to plant-based alternatives.

A. Corporate Social Responsibility

Corporate Social responsibility (CSR) "is about the impact an organization makes on society, the environment and the economy."[134] Corporations have driven the increase in animal production causing negative outcomes for consumers, though prices are lower, poor health outcomes are higher. Food law "paralyz[es] consumers through information control."[135] The information that these corporations produce misleads the public about the health effects of eating animal products and encourages a much higher rate of consumption than is healthy for consumers.[136] The spread of misinformation results in poor health outcomes for individuals including diabetes, heart disease, cancer, and a plethora of other ailments.[137] Further as discussed below, intensive feed facilities hurt the environment by increasing the effects of climate change and other negative externalities.[138] There are plant-based alternatives to almost every product produced from animals.[139] The production of plant-based products should be prioritised because it is less resource intensive to eat a plant instead of an animal that consumes plants.[140] "[I]f we shift away from eating meat and dairy and move towards a plant-based diet then the sun's energy goes directly in to growing our

126 Carrie R Daniel, et Al., Trends in meat consumption in the United States, Public Health Nutr. (Apr. 1, 2011), https://pmc.ncbi.nlm.nih.gov/articles/PMC3045642/.
127 Kevin Kuruc & Jonathan McFadden, Monetizing the Externalities of Animal Agriculture: Insights from an Inclusive Welfare Function, Population Rsch. Center (2021).
128 Id.
129 David Gillette & Warren Barge, The True Cost of a Hamburger, Am. Ins. for Econ. Rsch. (Apr. 20, 20), https://www.aier.org/article/the-true-cost-of-a-hamburger/.
130 Id.
131 JBS S.A. ADR Stock Forecast, Stockinvest (Nov. 27, 2024), https://stockinvest.us/stock/JBSAY.
132 C Victor Spain, Are They Buying It? United States Consumers' Changing Attitudes toward More Humanely Raised Meat, Eggs, and Dairy, Animals (Basel) (July 25, 2018), https://pmc.ncbi.nlm.nih.gov/articles/PMC6116027/.
see also: Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 10 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.
133 Matthew N. Hayek, The Infectious Disease Trap of Animal Agriculture, National Library of Medicine (Nov. 2022).
134 Corporate Responsibility: an Introduction, CIPD (5, June 2024), https://www.cipd.org/uk/knowledge/fact-sheets/corporate-responsibility-factsheet
135 Margot J. Pollans, Eaters, Powerless by Design, 120 Mich. L. Rev. 643, 679 (2022).
136 Id.
137 Rashmi Sinha, et al., Meat Intake and Mortality: A Prospective Study of Over Half a Million People, 169 Arch Intern Med. 562 (2010).
138 Gowri Koneswaran & Danielle Nierenberg, Global Farm Animal Production and Global Warming: Impacting and Mitigating Climate Change, National Library of Medicine (Jan 2008).
139 Marcel Pointke & Elke Pawelzik, Plant-Based Alternative Products: Are They Healthy Alternatives? Micro- and Macronutrients and Nutritional Scoring, 14 Nutrients 601 (Jan 29, 2022), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8838485/.
140 Id.

food. And because that is so much more efficient we could still produce enough to feed us, but do so using just a quarter of the land."[141] Plant-based products also mitigate animal suffering and the spread of disease, while offering the same nutritional value as animal-based foods.[142]

A free market is defined as "an economic system in which prices and wages are determined by unrestricted competition between businesses, without government regulation or fear of monopolies."[143] A free market results in consumers being able to vote with their money for the practices they want to be used in the production of their products. In a simple model all consumers could show that they cared about animals by buying humane products. These purchasing practices could result in the humane treatment of animals becoming the industry standard.[144] Unfortunately, our system fails to allow consumers to vote with their dollars because of the lack of diverse humane or animal-free options.[145] This inability promotes the continued inhumane treatment of animals, which increases stress on animals and in result the spread of disease.

B. Consumerism

"Consumerism is the idea that increasing the consumption of goods and services purchased in the market is always a desirable goal."[146] Keeping animals at an increased density causes the price of animal products to decrease.[147] This price fall has fuelled a per capita increase in the amount of animals consumed coupled with a growing population.[148] Between 1961 and 2020 the rate of animal consumption per person doubled across the world.[149] This was only possible due to a shift from raising animals on family farms to factory farms. Factory farms are putting small farmers out of business reducing consumers' ability to purchase humane products.[150] "In recent years, industrial livestock production has grown at twice the rate of more traditional mixed farming systems and at more than six times the rate of production based on grazing."[151] This rate of consumption has led to "[t]he United Nations Food and Agriculture Organization estimate[ing] that about 80 billion" land animals are slaughtered each year for food.[152] " [W]e kill hundreds of millions of fish, 900,000 cows, 1.4 million goats, 1.7 million sheep, 3.8 million pigs, 11.8 million ducks, and more than 200 million chickens every day."[153] Consuming this many animals is the result of factory farms.[154]

The animal products industry is nonfunctioning in three main ways. The first is that labelling is not accurate, meaningful, or standardised in a way to be useful for consumers to make informed decisions.[155] The second reason, is that Ag Gag Laws prevent consumers from

141 David Attenborough: A Life On Our Planet, Netflix (2020). See also: Hanna Ritchie, If the world adopted a plant-based diet, we would reduce global agricultural land use from 4 to 1 billion hectares, Our World in Data (Mar. 4, 2021), https://ourworldindata.org/land-use-diets.

142 Philip J Tuso, et Al., Nutritional Update for Physicians: Plant-Based Diets, Perm J (2013), https://pmc.ncbi.nlm.nih.gov/articles/PMC7912826/.

143 Dictionary.com, Free Market, https://www.dictionary.com/browse/free-market (last visited May 30, 2024).

144 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.

145 Yuwares Malila, et Al., Current Challenges of Alternative Proteins as Future Foods, Nature (2024), https://www.nature.com/articles/s41538-024-00291-w.

146 Adam Hays, Consumerism: Definition, Economic Impact, Pros & Cons, Investopedia (July 14, 2024), https://www.investopedia.com/terms/c/consumerism.asp.

147 Id.

148 Id.

149 Our World in Data, Per Capita Meat Consumption by Type, 1961 to 2020, https://ourworldindata.org/grapher/per-capita-meat-consumption-by-type-kilograms-per-year?tab=table (last visited on Oct 24, 2023).

150 Chris McGreal, How America's Food Giants Swallowed the Family Farms, Guardian (Mar. 09, 2019), https://www.theguardian.com/environment/2019/mar/09/american-food-giants-swallow-the-family-farms-iowa.

151 Gowri Koneswaran & Danielle Nierenberg, Global Farm Animal Production and Global Warming: Impacting and Mitigating Climate Change, Nat'l Lib of Med. (Jan 2008).

152 Ezra Klein, We Will Look Back on This Age of Cruelty to Animals in Horror, N.Y. Times (Dec. 16, 2021), https://www.nytimes.com/2021/12/16/opinion/factory-farming-animals.html.

153 Max Roser, How Many Animals get Slaughtered Every Day?, Our World In Data (2023), https://ourworldindata.org/how-many-animals-get-slaughtered-every-day#article-citation.

154 Elise Pohl & Sang-Ryong Lee, Local and Global Public Health and Emissions from Concentrated Animal Feeding Operations in the USA: A Scoping Review, Int J Environ Res Public Health (July 13, 2024), https://pmc.ncbi.nlm.nih.gov/articles/PMC11276819/.

155 Jessica Scott-Reid, The "Humanewashing" of America's Meat and Dairy, Explained, Vox (Dec. 12, 2021), https://www.vox.com/22838160/animal-welfare-labels-meat-dairy-eggs-humane-humanewashing.

knowing where their food comes from.[156] The third reason, is the lack of alternatives to animal-based products and foods.[157] Often plant-based products are more expensive than animal based products.[158] The cost point can prohibit certain consumers from prioritising plant-based products.[159] Animal-based products are less expensive because of the government subsidisation of factory farms and the volume that they function at.[160] Most of the British public care deeply for the wellbeing of animals, which is why factory farms take such extreme measures to humane wash.[161]

i. Humane Washing

Companies promote the consumption of animals by masking the harsh truth of their treatment. Humane washing is "defined as the dissemination of false or deceptive information by companies to promote the perception that its products are animal-friendly, or as 'symbolic information emanating from within an organization without substantive actions.'"[162] Deceptively promoting happy animals is achieved in several ways, including advertising nice pictures of farms with cows on never-ending scenic pastures. These depictions do not match the reality of the cows restricted movement, faeces covered, unnatural, and unhealthy life.[163] "Because of the stress induced by these conditions, including the constant frustration of their natural instincts, many animals develop compromised immune systems, and without a steady course of antibiotics, many more would become sick and die of bacterial infections."[164] The boxes and cartons contain phrases such as "natural" or "humanely raised" that have been shown to boost sales, proving that consumers are trying to promote the welfare of animals.[165] These phrases are conveniently undefined by the USDA, so companies can use them without tying them to action or being subject to consequences for their use.[166]

The regulating legislation is the Animal Welfare Act, which excludes animals used for food, meaning they are not regulated by the USDA.[167] This lack of federal legislation leaves a patchwork of State legislation that fails to hold factory farms accountable because the regulations often only cover slaughter and the handling of animal products, not how animals are raised on farms.[168] When it comes to inspections "Most livestock production industries in the United States have developed and implemented science-based animal care guidelines."[169] These guidelines mean the industry is writing the standards and regulating themselves.[170]

Even when labels are considered accurate, they are often misleading. For example, when "cage free eggs" was introduced,[171] this label was placed on products featuring animals who were already cage free, resulting in no welfare gain for the animals.[172] Further, the animals may still be in crowded, dark, and unsanitary conditions but are just not technically in cages. For example, chickens bred for meat called broilers are often packed into large warehouses where they are not able

156 Caitlin A. Ceryes1 & Christopher D. Heaney, "Ag-Gag" Laws: Evolution, Resurgence, and Public Health Implications, 28 New Solut. 664 (May 1, 2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195182/.
157 Id. at 665.
158 Daniel Francisco Pais, António Cardoso Marques, & José Alberto Fuinhas, The Cost of Healthier and More Sustainable Food Choices: Do Plant-Based Consumers Spend More on Food?, 10 Agric Food Econ. 18 (2022.)
159 Id. at 21.
160 Indira Joshi, et al., Saving the Planet the Market for Sustainable Meat Alternatives, Sutarja Center (2015), https://scet.berkeley.edu/wp-content/uploads/CopyofFINALSavingThePlanetSustainableMeatAlternatives.pdf.
161 HSI Pre-election 2023 Poll, Focaldata (Aug. 2023), https://dashboard.focaldata.com/public/a1154b0d-f8f8-4378-8c21-a4c19ef770f9.
162 Saskia Stucki, (Certified) Humane Violence? Animal Welfare Labels, the Ambivalence of Humanizing the Inhumane, and What International Humanitarian Law Has to Do with It, Cambridge Uni. Press (Sep. 18, 2017), https://www.cambridge.org/core/journals/american-journal-of-international-law/article/certified-humane-violence-animal-welfare-labels-the-ambivalence-of-humanizing-the-inhumane-and-what-international-humanitarian-law-has-to-do-with-it/392364E807DAB7FFBCC8FC41F1502744.
163 Jessica Scott-Reid, The "Humanewashing" of America's Meat and Dairy, Explained, Vox (Dec. 12, 2021), https://www.vox.com/22838160/animal-welfare-labels-meat-dairy-eggs-humane-humanewashing.
164 Jonathan Anomaly, What's Wrong With Factory Farming?, Public Health Ethics (Feb. 7, 2014), https://pmc.ncbi.nlm.nih.gov/articles/PMC9757169/.
165 Id.
166 Id.
167 The Animal Welfare Act P. L. 89-544, 80 Stat. 350 , 7 USCS §§ 2131 nt., 2131 et seq. (1966).
168 Id.
169 Id.
170 Id.
171 Jonathan Anomaly, What's Wrong With Factory Farming?, Public Health Ethics (Feb. 7, 2014), https://pmc.ncbi.nlm.nih.gov/articles/PMC9757169/.
172 Id.

to see the light of day. They are not in cages but "[i]t is common for there to be less than one square foot allocated per individual bird at the final weight."[173] When consumers want to choose humane products the labelling is often intentionally confusing, resulting in consumers finding it difficult to choose which products follow through with their claims. Further, when companies perform humane practices, they often receive no benefit because the actions are lost in the sea of humane washed products.[174] Requiring consumers to be informed on misleading labels inequitably places the burden on them to research labels that should be regulated.

ii. Ag Gag Laws

In some states in the US, the animal agriculture industry has successfully illegalised informing consumers about the conditions of animals in factory farms in the form of Ag Gag Laws.[175] Ag Gag laws "intentionally limit public access to information about agricultural production practices, particularly livestock production."[176] These laws prosecute anyone who takes footage inside of a factory farm specifically showing the treatment of animals.[177] The laws also prosecute individuals who pose as a job applicant with "improper motives to commit a prohibited act."[178] These laws fail the market by prohibiting consumers from being able to choose which animal products to purchase based on how the animals are treated.[179] Ag Gag laws prohibit consumers from witnessing what inhumane and unhealthy practices they are promoting and where their food comes from.[180]

These laws are created by the animal agriculture industry and the American Legislative Exchange Council.[181] The council opposes any "unnecessary government imposed restrictions on agricultural businesses."[182] Given the minimum inspection of these facilities and lack of access to farms, the welfare of animals is left solely to the discretion of the agribusiness.[183] In addition to failing animal protections, these laws promote poor mental and physical health outcomes for workers, consumers, and surrounding communities.[184]

iii. Access to Animal Product Alternatives

Even when consumers can identify humanely made products there can still be barriers to their access.[185] Christopher Bryant provides that the "primary drivers of food choice are price, taste, healthiness, and convenience"[186] There are many false narratives that promote these issues including that animal products are healthy or that vegan food is not tasty.[187] Even when a consumer is ready to eat more plant-based foods, local stores and restaurants often avoid providing adequate options.[188] If these misconceptions were dispelled and equitable access to humane products was given to consumers, we might see a large shift in the market.[189]

The homogenization of the food system makes it hard for new products to be introduced and to find permanent spaces on shelves. Margot Pollans provides that "[u]niformity across the food system, which is increasingly a global phenomenon, serves to sterilize diverse food

173 Dennis Brothers, New Farmer's Guide to the Commercial Broiler Industry: Poultry Husbandry & Biosecurity Basics, Alabama Uni. Ext. (Oct. 20, 2022), https://www.aces.edu/blog/topics/farm-management/new-farmers-guide-to-the-commercial-broiler-industry-poultry-husbandry-biosecurity-basics/.
174 Margot J. Pollans, Eaters, Powerless by Design, 120 Mich. L. Rev. 643, 649 (2022).
175 Caitlin A. Ceryes1 & Christopher D. Heaney, "Ag-Gag" Laws: Evolution, Resurgence, and Public Health Implications, 28 New Solut. 664 (May 1, 2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195182/.
176 Id.
177 Id.
178 Id.
179 Id.
180 Id. at 665.
181 Id.
182 Caitlin A. Ceryes1 & Christopher D. Heaney, "Ag-Gag" Laws: Evolution, Resurgence, and Public Health Implications, 28 New Solut. 664 (May 1, 2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195182/.
183 Id.
184 Id.
185 Rui Pedro Fonseca1 & Ruben Sanchez-Sabate, Consumers' Attitudes Towards Animal Suffering: A Systematic Review on Awareness, Willingness and Dietary Change, 19 Int J Environ Res Public Health 16372 (2022).
186 Christopher Bryant, Plant-based animal product alternatives are healthier and more environmentally sustainable than animal products, 6 Future Foods 100174 (Dec. 2022), https://www.sciencedirect.com/science/article/pii/S2666833522000612.
187 Id.
188 Id. at 100184.
189 Victor Spain, et. Al., Are They Buying It? United States Consumers' Changing Attitudes toward More Humanely Raised Meat, Eggs, and Dairy, Animals (Basel) (July 25, 2018), https://pmc.ncbi.nlm.nih.gov/articles/PMC6116027/.

cultures, suppress creative expression that falls outside narrowly defined food norms, and homogenize the experience of food consumption."[190] In this case, the market uniformity is using inhumane animal products in most products causing inelasticity and waste in the system.[191] Even to eat a plant-based meal on an international flight on most airlines you have to specifically order it beforehand.[192] This is caused by the "consolidation of food production and distribution."[193] The top down control of food systems causes homogenization that prohibits the market from moving forward, for instance with more humane products. The shift to plant-based diets could help prevent the next pandemic by lowering the demand for animal products, which would improve animal welfare.[194] This shift will likely not occur without global cooperation requiring industries to make these products available.

C. The Feedback Loop of Human Consumption of Animals, Climate Change, and Zoonotic Disease

Climate change contributes to zoonotic disease in several ways. The first is that rising temperatures increase the spread of disease by creating more hospitable areas for certain vector species such as mosquitoes.[195] The second is that rising temperatures and loss of ecosystems cause more frequent interactions between wild animals and humans, increasing the spread of disease.[196] Finally, increased temperatures and ecosystem loss cause individuals to expand their habitat and vary their diet.[197] This broader consumption of foods and increased animal encounters results in a larger exposure to disease.

The creation and spread of zoonotic disease is made exponentially worse by climate change, which results in the urgency to reduce the use of mega farms. Beyond the conditions of factory farms, the use of animals as products greatly contributes to climate change in three main ways. The first is that animals such as cows are large emitters of methane.[198] "A single cow produces between 154 to 264 pounds of methane gas per year. Not counting for the emissions of any other livestock, 1.5 billion cattle, raised specifically for meat production worldwide, emit at least 231 billion pounds of methane into the atmosphere each year."[199] Estimates show that methane has about 20 to 100 times the climate warming effect compared to CO2.[200]

The resource intensiveness of factory farms is the second reason that animal agriculture contributes to global warming. The resources used for factory farms include enormous amounts of energy; processing of the animals waste, land use for the animals and their feed, but also the resources used for the production of food to feed the animals.[201] "According to the [Food and Agriculture Organization] FAO's estimates, CO2 emissions from farm animal processing total several tens of millions of metric tons per year," this equates to about 12% - 16% of all global greenhouse gas emissions.[202] Finally, natural spaces are being depleted for agriculture. More land is cleared to

190 Margot J. Pollans, Eaters, Powerless by Design, 120 Mich. L. Rev. 643, 657 (2022).
191 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 10 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.
192 Delta, Special Meals, https://www.united.com/en/us/fly/travel/inflight/special-meals.html (last visited on June 7, 2024).
193 Margot J. Pollans, Eaters, Powerless by Design, 120 Mich. L. Rev. 643, 658 (2022).
194 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.
195 Bob Jordan, How does Climate Change Affect Disease, Stanford Earth Matters Mag. (Mar 15, 2019), https://earth.stanford.edu/news/how-does-climate-change-affect-disease.
196 Bob Jordan, Stanford Researchers Show How Forest Loss Leads to Spread of Disease, Stanford News (Apr 8, 2020), https://news.stanford.edu/2020/04/08/understanding-spread-disease-animals-humans.
197 Id.
198 Environmental Protection Agency, Agriculture and Aquaculture: Food for Thought (Oct. 2020), https://www.epa.gov/snep/agriculture-and-aquaculture-food-thought.
199 Id.
200 Andrew Moseman, Why do We Compare Methane to Carbon Dioxide Over a 100-year Timeframe? Are we Underrating the Importance of Methane Emissions?, MIT (July 6, 2023), https://climate.mit.edu/ask-mit/why-do-we-compare-methane-carbon-dioxide-over-100-year-timeframe-are-we-underrating.
201 Id.
202 Id.
see also: Dominik Wisser, et Al., Pathways towards lower emissions A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems, FAO (2023).

raise cows than for any other purpose.[203] The use of animals for food is unsustainable at the current rate of consumption.

Biodiversity loss also contributes to global warming by causing the ecosystems to become less resilient.[204] Further, "[l]oss of biodiversity can exacerbate the risk of pathogen spillover."[205] The less diverse the sources of food the more likely that animals are feeding from the same places, causing the increased likelihood of the spread of disease.[206] Plants used to feed farmed animals could be grown in a sustainable way to feed people directly, while lowering land use and the need for encroachment on natural lands, which would prevent the creation and spread of zoonotic disease.[207]

The rise in animal consumption fuels deforestation and ecosystem loss, which converts land that draws down emissions into high-emitting land uses. Often, animal agricultural land comes from burned forests which further releases carbon dioxide and hurts biodiversity. The increase in animal consumption requires more food to be produced to feed the animals, while the rising temperatures make it more challenging and resource-intensive to produce their food. For example, potable water has started to be a diminishing resource with the drying up of aquifers.[208] One of the main problems with animal agriculture is the disproportionately high amount of water it takes to produce animal products. To produce "vegetables [they] had a footprint of about 322 liters per kg, and fruits drank up 962, meat was far more thirsty: chicken came in at 4,325l/kg, pork at 5,988l/kg, sheep/goat meat at 8,763l/kg, and beef at a stupendous 15,415l/kg."[209] The increased temperatures caused by factory farm emissions is ideal for the spread of disease.[210] This feedback loop increases the ways and likelihood that zoonotic diseases are spread.

Companies are fuelling the rise in meat consumption. Consumerism is furthering the commodification of animals through several techniques. One is to make consumers feel good about their purchases by humane washed advertising and therefore distracting from their practices. Ag Gag laws are enacted to prevent consumers' awareness of the treatment of animals. Finally, by creating an industry based on animal products that is so homogenous that it prevents alternatives or changes in the market. These practices then worsen global warming causing poor corporate responsibility and consumerism to result in exponential damage to the environment and animals. To counter such a coordinated effort on this scale, the world must ratify a treaty promoting standards that will reduce animal consumption and promote the wellbeing of animals, resulting in better outcomes for consumers.

Global Problems Like Zoonotic Disease Need Global Solutions

Anna Peters in Studies in Global Animal Law provides that "Global animal law refers to the sum of legal rules and principles (both State made and non-State made) governing the interaction between humans and other animals, on a domestic, local, regional, and international level."[211] Global animal law is more than statutes and treaties; it also consists of food labels, codes of conduct, and industry norms.[212] Just as there is diversity in what constitutes global animal law the same diversity exists in who can make it, including governments, businesses, organisations, and citizens by engaging with their local representatives.

203 Matthew N. Hayek, The Infectious Disease Trap of Animal Agriculture, National Library of Medicine (Nov 2022).
204 Pennsylvania State University, Biodiversity and Ecosystem Resilience, https://www.e-education.psu.edu/geog30/node/398 (last visited Oct 24, 2023).
205 Bryony Jones, et. al., Zoonosis Emergence Linked to Agricultural Intensification and Environmental Change, Nat'l Lib of Med. (May 2013).
206 Id.
207 Cara Buckley, Save the Planet, Put Down that Hamburger, N.Y. Times (Sep. 15, 2023), https://www.nytimes.com/2023/07/21/climate/diet-vegan-meat-emissions.htmls.
208 Michel Doreau, Michael Corson, & Stephen Wiedemann, Water Use By Livestock: A Global Perspective For a Regional Issue?, 2 (2) Animal Frontiers 9-16 (Apr. 1 2012), https://doi.org/10.2527/af.2012-0036.
209 Bibi van der Zee, What is the True Cost of Eating Meat?, The Guardian (May 18, 2018), https://www.theguardian.com/news/2018/may/07/true-cost-of-eating-meat-environment-health-animal-welfare.
210 Xinbo Lian, et Al., Heat waves accelerate the spread of infectious diseases, Environ Res. (May 18, 2023), https://pmc.ncbi.nlm.nih.gov/articles/PMC10191724/.
211 Anna Peters, Introduction, Studies in Global Animal Law, 1 (Anna Peters, ed., 2020).
212 Id. at 1-2.

In a global environment, it is not enough for one country to make a change.

Global Animal Law furthers states that the "animal-processing industry (for food and pharmaceuticals) is a global industry and thrives on global trade. Even if one country attempts to improve welfare standards, for example for the caging of livestock, for slaughter, or for animal experiments, it cannot do so unilaterally if it wants to be effective."[213] When one country raises its welfare standards the company will likely move operations to a country that has lower welfare standards, which is called leakage. [214] Countries are unable to control the laws outside of their boarders, the result is that there is no global welfare gain.[215]

An example of why it is important to have a global treaty is the leakage that is the result of the prohibition on horses being slaughtered in the US.[216] Instead, of slaughtering horses in the US they are raised in the US and then shipped to either Mexico or Canada to be slaughtered.[217] Animals do not benefit from the new standards and now have to endure long journeys, often without food or water. Further, more disease is spread as "[r]ecent research shows that segments of DNA conferring drug resistance can jump between different species and strains of bacteria with disturbing ease, an alarming discovery. By simply driving behind chicken transport trucks, scientists collected drug-resistant microbes from the air within their cars."[218] Zoonotic diseases are just or more likely to be formed and spread with the transfer of the animals.

There are few treaties that address the wellbeing of animals on an international scale. One is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) currently prevents international wildlife trade of endangered species and has some provisions concerning the wellbeing of transported animals.[219] "Article III, para-graph 2(c) and Article IV, paragraph 2(c) states the requirements for granting an export permit of live wildlife protected by the treaty: '[T]he State of export is satisfied that any living specimen will be so prepared and shipped as to minimise the risk of injury, damage to health or cruel treatment.'"[220] CITES only regulates the trade of listed species and the welfare gain only applies to the shipment of live animals.[221]

There are several ways that States can work together to prevent zoonotic diseases. The first part of this section will look at international law in general and the approaches taken. The second part of this section looks at the World Organization for Animal Health. The third section will look at the Proposed UN Convention on Animal Health, and Protection. The fourth section will look at the proposed Convention on Animal Protection (CAP). The fifth section will analyse the World Health Organization's proposed treaty to prevent zoonotic disease. If the world works together to improve animal wellbeing it will also improve the chances of preventing the next pandemic.

A. International Law and the Proposed Treaties that Include Animal Protection Provisions

An international treaty would likely help protect animals and could prevent the next pandemic.[222] The first step is for countries to negotiate and ratify a treaty with an implementation plan. To create a treaty that would have benefits for animals and prevent disease a one health approach is needed. A one health approach consists of "[m]ultisectoral and transdisciplinary actions should recognize the interconnection between people, animals, plants and their shared environment, for which a coherent, integrated and unifying

213 Id. at 5.
214 Id.
215 Id.
216 Cyril Roy & Michael Cockram, Patterns and Durations of Journeys by Horses Transported From the USA to Canada for Slaughter, 56 Can Vet J. 581 (2015).
217 Id.
218 Melinda Wenner Moyer, How Drug-Resistant Bacteria Travel from the Farm to Your Table, Sci. Am. (Dec. 1, 2016), https://www.scientificamerican.com/article/how-drug-resistant-bacteria-travel-from-the-farm-to-your-table/.
219 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 6, 1973, 27 UST 1087, TIAS No. 8249, 993 UNTS 243. (1963).
220 Id. see also:
David S. Favre, An International Treaty for Animal Welfare, Michigan State Uni. College of Law (2012).
221 Id.
222 Ann Linder, et. Al., Animal Markets and Zoonotic Disease in the United States, New York University, 10 (2023), https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf.

approach should be strengthened and applied."[223] Though not stated in CAP the proposed treaty, CAP, UNCAHP, and the WHO take a holistic approach.

In 2023, there was a Quadripartite call to action for One Health for a safer world. The international organisations involved included The Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme (UNEP), World Health Organization (WHO), and World Organisation for Animal Health (WOAH). They came together to "Prioritize One Health in the international political agenda."[224] There must be a move beyond these provisions to promote animal welfare. This approach requires that when designing animal welfare provisions for treaties, the environment and humans must also be considered.[225]

There has been a history of international animal policy, which CAP, WHO, and the proposed convention can build on. In 1978, UNESCO proclaimed the Universal Declaration of Animal Rights.[226] This proclamation sounds progressive but, "[d]eclarations may be public statements about something, but they do not bind States to actually do or stop doing anything."[227] Next in 2003, the proposed intergovernmental agreement Universal Declaration of Animal Welfare has yet to be adopted.[228] In 2022, United Nations Environment Assembly of the United Nations Environment Programme adopted the Resolution called the Animal welfare–environment–sustainable development nexus.[229] The Resolution commissioned a findings on the "nexus between animal welfare, the environment and sustainable development, identifying key partners and stakeholders to consult."[230] Though, a binding international treaty to prevent the next pandemic through improved animal welfare has not been adopted.

D. World Organization for Animal Health

The intergovernmental organization called the World Organization for Animal Health was established in 1924 from the International Agreement for the creation of an Office International des Epizooties Treaty.[231] Twenty-eight States ratified the treaty at the time and now there are 183 members,[232] "the Organisation and its Members coordinate the global response to animal health emergencies, the prevention of zoonotic diseases, the promotion of animal health and welfare, and better access to animal health care."[233] The treaty has eight articles that lay out how the organization works and how the treaty will be ratified.[234]

WOAH works on many of the issues discussed above. The first is that they are coordinating the response to the avian flu.[235] WOAH also stresses the responsible use of antibiotics to prevent antimicrobial resistance.[236] One piece of advice for farmers is to "Follow good farming and/or husbandry practices to avoid stress in your terrestrial and aquatic animals, which lower their natural defences."[237] The treaty emphasises both disease prevention and improved animal welfare. Though, WOAH's strategic plan only mentions disease

223 World Health Organization Convention, Agreement or Other International Instrument on Pandemic Prevention, Preparedness and Response, art. 5 [hereinafter WHO].
224 Quadripartite call to action for One Health for a safer world, the Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme (UNEP), World Health Organization (WHO) and World Organisation for Animal Health (WOAH) (2023), https://www.unep.org/news-and-stories/statements/quadripartite-call-action-one-health-safer-world.
225 Ioannis Tsagkarliotis & Nikolaos Rachaniotis, A holistic approach in epidemics, 11 Front Public Health 1263293 (Nov. 13, 2023), 10.3389/fpubh.2023.1263293.
226 Universal Declaration of Animal Rights, UNESCO (1978), https://constitutii.wordpress.com/wp-content/uploads/2016/06/file-id-607.pdf.
227 David S. Favre, An International Treaty for Animal Welfare, Michigan State Uni. College of Law (2012).
228 Universal Declaration on Animal Welfare, World Society for the Protection of Animals (2003), https://europarregina.eu/wp-content/uploads/2023/05/udaw-universal-declaration-on-animal-welfare-wspa.pdf.
229 United Nations Environment Assembly of the United Nations Environment Programme, Fifth session, Resolution adopted by the United Nations Environment Assembly on 2 March 2022 (2022).
230 Id.
231 International Agreement for the creation of an Office International des Epizooties IEA 2602 (2024).
232 Id.
see also: Who we are, WOAH, https://www.woah.org/en/who-we-are/.
233 International Agreement for the creation of an Office International des Epizooties IEA 2602 (2024).
234 Id.
235 Infection with high pathogenicity avian influenza viruses, Terrestrial Animal Health Code, Article 10.4.1. (2024).
236 Antimicrobial resistance, WOAH, https://www.woah.org/en/what-we-do/global-initiatives/antimicrobial-resistance/#you-are-a-farmer-or-aquatic-animal-producer.
237 Id.

prevention once and it was in reference to trade.[238] The lack of prevention measures being implemented by WOAH leaves a large gap in international regulations in addressing disease prevention.

E. A Proposed UN Convention on Animal Health, and Protection

The UN Convention on Animal Health and Protection (UNCAHP) was first proposed in 2018.[239] The Convention states the "purpose of this Convention is to protect animals, their welfare and their health."[240] The convention emphasises a one health approach,[241] and the goal of the convention is to have enough ratified member States to implement the treaty by 2029.[242] The American Bar Association called for a global animal law treaty and mentioned UNCAHP in its resolution in 2021.[243] If the proposed treaty is adopted it could result in positive outcomes for animal wellbeing and health and in consequence lower the spread of disease.

Some of the guiding principles are implementing the three Rs and the Five Freedoms. The three R's are defined as "reduction in numbers of animals, refinement of experimental methods and replacement of animals with non-animal techniques."[244] For farmed animals this provision could help improve animal outcomes by reducing the number of animals consumed.[245] This reduction can be achieved from either higher consumption of plant based products or replacing animals with lab grown animal products.[246] This concept is combined with the five freedoms which consist of animals "freedom from hunger, thirst and malnutrition; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from pain, injury and disease; and freedom to express normal patterns of behavior."[247] If these standards were adopted it would require more space per animals and more expenditure on animal welfare resulting in the animal products industry becoming unprofitable.[248] This lower density of animals would likely drive up costs and reduce consumption of animals.[249] The treaty also emphasises ending cruelty toward animals, though given the state of animal welfare internationally it is likely to be more symbolic than practical.[250] Though zoonotic disease prevention is not the goal of the treaty if it were passed it would likely be the outcome because any improvement in animal welfare will reduce the conditions that are most likely to cause disease.

F. The Second Draft of the Convention on Animal Protection BIS DA

There is currently no international animal treaty that focuses on both the welfare of animals and the prevention of disease. The International Coalition for Animal Protection released the second draft of the CAP in November 2022.[251] CAP gained traction because of its focus on preventing the next pandemic through promoting animal wellbeing.[252] Though, no State has ratified the treaty or signaled their intention to do so, making it unlikely that the treaty will be implemented.[253] The proposed treaty even specifically prevents the non-therapeutic use of antibiotics in domestic animals.[254] The subsection of the provisions includes the

238 OIE Seventh Strategic Plan for the period 2021–2025, WOAH, 88 SG/14 (2021).
239 UN Convention On Animal Health and Protection (UNCAHP), The Global Animal Law Gal Association (2018).
240 Id. at Objective.
241 Id. at Preamble.
242 UNCAHP Timeframe, UNCAHP, https://www.uncahp.org/ (last visited on Dec. 22, 2024).
243 International Law Section Tort Trial And Insurance Practice Section, American Bar Association, Resolution 101 C (Feb. 22, 2021), https://www.americanbar.org/content/dam/aba/administrative/news/2021/02/midyear-resolutions/101c.pdf
244 Id. at Art. 2.
245 Christopher Bryant, et Al., A review of policy levers to reduce meat production and consumption
Author links open overlay panel, 203 Appetite 107684 (Dec. 2024), https://www.sciencedirect.com/science/article/abs/pii/S0195666324004872.
246 Id.
Joanna Thompson, Lab-Grown Meat Approved for Sale: What You Need to Know, Sci. Am. (Jun. 30, 2023), https://www.scientificamerican.com/article/lab-grown-meat-approved-for-sale-what-you-need-to-know.
247 UN Convention On Animal Health and Protection (UNCAHP), The Global Animal Law Gal Association, Art. 2 (2018).
248 Christopher Bryant, et Al., A review of policy levers to reduce meat production and consumption
Author links open overlay panel, 203 Appetite 107684 (Dec. 2024), https://www.sciencedirect.com/science/article/abs/pii/S0195666324004872.
249 Id.
250 Id. at Art. 4.
251 CAP, supra note 28, at art. 2.
252 Id.
253
254 CAP, supra note 28, at art. 6.

creation and support of veterinarian services, the capacity to monitor animals' wellbeing, and requiring countries to develop guidelines for the improved treatment of animals.[255] Another provision provides for the regulation of the supply chain of animals, investment in pandemic prevention, and the encouragement of sharing information.[256] This section will propose possible new provisions, though this will likely not improve the chances of passing the treaty.[257] These specific provisions would help prevent the next pandemic if implemented by improving health outcomes for animals that would prevent the creation and spillover of diseases.

i. CAP's Trade Provisions and Consumerism

CAP Article 8 features three main provisions that regulate trade and trade agreements. The first provision addresses the wellbeing of live animals and animals used for animal products, including transportation and trade.[258] As discussed earlier, it is important to address animal transportation and trade since it drives the spread of infectious diseases.[259] The Article also addresses living standards and proposes that the "Contracting Party shall encourage that State to adopt standards that meet or exceed the obligations set out in this Convention."[260] Some of these standards include lowering transportation times, preventing overcrowding of animals, and promoting animals' ability to be in the natural environment. If in a third version stronger language is used, then this provision could provide nation-states an outlet to prevent the importation of animals that have lower living standards than they are providing. Either way, it will at least set a floor for important issues.

The second provision provides that animals are to be considered in international trade agreements by ensuring that the treaties do not lower the living conditions of animals, which could gradually raise the floor of animal welfare standards. Given that the transfer of disease between farms is heightened with travel this could improve zoonotic disease outcomes. The final provision states that "[n]o Contracting Party shall weaken or reduce its levels of protection for animal wellbeing as an encouragement for trade or investment."[261] This provision might help prevent companies from moving animal production to countries that hold lower animal welfare standards, helping prevent the spread of disease.[262] This section of the treaty could include improving the rights of States to set animal welfare import standards. These standards could create the first race to the top by States being able to prevent products with lower welfare standards from entering their market.

ii. The Protocols Provision and Suggested Protocols

The protocols provision is the part of the treaty that holds the greatest promise for raising animal welfare standards. The creation of protocols could be the most efficient way to pass an overarching treaty and subsequently create stricter standards. An "Optional Protocol to a Treaty is an instrument that establishes additional rights and obligations [and is] . . . subject to independent ratification. Such protocols enable . . . a framework of obligations which reach further than the general treaty and to which not all parties of the general treaty consent."[263] This provision means that any State can independently sign the protocols on top of signing the treaty.

States signing protocols create a 'two-tier system' where States that sign the CAP treaty would then have the option to sign the protocols.[264] An example of a protocol could be living standards for farmed animals. The protocol could include the size of their living spaces, the ability to socialise with other animals, and the prevention of inhumane farming practices. Though it seems this is a little outside of the proposal of the treaty, this is counteracted by

255 Id.
256 CAP, supra note 28, at art. 8.
257 Rajesh K Reddy & Joan Schaffner, The Convention on Animal Protection: The Missing Link in a One Health Global Strategy for Pandemic Prevention, Global Journal of Animal Law (Aug. 02, 2022), https://ojs.abo.fi/ojs/index.php/gjal/article/view/1755.
258 CAP, supra note 28, at art. 8.
259 Eric M. Fèvre, et al., Animal Movements and the Spread of Infectious Diseases, Nat'l Lib of Med. (Feb 7, 2006).
260 CAP, supra note 28, at art. 8.
261 Id.
262 Anna Peters, Introduction, Studies in Global Animal Law, 5 (Anna Peters, ed., 2020).
263 UN, Definitions, https://treaties.un.org/Pages/overview.aspx?path=overview/definition/ (last visited on Oct 24 2023).
264 CAP, supra note 28.

a provision that reads "Protocols are not limited by the provisions herein and may cover any topic concerning the wellbeing or protection of animals."[265] Protocols could also include enforcement provisions that would improve compliance of the Protocols.

The protocols could provide a third-party standard that countries and organisations could leverage to prohibit the import or funding of the mistreatment of animals, and subsequently decrease the likelihood of the spread of disease. These protocols would hopefully have a race-to-the-top effect by requiring companies to meet these new welfare standards to stay competitive. For example, countries could restrict the import of animal products produced in facilities that failed to meet the country's animal welfare standards. Further, because it was conducted under a treaty it would be the most recent treaty meaning that it would supersede GATT.[266] Finally, the protocols could be standards that citizens could petition their countries to join, and companies could independently follow to support consumers' wishes. An international standard could improve the treatment of animals that governments, organisations, companies, or citizens can point to as a high standard.

iii. Proposed Articles to the Treaty

While the proposed treaties would make a significant impact on animal welfare, there are opportunities to go further to strengthen protections for animal wellbeing. The first is an enforcement provision that would hold countries accountable for non-compliance for both the setting and meeting of wellbeing standards, the mechanism to encourage compliance would be trade restrictions.[267] The second is a provision that prevents governments from subsidising factory farms, similar to the Agreement on Fishing Subsidies.[268] The third is an education provision that would require countries to put aside money to educate companies, employees, and children on the proper treatment of animals, such as outlined in UNCAHP.[269] The fourth is a prohibition on laws that silence how animals are treated such as ag gag laws, or laws that violate whistle blower protection as outlined by the UN.[270] The fifth is the required preference for non-animal-based options to be prioritised over animal-based options, as outlined in the Reduce, Reuse, and Replace provision provided in the Proposed Universal Declaration on Animal Welfare.[271] The final is a provision that prevents the creation of new factory farms, as outlined in the Plant Based Treaty.[272] All of these provisions would aim to increase the wellbeing of animals and subsequently to prevent the spread of disease, but would make it harder for the treaty to pass.

G. The World Health Organization's Convention, Agreement, or Other International Instrument on Pandemic Prevention

The second proposed treaty to help prevent the next pandemic is WHO's treaty called Bureau's text of the WHO convention, agreement or other international instrument on pandemic prevention, preparedness and response.[273] The WHO's proposed treaty is one of the first international treaties to include pandemic prevention and the most likely to be implemented.[274] The proposed treaty is the first

265 CAP, supra note 28, at art. 21.

266 Vienna Convention, supra n. 10, at pt. III, art. 30 "(stating that when all of the parties to one treaty are also parties to a subsequent treaty, the original treaty only applies to the extent that its provisions are compatible with those of the later treaty)." David S. Favre, An International Treaty for Animal Welfare, Michigan State Uni. College of Law (2012).

267 Steven J. Hoffman, et Al., International treaties have mostly failed to produce their intended effects, PNAS (Aug. 1 2022), https://doi.org/10.1073/pnas.2122854119.

268 Agreement On Fisheries Subsidies Ministerial Decision of 17 June 2022, Ministerial Conference Twelfth Session Geneva, 12-15 June 2022: "Ministerial Conference should adopt an agreement on comprehensive and effective disciplines that prohibits certain forms of fisheries subsidies that contribute to overcapacity and overfishing, and eliminates subsidies that contribute to IUU-fishing recognizing that appropriate and effective special and differential treatment for developing country Members and least developed country Members should be an integral part of these negotiations."

269 UN Convention On Animal Health and Protection (UNCAHP), The Global Animal Law Gal Association (2018).

270 Protection against retaliation for reporting misconduct and for cooperating with duly authorized audits or investigations, UN (Nov. 28, 2017), https://documents.un.org/doc/undoc/gen/n17/422/34/pdf/n1742234.pdf.

271 Universal Declaration on Animal Welfare, World Society for the Protection of Animals (2003), https://europaregina.eu/wp-content/uploads/2023/05/udaw-universal-declaration-on-animal-welfare-wspa.pdf.

272 Proposed Plant Based Treaty as a companion to the UNFCCC Paris Agreement, The Plant Based Treaty (2024): "No building of new animal farms."

273 WHO, supra note 28.

274 WHO welcomes historic commitment by world leaders for greater collaboration, governance and invest-

WHO treaty to consider the treatment of animals. The deadline to pass the treaty was in June of 2024, this deadline was unfortunately not met.[275] Though, the deadline passed the States continued to negotiate and reset the deadline for the next meeting in 2025.[276] Countries continued commitment to negotiating hopefully signals that an agreement will be achieved.

This section will discuss the proposed treaty, the first provision discussed is the prevention plan and surveillance provisions. The second provision analysed will be the provisions that mention farmed animals, and the third provision scrutinised will be the provision concerning the nontherapeutic use of antibiotics. The fourth will opine on the education provision, and finally, suggested provisions will be mentioned. Pandemic prevention will be futile without meaningfully including the wellbeing of animals because prevention through improved animal welfare standards is the best way to slow the spread of zoonotic diseases.[277]

i. Prevention Plan and Surveillance

The prevention plan reads, "Each Party shall develop, strengthen, implement, periodically update and review comprehensive multisectoral national infection prevention and control measures, plans and programmes, including those addressing zoonotic diseases and pathogens."[278] Given that the plan specifically includes zoonotic disease prevention, if properly implemented, it would improve animal wellbeing.[279] The prevention plan will require nation states to actively consider the consequences of their actions against animals and mitigate them.[280] Requiring States to consider their treatment of animals may have one of the largest effects on improving animal welfare. A step beyond this is the surveillance provision, which will make it possible to monitor the implementation of the plans. It reads, "Each Party shall develop, strengthen and maintain the capacity to carry out integrated surveillance."[281] Hopefully this will lead to more transparency of the handling of animals while creating State peer pressure to treat animals better.

ii. Farm Specific Provision

The proposed treaty specifically mentions improving the treatment of farmed animals. It presented a non-extensive list that included "measures concerning farms, the transport of animals, live animal markets, trade in wild animals and veterinary practices for both food-producing and companion animals, taking into account the relevant international standards."[282] This statement could be strengthened if it included the definition of animals. These broad statements include failing to define live animal markets, farms, trade in wild animals, and food-producing and companion animals. Though this provision remains important it might be difficult for States to follow or enforce these provisions if these definitions are undefined and accompanying standards are not set.

The WHO treaty lists some provisions to improve the health and wellbeing of animals. For example, it states that the measures to prevent disease include "water and feed hygiene, infection prevention and control measures, farm sanitation, hygiene and biosecurity, and animal welfare support measures."[283] The vagueness of these provisions could be improved by defining the measures for disease prevention in farms. For example, providing requirements on the minimum space for each animal, nutritional standards, and ensuring animals can exhibit natural behaviours that reduce stress.

ment to prevent, prepare for and respond to future pandemics, WHO (Sep. 20, 2023), https://www.who.int/news/item/20-09-2023-who-welcomes-historic-commitment-by-world-leaders-for-greater-collaboration--governance-and-investment-to-prevent--prepare-for-and-respond-to-future-pandemics.

275 Pandemic prevention, preparedness and response accord, WHO (June 10, 2024), https://www.who.int/news-room/questions-and-answers/item/pandemic-prevention--preparedness-and-response-accord.

276 Id.

277 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.

278 WHO, supra note 28, at art. 4.

279 Miriam L. Shiferaw et. Al, Frameworks for Preventing, Detecting, and Controlling Zoonotic Diseases, Nat'l Lib of Med. (Dec 23, 2017).

280 WHO, supra note 28, at art. 4.

281 Id. at art. 5.

282 Id. at art. 4.

283 WHO, supra note 28, at art. 5.

iii. Antimicrobial Stewardship

The provisions addressing antimicrobial stewardship include equitable provisions and provisions about animals. The equitable provision states that it "increases investment in, and promotes equitable and affordable access to, new medicines, diagnostic tools, vaccines and other interventions."[284] This provision would help prevent the need for antibiotics, another provision focuses on the use of antibiotics in farmed animals. It states that the treaty "strengthens infection prevention and control in health care settings and sanitation and biosecurity in livestock farms, and provides technical support to developing countries."[285] This once again includes an equity provision by providing technical support to lower-income countries. Europe has banned the general use of antibiotics for animals used for food.[286] This is a stance the WHO already strongly supports.[287] It could be spelled out better in the treaty, especially given humans and animals' inability to fight antibiotic resistant infections.

iv. Education

A key component of a One Health approach is education on disease prevention.[288] The education provision of the treaty reads that States will "promote or establish One Health joint training and continuing education programs for human, animal and environmental health workforces, particularly for the veterinary and environmental services needed to prevent spillover events."[289] Though education is key to prevention, this provision could be strengthened if it included humane handling. It could also be broadened to include elementary and secondary education for humane education programs, which teaches children empathy toward animals, environmental stewardship, and social justice.[290] The best way to prevent the next pandemic is to train people in prevention through the humane treatment of animals.

v. Proposed Provisions

There are two proposed provisions that would improve the treaty's ability to prevent disease. The first is the prevention of future factory farms. As the number of factory farms spreads across the globe so does their propensity to spread disease. The treaty would not only prevent new countries from starting these practices it would slowly phase them out around the world. Another missing provision is an enforcement provision, there may not be any actual disease prevention measures implemented because there is no inherent accountability. The treaty would make great strides to improve the prevention of zoonotic disease.

There is a need for pandemic prevention through improving the wellbeing of animals. WOAH works on the aftermath of a pandemic that affects animals but fails to have provisions to prevent a pandemic. UNCAHP would improve the wellbeing of animals, but does not specifically address zoonotic disease and has not been adopted. If adopted CAP would hopefully improve animal welfare while addressing zoonotic disease prevention. Finally, Adoption of the WHO's proposed treaty would hopefully result in better outcomes for animals and zoonotic disease prevention. All of the treaties and proposals look at different aspects of zoonotic disease prevention and could work together harmoniously.

Conclusion

Humans, the environment, and animals are intrinsically linked, resulting in the need for treaties with a one health approach to prevent the

284 WHO, supra note 28, at art. 4.
285 Id.
286 Id.
See also: European Parliament and the Council of the European Union, Regulation (EU) 2019/4 of the European Parliament and of the Council of 11 December 2018 on the manufacture, placing on the market and use of medicated feed, amending Regulation (EC) No 183/2005 of the European Parliament and of the Council and repealing Council Directive 90/167/EEC, J of the EU (2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX-:32019R0004&from=EN.
287 World Health Organization, Who Guidelines On Use of Medically Important Antimicrobials in Food-Producing Animals (2017), https://www.who.int/news/item/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance.
288 Center for Disease Control and Prevention, One Health Basics (2023), https://www.cdc.gov/onehealth/basics/index.html.
289 WHO, supra note 1, at art. 4.
290 Heart, What is Humane Education, https://teachheart.org/(last visited on Dec. 20, 2023).

next pandemic. The international food system cannot be improved on an individual consumer basis. In the US even when consumers work to be informed it is not possible due to humane washing, Ag Gag Laws, and limited access to products that do not contain animals.[291] The prevention of the next pandemic will only be accomplished with the world moving away from factory farming and the disease causing practices that are being implemented.[292] This prevention includes giving animals more space to move and play to improve their immune systems by lowering their stress levels. Factory farms should already end the non-therapeutic use of antibiotics and the mishandling of animal waste. Ending the use of factory farms for disease prevention would only be possible if it was accomplished internationally through a treaty. Preferably all the WOAH, UNCAHP, CAP and the WHO proposed treaty would be implemented because they cover different aspects of animal wellbeing, which would result in disease prevention.[293] This change must occur before the mistreatment of animals results in the mass suffering of humanity.

If the world wants to move beyond creating walls memorialising loved ones lost to pandemics, then the stories of animals such as Stanton must first be addressed. Only when the most vulnerable members of our communities, including calves like Stanton, are taken care of will the spread of the next disease be prevented, and all members of our society be safe.

291 C Victor Spain, Are They Buying It? United States Consumers' Changing Attitudes toward More Humanely Raised Meat, Eggs, and Dairy, Animals (Basel) (July 25, 2018), https://pmc.ncbi.nlm.nih.gov/articles/PMC6116027/.

292 Jay P Graham, et. Al., The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment, Public Health Rep (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2289982.

293 CAP, supra note 28. See also: WHO, supra note 28.