

THESIS

WHY WE SHOULD TALK ABOUT ANIMALS WHEN WE TALK ABOUT ANTIBIOTICS

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## ABSTRACT

### WHY WE SHOULD TALK ABOUT ANIMALS WHEN WE TALK ABOUT ANTIBIOTICS

Antibiotic use in livestock has been accused of playing a major role in the emerging public health crisis of antibiotic resistance in human beings. While antibiotics are important medical tools that help to fight bacterial infections, informed scientific opinion suggests that if farmers continue to use them sub-therapeutically in animal feeds, they will pose a grave threat to human health.

While this is an important issue, and one that has been taken up by many, what is also noteworthy, and what I take to be an important issue, are the ways in which the sub-therapeutic use of antibiotics in animal feeds poses a grave threat to *animal health* as well. Dr. Bernard Rollin, bioethicist and distinguished professor of philosophy, animal sciences, and biomedical sciences at Colorado State University brings to our awareness that antibiotics are one of the most influential technological tools that have enabled us to crowd large amounts of animals in very small spaces for profit at the expense of their welfare. Therefore, I object to the non-therapeutic use of antibiotics not only because it affects human health, but insofar as it also promotes or makes possible farming practices that significantly harm animals.

In what follows, I wish to identify and bring to awareness how the non-therapeutic use of antibiotics is necessary for the maintenance of the larger practice of industrial farming (i.e., factory farming). Further, if we give up such antibiotic use, not only might we see improvements in human health issues with regard to antibiotic resistance, but, we might well see better animal husbandry, welfare, and thus a more morally defensible agriculture.

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## CHAPTER 1

### Introduction

Antibiotic use in livestock has been accused of playing a major role in the emerging public health crisis of antibiotic resistance in human beings. By the term antibiotic, I will be using it the common sense understanding of the word, namely, as a drug used to combat bacteria. While antibiotics are important medical tools that help to fight bacterial infections, informed scientific opinion suggests that if farmers continue to use them sub-therapeutically in animal feeds, they will pose a grave threat to human health. For decades, the U.S. meat industry has fed medically active antibiotics to chickens, pigs, and cattle to accelerate their weight gain and prevent disease in the stressful and unhygienic conditions that typify industrialized animal agriculture production facilities.<sup>1</sup> A strong scientific consensus exists, asserting that this practice fosters antibiotic resistance in bacteria to the detriment of human health.<sup>2</sup> While this is an important issue, and one that has been taken up by many, what is also noteworthy, and what I take to be an important issue, are the ways in which the sub-therapeutic use of antibiotics in animal feeds poses a grave threat to *animal health* as well. Dr. Bernard Rollin, bioethicist and distinguished professor of philosophy, animal sciences, and biomedical sciences at Colorado State University brings to our awareness that antibiotics are one of the most influential technological tools that have enabled us to factory farm animals, by crowding large amounts of

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<sup>1</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 1.

<sup>2</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 1.

animals in very small spaces for profit at the expense of their welfare.<sup>3</sup> Factory farming is already fundamentally harmful to animals in many ways. Broiler chickens, egg-laying chickens and hogs are typically crammed by the hundreds or even thousands into windowless sheds, or stuffed into wire cages and metal crates. They typically have no access to the outdoors and never see sunlight. Beef cattle and dairy cows may spend some time outside, but they are confined to dirty and overcrowded feedlots and have no access to grass or pasture. For all animals subject to factory farming, they will never do anything that is natural or important to them. Because of this, they all undergo severe physical and mental distress. Sub- and non-therapeutic application of antibiotics have been used as “technological sanders” (along with bacterins, hormones, air-handling systems, and others) to compensate for poor animal care and lack of proper husbandry, cleanliness, air exchange, and stress control. In addition, they have also been used to promote unnatural growth, which brings to the forefront another entire class of animal health issues. Therefore, if we give up such antibiotic use, not only might we see improvements in human health issues with regard to antibiotic resistance, but we might well see better husbandry, better welfare, and thus a more morally defensible agriculture and resume a decent standard of animal care.<sup>4</sup>

In what follows, I wish to identify and bring to awareness how the non-therapeutic use of antibiotics is one sub-practice that is necessary for the maintenance of the larger practice of industrial farming (i.e., factory farming) and does not have any independent value aside from enabling harmful farming practices. I object to the use of antibiotics, not only because it affects

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<sup>3</sup> Bernard Rollin, *Ethics, Science, and Antimicrobial Resistance*, 34.

<sup>4</sup> Bernard Rollin, *Ethics, Science, and Antimicrobial Resistance*, 34.

human health, but because it also promotes or makes possible farming practices that significantly harm animals. My argument is as follows: Factory farming as it is currently practiced is harmful to animals, and this gives us a reason to change factory farming. The sub-, or non-therapeutic use of antibiotics is one practice that is necessary for the preservation of current forms of factory farming. One way to change farming practices in ways that lead to reduced harm to animals is to stop the sub- or non-therapeutic use of antibiotics, because they make unhealthy living conditions possible and have no independent value aside from doing so. Therefore, we have reason to stop the sub-, or non-therapeutic use of antibiotics. Furthermore, I hope to show why it is important that we take animal welfare seriously when we talk about the issues surrounding antibiotic use, and why we should care at all about animal welfare in the first place. It should be noted that the elimination of antibiotics for non-therapeutic use in food animals is not to solve all the welfare issues that animals undergo in intensive agricultural systems. A wide variety of mechanisms constitute the apparatus of factory farming that contribute to the unnecessary suffering of animals used to produce human food. Animal suffering may very well continue even without the comfort blanket that the antibiotic provides farmers. What I anticipate to argue for is that the restriction of antibiotics in the way I have so described *may* be *one* way to improve animal welfare, and that this gives us a reason to stop using them, especially if we are to care about animal welfare.

First, I attempt to offer an informative background on what antimicrobials are and the role that they play in medicine. I present the major issues concerning their overuse in relation to human health that are already highly publicized in the medical community. I then proceed to show how antimicrobial overuse also affects animal health in ways that should be taken seriously

as an issue of major concern. In doing so, I look at the trajectory in the history of animal agriculture from traditional husbandry practices to modern intensive industrialized practices and the specific mechanisms that have allowed such practices to develop and thrive. I aim to specifically target antibiotic misuse as one of the main contributors to the sustainability of an unsustainable animal agricultural system that makes possible the morally objectionable treatment of animals in ways that threaten animal welfare. Next, I will give an account as to why we should care about animal welfare at all in ways that are morally significant. This will help to illuminate, and support, why I suggest (and why some others suggest) that the sub-, or non-therapeutic use of antibiotics in animal agriculture should be prohibited. I will then, identify various organic farms in the United States as well as look at farms in other countries that have prohibited such misuse of antibiotics in livestock, and, assess the relationship between the implementation of a policy like this and its effect on animal welfare. Finally, I attend to various objections to the conclusion that I provide about the prohibition of sub-, or non-therapeutic use of antimicrobials in animal agriculture. These include questions such as what should farmers do when animals actually get sick? Should they not be treated? What about genetic or dietary approaches that minimize illness among animals made to live in cramped environments? And, what would a policy like this then cost to the farmers? To the consumers? I attempt to answer all of these concerns and then end the discussion by looking at how a prohibition policy, such as the one I advocate for, can be implemented.

## What are Antimicrobials?

Microorganisms, or microbes, are living microscopic organisms such as bacteria (e.g., *Staphylococcus aureus*, which causes some staph infections), fungi (e.g., *Candida albicans*, which cause some yeast infections) parasites (e.g., *Plasmodium falciparum*, which causes malaria),<sup>5</sup> molds (fungi), protozoa, algae, and rickettsia, that make up more than 60% of the earth's living matter. They are all around us, in the air, in our bodies, and the water. Microbes are usually fast-growing, spread rapidly, and while most are beneficial and necessary (otherwise known as commensal<sup>6</sup> bacteria), some may be pathogenic and cause disease within the human body, like staphylococcus aureus. In which case, antimicrobials may be needed to intervene.<sup>7</sup> Antimicrobial agents are specific drugs, medicines, chemicals (like disinfectants), or other substances that are used to either kill or inhibit the growth of microorganisms, targeted at pathogenic ones. Among the many types of antimicrobials is the antibiotic,<sup>8</sup> which is a drug specifically used to combat or prevent bacterial infections in humans and animals. Penicillin, derived from the mold Penicillium, was discovered in 1928 by Alexander Fleming, and was identified as the first chemical compound with antibiotic properties, and was among the first antibiotics used by doctors to treat bacterial infections. Antibiotics<sup>9</sup> have been an important medical tool used to treat infections or illnesses caused by bacteria in humans such as syphilis,

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<sup>5</sup> National Institute of Allergy and Infectious Disease, <https://www.niaid.nih.gov/topics/antimicrobialresistance/understanding/Pages/definitions.aspx>.

<sup>6</sup> Commensal bacteria are friendly bacteria that are part of the normal microflora on and inside the human body.

<sup>7</sup> The majority of microbes are in fact harmless and some can exist in the body without causing harm.

<sup>8</sup> Also known as an antibacterial.

<sup>9</sup> Types of antibiotics include penicillins, cephalosporins, aminoglycosides, tetracyclines, macrolides, and fluoroquinolones.

pneumonia, tuberculosis, and some forms of meningitis. They revolutionized medicine in the 20<sup>th</sup> century having led to the near eradication of diseases such as tuberculosis in the developed world. Antibiotics are not effective against viruses or viral infections such as the common cold or influenza. With the advent of World War II in 1942, they became widely developed and commonly used to fight against streptococcus (strep throat), staphylococcus, Chlamydia, and more.

In the United States, antimicrobials are also regularly used to treat infections or illnesses in food-producing animals. Food animals are especially susceptible to opportunistic microbes (usually benign or commensal but can cause disease given the right circumstances), such as bacteria, and thus are often exposed to antimicrobials, such as the antibiotic, to treat and prevent infectious bacterial disease and/or to promote growth and improve feed efficiency. Many of these antimicrobials are identical to or closely resemble drugs used in humans.<sup>10</sup> Typically, the antibiotic is distributed to the animals by supplementing them into livestock feed, as it is more efficient to mass medicate entire groups as opposed to individual treatment.

Unfortunately, there is no reliable data on the *precise* figures for the quantity of antimicrobials used in food animals or humans available publicly, but various groups have reported estimates on the figures.

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<sup>10</sup> Scott A. McEwen' and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 593.

Antimicrobials may be used in any of three ways: therapeutically, or sub-therapeutically, which includes non-therapeutic and/or prophylactic use. The Union of Concerned Scientists (UCS) estimates that approximately 70% of antimicrobials used in the United States are used *non-therapeutically*<sup>11</sup> in industrial farm animal production (cattle, swine, and poultry), including many antibiotics such as penicillin and tetracycline that are used to treat human infections.<sup>12</sup> The Pew Commission on Industrialized Farm Animal Production (PCIFAP) defines non-therapeutic as any use of antimicrobials in food animals in the absence of microbial disease or known (documented) microbial disease exposure; thus, any use of the drug as an additive for growth promotion, feed efficiency, weight gain, routine disease prevention in the absence of documented exposure, or other routine purpose is considered non-therapeutic.<sup>13</sup> The non-therapeutic use of antimicrobials can be contrasted with the *therapeutic* use of antimicrobials, which the Pew Commission defines as: the use of antimicrobials in food animals with diagnosed microbial disease and the *prophylactic* use of antimicrobials, which the Pew Commission defines as: the use of antimicrobials in healthy animals in advance of an expected exposure to an infectious agent or after such an exposure but before onset of laboratory confirmed clinical disease as determined by a licensed professional.<sup>14</sup>

In February 2000, according to a survey of the members of the Animal Health Institute, 17.8 million pounds of antimicrobials were used in animal production in 1998—14.7 million

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<sup>11</sup> i.e., for growth promoting use.

<sup>12</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 46.

<sup>13</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 48.

<sup>14</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 49.

pounds (83%) for prevention and treatment of disease, and 3.1million pounds (17%) for growth promotion. More recently, a report from the Union of Concerned Scientists (UCS) estimated that about 50 million courses of treatment, or about 3 million pounds, are administered to humans annually; it also estimated that an additional 1.5 million pounds of antimicrobials are used in topical creams, soaps, and disinfectants, contributing to a total of 4.5 million pounds being used annually in humans. The report further estimated that 27.5 million pounds of antimicrobials are used for non-therapeutic purposes (growth promotion and disease prophylaxis), and another 2 million pounds are used for therapeutic purposes in animals.<sup>15</sup>

Discrepancies among estimates are unfortunate, and accurate values are certainly important to understand and evaluate the extent of microbial use in human beings and animals. But there is general consensus towards the fact that a very large sum of antimicrobials are used in food production animals, and are used so non-therapeutically, either as growth promoters or disease prophylaxis.

### **What is the concern about antimicrobial use?**

The mass use of antimicrobials in this way is a major topic of controversy and concern as there is now an increased awareness of antimicrobial resistant bacteria in human beings. Stuart B. Levy, distinguished professor of molecular biology and microbiology and of medicine at Tufts University school of medicine remarks on the paradoxical nature of human engagement

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<sup>15</sup> Scott A. McEwen' and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 597.

with antibiotics when he says, “On the one hand, these miraculous drugs are pillars of modern medicine, helping us to manage and prevent dangerous bacterial infections and save lives. On the other hand, the widespread use, and misuse, of antibiotic drugs has spawned the evolution of life-threatening bacteria that render our current antibiotics useless.”<sup>16</sup> Antimicrobial resistance is the ability of microbes, such as bacteria, to grow and continue to multiply in the presence of an administered antimicrobial, such as an antibiotic, that would normally kill or limit their growth.<sup>17</sup> When bacteria are exposed to a subclinical amount of microbials, they learn to “outsmart” the drug and become resistant. This resistant bacteria can then multiply and pass genetic material to other unrelated bacteria, making the other bacteria resistant as well. Antimicrobial resistance is a public health issue and the costs associated with resistance are multiple, as resistance makes it harder to eliminate infections from the human body, making treatment options more limited. The loss of cheaper, older agents for effective therapy and the need to acquire more expensive ones are easily recognized costs. In addition, inadequate or failed treatment of patients leading to morbidity and mortality is a huge human cost.<sup>18</sup>

One of the potential contributors to this concern is the overuse of antibiotics in human medicine. This includes the over-prescription of antibiotics by doctors that are frequently prescribed to patients in order to treat symptoms or diseases that do not respond to antibiotics (i.e., viruses), or are likely to resolve without treatment.

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<sup>16</sup> Stuart B. Levy, Before the Subcommittee on Health of the U.S. House Committee on Energy and Commerce (Tufts University School of Medicine, July 14, 2010).

<sup>17</sup> National Institute of Allergy and Infectious Disease, <https://www.niaid.nih.gov/topics/antimicrobialresistance/understanding/Pages/definitions.aspx>.

<sup>18</sup> P.M. Hawkey, *The Growing Burden of Antimicrobial Resistance*, i2.

Many scientists believe that feeding antibiotics to livestock encourages this resistance to antibiotic agents in important human pathogens as well.<sup>19</sup> The recent control of microbial usage for growth promotion and mass treatment in the European Union (EU) has resulted in reductions in resistance rates, suggesting that a significant selective effect is associated with agricultural usage.<sup>20</sup> This is mainly due to the purported overuse and misuse of antimicrobials in food production animals for non-therapeutic purposes, of which these animals are then regularly consumed for food by humans. For instance, penicillin is a commonly used antibiotic in animals as well as humans. Levy's research<sup>21</sup> on the effects of introducing antibiotic-laced feed on farms concluded to show that especially low-dose non-therapeutic amounts of antibiotics can, in fact, select for, and help propagate, bacteria resistant to the drug at high levels.<sup>22</sup> Therefore, the improper overuse of penicillin can lead to even higher levels of consumer exposure to that strain. In animals, antimicrobial resistance in zoonotic enteropathogens (e.g., Salmonella, Campylobacter, Klebsiella, and some strains of *E. coli*, such as serotype O157:H7) and commensals (e.g., enterococci, most generic *E. coli*) is of special concern to human health

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<sup>19</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 8.

<sup>20</sup> P.M. Hawkey, *The Growing Burden of Antimicrobial Resistance*, i2.

<sup>21</sup> "In 1975-76, my research group performed the first, and I believe only, prospective study of the effect of introducing antibiotic-laced feed on a farm. We established a family farm about 40 miles West of Boston. We introduced chickens, hatching from eggs laid from pathogen-free hens, and separated them into two groups of 150 chickens each. One group received low dose antibiotic-laced feed (oxytetracycline (100g/909kg)), and one did not. By one week, almost all *E. coli* in the intestinal tracts of the antibiotic-treated chickens were tetracycline-resistant. As time continued on this single low-dose antibiotic, the bacteria in the feces of the chickens began to acquire more and more resistances. By 3 months, the chickens were excreting *E. coli* resistant not only to tetracycline, but also to sulfonamides, ampicillin, streptomycin and carbenacillin." Stuart B. Levy, Before the Subcommittee on Health of the U.S. House Committee on Energy and Commerce (Tufts University School of Medicine, July 14, 2010).

<sup>22</sup> Stuart B. Levy, Before the Subcommittee on Health of the U.S. House Committee on Energy and Commerce (Tufts University School of Medicine, July 14, 2010).

because these bacteria are most likely to be transferred through the food chain to humans, or resistance genes in commensal bacteria may be transferred to the zoonotic enteropathogens. There is considerable evidence that antimicrobial use in animals selects for resistance in commensals and in zoonotic enteropathogens.<sup>23</sup> Currently, foodborne pathogens developing the greatest antimicrobial resistance include *Salmonella* and *Campylobacter*.<sup>24</sup> Antibiotics and antibiotic-resistant bacteria can also be found in the air, groundwater, and soil around farms.<sup>25</sup> Thus, not only can people be exposed to these pathogens through infected meat, but people can be exposed to these pathogens through vegetables fertilized with raw manure, and water supplies contaminated by farm animal waste, i.e., listeria.

The specific concerns with development of antimicrobial resistance in foodborne pathogens can be summed up as follows: 1) resistant pathogens contaminating food animals have the potential to be transferred to products derived from the same and consumed by humans; 2) human use of antibiotics increases the risk of acquiring an infection with an antimicrobial-resistant pathogen; 3) human infection by an antimicrobial-resistant pathogen limits treatment options; and 4) antimicrobial-resistant pathogens may develop increased virulence.<sup>26</sup> The Center for Disease Control and Prevention claims that every year in the United States, at least 2 million people become infected with bacteria that are resistant to antibiotics and at least 23,000 people

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<sup>23</sup> Scott A. McEwen' and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 599.

<sup>24</sup> D. Stopforth, John N. Sofos, Steve L. Taylor, and Joseph L. Baumert, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 214.

<sup>25</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 2.

<sup>26</sup> D. Stopforth, John N. Sofos, Steve L. Taylor, and Joseph L. Baumert, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 213.

die each year as a direct result of these infections. The association between antimicrobials used in food production animals and emerging human antimicrobial resistance is a pressing subject matter, and much of the concern about the issue is directed towards the negative health effects it has on human beings.

The issue is a very complex one and thus no simple solutions can be given to solve the problem. One major recommendation, advocated for by the Pew Commission, is to restrict the use of antimicrobials in food animal production to reduce the risk of antimicrobial resistance to medically important antibiotics. More specifically, phase out and ban the use of antimicrobials for non-therapeutic (i.e., growth-promoting) use in food animals,<sup>27</sup> so that there isn't the problem of overuse and high exposure to human beings in food. Other various interest groups have also created strong pressures to preserve the effectiveness of hard-to-replace antibiotics by reducing uses that they consider non-essential, whether that be in food animals, or eliminating practices such as the widespread supply of prescriptions to consumers who may have viral or other illnesses not likely to benefit from antibiotic restrictions.<sup>28</sup> The premise of these regulations on food safety will hopefully work towards the minimization of antibiotic-resistant foodborne pathogens in animals and thus decrease the risk of human beings.

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<sup>27</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 47.

<sup>28</sup> Louis Anthony Cox, Jr., *Quantitative Health Risk Analysis Methods: Modeling the Human Impacts of Antibiotics Used in Food Animals*, 6.

## What about animal health in relation to antimicrobials?

While food safety issues with respect to human health, such as bacterial resistant infections, are undoubtedly an important concern that should be addressed when talking about antimicrobials in agriculture, the ways in which the overuse of antimicrobials in food animals affects the health of the animals *themselves* is also an important concern. Supplementing animal feeds with antibiotics do not only pose a threat to the welfare of human beings, but also pose a threat to the welfare of the animals who are administered such additives. If this is the case, then there is even more reason and incentive to restrict the use of antimicrobials for non-therapeutic purposes, specifically in food animals. The impact antimicrobials have on food animals is another aspect of the issue that rarely receives adequate attention, if any attention at all. If the overuse and misuse of antimicrobials negatively affects animal welfare, then it is not only a human health issue but also an animal health issue, an issue that should be taken seriously with respect to the animals that are affected.

Animal welfare is based on the state of biological needs of the animal and aims to provide all livestock with conditions of life that are harmonized with their nature.<sup>29</sup> I will examine more fully what animal welfare means and why we ought to respect it later on in this discussion. The overuse of antimicrobials in animal agriculture negatively affects the welfare of food animals as it allows us to, in Bernard Rollins' words, "force square pegs into round holes and round pegs into square holes, and to place animals into environments where they suffer."<sup>30</sup>

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<sup>29</sup> D. Stopforth, John N. Sofos, Steve L. Taylor, and Joseph L. Baumert, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 216.

<sup>30</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 332.

In other words, non-therapeutic mass use of antimicrobials in animal feeds allows farmers to confine food animals in unhealthy environments that do not cater to the animal's nature or biological needs. Further, these questionable animal confinement practices would not even be possible if it were not for the use of antimicrobials. The success of technological agriculture, or the application of industrial methods to the production of animals,<sup>31</sup> is partly indebted to the utilization of “technological sanders,” such as antibiotics, that are used to compensate for the unhealthy conditions animals are kept. They are especially helpful to prevent “wildfire” spread of disease in crowded conditions with vast concentrations of animals. “If a nineteenth-century agriculturalist had, for example, tried to raise a hundred thousand egg-laying hens in cages in one building, they all would have died of disease in a month; today, however, such systems dominate animal agriculture.”<sup>32</sup> Thus, this type of animal agriculture that is practiced in Western industrialized countries such as the United States “is responsible for far more animal suffering than all other uses of animals combined.”<sup>33</sup>

To reiterate, overuse of antimicrobials poses a threat to human health. The way in which it does so is already a popular and widely discussed issue as I have previously fleshed out. The overuse of antimicrobials also poses a threat to farm animal health. The ways in which it does so are, mistakenly, not a widely discussed issue. Non-therapeutic use of antimicrobials such as the antibiotic (either as a growth promoter or as a prophylactic to compensate for unhealthy living conditions) is one sub-practice that is, today, necessary for the maintenance of the larger practice of *intensive* industrial farming (i.e., animal agriculture production practices that keep large

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<sup>31</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 332.

<sup>32</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 332.

<sup>33</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 329.

numbers of the same species of animal in closely confined quarters indoors). Insofar as this practice promotes or makes possible farming practices that significantly harm animal welfare, and has no other value, the practice is objectionable, and therefore, gives us good reason to stop the practice or considerably regulate it. Thus, not only should the non-therapeutic use of antimicrobials in animal agricultural be restricted because of the major costs it presents to human health, it should be restricted because of the major costs it presents to animal health and welfare

### **History of animal agriculture**

Traditional animal agriculture in the United States, specifically before the 1940s, was significantly different from the ways in which animal agriculture is practiced today. Before the 1940s, a third of all families lived on farms, and small family-owned businesses produced most of America's meat, milk, and eggs. Comparatively, farmers kept a relatively small amount of livestock at a time. For instance, a swine producer might have had ten pigs on his farm at once and it was not uncommon for most farmers to personally know each pig and cow they raised.<sup>34</sup> In 1910, 88 percent of all farmers kept chickens, with an average flock of around eighty.<sup>35</sup> Slaughterhouses were also comparatively small in operation. To get a grasp of how small these food-producing operations were, Neil Carbrey (a butcher in the 1870s) recalled that, "the typical Chicago beef plants of that era had a gang of around fifteen men who slaughtered but ten animals

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<sup>34</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 7.

<sup>35</sup> Roger Horowitz, *Putting Meat on the American Table*, 104.

per hour.”<sup>36</sup> In 2003, American slaughterhouses killed 9.15 billion animals in 2003, up from 3.36 billion animals in 1975.<sup>37</sup>

Furthermore, farms were typically extensive, i.e., “animals spent a good deal of their time on pasture and none were confined all the time,<sup>38</sup>” they were usually family owned, and the farmers practiced what is called *good husbandry*. Animal husbandry was a practice in the United States that predominated for many years. This meant that farms relied on traditional methods regarding animal care, i.e., providing animals with significant space and human attention. Rollin describes good animal husbandry as follows,

“The essence of husbandry was *care*. Humans put animals into the most ideal environment possible for the animals to survive and thrive, the environment for which they had evolved and been selected. In addition, humans provided them with sustenance, water, shelter, protection from predation, medical attention (as was available), help in birthing, food during famine, water during drought, safe surroundings, and comfortable appointments. Eventually, what was born of necessity and common sense became articulated in terms of a moral obligation inextricably bound up with self-interest... In return, the animals provide their products and sometimes their lives, but while they live, they live well.”<sup>39</sup>

Further, “Viewed from the perspective of agricultural ethics, the singular beauty of husbandry is that it was both an ethical and prudential doctrine. It was prudential in that failure to observe husbandry inexorably led to ruination of the person keeping animals. Not feeding, not watering, not protecting from predators, not respecting the animals’ physical, biological, and physiological needs and natures, what Aristotle called their *telos*<sup>40</sup>: ‘the cowness of the cow,’ the

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<sup>36</sup> Roger Horowitz, *Putting Meat on the American Table*, 27.

<sup>37</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 65.

<sup>38</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 330.

<sup>39</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 3.

<sup>40</sup> The word *telos* comes from the ancient Greek philosopher Aristotle, which literally means, “end,” “purpose,” or “goal.” When a living thing is said to have a *telos*, it means that the living thing being discussed has some sort of potential particular to the type of thing that it is of which it is aiming to actualize, and will do so if isn’t interfered with. Rollin defines a spider’s *telos* as “a nature, a function, a set of activities intrinsic to it, evolutionarily determined and genetically imprinted, that constitute its ‘living spriderness.’” Furthermore, its life consists precisely in a

‘sheepness of the sheep,’ meant your animals did not survive and thrive, and thus neither did you.’<sup>41</sup>

This “symbiotic contract” between humans and farm animals was therefore beneficial to both the farmer and the farm animal. The better the farmers were able to care for their animals and provide good welfare (which aims to provide livestock with conditions of life that are harmonized with their nature by respecting their biological needs) the more productive the animals were and the better the quality the product was (such as meat, milk, and eggs). Thus, providing good husbandry was necessary if farmers were to be agriculturally successful. If one did not, one’s animals did not produce and therefore one did not profit.

The role that meat played in the American diet was also very different prior to the 1940s. For example, for two hundred years chicken was considered a luxury meat and only served on special occasions. It was an unusual, expensive, and hard-to-obtain food. “Americans ate only fifteen pounds per year when Herbert Hoover campaigned with the promise to make chicken more widely available, and they paid thirty-eight cents per pound for the bird, about the same price as round steak and more expensive than fresh pork chops or ham.”<sup>42</sup> The ways in which our relationship with food differed at this time, including these lower demands for food animal products, were also significant factors that allowed smaller farm operations to exist as they did.

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struggle to perform these functions, to actualize this nature, to fulfill these needs, to maintain this life.” Bernard E. Rollin, *Animal Rights and Human Morality*, 100. This is important for the topic being discussed as most practices involving the use of animals thwart their natural *telos*.

<sup>41</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 4.

<sup>42</sup> Roger Horowitz, *Putting Meat on the American Table*, 103.

## **Husbandry agriculture to industrialized agriculture**

Around World War II, advancements in technology and industry broke the longstanding contract with animals, and husbandry was something no longer practiced by farmers. Agriculture became industrialized and animal husbandry turned into animal science, “defined not as care, but as the ‘application of industrial methods to the production of animals’ so as to increase efficiency and productivity, values that supplanted husbandry.”<sup>43</sup> This new approach to animal agriculture was a result of important historical and social phenomena that took place after World War II. Rollin explicates that the heightened concern about supplying the public with “cheap and plentiful food” was due to these various reasons: 1) After the Great Depression, many people in the United States had soured on farming, 2) urban and suburban advancements were being made on agricultural land which decreased usable land for food production, 3) many of the farmers that had been sent to urbanized areas during the war did not want to return to rural farm areas post World War II, 4) presence of starvation during the Great Depression led American consumers to be fearful of insufficient food supply.<sup>44</sup>

Population growth also contributed to the need to increase efficiency and productivity of food production. After World War II, US population grew from 9 million in 1940 to 20.1 million by 1950. Along with a population boom, the amount of meat eaten per person in the United States also increased and the quantity has been steadily on the rise. In 2002, America’s meat and poultry consumption hit an all-time high of 219 pounds per person.<sup>45</sup> In addition to higher meat

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<sup>43</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 332.

<sup>44</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 333.

<sup>45</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 65.

consumption amongst a rapidly growing population, eating out as a routine practice became a typical consumption habit that created a demand for convenient meat. By 1955, 20 percent of food expenses involved eating away from home; that proportion grew steadily to reach almost 50 percent in 2002.<sup>46</sup> Lastly, the rise of a massive industrial agriculture was most importantly influenced by the want to increase profitability. Peter Singer says, “Agribusiness isn’t interested in animal welfare, it is only interested in profitability. If that means crowding six hens into a cage so small that one of them couldn’t stretch her wings even if she had the entire cage to herself, that’s what they’ll do.”<sup>47</sup> In order to increase profitability, there has to be an increase in productivity. Farm productivity, “is the ratio of farm output over input. Inputs include land, labor, and purchased goods such as seed, feed, fertilizer, and equipment. Outputs include salable farm products: in the animal sector, meat, milk, eggs, and animal by-products such as hides.”<sup>48</sup> Therefore, a change in technology increases productivity when the tools or techniques being used increase outputs while keeping inputs constant. Increased productivity means more to sell, and more to sell means the farmer has more income.<sup>49</sup> After all of these factors set into place, it was inevitable that the corporate domination of animal agriculture would arise in the form of intensive and high-confinement factory farming.

Ever since the corporate domination of animal agriculture, food animal productivity has increased dramatically. In 2003, the United States became the first nation to raise more than ten

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<sup>46</sup> Roger Horowitz, *Putting Meat on the American Table*, 130.

<sup>47</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 6.

<sup>48</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 5.

<sup>49</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 5.

billion farmed animals in a single year. That's over twice the animals America's farmers raised in 1980, and ten times the animals they raised in 1940.<sup>50</sup> These modern production methods based off of efficiency, productivity and profitability, forced producers to move and keep the animals permanently indoors in conditions that severely limit their opportunities to move as "bodily motion, after all, burns calories, and calories burnt means pounds lost."<sup>51</sup> Fewer workers were starting to produce far more food on smaller amounts of land, as personnel became the largest expense in many cases. All of these factors, combined with the fast development of technological advances in mechanized animal agricultural processes affected such rapid productivity. In addition, large farmers such as Don Tyson and Frank Perdue drove about three million small American family-owned farms out of business.<sup>52</sup> In the early 1970s, a Los Angeles farm began keeping three million layer hens on a single property.<sup>53</sup> Rollin notes that the number of workers has declined significantly, yet the number of animals produced has increased due to mechanization and the "capability of confining large numbers of animals in highly capitalized facilities."<sup>54</sup> Furthermore, "technological innovations have allowed us to alter the environments in which animals are kept. Whereas in traditional agriculture animals had to be kept in environments for which they had evolved, we can now keep them in environments that are contrary to their natures but congenial to increased productivity."<sup>55</sup> Thus, new animal agricultural practices allowed producers to increase the productivity of their animals without having to provide good welfare and care, hence, less and less attention was paid to individual

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<sup>50</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 5.

<sup>51</sup> Tom Regan, *The Struggle for Animal Rights*, 78.

<sup>52</sup> David DeGrazia, *The Animal Ethics Reader*, 220.

<sup>53</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 8.

<sup>54</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 334.

<sup>55</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 334.

animals. Previously, animal productivity was inextricably tied to animal welfare; now, food animals may be very productive while being extremely unhealthy and undergoing grave suffering.

The transition of the livestock system in the United States from one in which animals were raised in relatively small numbers on small farms, to one in which incredibly large numbers of animals are now produced in concentrated animal feeding operations (CAFOs),<sup>56</sup> or what is now known as *factory farming*, is specifically characterized by providing animals with a very low quality of life. The ways in which food animals are kept is devoid of any relation to sufficient animal welfare. Biological needs and basic interests with respect to the animal's natures are completely disregarded in favor of maintaining efficiency and productivity. "Most farmed animals today suffer intensive confinement, routine mutilation, detestable and unnatural food, and dangerous transport to stockyards and slaughterhouses."<sup>57</sup> Inability to move freely due to lack of space, lack of social stimulation (for social animals), lack of sunlight, and on top of that, living in grotesque and unsanitary environments, all deliberately frustrates animal's biological needs and interests, and thus welfare.

### **The role that antimicrobials play in industrialized animal agriculture**

During World War II, the large-scale production of penicillin was implemented for the first time. This was partly a response to the need for this antibiotic for the treatment of war-time

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<sup>56</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 45.

<sup>57</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 13.

casualties, particularly troops at the front and shipboard victims of attacks at sea. It was during the latter stages of the war that lyophilized penicillin preparations were made available to veterinarians who used the antibiotic for the treatment of bovine mastitis in dairy animals.<sup>58</sup> Soon after, it was noted that broad-spectrum antibiotics at low levels was also shown to control endemic diseases in large groups of animals and poultry. As the cost of antibiotics came down, this use became practical. Confinement rearing enhanced the transmission of infectious agents, and the prophylactic medication of the whole herd was both efficient and effective in maintaining herd health in such conditions, even if only a few animals appeared to be sick in a herd.<sup>59</sup>

Therefore, one of the reasons why intensive animal agriculture proliferated and became successful in the ways in which it did can be indebted to technological innovations such the antibiotic. The prophylactic use of antimicrobials alone is a major factor that has contributed to the increase in animal productivity but the decrease in animal health care within intensive confinement systems. What is particularly significant about antimicrobial use in intensive animal agriculture is that, without it, many of the morally objectionable practices that developed around World War II with respect to food animal production would not be possible. “The high population density of modern intensively managed livestock operations results in sharing of both commensal flora and pathogens, which can be conducive to rapid dissemination of infectious agents. As a result, livestock in these environments commonly require aggressive infection

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<sup>58</sup> R.H. Gustafson and R.E. Bown, *Antibiotic Use in Animal Agriculture*, 531.

<sup>59</sup> R.H. Gustafson and R.E. Bown, *Antibiotic Use in Animal Agriculture*, 531.

management strategies, which often include the use of antibiotic therapy.”<sup>60</sup> For these reasons, tens of thousands of tons of antibiotics used in animal agriculture are typically not for the treatment of sick and diseased animals.<sup>61</sup>

Instead of only using antibiotics when needed i.e., for therapeutic purposes (in the case of a diagnosed microbial disease development in an individual animal) antibiotics were mostly used sub- or non-therapeutically; such as a prophylactic in healthy animals to compensate for these crowded and unhealthy conditions in advance of expected exposure to infectious agents. “Close confinement allows infectious microorganisms to burn through populations, much like a cold in a dormitory.”<sup>62</sup> The massive application of antibiotics in animal feed allowed farmers to keep a large number of the same species of animals in closely confined quarters, where their needs and natures were not met, without wildfire spread of disease among them. The purpose of these intensive practices, such as crowding, helps increase farm productivity from an economic standpoint. Thus, with the help of antibiotics, productivity became severed from animal welfare.

For instance, 80,000 chickens may now be crowded together in a single shed, weighing at an average of four to five pounds each, and getting as little as half a square foot of space per chicken. In traditional husbandry, many of these chickens would have died or become ill due to the fast spread of bacterial infections, productivity would have diminished, and profit would

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<sup>60</sup> Timothy F. Landers, Bevin Cohen, Thomas E. Wittum, and Elaine L. Larson, *A Review of Antibiotic Use in Food Animals: Perspective, Policy, and Potential*, 1.

<sup>61</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 1.

<sup>62</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 8.

have been severely affected (negatively). But since “the economically most efficient way to produce eggs maximizes the number of eggs produced per barn, rather than per bird,”<sup>63</sup> and because “modern poultry barns costs hundreds of thousands of dollars, while a chicken costs only a few cents. Stocking densities that maximize productivity sacrifice animal health in order to get the best return in total investment.”<sup>64</sup>

Another way in which antibiotics are used for sub-therapeutic purposes is to generate or promote growth. The growth promoter effect of antibiotics was discovered in the 1940s, when it was observed that animals fed dried mycelia of *Streptomyces aureofaciens* containing chlortetracycline residues improved their growth. Primary decision making about antimicrobial use ideally rests with veterinarians, who can diagnose diseases on the basis of symptoms and appropriate laboratory tests. In reality, however, antimicrobials are often used in food animal production with little or no veterinary consultation,<sup>65</sup> and animal producers have easy access to over-the-counter antimicrobials. The United States Food and Drug Administration approved the use of antibiotics as animal additives without veterinary prescription in 1951.<sup>66</sup> During this time, the FDA specifically approved the addition of penicillin and tetracycline to chicken feed as growth promoters, encouraging pharmaceutical companies to mass-produce antibiotics for

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<sup>63</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 7.

<sup>64</sup> Bernard E. Rollin and Paul B. Thompson, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 7.

<sup>65</sup> Scott A. McEwen and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 596.

<sup>66</sup> J. I. R. Castannon, *History of the Use of Antibiotic as Growth Promoters in European Poultry Feeds*, 2466.

animal agriculture.<sup>67</sup> According to the Humane Society of the United States, by the 1970s, nearly 100% of all birds commercially raised for meat in the United States were being fed antibiotics.<sup>68</sup> When antibiotics were first identified, the observation was made that if you fed animals low levels of antibiotics, for some reason they also grew better and put on more weight, “and that little bit better growth can be the difference between profit and loss in a really tight, low-profit margin operation.”<sup>69</sup> Currently, according the Centers for Disease Control and Prevention (CDC), at least 17 classes of antimicrobials are approved for farm animal growth promotion in the United States.<sup>70</sup> The scientific community is still uncertain as to why the low-level feeding of antibiotics promotes faster weight gain in animals raised for meat.<sup>71</sup> The Humane Society of the United States cites one possible explanation called the “resource allocation theory”:<sup>72</sup>

Since only a certain amount of energy, protein, and other nutrients enter an animal’s system at any one time, resources directed towards mounting an effective immune response are diverted from building muscle (meat), thereby introducing a potential trade-off between production traits desirable for industry and immunocompetence. According to this explanation, feeding antibiotics at a low level reduces immune system activity, freeing more resources for growth and weight gain.

For example, germ-free chicks raised in germ-free environments grow faster than chickens living in unsanitary conditions. Exposure to the normal microbial flora of the gut are enough of an immune stimulus to reduce growth rates significantly. Indeed, even without tissue damage or evidence of disease, immune function can divert energy from maximal growth. Animals raised in more

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<sup>67</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 1.

<sup>68</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 1.

<sup>69</sup> Dr. Glenn Morris, Interview (Chair of the department of epidemiology and preventive medicine at the University of Maryland Medical school).

<sup>70</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 2.

<sup>71</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-therapeutic Antibiotic Use in Animal Agriculture*, 1.

<sup>72</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-therapeutic Antibiotic Use in Animal Agriculture*, 1.

sanitary environments and given antibiotics experience no change in growth rates, whereas animals in commercial production who are fed antibiotics demonstrate a remarkable spurt in growth.

Thus, the incentive to keep animals in enclosed and unhealthy and/or contaminated environments by producers has risen in light of some evidence showing that livestock kept in these conditions with feed induced with antibiotics will maximize productivity by promoting growth rates and maximizing profits with the reduction of feed consumption.

The sub-, or non-therapeutic use of antibiotic as a growth promoter is another way in which antimicrobials have been used to increase animal productivity while decreasing animal health and welfare, and is another practice that typifies industrialized animal agriculture production as such. Broilers (i.e., meat chickens) used to reach market weight in five months now reach the same weight in seven weeks.<sup>73</sup> “But in breeding for fast growth, no attention was paid to musculoskeletal considerations, leading to a host of injuries and diseases.”<sup>74</sup> “These injuries and diseases include leg weakness, ascites, sudden death or ‘flip-over,’ deep pectoral myopathy, and right ventricular hypertrophy, leading to heart failure. Moreover, weak legs lead the birds to sit in soiled litter, which in turn produces breast blisters and hock burns, since the fecal material is corrosive.”<sup>75</sup> These fast growth rates adds additional stress to the animals and also causes crippling and deformities that force producers to kill an additional 1 to 2 percent of broiler chickens, “and since only severe cases are culled, the number of birds suffering from deformities is bound to be much higher.”<sup>76</sup> Moreover, Animal agriculture industry journal

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<sup>73</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 355.

<sup>74</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 355.

<sup>75</sup> Bernard E. Rollin, *Farm Animal Welfare*, 133.

<sup>76</sup> Peter Singer, *Animal Liberation*, 105.

*Feedstuffs* reports that broilers now grow so unnaturally rapidly that the heart and lungs are not developed enough to support the remainder of the body, resulting in congestive heart failure and more tremendous death losses. It is clear here that the implementation of antibiotics in farm animals used to promote growth in order to raise productivity, is costly to animal welfare and health in intensive confinement conditions.

In what I have just presented, I hope to have shown that the sub-, or non-therapeutic use of antimicrobials in animal feed, specifically antibiotics, is a practice that does not only threaten human health in terms of the risks involved with antimicrobial resistance. The sub-, or non-therapeutic use of antimicrobials in animal feed, specifically antibiotics, is a practice that *also* threatens animal health, as it works to promote or make possible farming practices that significantly harm animals, such as intensive indoor confinement and growth promotion. Further, antibiotic use is necessary for the preservation of these practices in the first place. In order to maintain efficiency and productivity to increase profitability in animal agriculture, American food animal producers have, unfortunately, abused antibiotic use in these various ways. In what follows, I attempt to show why it is important that we take animal welfare seriously when we talk about the issues surrounding antibiotic use, and why we should care at all about animal welfare in the first place.

## CHAPTER 2

### **Animal welfare and philosophy?**

What do the issues surrounding the relationship between animal welfare and antibiotics have to do with philosophy? And why should we care? Recognizing that animals suffer and are capable of being harmed as a serious problem is considered to be, what is called, an ethical judgment. An ethical judgment is one where we dictate some action or some person as being right or wrong, good or bad. In fact, *any* human activity is predicated on an ethical judgment. Our vision of the good, of what is right and wrong to do, underlies everything we do at all levels—be it at the social level of policies about taxation and redistribution of wealth, which kind of science we do and don't fund (research into environmental preservation vs. research into the relationship between race and intelligence), our views of punishment and rehabilitation, and so on, or be it at the level of individual action.<sup>77</sup> Therefore, animal use, by humans, is a human activity that is also predicated on ethical judgments. That being said, what I am attempting to show is that the sub- or non-therapeutic use of antibiotics on food producing animals is a human practice that is predicated on an ethical judgment that is particularly objectionable. One problem is that food animal producers don't seem to believe that their line of business is partly in the business of ethics. Many claim that the conditions and processes that constitute the factory farm are not a matter of ethics but of a societal necessity to feed a growing population. In fact, they seem to think they do not make value judgments at all. Animal agriculturalists, since the industrial revolution, have come to see themselves as simply in the business of “applying

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<sup>77</sup> Bernard E. Rollin, *Science and Ethics*, 39.

industrial methods to the production of animals,<sup>78</sup> in order to produce food for consumers and neglect the ethical implications of their actions. It makes their job a lot easier to discount animal pain, interests, consciousness, etc. as either non-existent, or not important (which is an implicit value claim). But there is now a rise in the public questioning of animal use in industry as it is widely undeniable that the hurting and killing of some living being that works to avoid being hurt and getting killed is an ethical issue. Producers seem to fail to consider the ethical dimensions of their practices not only as it has created food safety issues for consumers, but as it has also created welfare issues for their animals. Every time one harms an animal in these ways, one is making an implicit moral decision, namely, that the most efficient, cheap, and profitable way to produce food morally outweighs the pain, suffering, or distress imposed on such animals in order to do so.

Ethics is a branch of philosophy that is concerned about what we ought to do in terms of our actions. It is a normative inquiry, which means that it seeks to establish and prescribe norms, standards, or principles for evaluating actual practices.<sup>79</sup> Normative ethics specifically works towards designating the philosophical task of discerning which actions are genuinely good or bad based on which moral principles are rationally defensible.<sup>80</sup> In this paper, I present the logical examination, critique, and study of the ethical beliefs that food producers of factory farms seem to implicitly hold. When we make decisions about what we do with and how we treat animals, we are prescribing to particular beliefs and values that we hold and thus support specific practices that we believe are good or bad, right or wrong, based on these beliefs and values. For

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<sup>78</sup> Bernard E. Rollin, *Science and Ethics*, 5.

<sup>79</sup> William F. Lawhead, *The Philosophical Journey: An Interactive Approach*, 408.

<sup>80</sup> William F. Lawhead, *The Philosophical Journey: An Interactive Approach*, 409.

instance, if one believes the moral principle that causing pain is wrong, and that animal's do not feel pain, then one might feel that the actions concerned with the intensive confinement and abuse of animals are morally permissible. My job is to work towards a new social ethic<sup>81</sup> exposing the importance of the belief that any living creature's welfare should be treated with respect. Animals do in fact have a welfare, but their pain and suffering is largely not controlled in the factory farm setting. The misuse of antibiotics in food production animals is one practice that factory farms implement that affects their welfare negatively and causes suffering. While it is impossible to get rid of animal suffering completely, there are ways to lessen their suffering, or control it. One way we can improve their welfare and reduce animal suffering is to stop this practice. Thus, the practice of misusing antibiotics in food production animals is morally wrong and should be stopped. What we ought to do about antibiotic use is a value judgment. In fact, any policy judgment, including what danger of resistance we ought to tolerate or how much animal abuse we ought to tolerate for the sake of the benefits we derive from antibiotics in animal feed will be an ethical judgment.<sup>82</sup> Factory farms by and large make the ethical judgment that the misuse of antibiotics in food animal production is morally permissible. This is because they either hold the belief that animal welfare does not matter, or that antibiotics do not participate in harming it, or a combination of the two. Clearly, these ethical judgments need to be changed in order for there to be change at the practical level. I hope to have already shown that antibiotics do in fact participate in harming animal welfare and have no other function. I now hope to show how and why animal welfare matters.

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<sup>81</sup> Bernard E. Rollin defines a "social ethic" or a "social consensus ethic" as "Those portions of ethical rules that we believe to be universally binding on all members of society, and socially objective." *Science and Ethics*, 34.

<sup>82</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 3.

## **Human welfare**

In general, there seems to be ubiquitous agreement amongst us that human beings as such have a “welfare.” This means that human beings can either fare well or fare poorly depending on whether or not a persons’ individual interests (whether that be physical, mental or emotional) have been respected or violated. These interests may include things such as having good physical health (also good mental and emotional health), happiness, prosperity, freedom from pain, rights respected, and so on. Based on these, arguably, basic biological human interests and needs, this means that someone who is free from physical pain, who is in good health, and is provided with adequate social stimulation and enough money to supply oneself with food, water, shelter and clothing, may be said to be faring well in the world. If these basic interests that human beings possess are not met, it may be said that this person is fairing poorly in the world. This is because humans care about their interests being met. We have an interest in survival, avoiding pain and seeking out pleasure. We have basic needs for food, water, shelter, social interaction, freedom from constraint, and we have desires to fulfill these needs. If they are not fulfilled, we suffer. Whether that suffering manifests itself in physical pain, stress, depression, etc., human beings are capable of suffering if their basic interests are not respected. While human beings are complex creatures and certainly have greater interests other than the ones just so described, (such as, making more money than to simply provide oneself with these basic biological needs, or to get an education, to have a family, to pursue a dream, etc.) one may agree that without such basic interests being met first, these higher and more complex interests that contribute to ones faring well in the world cannot then be met either.

Moreover, there seems to be ubiquitous intuitive agreement (or, “gut feelings” about right and wrong) that having good welfare, or having ones interests be respected and protected, is something that all human beings deserve. In other words, we have an ethical account<sup>83</sup> regarding the moral status of human beings. This means that we think that the welfare of human beings *ought* to be looked after, respected and protected. If someone is responsible for another person fairing poorly in the world, such as inflicting harm onto another, then it may be said that this person has done something *morally wrong*. This is because we have a shared ideal about the way humans should be treated; we agree that we have a moral obligation to respect and protect each other’s interests and well-being. With this established ideal, we can then judge and weigh our treatment of humans in society by how well or poorly someone adheres to this measure. Because of this shared moral ideal about how we think human beings ought to be treated, we can then say things such as “It is wrong to commit murder,” “You ought not to steal from somebody else,” “Don’t hurt others,” “It is good to help feed the homeless,” “Hitler was a bad man,” etc.

Given that we have a consensus ethical ideal for the treatment of humans in society, it is obvious why the concern over the sub- or non-therapeutic overuse of antibiotics by doctors and food animal producers is of high social importance. If we agree that good health is a human interest that should be respected and protected because it contributes to a person fairing well in the world, and if antibiotic resistant bacteria is a major threat to good human health, then we morally ought to restrict or ban the use of antimicrobials for non-therapeutic (i.e., growth promoting) use in food animals and stop the over prescription of antibiotics by doctors that are

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<sup>83</sup> “An ethic is a yardstick, a measure of where we are deficient, or a target to aim at that sharpens our skill.” Bernard E. Rollin, *Animal Rights and Human Morality*, 38.

frequently prescribed to patients in order to treat symptoms or diseases that do not respond to antibiotics, or are likely to resolve without treatment. We ought to do these things because human beings are objects of moral concern, and we agree that basic human interests, such as good health, should be respected and protected. Since we are not living up to this ideal about how humans should be treated based on our overuse of antibiotics used by doctors and food animal producers, we believe we are morally obligated to change these practices.

### **Do animals have a welfare?**

Not only human beings but animals, too, have a welfare. A denial of this by food producers is a denial of straight facts. Universally, the biological sciences accepts the dictum that all biology must be structured within the framework of evolutionary theory and embraces this principle in all studies of physical and mental processes up and down the phylogenetic scale.<sup>84</sup> Therefore, many of the mental states which appear in humans and have subjective dimensions- certainly simple ones like hunger, taste preference, fear, anxiety, anger, sexual desire, pain, pleasure, and so on, have analogies in the conscious or mental states of animals- certainly in those animals in which physiological, behavioral, and contextual similarities to humans are apparent.<sup>85</sup> This means that animals can either fare well or fare poorly depending on whether or not their individual interests (whether that be physical, mental or emotional) have been respected or violated. Animals have basic biological interests that include things such as having good physical health, avoiding pain, adequate social stimulation, and so on. Based on these, arguably,

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<sup>84</sup> Bernard E. Rollin, *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science*, 27.

<sup>85</sup> Bernard E. Rollin, *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science*, 27.

basic biological animal interests and needs, this means that an animal who is free from physical pain, who is in good health, and is provided with adequate social stimulation (if it is a social animal) and has enough food, water, and sunlight to survive in an environment that caters to these needs, may be said to be faring well in the world. If these basic interests that animals possess are not met, it may be said that this animal is fairing poorly in the world. This is because animals, too, care about their interests being met. They have an interest in survival, avoiding pain and seeking out pleasure. They have basic needs for food, water, shelter, social interaction, freedom from constraint, and they have desires to fulfill these needs. If they are not met, they suffer. Animals can suffer physically, such as experiencing pain or hunger, and they can suffer mentally. Animals can feel distress, fear, anxiety, pleasure, boredom, happiness, and other morally relevant modalities of mentation.<sup>86</sup> Animals are capable of suffering physically and mentally if their basic interests are not respected and protected. Thus, the implicit denial by food producers that the interests or welfare of their animals do not matter is incompatible with our fundamental ethical commitments to other subjects with interests and is morally indefensible.

### **Animal suffering**

Given that animals, too, are capable of fairing well or poorly in the world, and given that animals, too, have basic biological interests of which when they are not met causes suffering, there is still, ironically, *not* ubiquitous agreement amongst human beings that having ones welfare-interests be respected and protected is something that all animals deserve.

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<sup>86</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 39.

Animals used for scientific research and animals used for food production are notoriously neglected, by a majority of humans, as beings who are worthy of being objects of moral concern. Biomedical and other scientific research, toxicological safety testing, uses of animals in teachings, pharmaceutical product extraction from animals, and so on all produce animal suffering<sup>87</sup> that the majority of human beings allow or consent to be done. “This suffering comes from creating disease, burns, trauma, fractures, and the like in animals in order to study them; producing pain, fear, learned helplessness, aggression, and other states for research; poisoning animals for research to study toxicity; and performing surgery on animals to develop new operative procedures.”<sup>88</sup> Moreover, the ways in which animals are kept and housed in scientific facilities for research also causes grave animal discomfort and suffering. So as to be more convenient for the researcher, animals are usually housed in conditions that do not cater to their biological needs and interests, nor reflect their natural environment, which further exacerbates the suffering they undergo.

Confinement industrialized agriculture uses far and away the largest number of animals of any human pursuit<sup>89</sup> and is responsible for many forms of animal suffering as well, in the form of deliberately providing poor welfare by frustrating their basic biological needs and interests. Three forms of animal suffering produced by confinement industrialized agriculture that Rollin identifies are:<sup>90</sup>

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<sup>87</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 9.

<sup>88</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 10.

<sup>89</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 5.

<sup>90</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 11.

1. Production diseases. These arise from the new ways the animals are produced. Cattle suffer from poor health and liver abscesses as a response to the high-concentrate, low-roughage diet that characterizes feedlot production.
2. Lack of individual attention provided to animals. This is due to the huge scale of industrialized agriculture operations and the small profit margin per animal combined with minimal labor. For instance, there may be three full-time employees and one manager overseeing approximately five thousand animals. Therefore, when animals are physically injured and in pain, producers usually cannot afford the manpower to care for and treat these injuries.
3. Physical and psychological deprivation. Confinement agriculture results in lack of space, lack of companionship for social animals, inability to move freely, boredom, austerity of environments, and so on.

Good health, freedom from injury and disease, access to proper care and treatment, and adequate physical and psychological well-being are interests that both humans and animals alike share. When any of these interests are violated, suffering occurs. We think it of great moral importance that human beings do not undergo these types of sufferings. For instance, one might compare the treatment of animals in confinement agriculture to the treatment of Jews under Adolf Hitler's Nazi regime during World War II. Jews were held captive in concentration camps where they worked as slave laborers in environments that were completely inimical to their biological natures. These prisoners lived in cramped and crowded conditions where poor health, disease and injury thrived, with little to no medical attention given by their captors. They, too, were unable to move freely and maintain companionship with their loved ones and family

members. As a result, these Jews underwent tremendous suffering. When we examine the acts committed by the Nazi regime, we believe them to be morally wrong. We agree that no human being should be treated like this and make an effort to prevent our basic interests ever being violated in such a way. Yet in the case of food production animals, most of us look the other way. Thus, if we take other human beings to be morally considerable<sup>91</sup> based on the fact that they have a welfare that is capable of being benefited or harmed, then it follows that we must also include animals in our moral arena as worthy of being objects of moral concern when we make decisions about what to do. As human beings we are moral agents,<sup>92</sup> and should treat animals as moral patients.<sup>93</sup> Just as we work to respect other human being's welfare-interests, we ought to respect another non-human animal's welfare-interests.

### **Equal consideration to animals**

The basis of the case for the protection of welfare-interests to be extended to nonhuman animals is something that has been defended by many thinkers in the branch of moral philosophy<sup>94</sup> and the animal rights movement. Peter Singer makes a strong argument in favor of this position in his book *Animal Liberation* for which he, too, argues that nonhuman animals ought to be taken into moral consideration by human beings in terms of having their welfare-interests be respected and protected. Furthermore, he asserts that if we do *not* take their welfare-

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<sup>91</sup> Moral considerability is defined as being such that one's interests matter morally in their own right, i.e., one's interests ought to have weight in moral agents' decisions about what to do.

<sup>92</sup> A moral agent is defined as one who can make decisions about what to do on the basis of moral considerations.

<sup>93</sup> A moral patient is one whose interests ought to be taken into account by moral agents when those agents make decisions about what to do.

<sup>94</sup> Or, ethics.

interests into consideration when we decide how we go about treating animals, we have exhibited a form of what he calls “speciesism,” which is akin to that of racism and sexism. Singer defines speciesism as a “prejudice or attitude of bias in favor of the interests of members of one’s own species against those members of other species,”<sup>95</sup> and that on the same grounds that racism and sexism are morally condemnable, so too, is speciesism. In other words, the same discriminatory thought process that human beings have used to justify a neglect of the interests of another group of people, such as has historically been with blacks and women, is used in a similar way to justify a neglect of the interests of the nonhuman animal species (especially food production animals).

Singer argues that it would be irrational to demand equality for blacks, women, homosexuals and other oppressed groups of people while denying equal consideration to nonhuman animals. By equal consideration, he simply means that the same respect we give to the *interests* of human beings ought to be given to the interests of nonhuman animals as well. “The basic element, the taking into account of the interests of the being, whatever those interests may be, must, according to the principle of equality, be extended to all beings, black or white, masculine or feminine, human or nonhuman.”<sup>96</sup> Further, “the interests of every being affected by an action are to be taken into account and given the same weight as the like interests of any other being.”<sup>97</sup> To be clear, Singer does not think that humans and nonhuman animals should be treated *equally*, obviously there are important differences between these species, just as there are important differences between men and women, only that the interests of these different groups

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<sup>95</sup> Peter Singer, *Animal Liberation*, 6.

<sup>96</sup> Peter Singer, *Animal Liberation*, 2.

<sup>97</sup> Peter Singer, *Animal Liberation*, 2.

be treated equally. Thus, if we are to respect the fact that humans have an interest in survival, avoiding pain and seeking out pleasure, social interaction, freedom from constraint, etc., then we should also respect the fact that animals have an interest in survival, avoiding pain and seeking out pleasure, social interaction, freedom from constraint, etc.

Racism and sexism are wrong because proponents who wish to defend these types of hierarchical distinctions work to point out *arbitrary* differences in capacities or abilities amongst human beings in order to discern who gets what kind of treatment. For instance, those who condone pay differences between sexes might do so on the basis that because someone is of the female sex they are intellectually inferior to men, lack reason, are emotionally unstable, etc. The white racist claims that whites are superior to blacks in a similar way. But the mere fact that a person is black or a woman cannot infer anything about that person's intellectual or moral capacities.<sup>98</sup> This is why it is unjustifiable to discriminate on the basis of sex or race. Even if there were actual, measurable differences in ability both among races and between sexes, Singer asserts that the claim to having equal consideration of interests does not depend on intelligence, moral capacity, physical strength, reason, or similar matters of fact. "There is no logically compelling reason for assuming that a factual difference in ability between two people justifies any difference in the amount of consideration we give to their needs and interests."<sup>99</sup> For example, a newborn baby is considerably less intelligent and less strong than an adult woman, yet we would not say that this is a justifiable reason to not respect and protect its interests. We would think it morally wrong to harm the newborn baby, to not feed it, to constrain it, to deny it

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<sup>98</sup> Peter Singer, *Animal Liberation*, 3.

<sup>99</sup> Peter Singer, *Animal Liberation*, 5.

social interaction, and so on. Yet, people still attempt to cite differences between human beings and animals in order to provide a rational basis for excluding animals from the scope of our moral deliberations. Some of these include: humans are intellectually superior than animals (as has already been noted), humans are rational and animals are not, humans possess language and animals do not, humans are capable of acting morally and animals are not, etc. But it is safe to say that infants and many young children, the insane and mentally ill, and the senile all possess fewer of these qualities than many mammalian animals do. Considering this, we do not hold that an animal's interests ought to be more important than any of these groups. And we would not allow the atrocities we bring upon animals to these groups either. Thus, on these same grounds, just because a nonhuman animal might be considerably less intelligent or lack the same amount of strength as a human being, it does not mean their interests should not be respected and protected. It would be morally wrong to harm a nonhuman animal for the same reasons it would be wrong to harm a baby.

### **The capacity to suffer**

According to Singer, what makes a subject qualify to be included in the scope of moral concern and have its welfare-interests be respected and protected is simple the capacity to suffer. Singer asserts that the capacity for suffering and/or enjoyment or happiness is not just another arbitrary characteristic like the capacity for language or higher mathematics, but the capacity for suffering is a prerequisite for having any interests at all, a condition that must be satisfied before we can speak of interests in a meaningful way.<sup>100</sup> It is in this way that all human beings and most

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<sup>100</sup> Peter Singer, *Animal Liberation*, 7.

nonhuman animals<sup>101</sup> have a basic common interest. The capacity to feel pleasure and pain is the only relevant factor that makes it so that no matter what the nature of the being, whether black, white, male, female, baby, adult, human or animal, there can be no moral justification for refusing to take that subject's suffering into consideration.<sup>102</sup>

Rollin agrees that most of us do not worry excessively about rationality in our moral deliberations, and that we consider pleasure and pain to be far more important criteria of concern.<sup>103</sup> So important are pleasure and pain to our intuitions about morality that not only Peter Singer, but other philosophers such as Jeremy Bentham have made the ability to suffer the sole criterion for admittance into the sphere of moral concern.<sup>104</sup> Bentham famously wrote, "But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day or a week or even a month, old. But suppose they were otherwise, what would it avail? The question is not, Can they *reason*? Nor Can they *talk*? But, Can they *suffer*?"<sup>105</sup> Bentham was an English utilitarian who argued in his *Principles of Morals and Legislation* that the test of rightness and wrongness of actions was whether they produced the greatest amount of pleasure (or least possible amount of pain) for the greatest number, argued that in calculating this total amount of pleasure and pain, we needed to take account of all creatures capable of suffering, including animals.<sup>106</sup> A utilitarian accepts two moral principles.

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<sup>101</sup> It is commonly debated whether or not invertebrates feel pain. But, "every particle of factual evidence supports the contention that higher mammalian vertebrates experience pain sensations at least as acute as our own. Their nervous systems are almost identical to ours and their reactions to pain remarkably similar." Richard Serjeant, *The Spectrum of Pain*, 72.

<sup>102</sup> Peter Singer, *Animal Liberation*, 8.

<sup>103</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 75.

<sup>104</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 75.

<sup>105</sup> Jeremy Bentham, Letter to Henry Gregoire, February 25, 1809.

<sup>106</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 75.

The first is that of equality: everyone's interests count, and similar interests must be counted as having similar weight or importance. White or black, American or Iranian, human or animal, everyone's pain or frustration matters, and matters just as much as the equivalent pain or frustration of anyone else. The second principle a utilitarian accepts is that of utility: do the act that will bring about the best balance between satisfaction and frustration for everyone affected by the outcome.<sup>107</sup> This type of theory aligns better with our intuitions about pain and suffering as it increases the scope of moral concern to animals and does not, for example, suggest that the mentally retarded or the insane ought not be legitimate objects of moral concern.<sup>108</sup> Tom Regan also gives credit to the appeal of utilitarianism as discrimination based on race, sex, or species, seems disallowed in principle by this theory.

### **Inherent value**

Tom Regan is a philosopher who defends that the protection of welfare-interests should be extended to nonhuman animals based on what he calls "the rights view." On the rights view, the relevant feature that all subjects worthy of moral consideration share is that we are each of us, what he calls, "the experiencing subject of a life." An experiencing subject of a life is a conscious creature having an individual welfare that has importance to us whatever our usefulness to others.<sup>109</sup> Regan continues,

"We want and prefer things, believe and feel things, recall and expect things, and all of these dimensions of our life, including our pleasure and pain, our enjoyment and suffering, our satisfaction and frustration, our continued existence or our untimely death, all make a difference to the quality of our life as

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<sup>107</sup> Tom Regan, *The Struggle for Animal Rights*, 54.

<sup>108</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 75.

<sup>109</sup> Tom Regan, *The Struggle for Animal Rights*, 59.

lived, as experienced, by us as individuals. As the same is true of those animals that concern us (the ones that are eaten and trapped for example), they too must be viewed as the experiencing subjects of a life, with inherent value of their own.”<sup>110</sup>

For Regan, inherent value belongs equally to those who are experiencing subjects of a life, and that animals are included as belonging in this category. Inherent value refers to the type of value that someone or something has above and beyond their usefulness to others. Some might refer to inherent value as having value “in and of itself.” All human beings have inherent value regardless of their sex, race, sexual orientation, religion, birthplace, and so on. One’s talents, skills, intelligence, wealth, and strength are also irrelevant to one’s having such value. “The genius and the retarded child, the prince and the pauper, Mother Teresa and the most scrupulous used-car salesman all have inherent value, all possess it equally, and have an equal right to be treated in ways that do not reduce them to the status of things, as if they existed as resources for other.”<sup>111</sup> In the case of nonhuman animals, they too, all have value independently of their usefulness to science and research opportunity in laboratories, independently of the fact that they can be used for food and clothing, and independently of the fact that they may be cute and comforting companion animals. Regan asserts that *all* who have inherent value have it equally, whether they are human animals or not.<sup>112</sup> The fact that animals have equal inherent value as human beings means that they have the equal right to have their interests be respected and protected, and that we have a duty to one another to make sure this is carried out.

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<sup>110</sup> Tom Regan, *The Struggle for Animal Rights*, 59.

<sup>111</sup> Tom Regan, *The Struggle for Animal Rights*, 58.

<sup>112</sup> Tom Regan, *The Struggle for Animal Rights*, 60.

## Creatures with interests

Bernard E. Rollin defends that the protection of welfare-interests should be extended to nonhuman animals based on something more than just their ability to suffer or their possession of inherent value. For Rollin, what makes something fall within the scope of moral concern by human beings is the presence of needs, desires, goals, aims, wants, or more generally, *interests*, which that being has and which the being capable of moral action can help, ignore, or hinder.<sup>113</sup> Thus, the interests that an animal has in virtue of its being a living being and our ability to nurture or impede fulfillment of these interests is in and of itself evidence that animals should be given equal consideration when we decide how we go about treating them. Rollin agrees that the capacity to suffer is an important marker to take into consideration when deciding what does and does not deserve to have its welfare-interests be respected and protected, but that the seeking of pleasure and avoidance of pain are *themselves* interests in the first place.<sup>114</sup>

We have little to no reason to doubt that other human beings have interests. These include desires, aspirations, wants, goals, needs, and intentions: objectives that they strive to achieve in order to survive, to avoid suffering, to increase pleasure, and to actualize their nature.<sup>115</sup> For nonhuman animals, the fact that they can experience pleasure and pain, such as when an animal exhibits signs of discomfort when it is hungry, is an indicator that they, too, have interests. Many will agree that animals have identifiable interests that are connected to pleasure and pain. Albeit, according to Rollin, these are not the only kinds of interests they possess. What makes an animal

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<sup>113</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 75.

<sup>114</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 99.

<sup>115</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 96.

or human being different from something that does not have interests is what Aristotle called a “telos.” Telos is a Greek word that literally means, “end,” “purpose,” or “goal.” When a living thing is said to have a *telos* it means that the living thing being discussed has some sort of potential particular to the type of thing that it is of which it is aiming to actualize, and will do so if isn’t interfered with. The telos of say, a spider, is a nature, a function, a set of activities intrinsic to it, evolutionarily determined and genetically imprinted, that constitute its “living spiderness.”<sup>116</sup> “Furthermore, its life consists precisely in a struggle to perform these functions, to actualize this nature, to fulfill these needs, to maintain this life.”<sup>117</sup> The interests that flow from these natures, and the thwarting of these interests matters to animals as much as the thwarting of speech matters to humans.<sup>118</sup> Thus, we have a duty to respect all of the interests that stem from an animal’s telos. These include interests other than the ones that connect to pain and pleasure. Not only do animals have similar nervous systems to us, but they too bond with their newborn, they recognize friends and strangers, and so forth.<sup>119</sup> For instance, laying hens will work hard (learn to push a heavily weighted door) to gain access to somewhere to dustbathe and somewhere to perch. Mink will similarly push weighted doors to be able to enter a swimming bath.<sup>120</sup> Such findings indicate that particular features of an environment are important to the animals themselves, in other words, animals have various interests that are tied to their telos, or their natures.

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<sup>116</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 100.

<sup>117</sup> Bernard E. Rollin, *Animal Rights and Human Morality*, 100.

<sup>118</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 17.

<sup>119</sup> Roland Bonney, *The Future of Animal Farming: Renewing the Ancient Contract*, 63.

<sup>120</sup> Marian Stamp Dawkins, *The Future of Animal Farming: Renewing the Ancient Contract*, 75.

## Criteria for basic animal well-being

The use and abuse of animals raised for food far exceeds, in sheer numbers of animals affected, any other kind of mistreatment.<sup>121</sup> Because animals have the capacity to suffer, because animals have inherent value, because animals have various interests and desires that stem from their natural biology, and because all of these factors are fundamentally tied to their well-being, we as human beings who are capable of moral actions ought to respect and protect these interests. This is because what we do to animals matters to them, just as what we do to humans matters to them, and that consequentially we should respect that mattering in our treatment and use of animals as we do in our treatment and use of humans.<sup>122</sup> For Singer, his solution to eliminating animal suffering in intensive confinement animal agriculture is switching to a vegetarian diet. For Regan, his solution is an abolitionist one, in that he thinks animals should not be used at all or in any way by humans. Both of these solutions are deserving of merit but it is safe to say that the use of animals by humans whether for consumption or by other means is unlikely to end. A more realistic solution, at least one that serves as a start in the direction towards equal consideration of interests to nonhuman animals, is that we provide good welfare to food animals in the conditions that they are currently in. Good welfare means that the animals must be healthy, that is, they should not be dying of disease or slipping over and injuring themselves. But good welfare also means that the animals get what they want. This means that the animals are content because they are not experiencing fear, pain, boredom, hunger, exhaustion, and so on.<sup>123</sup> Conversely, poor welfare means that the animals are unhealthy

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<sup>121</sup> Peter Singer, *Animal Liberation*, 95.

<sup>122</sup> Bernard E. Rollin, *Farm Animal Welfare: Social, Bioethical, and Research Issues*, 18.

<sup>123</sup> Marian Stamp Dawkins, *The Future of Animal Farming: Renewing the Ancient Contract*, 74.

(diseased or injured) and/or they do not have what they want. This could include both being deprived of something important in their lives and also being unable to escape or avoid situations they dislike.<sup>124</sup>

What animals want is directly tied to their welfare-interests, which implies both physical fitness and a sense of mental well-being. A start in providing better welfare for food production animals is exemplified by what is called the “Five Freedoms,” of which the Farm Animal Welfare Council in the United Kingdom adopted in 1997. An animal’s welfare on the farm should be considered in terms of these five freedoms or what could be called moral obligations to animals that provide a framework for analysis of welfare within any industrial production system that keeps animals:<sup>125</sup>

1. Freedom from hunger and thirst- by ready access to fresh water and a diet to maintain full health and vigor.
2. Freedom from discomfort- by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from pain, injury or disease- by prevention of rapid diagnosis and treatment.
4. Freedom to express normal behavior- by providing sufficient space, proper facilities, and company of the animals’ own kind.
5. Freedom from fear and distress- by ensuring conditions and treatment that avoid mental suffering.

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<sup>124</sup> Marian Stamp Dawkins, *The Future of Animal Farming: Renewing the Ancient Contract*, 74.

<sup>125</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 63.

These five freedoms seem to identify the basic biological interests that all humans and mammalian animals have that are connected to their natures, or telos. Both humans and animals suffer if these interests are not attended to. Further, since both humans and animals have equal inherent value and ought to have their interests respected equally, then, at minimum, these are the interests that should be protected in intensive industrial production systems with regard to food animals in order to improve their overall welfare and quality of life.

### **Animal welfare and antibiotics**

Most factory farming in intensive confinement agriculture as it is currently practiced is harmful to animals because the ways in which food animals are kept and treated deliberately frustrate all of the five freedoms. Like any major industry, the primary goal of these modern agricultural systems is to maximize profit by keeping more animals on farms that can be managed by fewer people.<sup>126</sup> In order to make these systems more convenient, efficient, and profitable for the producer, they operate by keeping stocking densities of the animals at extremely high numbers in environments that are unfavorable to their basic biological natures. Animals in these systems suffer in ways such as severe reduction in behavioral repertoires, boredom, stress, social deprivation or social crowding, high levels of surgical and drug-based interventions, stereotypical behaviors, and other vices such as tail biting, as well as pain and fear.<sup>127</sup>

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<sup>126</sup> Kate Rawles, *The Future of Animal Farming: Renewing the Ancient Contract*, 46.

<sup>127</sup> Kate Rawles, *The Future of Animal Farming: Renewing the Ancient Contract*, 46.

The sub-, or non-therapeutic use of antibiotics is one sub-practice that is necessary for the maintenance of these practices typical of industrial farming that violate the five freedoms. Antibiotics used in this way, is one of the major contributing factors that allow farming methods to deliberately violate the five freedoms and welfare-interests of these animals. Used as a technological sander, or quick fix solution for keeping animals in unhealthy living conditions and environments, the non-therapeutic use of antibiotics has meant that producers no longer need to protect and respect the basic biological needs and interests of their animals. In 1979, the congressional Office of Technology Assessment wrote, “Present production is concentrated in high-volume, crowded, stressful environments, made possible in part by the routine use of antibacterial in feed. Thus the current dependency on low-level use of antibacterial to increase or maintain production, while of immediate benefit, also could be the Achilles’ heel of present production methods.”<sup>128</sup>

If we ought to care about animal welfare at all in ways that are morally significant, then the sub-, or non-therapeutic use of antibiotics in animal agriculture should be prohibited, and this is a moral obligation that we do so. If the basic welfare-interests of animals ought to be taken into equal consideration as the welfare-interests of human beings, and if the misuse of antibiotics is one practice that promotes the violation of these interests, then this gives us a reason to stop using them. The restriction of antibiotics in the way I have so described *may* be *one* way to improve their quality of life as it might foster a way of farming that better suits the needs and interests of livestock. Identifying antimicrobial use as a problem attacks food safety issues at

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<sup>128</sup> The Humane Society of the United States, *An HSUS Report: Human Health Implications of Non-Therapeutic Antibiotic Use in Animal Agriculture*, 2.

their source. Rollin cites British bacteriologist E.S. Anderson, in a 1965 article in *Nature*, who argued that improved standards of husbandry could replace the use of antibiotics for both disease prophylaxis and growth promotion.<sup>129</sup> Therefore, instead of trying to fix animal health problems with antibiotics after they have occurred, instituting better sanitary and health practices at the farm level will be obligatory.

### **Objection #1: human welfare vs. animal welfare**

One major objection to the restriction of antibiotics in food animals for non-therapeutic purposes is that a policy such as this might interfere with various human interests. Oddly enough, even though there is a large social worry, by consumers, about the increase in human antibiotic resistance *because* of this practice, there is still a significant portion of the United States population that condones it. While the use of antibiotics in animal feeds presents a major potential threat to human health and animal health, antibiotic use is a necessary condition for producing cheap and plentiful food. A worry is that the discontinuity of regularly feeding low levels of antibiotics to farm animals will result in the rise of the price of food, and our ability to feed people in developing nations would decrease.<sup>130</sup> It will cost more to produce food animal products since extra labor will have to be distributed to keeping the environments healthy and sanitary for the animals so they do not get sick and proliferate infectious disease, and the extra profit benefits of the growth promotion effect will be lost. A rise in food prices will especially hurt the poor, whom an increase in food prices matters most. According to the US National

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<sup>129</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 6.

<sup>130</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 1.

Research Council (NRC), they reported that the average annual per capita cost to consumers of a ban on sub-therapeutic drug use is \$4.84 to \$9.72.<sup>131</sup> This means that consumers would have to be willing to pay \$10.00 per year for insurance against the risk of creating antibiotic resistant pathogens<sup>132</sup> and against a practice that helps producers to continue mistreating animals.

As Singer has already pointed out, when we make ethical judgments about how we should act, the same respect we give to the *interests* of human beings ought to also be given to the interests of nonhuman animals. Species, once more, is not a morally justified reason to exclude a living being who has interests from moral consideration. But what do we do when these interests conflict with one another? Do human interests matter more than animal interests? Do animal interests matter more than human interests? Are they equally important? Are some interests more important than others? Resolving the issue of competing interests between human beings and animals is complicated, and there is no easy answer. I think one could argue that the prevention or the alleviation of physical pain and suffering is one of the most important if not *the* most important interest that subjects care about before and above any other. After all, if one is in chronic pain or constant physical distress, it is unlikely that the fulfillment of any other interest one may have can make up for the suffering one is already enduring. For instance, if someone is physically starving, it seems as though a previous interest in companionship or social stimulation will lessen in importance. It may not even matter to this person at all anymore. Therefore, many might agree that a subject's interest in avoiding physical pain and suffering could be, in terms of weighing interests, of highest importance. In other words, it is the precondition that must be met

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<sup>131</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 4.

<sup>132</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 4.

if one is to have any further interests at all. If the ethical considerations we make when deciding what to do ought to take into consideration that the minimizing of physical suffering as priority for both human beings and animals equally, then an action that promotes the physical suffering of animals but does not affect the physical suffering of humans would be morally impermissible and vice versa. If we have to choose between abusing an animal for food because we have an insatiable craving for meat (or some further interest that does not relate to the avoidance of physical suffering) when we could easily feed ourselves satisfactorily with other food sources (and not starve), then we have a moral obligation to not hurt the animal and respect its most basic and important interest.

Thus, it seems as though the ethical theory known as utilitarianism can best capture these intuitions. It leads us to act impartially and fairly by requiring us to balance our interests with those of others, and this provides us with an effective antidote against practices or actions that discriminate based on species. Again, utilitarianism holds that actions are right in proportion as they tend to promote happiness, wrong as they tend to produce the reverse of happiness. By happiness is intended pleasure, and the absence of pain; by unhappiness, pain, and the privation of pleasure.<sup>133</sup> Therefore, utilitarianism gives precedence to the importance of the interests tied to physical suffering which is necessary if there is to be improvement in the way food animals are treated. It should be noted that the absence of physical pain is not *the* only interest that animals or human beings have, or that there are no other important interests that both species ought to have respected and protected. Like I said, the ban on non-therapeutic use of antibiotics in animal feeds won't solve all of the welfare problems that food animals currently undergo, but it is a

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<sup>133</sup> William F. Lawhead, *The Philosophical Journey*, 468.

good start! Analogously, utilitarianism isn't a perfect ethical theory that will solve all of the welfare problems that food animals currently undergo, and will certainly not cater to every interest or desire an animal has, but it is a decent ethical theory that at the very least tends to one of the most important, yet most disrespected of those interests. That being said, from a utilitarian approach, every subject that is worthy of moral consideration counts as one. If we calculate that a discontinuation of the non-therapeutic use of antibiotics in animal feeds brings more or less physical pain and suffering to more subjects than there would be if we continued to use them, then a solution to the confliction of interests might be resolved.

### **Weighing the benefits and costs**

A utilitarian criterion for evaluating whether or not the discontinuation of the non-therapeutic use of antibiotics is morally defensible will have to examine the costs and benefits to each interested party involved inherent in the concerns, already mentioned, that are raised by humans according to how it affects the presence or absence of physical pain and suffering. Firstly, does a price increase in animal food products actually violate our precondition for having interests (our primal interest in freedom from physical pain and suffering)? If people are left starving because they cannot afford food, then yes, it does. If this were the case, then there is the possibility that the benefits we gain by truncating antibiotic use cannot be morally justified. Realistically speaking, a significant amount of American consumers would be financially able to pay the extra \$4.88 a year to purchase animal products that are free of antibiotics. But for the American poor, this might not be feasible. Nevertheless, Rollin makes the important point that

the medical problems that occur and the conferring medical care needed if we breed antibiotic resistant pathogens will cost them more!<sup>134</sup>

Secondly, an increase in food prices in this situation is an increase in price for *animal* products alone. At one level, we know that price is a critical issue for those on low incomes, but that does not mean that food companies have a lower ethical concern to their animals. The challenge for those food companies is to make ethically produced food available and affordable to all. None of us condone human slavery as a means of lowering production costs to support those consumers on lower incomes, why therefore would we condone poor animal welfare?<sup>135</sup> And even if food companies can't or are unwilling to improve animal welfare while keeping food costs low, much of the starving poor are currently financially incapable of buying animal products to begin with, thus, eliminating antibiotics will not be the difference between their being able to acquire them or not.<sup>136</sup> Furthermore, even if a large portion of the population cannot, because of a rise in food prices, no longer purchase animal products, there are many cheap alternative protein products available that can be substituted in place of meat and dairy such as soy, bean, and plant protein and other faux meat products. Beans provide a great and viable source of protein and on average cost of dry beans is \$0.25 per cup. Further, it has been widely recognized that a diet high in meat and dairy can be detrimental to human health.<sup>137</sup> One

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<sup>134</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 4.

<sup>135</sup> Roland Bonney, *The Future of Animal Farming: Renewing the Ancient Contract*, 70.

<sup>136</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 5.

<sup>137</sup> New information shows that plant based diets low in animal foods may even improve health, "Vegetarians and vegans (including athletes) 'meet and exceed requirements' for protein. And, to render the whole we-should-worry-about-getting-enough-protein-and-therefore-eat-meat idea even more useless, other data suggests that excess animal protein intake is linked with osteoporosis, kidney disease, calcium stones in the urinary tract, and some cancers. Despite some

major problem with the poor in the US, at least, is not cost; it is lack of knowledge of proper nutrition, and poor food buying choices, and so the small food price increases attendant on abandoning sub-therapeutic antibiotic use could be compensated for by a small amount of education.<sup>138</sup> Human beings do not need to consume any animal foods in order to stay alive, be healthy, or obtain all of the essential nutrients one needs. This is problematic for those who are unaware of this because it leads people to over-consume and thus over-demand food animal products because they just don't know otherwise. Thus, an inability to obtain food animal products would not harm a human being in terms of going hungry, or not, or in terms of getting access to proper nutrition, or not. In light of these results, the correct course of action based on utilitarian calculus would be to stop using antibiotics non-therapeutically as it would produce less harm to fewer subjects without violating the most important of interests.

### **Curtailment of non-therapeutic antibiotic use is morally defensible**

Certainly, there seems to be some real potential in social human and animal welfare benefits to curtailing non-therapeutic use of antibiotics in animal agriculture that will improve physical animal pain and suffering through the better husbandry practices of a morally defensible agriculture while not affecting the physical pain and suffering of human beings! At the very least, if we have the ability to improve animal welfare at no significant expense to us, then this is something we morally ought to do. Both humans and animals share the basic interest in avoiding physical pain and suffering. If humans and animals are subjects worthy of having their interests

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persistent confusion, it is clear that vegetarians and vegans tend to have more optimal protein consumption than omnivores.” Jonathan Safran Foer, *Eating Animals*, 2009.

<sup>138</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 4.

be respected and protected equally, and if it is possible to do so equally, then the curtailment of antibiotics for non-therapeutic purposes in feedlots is morally defensible. Not only would the ban on non-therapeutic antibiotic use help animals at little expense to basic human interests, there is good reason to believe that it would further *improve* human well-being as it could stop the agricultural shortcuts used that allow for many food safety and human health safety issues. The ways in which it would do so being: the prevention of the risks of antibiotic resistance, restoring jobs to small family farms, fewer health safety problems for farm workers, and fewer cases of toxin and chemical residues in food. Thus, respecting an animal's basic interests does not necessarily mean subordinating the most important of one's own interests to those of animals, but looking for ways of resolving conflicts of interests that consider the animal's interests, especially the most important ones.

The issue of antimicrobial resistance and antibiotic overuse in food animals has gained attention and has become a major challenge as the development of antimicrobial resistance in foodborne and clinically important bacteria threatens the welfare-interests of human beings. There is little concern regarding the relationship between inappropriate production conditions in livestock and antibiotic usage compared to the concern regarding the relationship between human health and antibiotic usage. But the overuse of antibiotics in food animals not only threatens the welfare-interests of human beings, it also threatens the welfare-interests of food production animals in intensive industrial systems. Thus, this is why we should *also* talk about animals when we talk about our concern surrounding antibiotics. Farm animals should not be left out of this greater conversation. Not only the welfare of human beings, but, the welfare of the animals we consume for food should be an integral component in the decisions we make about

how we use or do not use antibiotics. The Pew Commission on Industrialized Farm Animal Production (PCIFAP) has similarly recommended that we restrict the use of antimicrobials in food animal production,<sup>139</sup> at the benefit of both human and nonhuman animals. This health recommendation includes:

- 1) Phase out and ban the use of antimicrobials for non-therapeutic use in food animals.
- 2) Immediately ban any new approvals of antimicrobials for non-therapeutic uses in food animals and retroactively investigate antimicrobials previously approved.
- 3) Strengthen recommendations in Food and Drug Administration (FDA) Guidance #152<sup>140</sup> to be enforceable by the FDA.
- 4) Facilitate reduction in industrial farm animal production (IFAP) use of antibiotics and educate producers on how to raise food animals without using non-therapeutic antibiotics, the U.S. department of Agriculture's (USDA) extension service should be tasked to create and expand programs that teach producers the husbandry methods and best practices necessary to maintain the high level of efficiency and productivity they enjoy today.<sup>141</sup>

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<sup>139</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 47.

<sup>140</sup> This is a guidance for industry that discusses a recommended approach for assessing the safety of antimicrobial new animal drugs:  
<http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/ucm052519.pdf>

<sup>141</sup> Robert P. Martin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 47.

The American Medical Association, the American Public Health Association, the Infectious Diseases Society of America, and the American Academy of Pediatrics—among 300 other organizations nationwide—have condemned the lacing the feed of farm animals with antibiotics. Despite the widespread outcry against this practice from the public health community, a majority of agribusiness continues to engage in this dangerous custom,<sup>142</sup> where animals are treated as units of production rather than subjects with interests, desires, and needs. The European Union took steps a decade ago to ban the use of antibiotics on farm animals for non-treatment purposes, but the United States has lagged far behind in this area. In what follows, I will identify various organic farms in the United States as well as look at farms in other countries that have prohibited such misuse of antibiotics in livestock, and, assess the relationship between the implementation of a policy like this and its effect on animal welfare.

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<sup>142</sup> The Humane Society of the United States, *An HSUS Report: Food Safety and Cage Egg production*, 1.

## CHAPTER 3

### The challenge

The challenge that the food production industry is faced with is that of maintaining production while at the same time considering and addressing issues associated with animal welfare, animal health, food safety, human health, human interest *and* recognizing this as an ethical issue. While there are still other issues that they are pressed to consider, such as climate change and environmental pollution, simply balancing animal welfare, human health, and food safety is not easy. But, there is general public consensus that improved animal health and well-being contributes favorably to food safety.<sup>143</sup> And based on a utilitarian calculus, improving animal health would produce better consequences overall for both animals and humans, all things considered.

The concern over the safety of food animal products along with a mental ethical shift towards how the general public views the moral status of animals, combined, have brought our present food production practices under intense scrutiny in recent years. Modern animal production practices involve growing or feeding large numbers of animals together, in enclosed or limited environments, and sometimes in nonhomogenous groups. Such intensive rearing conditions lead to animal welfare concerns due to stressful conditions associated mostly with

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<sup>143</sup> D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 206.

restricted housing conditions and confined management practices.<sup>144</sup> Important food safety and human health issues associated with such a neglected respect for the animal's interests include increased transmission of foodborne pathogens such as antimicrobial resistant pathogens,<sup>145</sup> due to the fact that antimicrobial hurdles in food processing and preservation are needed to allow these types of production practices to be successful. Therefore, the implementation of antibiotics for non-therapeutic purposes has raised various ethical and societal concerns. It has been concluded by many that improvements in animal welfare may occur by prohibiting the use of antibiotics in this way. Doing so will also make possible the reduction of on-farm risks to food safety, principally through: 1) reduced stress-induced immunosuppression; 2) reduced incidence of infectious disease on farms; 3) reduced shedding of human pathogens by farm animals; and, 4) reduced antibiotic resistance.<sup>146</sup> Many non-U.S. countries have identified these variables and mechanisms and have made the ethical judgment that the benefits derived from the non-therapeutic use of antibiotics are not worth the detrimental impact it has on human and/or animal interests.

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<sup>144</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 209.

<sup>145</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 209.

<sup>146</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 210.

## Bans on the non-therapeutic use of antibiotics

The first nation to eliminate the use of antimicrobials non-therapeutically, specifically for growth promotion, was Sweden in 1986.<sup>147</sup> In 1997, the Commission of the European Union banned the antimicrobial, avoparcin, in all European Union (EU) member states.<sup>148</sup> Also in 1997, the Netherlands banned the antimicrobials olaquinox and carbadox and veterinary prescriptions are reportedly required to use antimicrobials in food animals.<sup>149</sup> In February 1998, Danish cattle and chicken producers voluntarily stopped the use of all antimicrobial growth promoters (AGPs) as did producers of swine and for finisher pigs.<sup>150</sup> As bans have become more prominent, Denmark has restricted the use of antimicrobials to therapeutic use, by prescription only, since January 2000.<sup>151</sup> Germany banned the antimicrobial avoparcin in 1996, and German law only allows antibiotics to be used for the treatment of diseased animals, not for growth promotion, and explicitly states that antibiotics cannot be used for diseases that arise as a result of “rearing conditions.”<sup>152</sup> And in July of 2010, South Korea announced a ban on the addition of antibiotics

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<sup>147</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 635.

<sup>148</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 635.

<sup>149</sup> Diane Fine Maron, Tyler JS Smith, and Keeve E Nachman, *Restrictions on antimicrobial use in food animal production: an international regulatory and economic survey*, 4.

<sup>150</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 635.

<sup>151</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 635.

<sup>152</sup> Diane Fine Maron, Tyler JS Smith, and Keeve E Nachman, *Restrictions on antimicrobial use in food animal production: an international regulatory and economic survey*, 4.

in animal feed to strengthen the safety management of domestic livestock products.<sup>153</sup> Mexico, Japan, and Russia all have various semi-restrictions on antimicrobial use.

As I have already mentioned, a major reason that antimicrobials are used in animal feeds is to increase productivity. Therefore, a major reason for the opposition to such bans, specifically in the United States, is a worry about a decrease in productivity and profitability. But both Denmark and Sweden have shown that restrictions on antimicrobial use can be implemented with little production consequences. For the broiler industry in Denmark, productivity has not been affected by the ban of antimicrobial growth promoters and feed conversion increased by 0.016 kg/kg (1.78 to 1.796) from November 1995 to May 1999 and it went to highs of 1.83 immediately after the ban and to more than 1.84 in late 1999.<sup>154</sup> Based on mortality records, fatalities due to necrotic enteritis (the most common and financially devastating bacterial disease in modern broiler flocks) did not increase after the ban. The European Union's Scientific Committee on Animal Health and Animal Welfare found that slower growth, due to bans on AGP's, would increase running costs principally by delaying the slaughter age, but that the delaying slaughter age would be *only* 10 days, and would only cause approximately 5% higher costs than those of conventional breeds.<sup>155</sup>

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<sup>153</sup> Diane Fine Maron, Tyler JS Smith, and Keeve E Nachman, *Restrictions on antimicrobial use in food animal production: an international regulatory and economic survey*, 4.

<sup>154</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 635.

<sup>155</sup> Paul Shapiro, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 117.

## Organic livestock production

Following these European countries, the demand for “organic” farming practices and organic and “natural” food products in the United States have increased significantly. Organic foods are those grown, raised, and processed without the use of synthetic pesticides and fertilizers, and without the use of growth-promoting hormones and genetic engineering.<sup>156</sup> Organic livestock production systems, as opposed to conventional systems, implement certain rules with the objective of improving animal welfare and the environment by limiting the use of medical drugs and inputs, such as antibiotics. Antibiotics are used only for treatment of animal illness when other options fail, and not for prophylactic (preventative) reasons.<sup>157</sup> The use of growth-promoting hormones is also prohibited and organic animal production requires daily outdoor access and consumption of organic feed.<sup>158</sup> Organic livestock production systems and organic animal food products are becoming more popular in developed countries because consumers are recognizing its impact on both human and animal welfare. Cited reasons that consumers prefer organic livestock production systems include the absence of added hormones, no feeding of antibiotics, humane treatment and handling of animals, animal production that considers environmental impact, and sustainability of the production system.<sup>159</sup> Thus, it is clear

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<sup>156</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 212.

<sup>157</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 214.

<sup>158</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 214.

<sup>159</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 212.

that a concern for animal welfare is of growing ethical importance to consumers of animal food products in the United States.

American attitudes towards farm animals have grown increasingly sympathetic over the past few decades.<sup>160</sup> A 2008 Gallup poll found that 64% of American support passing strict laws concerning the treatment of farm animals. And in 2007, the American Farm Bureau Federation paid Oklahoma State University to conduct a nationwide survey on American attitudes towards farm animal protection, revealing: 81% agree that farm animals have roughly the same ability to feel pain and discomfort as humans. 75% agree and would vote for a law in their state that would require farmers to treat their animals more humanely. 95% agree that it is important that animals on farms are well cared for. 68% agree that the government should take an active role in promoting farm animal welfare.<sup>161</sup> It is clear that most Americans believe that farm animals have interests that matter and that they believe that these interests should be respected and protected legally. This includes the curtailment of antibiotics in animal feeds for non-therapeutic purposes, organic livestock production practices that cater to animal welfare, and food animal products free of antibiotics. So why is there such a lag in the United States to respond to consumer preferences?

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<sup>160</sup> Paul Shapiro, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 112.

<sup>161</sup> Paul Shapiro, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 112.

## **Objection #2: Do antimicrobial bans actually improve animal welfare?**

One reason that producers may be neglecting obvious consumer concern is the questionable relationship between antibiotics and animal welfare. Objections arise that the standards developed for “organic” livestock production and restrictions on unnecessary use of antimicrobials do not necessarily assure that animal welfare actually improves. The actual evidence suggesting that organic livestock production is more or less detrimental to the overall animal health and welfare in comparison with conventional systems is, unfortunately, limited.<sup>162</sup> There are few studies that compare truly organic practices to conventional ones. There is strong evidence that parasite control is of greater concern in organically managed animals. The outdoor production of pigs, dairy cattle, and laying hens is associated with higher prevalence of parasites compared to conventional intensive indoor production due to the withdrawal of preventative drug therapy to control parasites and increased exposure of animals to rodents transferring disease via outdoor/open range exposure.<sup>163</sup> In response, research into finding effective and morally acceptable rodent management programs should be developed and implemented in organic production systems.<sup>164</sup>

If this is one risk we have to take to provide livestock with conditions of life that are harmonized with their biological needs and interests, and if this risk can be eliminated, it is a risk

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<sup>162</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 214.

<sup>163</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 214.

<sup>164</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 215.

worth taking. If indoor housing of food animals in intensive animal production systems has resulted in effective control of certain pathogens, then, livestock-production systems operating under better animal welfare guidelines can provide extra measures to control transfer of parasites such as preventing access of rodents and cats to the premises. If we can provide better welfare for food animals that respect their interests and lessen animal pain and suffering at little cost to human interest, then it is a moral obligation that we do so. Moreover, even if parasites cannot be as well controlled in organic systems, most of us, I believe, would agree that a free-range system is far better for animal welfare than any confinement unit is. Important elements of animal welfare, as depicted by the five-freedoms, aren't simply tied to an animal's basic health and functioning and production. Many feel that for farm animals to have a good life, it is important that they are free to live in fresh air and sunlight with ample space to roam and socialize and where fear, pain, and hunger are minimized.

Further, to repeat what I have already mentioned, I am aware that removing antibiotics from animal feeds does not and will not solve *all* animal welfare problems. Antibiotics are one of the many contributing factors that make up harmful factory farming practices. I only aim to identify the misuse of antibiotics as *one* of the contributing factors that can be identified and removed at little cost to producers and consumers. The removal of antibiotics, I argue, can be a small incremental change to existing exploitative animal agricultural systems that might be able to rectify some of the animal welfare problems that currently exist.

### **Objection #3: Alternatives to preventative antibiotics**

Another reason that animal welfare may not necessarily improve with the curtailment of antibiotics in animal feeds for non-therapeutic purposes is due to increased interest, by scientists (who do not see the ethical implications of their actions in accordance to American public consumer demand for humanely raised animal products) to find new and improved progressive ways to be able to keep livestock production practices as they are, even without antibiotics.

Comparatively, there has been relatively little regulatory activity regarding non-therapeutic antimicrobial use in the United States. In the U.S., antimicrobials are approved to treat, control, and prevent disease in food animals, and for production purposes like growth promotion. Many of them are available without veterinary prescription. And the quantity of antimicrobials sold in the U.S. for use in food animals is approximately four times greater than the quantity sold for use in humans.<sup>165</sup> It is clear, however, that the practice of using them unnecessarily is under scrutiny. For example, Internet web sites for McDonald's Corporation, Panera Bread, and for KFC all have statements claiming that they do not accept chicken meat grown using antimicrobial growth promoters.<sup>166</sup> And even if no other regulations are

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<sup>165</sup> Diane Fine Maron, Tyler JS Smith, and Keeve E Nachman, *Restrictions on antimicrobial use in food animal production: an international regulatory and economic survey*, 2.

<sup>166</sup> Other fast-causal restaurants that have stopped selling meat raised with antibiotics: B7: Beef B. Good: Chicken, Hamburgers, BGR: Hamburgers, Boloco: Beef, Chicken (dark meat only) BurgerFi: Hamburgers, Hot Dogs, Cosi: Chicken, Chick-fil-A: Chicken (within 5 years), Chipotle: Chicken, Beef, Pork Chop't: Chicken, Beef, Carl's Jr.: The All-Natural Burger, Culver's: Chicken, Elevation Burger: Hamburgers, Chicken, EpicBurger: Beef, Farmer Boys: All-Natural line of Hamburgers, Flying Star Cafe: Chicken, GoodTimes: Beef, Chicken, Hannah's Bretzel: All meats, Illegal Pete's: All meats, Jason's Deli: All meats McDonald's: Chicken (within 2 years), Noodles & Co.: All meats (by 2017), Panera: Chicken, Roasted Turkey Sausage, Ham (in salads and sandwiches), Pret-a-Manger: Chicken, Beef, Pork,

forthcoming, producers in any country that seek export markets will be forced to give up AGP if they are to sell to the EU and many other markets.<sup>167</sup> In recent years, multiple practices of the U.S. food animal industry, such as the use of antimicrobial rinses to clean poultry carcasses, have lead other countries to restrict the import of U.S. food animals products. And the possibility of similar barriers to U.S. products due to differences in antimicrobial use policies has been raised.<sup>168</sup> While bans on giving low doses of antibiotics to animals when they are not sick can be curtailed by a growing concern over this practice within the consumer market, this has led to a new urgency in search for replacements that prevent or control infectious diseases and also increase production efficacy. Governor Jerry Brown of California signed a bill in October 2015 that bars livestock producers, starting in 2018, from feeding antibiotics to animals to prevent illness or promote growth<sup>169</sup> and thus alternative modes of livestock production are being looked into by scientists.

A morally defensible replacement candidate is improvement of husbandry practices. This caters to both human and animal interests. The relationship between animal welfare, animal health, food safety, and human health is quite clear: 1) poor animal welfare results in poor animal

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Protein Bar: Chicken, Red Robin: Hamburgers, Roti: Chicken, Shake Foundation: Hamburgers, Shake Shack: Beef, Shophouse: All meats, Soppraffina Marketcaffe: All meats, Subway: Chicken (2016), Turkey (2016-2019), All meats (within 10 years), Sweet Green: All proteins, Tasty Burger: Beef, The Counter: Hamburgers, The Grove Cafe: All meat, UBurger, Hamburgers, Yasmine's Cafe: All meat (The Federation of State Pirgs)

<sup>167</sup> J.J. Dibner and J.D. Richards, *Antibiotic Growth Promoters in Agriculture: History and Mode of Action*, 636.

<sup>168</sup> Diane Fine Maron, Tyler JS Smith, and Keeve E Nachman, *Restrictions on antimicrobial use in food animal production: an international regulatory and economic survey*, 3.

<sup>169</sup> Marisa Taylor, *California's Strict New Antibiotics Law Created Need for Alternatives*, <http://america.aljazeera.com/articles/2015/10/12/alternatives-to-use-of-antibiotics-in-livestock.html>.

health and a higher risk for poor food quality and safety; and 2) improved animal welfare results in improved animal health, reduced need for antibiotics, and a lower risk for development of antibiotic resistance in foodborne pathogens.<sup>170</sup> Good sanitation on farms reduces the spread of certain diseases. For example, poor air quality in confinement housing can predispose animals to respiratory disease and may decrease production in pigs and poultry. Therefore, maintaining suitable ambient temperature and air and water quality can help to preserve healthy animals.<sup>171</sup> Effective cleaning of pens and barns and disinfection procedures offer additional means to control infectious diseases. For instance, pigs can be kept relatively free of *Salmonella* when raised in clean and disinfected environments.<sup>172</sup> While common sense seems to point us towards the conclusion that traditional husbandry practices, which promote healthier environments for food animals that do not harm their interests or overall well-being is an obvious solution, replacement candidates that seem to be growing in popularity are genetic and dietary ones.

Specifically, California rules barring routine use of antibiotics in healthy livestock are leading scientists to look into these popular replacements. Genetic approaches include practices that foster genetic selection to enhance disease resistance in animals that boost animals' immunity, eliminating the need for such medicines. Animal scientist Mark Cook and his team at the University of Wisconsin at Madison discovered a way to disable an off switch in chickens'

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<sup>170</sup> Jarret D. Stopforth and John N. Sofos, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 216.

<sup>171</sup> Scott A. McEwen' and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 603.

<sup>172</sup> Scott A. McEwen' and Paula J. Fedorka-Cray, *Antimicrobial Use and Resistance in Animals*, 603.

immune systems and have replicated the results in cattle.<sup>173</sup> Dietary approaches include putting probiotics (beneficial micro-organisms or “good bacteria”) in animals’ water supply to help stabilize animals’ gut bacteria and make them less susceptible to illnesses.<sup>174</sup> Genetic modifications in animals and probiotics can benefit animals by conferring disease resistance, can help to treat human disease such as preventing antibiotic resistance, can help develop new products for other purposes, and can increase efficiency of animal production.<sup>175</sup> But the problem with these antimicrobial replacements is that they work to minimize human illness, animal illness, and increase production efficacy while still allowing animals to live in cramped and unhealthy environments that are morally objectionable, cause pain and suffering, and thus do not help to improve the pressing animal welfare issues that are of concern. Thus, animal welfare may be poorer because of these modifications. Therefore, along with antibiotics, both genetic and dietary approaches are just as morally objectionable and should not be used in industrial settings since they, too, allow for and perpetuate harmful farming practices to the detriment of animal welfare.

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<sup>173</sup> Marisa Taylor, *California’s Strict New Antibiotics Law Created Need for Alternatives*, <http://america.aljazeera.com/articles/2015/10/12/alternatives-to-use-of-antibiotics-in-livestock.html>.

<sup>174</sup> Marisa Taylor, *California’s Strict New Antibiotics Law Created Need for Alternatives*, <http://america.aljazeera.com/articles/2015/10/12/alternatives-to-use-of-antibiotics-in-livestock.html>.

<sup>175</sup> Donald M. Broom, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 88.

#### **Objection #4: What of the therapeutic use of antibiotics?**

I hope to have made clear throughout this paper that the *non-therapeutic* or *sub-therapeutic* use of antibiotics (used either as a prophylactic to compensate for lack of proper husbandry, cleanliness, air exchange, stress control, etc. or used as a growth promoter) in high confinement industrial agriculture is the object of concern as a morally objectionable practice in systems of food animal production. I have not yet said anything about the *therapeutic* use of antibiotics. To be clear, there isn't anything *intrinsically* wrong with feeding animals antibiotics, because the antibiotic itself does not *directly* harm the animal. Antibiotic use is not morally wrong in all cases. After all, if there was only one cow left on this earth and it would die if weren't given an antibiotic, we most certainly would think it morally correct to give the cow the antibiotic. In this case, the antibiotic has a *therapeutic use* and has direct benefit to the cow. However, in the case of intensive factory farming, antibiotics do not play a therapeutic role nor do they provide any direct benefit for the animals aside from enabling harmful practices. Thus, they are wrong not only because they are necessary for factory farming conditions, but, they do not possess any independent value or purpose other than to promote the morally objectionable treatment of animals. There are those who would allow no antibiotics to be used even to treat sick animals, granted that they have been provided with optimal living conditions that cater to their basic interests and needs. Rollin argues, and I agree, that this is morally wrong and as egregious a violation of husbandry as there could be.<sup>176</sup> Whether we fail in keeping up with our husbandry obligations to animals or we keep and treat animals in ways that are favorable to their welfare-interests, or we raise them organically, we cannot morally or economically allow sick

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<sup>176</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 8.

animals to go untreated if they so happen to fall ill. Rollin asserts that the trick in animal medicine, as in human medicine, is not to fail to treat, but to treat judiciously and prudentially.<sup>177</sup> “Just as we should not drop tons of antimicrobials into animal feeds, physicians should not throw tons of prescriptions for antibiotics at patients with colds and viral infections merely because they want something for their \$50.<sup>178</sup> This means that we should favor prevention over cure. To do this, Rollin states that we should enforce true patient-client-doctor relationships as a precondition for prescribing. I would add that education about antibiotic resistance and its prevalence due to over-prescription by doctors and over-use by patients should be implemented. And possible legal restrictions on how much doctors can prescribe ought to be considered. For animals, he states that we should eliminate disease-inducing systems and methods, which is what I explicitly advocate for. This does not mean that antibiotics should not be used at all. It means only that we should develop prudential and rational therapeutic uses of antimicrobials. They ought to be used when needed, not as high-technological fixes for agricultural problems that we ourselves have caused. Nor should they be used to provide cheap food, as we have already indicated that this may cause food safety and health problems for consumers anyway.

### **How can change be implemented?**

So far I have targeted antibiotic misuse as one of the main contributors to the sustainability of an unsustainable animal agricultural system that makes possible the morally objectionable treatment and containment of animals in ways that threaten animal welfare-interests.

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<sup>177</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 8.

<sup>178</sup> Bernard E. Rollin, *Ethics, Science, and Antimicrobial Resistance*, 6.

I object to the use of antibiotics, not only because it affects human health, but insofar as it also promotes or makes possible farming practices that significantly harm animals. Thus, how does a prohibition policy such as a ban on non-therapeutic uses of antimicrobials in food animal production get implemented? And how does one prevent the use of genetic or dietary approaches (since these approaches fix food safety and human health concerns, but not animal welfare concerns) in replacement of simply providing better husbandry practices?

In order for this to happen, U.S. agricultural scientists, food animal producers and industry representatives need to recognize that the problems faced in animal agriculture are *ethical* problems and that the concept of animal welfare is at root ethics-laden. The question of what we consider acceptable in terms of the risks associated with feeding antibiotics is a valuational question. We favor, or value, the benefits we receive from feeding animal's antibiotics over and above the animal suffering it causes. We do not consider the costs to the farm animals as an important factor in the equation. The failure to recognize the inescapable ethical component in the concept of animal welfare leads inexorably to those holding different ethical views talking past each other. Thus, producers ignore questions of animal pain, fear, distress, confinement, truncated mobility, bad air quality, social isolation, and impoverished environment.<sup>179</sup> Further, because of this, they do not see the ethical implications of the misuse of antibiotics in terms of how they negatively affect animals, nor will they provide better husbandry practices if a ban were to be implemented. Instead, they will look for alternatives to preventative

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<sup>179</sup> Bernard E. Rollin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 78.

antibiotics, such as genetic engineering or probiotics, that allow for current farming practices to remain as is.

One way for food producers and scientists to understand animal welfare as an ethical issue concerning what we owe to animals is to provide a clear definition of what good animal welfare looks like that isn't tied to productivity. We need to agree on how to define this term, that way, we can measure how well or poorly we are at adhering to the definitional standards. The way a society views welfare depends on their valuational notion of welfare and how it is defined. Just because an animal is productive does not necessarily mean it is well off. "Productivity is an economic notion predicated of a whole operation; welfare is predicated of individual animals. An operation, such as caged laying hens may be quite profitable if the cages are severely over-crowded, yet the individual hens do not enjoy good welfare."<sup>180</sup> What we owe animals and to what extent isn't simply what it takes to get them to create profit. This is because they have a wide variety of welfare-interests that ought to be respected and protected. Thus, we need farmers to recognize that they are not just commodity producers, but are responsible for the care of living beings that have welfare-interests very similar to us. As already mentioned, an animal's welfare should be considered in terms of the "five freedoms" that were presented in chapter two. Understanding welfare in terms of these five freedoms may help to diffuse notions of welfare that are presently tied to the convenience of producers. Doing so will make efficiency constrained by the need to acknowledge the animal's natural behavior and mental states, and to assure that there is minimal pain, fear, distress, or discomfort.<sup>181</sup> Moreover, this might help to

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<sup>180</sup> Bernard E. Rollin, *The Inseparability of Science and Ethics in Animal Welfare*, 760.

<sup>181</sup> Bernard E. Rollin, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 78.

mitigate efforts to search for alternatives to antibiotics that promote food safety without promoting animal welfare, such as genetic or dietary alternatives.

The next step in promoting a consensus for banning the non-therapeutic use of antibiotics in animal feeds is to educate food producers and farmers of the probable costs and benefits that might result from their removal. Using a consequentialist ethical theory such as utilitarianism, which works to judge the moral status of an action by assessing the consequences that result from the action in question, certainly leads us to the conclusion that feeding animals antibiotics for non-therapeutic purposes is morally objectionable and is a practice that ought to be stopped. Presently, farm animal welfare is not assessed when considering probable costs and benefits since they are not understood as subjects of worthy of moral consideration. Utilitarianism makes possible the idea that any being who has an interest ought to be considered when assessing harms and pleasures, costs and benefits. At the very *least*, utilitarianism makes room for animals to be included in our calculations when deciding what we should about antibiotics, since they are, of course, beings with welfare-interests. Whether or not a utilitarian approach addresses every welfare-issue experienced by animals is up for debate, but it undoubtedly identifies the misuse of antibiotics in industrialized agriculture as morally wrong in so far as it contributes to the suffering of animals raised for human food and poses serious threats to human health which are harms that seem to outweigh the benefits derived from their use. Since utilitarianism involves counting the aggregate sum of pleasure and pain produced by all parties involved (humans and animals), it seems that less pain and harm would result if the practice were to be stopped, especially in the long run. Currently, health threats to human beings and animal pain and suffering is unnecessarily high to legitimize a practice such as this to continue without serious

assessment. The major benefits we gain from feeding animals antibiotics seem to be food efficiency and productivity to generate cheap and plentiful food. Efficiencies and increased productivity tied to antibiotic use allows U.S. consumers to enjoy more affordable meat, milk, and eggs. While cheap and plentiful meat, milk, and eggs is certainly a huge benefit, a minor rise in food prices does not significantly affect most Americans. And for those it does affect, such as the American poor, most cannot afford meat to begin with. Moreover, even if they could previously afford food animal products, there are other cheap food options available that can still provide a fully balanced and nutritious diet. Not to mention that a diet high in saturated fats increase risks of heart disease and farm livestock are a major source.<sup>182</sup> The costs associated with feeding animal antibiotics seem to clearly outweigh the benefits. Some of these costs include poor animal welfare such as high-confinement, improper health care, production diseases, unsanitary living conditions and so on. Further, there are food safety issues that cause antibiotic resistance in humans and an increase in the risk of disease (which is much more costly in the long-run!), increasingly being unable to export food animal products to other countries that enforce antibiotic bans and restrictions, and losing business from consumers who are demanding organic and antibiotic-free food products. Bans on antibiotic use may, in the short term, seem to be somewhat costly. But, in the long term, misuse of antibiotics in animal feeds will cost exponentially more. Various countries in Western Europe have already shown that productivity isn't significantly negatively affected by such a removal. But surely, even if feeding farm animals antibiotics for non-therapeutic purposes did not negatively harm human beings, it is a practice that certainly harms animals. And because what we owe to animals is tied to respecting

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<sup>182</sup> Donald M. Broom, *Animal Welfare in Animal Agriculture: Husbandry, Stewardship, and Sustainability in Animal Production*, 88.

and protecting their welfare-interests as provided by the five freedoms, and if we can provide a high standard of animal welfare at little cost to us, then this is reason enough to morally condemn its continuity.

A further step, is the need for consumers to support laws and regulations that align with their ethical values and beliefs to control what happens on the farm. It is important for agricultural scientists, food animal producers, and industry representatives to adhere to societal concerns as consumers are increasingly recognizing the moral status of farm animals and the importance of respecting and protecting their welfare-interests. It is also widely understood that if we do this, and farm in ways that suit animals, people also benefit.<sup>183</sup> This means that instead of using preventive antibiotics to force animals to fit into harmful environments, we ought to provide environments fit for animals so that antibiotics do not need to be used. The main objective over the last 60 years in agriculture was to feed the nation after two world wars, when we did not have food stability and the population was on the increase. While these industrialized agricultural practices have had a significant global impact on animal welfare, we knew and thought much less about what was important to animals at that time as our need was so great. This is no longer the case.<sup>184</sup> It is clear that people are very concerned when faced with the reality of poor animal welfare. Now we need to find a way to meet animal needs and commercial/consumer needs. Improvements to farm animal welfare are not only the farmer's responsibility (and the need for them to recognize that they are in the business of ethics, not just commodity producers) but all involved in the food chain. Good production practices need

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<sup>183</sup> Ruth Layton, *The Future of Animal Farming: Renewing the Ancient Contract*, 84.

<sup>184</sup> Ruth Layton, *The Future of Animal Farming: Renewing the Ancient Contract*, 84.

support from the market place to be sustainable and food retailers can take active responsibility for the decisions they make on behalf of their customers.<sup>185</sup> Thus, we need to actively take a greater responsibility in closing the gap between our purchasing actions, if we can, and our ethical aspirations regarding animal welfare. This means working towards consistently purchasing food animal products raised organically and free of antibiotics. Policies will support a market-led response to the concerns of citizens, but the concerns of citizens can only be identified if our consumer buying habits begin to reflect our ethical values, so that change can be implemented.

### **Can animals be raised without antibiotics?**

There exists a multitude of factors, issues (such as environmental concerns), problems, and various interests (consumer, animal, farmer, business owner, veterinarian, etc.) that constitute the very complicated layers involved in the institution of factory farming and the distribution of preventative antibiotics. Unfortunately, I cannot address any more of them here as that would deviate from the scope of this paper. My objective is simply (or not so simply) to identify some of the issues surrounding preventative antibiotics that concern farm animals in a morally significant way in relation to how they concern us.

Therefore, the last question I will consider is: can animals be raised without antibiotics? Can the United States raise meat without creating conditions that are hideous for the animals? The answer is: yes, we can. And we did it for thousands of years before the “luxury” of

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<sup>185</sup> Roland Bonney, *The Future of Animal Farming: Renewing the Ancient Contract*, 71.

efficiency and productivity antibiotics brought to farmers. Before the 1940s, animal agriculture was extensive and animals were successfully raised and productive without the use of preventative or growth promoting antibiotics. This was possible because farmers provided their animals with *good husbandry* practices: they put animals into environments best suited for them to survive and thrive in accordance with their natures, they kept the environments clean and sanitary, and they provided proper care for the sick and injured.

Recently, a Missouri farmer named Russ Kremer spoke out about the possibility of raising animals without antibiotics. He has raised swine without antibiotics for 25 years simply by focusing on management practices that prevent illness and death. These include improvement of housing conditions and reduction of population density.<sup>186</sup> His results from this, he says, are “healthier animals with a dramatic reduction in mortality rates”<sup>187</sup> It is possible to stop the spread of disease through proper sanitation and effective cleaning of farms while providing animals with environments that fit their needs and interests. Many farmers are convinced that they need antibiotics to produce affordable meat and remain economically viable. However, Kramer discovered that as consumers become more savvy, they demand antibiotic free-meat, and they are willing to pay for it.<sup>188</sup> Raising meat and poultry without antibiotics can be accomplished at minimal cost to the consumer, about 5 cents extra per pound for pork and less than a penny per pound extra for chicken. While today, antibiotic-resistant infections cost our nation at least \$20

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<sup>186</sup> Tara C. Smith, *What Does ‘Meat Raised Without Antibiotics’ Mean, and Why is it Important?*, Washingtonpost.com

<sup>187</sup> Tara C. Smith, *What Does ‘Meat Raised Without Antibiotics’ Mean, and Why is it Important?*, Washingtonpost.com

<sup>188</sup> *Antibiotics: miracle Drug to Precious to Squander*, www.Organicprairie.com.

billion and steal thousands of lives each year.<sup>189</sup> If it is possible to raise animals without the use of preventative antibiotics, then it is clear that because the only purpose of antibiotics used in this way is to enable wrongful conditions, that the non-therapeutic use of antibiotics is wrongful.

Therefore, in order to change an animal agriculture that is based on abuse, both at the animal level and the human level, we need to reform legislation and federal law. This is not unrealistic. There have been many legal changes within the last seven to eight years relating to promoting animal welfare, especially with lab animals. So why not farm animals? Why not antibiotics? In the United States the US Congress passed two major pieces of legislation (Animal Welfare Act and Health Research Extension Act) regulating and constraining the use and treatment of animals in research in 1985, despite vigorous opposition from the biomedical research and medical lobbies,<sup>190</sup> who claimed that human health and medical progress would be harmed by implementation of such legislation. State laws passed in large numbers have increasingly prevented the use of live or dead shelter animals for biomedical research and training.<sup>191</sup> Toxicological testing of cosmetics on animals has been truncated, and companies such as the Body Shop have been wildly successful internationally by totally disavowing such testing.<sup>192</sup> Eight states have abolished the steel-jawed leghold trap. According to the director of the American Quarter Horse Association the number of state bills related to horse welfare sky rocketed in 1998 alone. Public sentiment for equine welfare in California carried a bill through state legislature, making the slaughter or shipping of horses for slaughter a felony in that state.<sup>193</sup>

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<sup>189</sup> *Antibiotics: miracle Drug to Precious to Squander*, [www.Organicprairie.com](http://www.Organicprairie.com).

<sup>190</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 16.

<sup>191</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 16.

<sup>192</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 17.

<sup>193</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 16.

With the growing social concern for animal treatment in agriculture, it is possible that legal changes regarding the practices and treatment of farm animals in modern production systems is possible. In 1988, the Swedish Parliament passed, virtually unopposed, what the *New York Times* called a “Bill of Rights” for farm animals, abolishing in Sweden the confinement systems currently dominating North American agriculture.<sup>194</sup> Sow confinement has been banned in Sweden since 1988. And as I have already mentioned, the EU has placed many bans on preventative and growth promoting antibiotic use in animal agriculture. According to a Gallup Poll from May 19, 2003, fully 75 percent of the US public would like legislative assurance that farm animals are well cared for.<sup>195</sup> In 2002, Farm Sanctuary and the HSUS spearheaded a ballot initiative that banned the use of gestation crates at Florida’s pig farms.<sup>196</sup> Thus, it is reasonable to expect that with the increasing societal demand for change in US agriculture, there can be legal bans on antibiotics similar to those that have occurred in Europe. A reform like this, in favor of more husbandry like practices to prevent spread of disease could certainly ease suffering in important ways.

## Conclusion

In conclusion, I hope to have shown *why we should also talk about animals when we talk about antibiotics*. Antimicrobial overuse affects animal welfare in ways that should be taken seriously as an ethical issue of major concern. The overuse of antibiotics whether in human medicine or in food animal feedlots has gained major attention by the medical community and

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<sup>194</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 18.

<sup>195</sup> Bernard E. Rollin, *Animal Right and Human Morality*, 366.

<sup>196</sup> Erik Marcus, *Meat Market: Animals, Ethics, and Money*, 71.

the general public. Our concern is that if doctors continue to over-prescribe them, and if farmers continue to use them sub-therapeutically in animal feeds, we will be faced with grave health issues such as increased antimicrobial resistant bacteria in human beings. While this is an important issue, and one that has been taken up by many, what is also noteworthy, and what I take to be an important issue, are the ways in which the sub-therapeutic use of antibiotics in animal feeds poses a grave threat to *animal health and welfare*, too. I object to the use of antibiotics in animal feeds, not only because it affects human health, but insofar as it also promotes or makes possible farming practices that significantly harm animals, and has no independent value aside from doing so. Factory farming as it is currently practiced is harmful to animals, and this gives us a reason to change factory farming. The sub-, or non-therapeutic use of antibiotics is one practice that is necessary for the preservation of current forms of factory farming, and provides no direct benefits to the animals. One way to change farming practices in ways that lead to reduced harm to animals is to stop the sub- or non-therapeutic use of antibiotics, because they make unhealthy living conditions possible. Therefore, we have reason to stop the sub-, or non-therapeutic use of antibiotics. Along with antibiotics, both genetic and dietary approaches are just as morally objectionable and should not be used in industrial settings since they, too, allow for and perpetuate harmful farming practices to the detriment of animal welfare.

Instead, a morally defensible replacement candidate for antibiotic misuse is improvement of husbandry practices. This caters to both human *and* animal interests. The question is, can we raise animals without antibiotics? The answer is, yes we can. It is possible to stop the spread of disease through proper sanitation and effective cleaning of farms while providing animals with

environments that fit their needs and interests. Before World War II, feeding animals antibiotics was unnecessary as practicing proper animal husbandry and taking care of one's animals was conducive to good animal welfare and thus productivity. Improvements in production practices that reflect good animal welfare is something that we owe to animals, as they are beings with interests and needs that ought to be respected and protected in the same way that our interests and needs ought to be. And upon proper reflection of the costs and benefits tied to preventative antibiotic use, it is clear that more good than harm for both humans and animals involved will result if such a practice is stopped. Unfortunately, there will always be violence inherent in factory farming that reform cannot address, although, reform can help address some of it! But for change to take effect, all of us involved in the food chain need to take responsibility and implement action.