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LIVESTOCK ANIMAL CLONING:

THIS STEAK IS GIVING ME DÉJÀ VU

by Blake M. Mensing*

Somatic cell nuclear transfer,¹ more commonly known as cloning, received international attention when scientists introduced Dolly the Sheep, the first mammal ever successfully cloned using an adult cell.² In many American minds, cloning evokes Frankensteinian images of mad scientists and their quest to throw off the shackles of nature's limitations. In the real world, cloning probably only shares one trait with the trials and tribulations of science fiction's most memorable characters: an enormously high rate of failure.³ The motivations behind animal cloning are purportedly to "maintain high quality and healthy livestock to supply our nutritional needs and consumer demand," and to continue the genetic lines of superior animals.⁴ Supporters of animal cloning are even touting the potential benefit to endangered species that cloning offers.⁵ These claims belie the danger that animal cloning poses to the planet's biodiversity and to human health. This article will examine the potential impact that widespread livestock cloning could have on agricultural biodiversity, the status of cloned meat product regulation, a piece of proposed legislation which would mandate labeling for packages containing cloned animal meat, and how these issues affect consumer choice.

Biodiversity, or the variability among living organisms,⁶ is a safety net that protects against the spread of diseases in the wild and among livestock populations.⁷ Cloning is by definition an attempt to stick with one set of genes, considered desirable by the purchaser of a clone or by breeders, by creating exact copies of the source animal. This replication flies in the face of biodiversity and also raises a host of ethical issues.⁸ In January of 2008, the U.S. Food and Drug Administration ("FDA") announced that it had completed its review of the health effects of cloned meat and that cloned "meat and milk from clones of cattle, swine, and goats, and the offspring of clones from any species traditionally consumed as food, are as safe to eat as food from conventionally bred animals."⁹ The FDA is not requiring products from cloned animals, or their offspring, to bear any label differentiating the product from conventionally bred meat because, the FDA states, there is no difference.¹⁰ This

article will not cover the many ethical implications of cloning but instead will discuss the potential dangers posed by monogenetic herds and the implications of the FDA's approval of cloned meat for human consumption and the current lack of labeling requirements.

The FDA ignored the potential impacts on biodiversity that cloning could have if it becomes an oft-used cog in the industrial agricultural machine. Critics are leveling accusations of scientific insufficiency at the FDA for the studies it used to reach

its conclusions on the safety of cloned animal products.¹¹ Specifically, the Center for Food Safety has issued a petition seeking FDA regulation of cloned animal products in part because of the lack of scientific data on the potential negative impacts on biodiversity due to cloning.¹² The Center for Food Safety requested that the FDA regulate cloned animals as a "new animal drug,"¹³ which would subject cloned meat products to regulation under the Federal Food, Drug, and Cosmetic Act.¹⁴ The major criticisms of the FDA studies were that they were scientifically inconclusive and that they

were conducted with financial support from companies with a vested interest in the outcome.¹⁵ Digging down into the actual studies the FDA used in its assessment of cloned animal products reveals a stark deficiency.¹⁶ Furthermore, the Biotechnology Industry Organization's own public disclosure documents reveal that the group spent \$1.9 million on related lobbying in the first quarter of 2008, which raises troubling suspicions about the independence of the FDA's risk assessment.¹⁷

Monocultures create an enhanced risk of disease because the lack of genetic diversity, if that type of animal or plant is susceptible to a disease, means that all animals in a herd could potentially perish if exposed to that disease.¹⁸ Modern industrial livestock operations use concentrated animal feeding operations ("CAFO")¹⁹ that confine animals in close proximity to increase the efficiency of the animals' conversion of grains into saleable meat products.²⁰ If CAFOs started using cloned animals, which

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would be permissible today after the FDA's approval of cloned meat products for human consumption, the incredible number of genetically identical animals being kept in close confinement would leave that herd susceptible to the rapid spread of diseases.²¹ Cloned animals, like today's CAFO residents, would require antibiotics in their feed to stave off disease.²² Biodiversity's layer of protection against the spread of diseases would be eliminated if cloned animals were introduced into the industrial livestock system.²³

With all of the potential risks²⁴ stemming from cloned meat products, and the very real potential that these products will be, or are,²⁵ in the stream of commerce, the question becomes: what has been done to protect the American public? Senator Mikulski (D-MD) and Congresswoman DeLauro (D-CT) introduced²⁶ closely related bills, which were both called the Cloned Food Labeling Act,²⁷ to the House and Senate in 2008. The bill, an amendment to the Federal Food, Drug, and Cosmetic Act, would have required that all meat products that originated from a clone or its offspring would have had to bear a label, included on the nutrition information section of the package, indicating that "THIS PRODUCT IS FROM A CLONED ANIMAL OR ITS PROGENY."²⁸ The Biotechnology Industry Organization believes this label would mislead consumers because the FDA has found that cloned meat products are no different than products from conventionally bred animals.²⁹

The Cloned Food Labeling Act stalled in the U.S. Senate Committee on Health, Education, Labor, and Pensions, and was not presented to the Senate for debate.³⁰ Similarly, the House version made it no further than its referral to the Subcommittee on Specialty Crops, Rural Development, and Foreign

Agriculture.³¹ Congress' failure to push these bills through for a vote leaves consumers uninformed and means that cloned food could be passing unwilling lips.³² The Cloned Food Labeling Act should be reintroduced in the House and the Senate because consumers ought to have the right to decide whether to ingest cloned animal products. Without a label, that choice is being taken away.

Despite the lack of labeling requirements, unsuspecting consumers currently have one option if they want to avoid cloned food. The United States Department of Agriculture's "USDA Organic" label does not and will not permit products bearing that label to contain any cloned animal products.³³ Consumer choice is an important issue and if the Cloned Food Labeling Act is not reintroduced and enacted, the USDA Organic label may be the only option for consumers looking to avoid cloned meat. While the cost of a single clone is already quite high at \$10,000-20,000,³⁴ the FDA has overlooked the social and environmental costs in its approval of cloned animal products.

Livestock cloning poses a risk to agricultural biodiversity and the FDA's approval of cloned animal products for human consumption was based on insufficient scientific evidence. The Cloned Food Labeling Act would provide consumers with the information needed to avoid cloned animal products if they so desired. If left without a choice, American consumers may be subjected to meat products that are at the very least ethically distasteful, and at worst, are products that denigrate the precautionary principle beyond all recognition. Members of Congress, if presented with a reintroduced Cloned Food Labeling Act, should vote to enact this law because freedom of choice should always receive the support of elected officials for the benefit of society. 

Endnotes: Livestock Animal Cloning: This Steak is Giving Me Déjà Vu

¹ ScienceDaily.com, Science Reference, Somatic cell nuclear transfer, http://www.sciencedaily.com/articles/s/somatic_cell_nuclear_transfer.htm (last visited Apr. 4, 2010) (describing how a somatic cell, a body cell other than a sperm or egg cell, has its nucleus removed and implanted into a recently emptied egg cell, which reprograms the implanted nucleus, and is then electrically shocked to induce it to divide).

² ScienceDaily.com, Science Reference, Dolly the Sheep, http://www.sciencedaily.com/articles/d/dolly_the_sheep.htm (last visited Apr. 4, 2010) (noting that while there were other successfully cloned mammals, Dolly was unique precisely because she was the first mammal to be cloned using somatic cell nuclear transfer).

³ Foodanimalconcerns.org, The Comments of Food Animal Concerns Trust to U.S. Food and Drug Administration Center for Veterinary Medicine, http://www.foodanimalconcerns.org/PDF/FACT_cloning_comments_04%5B1%5D.07_final.pdf (citing Panarace, et al., *How healthy are clones and their progeny: 5 years of field experience*, 67 *Theriogenology* 142, 142-51 (2007)), which noted that cloning has a historical failure rate of approximately 90%).

⁴ Bio.org, Biotechnology Industry Organization Fact Sheet, Animal Cloning, <http://www.bio.org/foodag/animals/factsheet.asp> (last visited Apr. 4, 2010) (lauding the benefits of animal cloning and claiming that it is really a form of animal husbandry that echoes the tradition of using artificial means to produce the strongest characteristics in livestock) [hereinafter BIO Fact Sheet].

⁵ *See id.* (suggesting that cloning endangered species is a way to protect them, while ignoring the obvious role that industrialized agriculture has on driving many species to the brink of extinction).

⁶ *See, e.g.*, Convention on Biological Diversity art. 2, June 5, 1992, 1760 U.N.T.S. 79 (defining biodiversity as: "[T]he variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems"). *See generally*, Center for International Environmental Law, <http://www.ciel.org/Biodiversity/WhatIsBiodiversity.html> (last visited Apr. 23, 2010) (listing the benefits of biodiversity, including the provision of food security).

⁷ Debora MacKenzie, *Disease runs riot as species disappear*, *NEW SCIENTIST*, July 1, 2009, available at <http://www.news.practicchange.net/?p=564#more-564> (discussing a report that shows an inverse relationship between biodiversity and disease rates).

⁸ *See* Endanimalcloning.org, Ethics, <http://www.endanimalcloning.org/ethics.shtml> (last visited Apr. 5, 2010) (citing sources that list a host of ethical issues raised by cloning including the conception of livestock as commodities and not living, sentient beings, the unnatural process involved, and the concern of animal welfare).

⁹ Press Release, U.S. Food and Drug Admin., FDA Issues Documents on the Safety of Food from Animal Clones (Jan. 15, 2008) available at <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2008/ucm116836.htm> (announcing the release of a risk assessment, which found no difference between the meat or milk from cloned animals and their progeny and conventionally conceived animals, a risk management plan, and a guidance document for industry use).

Endnotes: Livestock Animal Cloning: This Steak is Giving Me Déjà Vu *continued on page 47*

¹⁰ *Id.* (emphasizing that a clone is like a genetic twin born at a different time and therefore this process should not be equated with genetic engineering).

¹¹ ScientificAmerican.com, Are We Eating Cloned Meat?, <http://www.scientificamerican.com/article.cfm?id=are-we-eating-cloned-meat> (last visited Apr. 5, 2010) (reporting that critics of the FDA's findings emphasize that the University of Connecticut study that the FDA relied on, only evaluated the meat and milk of six animals and that more studies were necessary to evaluate the risks posed by cloned animal products).

¹² Center for Food Safety, et al., Citizen Petition Before the United States Food and Drug Administration, Petition Seeking Regulation of Cloned Animals, (Oct. 12, 2006), [available at http://www.centerforfoodsafety.org/pubs/cloned_animal_petition10-12-06.pdf](http://www.centerforfoodsafety.org/pubs/cloned_animal_petition10-12-06.pdf) (emphasizing the scientific uncertainty about the effect animal cloning will have on disease rates).

¹³ *See id.* (making its request under the U.S. Constitution, the Administrative Procedure Act, and the FDA's own regulations).

¹⁴ *See* Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 360 (2007) (laying out the requirements imposed by the act, including a rigorous pre-market review process that would analyze the potential risks posed by animal cloning).

¹⁵ Andrea Thompson, *Cloned Milk and Meat: What's the Beef?*, LIVE SCI., Jan. 9, 2008, <http://www.livescience.com/health/080109-animal-cloning.html> (quoting Jaydee Hanson, a spokesman for the Center for Food Safety, who pointed out the industry participation and noted that though the studies did not reveal anything harmful in the cloned meat that “[w]e shouldn't see what the effects are by going ahead and feeding them to humans just in case there aren't any,” and that the FDA's risk assessment was poorly done).

¹⁶ *Compare* U.S. Food and Drug Admin., Animal Cloning: A Risk Assessment, Jan. 15, 2008, <http://www.fda.gov/downloads/AnimalVeterinary/SafetyHealth/AnimalCloning/UCM124756.pdf> (last visited Apr. 12, 2010) with Michael Hansen, Comments of Consumers Union to US Food and Drug Administration on Docket No. 2003N-0573, Draft Animal Cloning Risk Assessment, http://www.consumersunion.org/pdf/FDA_clone_comments.pdf (last visited Apr. 12, 2010) (attacking the FDA because its “conclusions of safety appear to be based on data on milk from 43 cow clones, and data on beef from 16 cow clones, and 5 pigs.”).

¹⁷ Biotechnology Industry Organization, Lobbying Disclosure Report for Q1 of 2008, [available at http://disclosures.house.gov/ld/pdfform.aspx?id=300058671](http://disclosures.house.gov/ld/pdfform.aspx?id=300058671) (listing FDA Risk Assessment on Cloning, H.R. 992, and S. 414 as part of the Biotechnology Industry Organization's lobbying efforts).

¹⁸ *See* Heidi Stevenson, Bananas Are Dying, Killed by Corporate Monoculture, (June 2, 2008), http://www.naturalnews.com/023339_banana_bananas_disease.

http://www.naturalnews.com/023339_banana_bananas_disease (outlining how monocropping caused the extinction of an entire species of banana by exposure to Panama disease).

¹⁹ EPA.gov, Regulatory Definitions of Large CAFOs, Medium CAFOs, and Small CAFOs, http://www.epa.gov/npdes/pubs/sector_table.pdf (noting the categorical minimum numbers of confined animals for an industrial farm, including the staggering number of 125,000 chickens to earn the large CAFO label).

²⁰ *See, e.g.,* Ephraim Leibtag, AMBER WAVES, *Corn Prices Near Record High, But What About Food Costs?* (Feb. 2008), [available at http://www.ers.usda.gov/AmberWaves/February08/Features/CornPrices.htm](http://www.ers.usda.gov/AmberWaves/February08/Features/CornPrices.htm) (stating that on average it takes “7 pounds of corn to produce 1 pound of beef, 6.5 pounds of corn to produce 1 pound of pork, and 2.6 pounds of corn to produce 1 pound of chicken.”).

²¹ SierraClub.org, Concentrated Animal Feeding Operations, Human Health, Community and Environmental Impacts, http://iowa.sierraclub.org/CAFO_impacts.pdf (last visited Apr. 7, 2010) (stating that “[b]ecause CAFOs concentrate large numbers of animals close together, they facilitate rapid transmission and mixing of viruses.”).

²² *See id.* (citing the Union of Concerned Scientist's estimate that eighty-seven percent of the antibiotics used in the U.S. are fed to livestock).

²³ *See* MacKenzie, *supra* note 7 (laying out how reductions in biodiversity results in the increase of disease rates); Physicians for Social Responsibility, U.S. Meat Production, <http://www.psr.org/chapters/oregon/safe-food/industrial-meat-system.html> (last visited Apr. 7, 2010) (describing how the host mothers of cloned animals require an increase in antibiotics and discussing how antibiotic-resistant diseases are being incubated in CAFOs); CONVENTION ON BIOLOGICAL DIVERSITY, *BIODIVERSITY AND AGRICULTURE* 12 (2008) (presenting data gathered by the Food and Agriculture Organization that shows that “less than 14 species—including cattle, goats, sheep, buffalo and chickens—account for 90% of global livestock production.”). The report also noted that in recent years there has been “alarming genetic erosion within these species” and that a breed is being lost each month. *Id.*

²⁴ *See* Friends of the Earth, Cloned Food: What it Means to Eat Meat and Dairy from Cloned Animals, http://www.foe.org/sites/default/files/FOE_Cloned_Food_Factsheet.pdf (reiterating that monogenetic livestock herds are at risk of high losses due to the lack of biodiversity's protection).

²⁵ David Gutierrez, *FDA Admits Cloned Meat, Milk May Have Already Entered Food Supply*, NAT. NEWS, Jan. 29, 2009, http://www.naturalnews.com/025467_food_meat_cloned.html (last visited Apr. 12, 2010) (emphasizing that the voluntary ban on cloned animal products did not include a clone's offspring and that those products could have made their way onto American dinner plates).

²⁶ See Press Release, Mikulski Renews Call for Labeling of Cloned Food (Jan. 22, 2008), <http://mikulski.senate.gov/record.cfm?id=290888> (last visited Apr. 12, 2010) (mentioning DeLauro's companion bill in the discussion of Senator Mikulski's original introduction of the Cloned Food Labeling Act).

²⁷ Cloned Food Labeling Act, S. 414, 110th Cong. (2007), available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:s414is.txt.pdf.

²⁸ See *id.*

²⁹ See Findarticles.com, Business Wire, *BIO Says, Proposed 'Cloned Food Labeling Act' Will Mislead Consumers*, http://findarticles.com/p/articles/mi_m0EIN/is_2007_Jan_26/ai_n17155461/ (Jan. 26, 2007) (quoting BIO's CEO and President's reaction to the introduction of the Cloned Food Labeling Act, "[l]abels that are misleading to consumers are unlawful. To require the labeling of foods that are indistinguishable from foods produced through traditional methods—as Sen. Mikulski's proposal does—would mislead consumers by falsely implying differences where none exist. It also risks diverting attention from important safety and nutritional information."). See also BIO Fact Sheet, *supra* note 4 (revealing that the major animal cloning technology companies are planning to create a clone registry to provide an option for clone-free claims to be verified, but emphasizing that this registry is meant to preserve consumer choice rather than being based on safety or nutritional concerns).

³⁰ See Govtrack.us, S. 414: Cloned Food Labeling Act, <http://www.govtrack.us/congress/bill.xpd?bill=s110-414> (last visited Apr. 12, 2010) (showing that the last

action taken on the Cloned Food Labeling Act was its referral to committee).

³¹ See Govtrack.us, H.R. 992: Cloned Food Labeling Act, <http://www.govtrack.us/congress/bill.xpd?bill=h110-992> (last visited Apr. 12, 2010) (laying out the status of the House version of the Cloned Food Labeling Act).

³² See *Pew Initiative Poll: Americans' Knowledge of GM Foods Remains Low* (Nov. 7, 2005), available at <http://pewagbiotech.org/research/2005update/> (indicating that two thirds of Americans are uncomfortable with animal cloning). See also Gutierrez, *supra* note 25 (listing Smithfield Foods, General Mills, Campbell Soup, Nestle, California Pizza Kitchen, Supervalu, Kraft Foods and Tyson Foods, as companies that have pledged not to use cloned animal products based on polling showing that the majority of consumers do not want to eat cloned animal products).

³³ Bruce I. Knight, Under Secretary, U.S. Dep't Agric., *Animal Cloning: Transitioning from the Lab to the Market 3-4* (Mar. 5, 2008), available at <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5067983> (outlining the steps the National Organic Program and the National Organic Standards Board have taken to list animal cloning technology in the "Excluded Methods" of the national organic labeling program).

³⁴ Tiffany Sharples, *Your Steak — Medium, Rare or Cloned?*, TIME, Feb. 17, 2008, <http://www.time.com/time/health/article/0,8599,1714146,00.html?imw=Y> (stating that the high cost will most likely mean that people will not be eating a clone directly, but rather their offspring).