

Cloned Animals on the Dinner Plate?



The Food and Drug Administration (FDA) is expected to endorse the safety of cloning animals for meat and milk very soon. At a June, 2005 biotech conference, FDA spokesmen said they had completed a four-year risk assessment that concludes that meat and milk from cloned animals and their offspring are safe for human consumption. Yet, ethical, health and fertility concerns remain.¹

Currently, the appeal of cloned animals to the livestock industry largely lies in their role as breeders or milk producers, not in selling the meat of cloned animals. Already, cloned bulls' sperm is shipped all over the country to sire offspring with particularly desirable traits, such as high milk production. These "half-clones" (offspring of cloned animals) are possibly reaching the marketplace, with no consumer awareness as to their ancestry. One semen broker who has sold the sperm of cloned bulls, said that these offspring are "going to be slaughtered [for food], and the FDA can't do anything about it." In 2001, the FDA asked farmers to voluntarily refrain from selling meat or milk from cloned animals or their offspring, but no one at the agency is tracking whether farmers are complying.²

In 1998, cows were successfully cloned for the first time in Japan. Approximately 300 beef cows, 150 dairy cows, and 200 pigs been cloned in the United States.³ And pet cats can be cloned by a private company for \$32,000.⁴ Even as the FDA is poised to approve cloned animals for human consumption, there are concerns about the process' impact on animal health and the insufficient research on eating meat or drinking milk from cloned animals.

Health

Animal Welfare

According to one FDA official, although others disagree, cloned animals are more likely to have birth defects and health problems when they are young, but after 50 days these animals are as healthy as non-cloned animals. In fact, studies of cloned animals detail very low survival rates; the success rate of live, healthy animals through the cloning process

is less than 5%.⁵ Many cloned embryos die in the uterus or shortly after birth. The National Academy of Sciences (NAS) released a report in 2002 on the safety of cloned animals, which noted that they often cause complicated births and harm to surrogate animals. The report also noted that some clones have health problems like heart and lung disease, and other developmental problems, while some cloned mice have behavioral abnormalities. More studies on this issue are recommended by the NAS.^{6,7}

One major cause of clones' health problems is "epigenetic effects", which can cause clones to be different than the original animal. Even though the DNA is the same amongst these animals, they can still look and develop differently because certain genes may be turned "on" or "off" in the cloned animal relative to its predecessor. These epigenetic effects can be created by the process of cloning the animal, environmental conditions (like pollution), and other factors. Epigenetic effects are also the reason that identical twins may look slightly different and have unique fingerprints.

Consuming Cloned Meat and Milk

There is little information on the effects of eating-meat or drinking milk from cloned animals or their offspring. The NAS report found "no evidence [that] cloned animals are unsafe to eat, but data [is] still lacking." In 2002, one of the report's authors noted "Although several studies are in progress, there are to date no published data comparing the composition of meat and milk products of somatic cell clones, their offspring, and conventionally bred animals." Since then, there have been but a few studies that make these comparisons.

The only in-depth, scientifically rigorous study of the composition of the milk and meat of cloned animals was performed by the Japanese government and the University of Connecticut. There were no significant differences in the milk of the cloned and non-cloned animals. For most factors, there were no significant differences between the meat of the cloned and non-cloned animals. However, the cloned animals had significantly higher levels of some fats than the non-cloned animals, which was considered desirable and attributed to the meat quality of the original bull. Besides fats, there were four other areas, largely regarding muscle composition, in which clones differed from the comparison groups.

While this study did not find many differences in cloned animals' milk and meat, in their conclusion the authors note that this is the first cloned animal meat composition study of this type, and that the number of animals examined (four dairy clones and four beef clones) was quite small. "The experiments presented here... are a pilot study to provide guidelines for more conclusive studies with larger numbers of clones from different genetic backgrounds, to further increase the consumers' confidence concerning product safety of somatic cloned food animals."⁸

Consumer Attitudes

One aspect of clones that is clear is that people do not want to eat them. A 2004 Gallup poll found that 64% of Americans think that cloning animals is "morally wrong." In fact, in five major polls, a majority of people in each survey were against animal cloning.⁹ In a recent industry survey, 62% of consumers said they would be "very unlikely" or "somewhat unlikely" to buy animal products from cloned animals.¹⁰ The International Dairy Foods Association is so concerned with potential consumer backlash, they do not want the voluntary FDA ban on cloned animals lifted.¹¹ None of the survey results bode well for the consumption of cloned animals, except for the fact that such meat and milk products don't need to be labeled. Cloned animals and their offspring may be for sale on the marketplace already, making people unwitting consumers of meat and milk they want to avoid.

Consumers should have the opportunity to make informed choices about their food, which necessitates labeling meat and milk from clones and clones' offspring. And prior to these animals being fed to the public, there should be public discussions about

the related ethical issues, since there is such widespread opposition to this technology.

Who Will Benefit?

These polls make clear that consumers do not want meat or milk from cloned animals. So who does? It is likely that the agribusiness and biotech companies will benefit from this expensive technology, as they could either directly profit off the sale of cloned animals and their offspring, or better afford such a purchase. Moreover, if, for example, cloned dairy cows are able to produce higher quantities of milk, the price of milk could fall even lower, which could harm struggling farmers. Finally, this technology pushes the industrialization of agriculture even further, moving us farther from diversified, sustainable farming.

Take Action!

1. Tell FDA that more long-term studies are needed on the health effects of consuming meat and milk from cloned animals, and that if cloned animals or their offspring are approved for human consumption, then their meat and milk products should be clearly labeled as such. Call 1-888-463-6332 or email d.commissioner@fda.hhs.gov
2. Buy sustainable meat from a producer who you can ask or read about their practices. Visit the Eat Well Guide, www.eatwellguide.org, to find sustainable meat and dairy products near you.

Citations:

- ¹ Cookson, Clive. "FDA poised to rule that meat from cloned animals is safe for humans." *Financial Times UK*. June 23, 2005
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- ³ Roosevelt, *ibid*.
- ⁴ Eisenberg, Anne. "Hello Kitty, Hello Clone." *The New York Times*. May 28, 2005.
- ⁵ Tamada H, Kikyo N. "Nuclear reprogramming in mammalian somatic cell nuclear cloning." *Cytogenetic and Genome Research*, 2004. 105:285-291.
- ⁶ Bren, Linda. "Cloning: Revolution or Evolution in Animal Production?" *FDA Consumer Magazine*. May-June 2003. http://www.fda.gov/fdac/features/2003/303_clone.html
- ⁷ "Animal Cloning and the Production of Food Products: Perspectives from the Food Chain." Pew Initiative on Food and Biotechnology and the Center for Veterinary Medicine of the U.S. Food and Drug Administration. <http://pewag-biotech.org/events/0924/proceedings2.pdf>
- ⁸ Tian, Cindy X. et al. "Meat and milk compositions of bovine clones." *Proceedings of the National Academy of Sciences of the United States of America*. 2005 May 3;102(18):6261-6. Epub 2005 Apr 13.
- ⁹ *ibid*.
- ¹⁰ Kaplan, Karen. "The Beef About Clones" *Los Angeles Times*. February 10, 2005.
- ¹¹ Frommer, Frederick J. "Diary Industry Treading Cautiously on Cloned Cows." *Associated Press/Aberdeen News*. July 11, 2005. <http://www.aberdeennews.com/mld/aberdeennews/news/12103063.htm>