



## Readings

### Description

Part of unit 4 of the [Course on Genomics, Ethics, and Society](#), this section provides readings on the ethics of genome engineering in domestic animals.

### Body

## Week 1

All students should read both papers for this week. The first paper "After Dolly" presents a historical account of the life of Dolly the Sheep, and the impact her life made on society. The authors discuss an assessment of public understanding of animal biotechnology, and summarize ethical concerns. Public concerns about the use of animals can be categorized into concerns about human health, the environment, and welfare of animals, and usefulness of the use of animal biotechnology.

Questions for Reflection: How would you respond to the questions in the survey? How should public concerns about risks related to biotechnology be used to shape policy? Does the difference between apparent scientific risk and public perception of risk create any complications in establishing policy? What role should biotechnology have as the need for agricultural efficiency in food production continues to increase?

1. **Lassen, J., Gjerris, M., & Sandøe, P. (2006). After Dolly—Ethical limits to the use of biotechnology on farm animals. *Theriogenology*, 65, 992-**

## 1004.

2. The second paper this week is **Tom Regan "The Case for Animal Rights" from *Animal Rights and Human Obligations* (2nd ed. 1989) Tom Regan and Peter Singer (eds) Englewood Cliffs, NJ, Prentice Hall.** This paper can be accessed here:

<http://www2.webster.edu/~corbetre/philosophy/animals/regan-text.html>

We've included this paper because Regan is a leading theorist of animal rights, and his views here help to explain positions that, in principle, oppose experimentation on animals in medicine, and the use of animals in agriculture, including cloning and GM technologies. This paper, therefore, provides some useful background to understanding the debate Sandoe discusses in the film clips. Of course, Regan's arguments are controversial. First, make sure you understand the positions Regan describes, but then goes on to reject. Then make sure you can describe Regan's own view. What do you think are the key objections to this view?

## Week 2

For our second week, all students should read "What's wrong with my monkey?" and graduate students should also read "Ethics of Animal Research".

In the first paper, the authors take a hard look at the production of the first transgenic primates, and explore the social and ethical implications of genetic engineering of primates, in contrast with the production of transgenic mice, for example. This paper also asks questions about the acceptability of disease research in animals and genetic modification to enhance this type of research. While reading this paper, think about the responsibilities that scientists have not only to conduct research in a safe and ethical manner, but also to clearly communicate how they have appropriately considered the welfare of animals and ethical concerns about animal use.

The second paper contains an in depth discussion about ethics of animal research in general, especially the use of animals for biomedical research. Do humans have duties toward animals, and if so, what are they? How can justification for animal use be correctly assessed?

1. **Olsson, I. A. S., & Sandøe, P. (2010). "What's wrong with my monkey?" Ethical perspectives on germline transgenesis in marmosets. *Transgenic Research*, 19, 181-186.**
2. **Olsson, I. A. S., Robinson, P., & Sandøe, P. (2010). Ethics of animal research. In J. Hau and S. J. Schapiro (Eds.), *Handbook of laboratory animal science volume 1: Essential principles and practices*, 3rd ed. CRC Press: Boca Raton, FL.**

## Recommended Readings

This paper on genetically modified salmon contains an important summary of FDA considerations for marketing of these fish that may be helpful to you as you consider the case study. Smith, M, Asche, F, Guttormsen, A, Wiener, B. 2010. "[Genetically modified salmon and full impact assessment.](#)" *Science* 330: 1052-2.

This paper discusses animal breeding strategies related to behavior or docility, and the implications of those strategies: D'Eath, R. B., Conington, J., Lawrence, A. B., Olsson, I. A. S., & Sandøe, P. (2010). Breeding for behavioural change in farm animals: practical, economic and ethical considerations. *Animal Welfare*, 19, 17-27.

Greger addresses a number of issues related to genetically engineered livestock: Greger, M. (2011). Transgenesis in animal agriculture: Addressing animal health and welfare concerns. *Journal of Agricultural and Environmental Ethics*, 24, 451-472.

The Sandoe paper discusses the blind chicken scenario mentioned in the video clips: Sandøe, P., et al. (2014). The blind hens' challenge: Does it undermine the view that only welfare matters in our dealings with animals? *Environmental Values*.

Lund *et al* describe a Danish survey about public opinion of animal research and attitudes about cost-benefit of research: Lund, T. B., Morkbak, M. R., Lassen, J., & Sandøe, P. (2014). Painful dilemmas: A study of the way the public's assessment of animal research balances costs to animals against human benefits. *Public Understanding of Science*, 23, 428-444.

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**Rights**

Use of Materials on the OEC

**Resource Type**

Instructor Materials

**Topics**

Animal Use

Emerging Technologies

**Discipline(s)**

Biomedical Engineering and Bioengineering

Genetics and Genomics

Life and Environmental Sciences