Animal welfare and ethics in cloning

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Official positions.

Current state

- Since the cloning of Dolly the sheep in 1996, indeed Megan and Morag in 1995, there have been tremendous advances in the range of species that have been successfully cloned.
- But the public discourse of the ethics of cloning have not kept pace with these advances.
- UK
  - FAWC rather sidesteps the issue, as cloning is used for research and not currently for production at the moment it doesn’t see it as part of its remit.

– UK Govt. Limited regulation and labelling and, therefore, limited controls on cloned animals, their progeny, and their derived foods, the UK favours the development of the technology. However, this regime reduces information for consumers and their freedom of choice.

- And what makes this odd is the public’s often negative view, 64% of Americans think that it is morally wrong , 32% medical testing with animals morally wrong, and 61% of Europeans.
- Is this a problem of the public being ill informed?
- This a commonplace but may be mistaken.
- But, good news from Eurobarometer is: “EU citizens rated **information provided by scientists** about the safety of cloned animals meant for human consumption as the most trustworthy”.

Purposes and benefits

- Transgenics, human blood clotting factor in sheep.
- Genetically modified animal organs suitable for transplantation in humans
- Agriculture:
  - Improve production and profitability for farmers
  - Healthier meat and milk (manipulating milk fat), disease resistant animals (brucellosis in cows), and reduced environmental impacts (reduced P in pig manure, through secretion of phytase in saliva).

- Increased food provision globally
- Lower prices for food for consumers
- Fewer animals required for breeding programmes and for medical research.
- Disease-resistant non-production animals.
- Support endangered species, the gaur. Or extinct species, woolly mammoth but many ohter candidates.

- Sport, deer with larger antlers, faster running dogs, race horses?
- Recreate beloved pets

- So most of these are for the benefit of humans but some would improve the welfare of animals.
- And some are bogus.

What are the ethical problems?

Two:

1. Negative outcomes for animals, humans or the environment

2. Moral principles.

Negative outcomes for animals

- Pain, handling, isolation of procedures.
  - During procedure, including management of ovum pick-up process.
  - Obstetrical problems on surrogate animal
  - Health of cloned animals, placental and foetal abnormalities
  - Exhibition of cloned animals, use for research, use for disease management
  - Efficiency rates, successful live animals born, remain low. Poor welfare for surrogate dams.

- High rates of dystocia, c-section from larger animals.
- Possible lower life expectancy of cloned animals
- Effects of intended outcome (higher rates of growth hormone can increase mortality)
- Resource allocation, if one output (production of milk) is increased this can have negative effects on others; fertility, maintenance, immunity.
- Less genetic diversity higher risk of disease epidemics

- Effects on other animals, livestock or wild animal populations, through unregulated reproduction of cloned animals or unforeseen consequences on the environment. Escapes of fish particularly likely. Reintroduction of extinct animals rather less likely.
- In any case, we should assess the welfare of cloned animals robustly, using established welfare protocols, and include control animals, to check for unexpected, unforeseen outcomes.
- And these should be in place for the whole lifetime of the animal.

Some justifications

- Pain and suffering experienced should not be isolated from, and not expected to be a higher standard than, similar levels of suffering arising from common procedures in agriculture, animal breeding or animal research
  - But common practice with animals may not be morally acceptable.
  - In which case animal cloning is also morally unacceptable

- Utilitarian calculus should include an analysis of the benefits of cloning animals to weigh against these. And as cloning efficiency and cloned animal health improve, this will increase acceptability
  - But this does meant that trivial use of animal cloning is not morally acceptable (deer antlers to be more magnificent, cloning of favourite pets).

Negative outcomes for humans

- Food safety from cloned animals.
  - Actually safe, EFSA and FDA agree: "The agency … concluded that food from cattle, swine, and goat clones was as safe to eat as food from animals of those species derived by conventional means. The agency also concluded that food from the progeny of the clone of any species normally consumed for food is as safe to eat as those animals" (Rudenko and Matheson, 2007). EFSA pretty much the same.
  - But public perception? Already a problem with GMO plant foodstuffs

- Human reproduction? Thin end of the wedge, when techniques become more reliable and outcomes demonstrated, there may be more pressure for their use with humans.
- Should we ban human cloning internationally?
- Concern about naturalness. Animals produced artificially may be considered less natural, of less value.
- Attitudes to animals may be altered, if animals perceived to be less natural, more artificial constructs, concern for their well being might reduce.

Moral Principles

- Playing God
  - Of course, we have been breeding animals systematically since Bakewell in the 18th century.
  - But there is a difference between using the material inherent in animals and designing new material.
  - At least, the public make this distinction
  - Not just God. We devalue nature by acting in this way. Transgenic green rabbit that glows in the dark (Eduardo Kac.)

- "Wisdom of repugnance" People believe that it is morally wrong without being able to describe convincingly why they think it is so.
  - Of course, an argument for this is that scientists working in this field are not derisive of nature, but more fascinated and admiring and humbled by natural processes through their work.
  - And going back to God, it has been claimed that God wants this to take place as he has given man the ability to do it.

- Does cloning make us think of these animals as things and not sentient creatures worthy of our admiration and empathy?
- Does it make it more likely that we think of them merely as products?
- Pets. Recreating some beloved pet.
  - Nonsensical, environmental factors will ensure that it is not the same pet. But might be used commercially. Exploitation of people’s expectations.

Conclusion

- Important concerns
- Not sufficient for banning of animal cloning.
- Must be aware of public concerns and not dismiss them
- Engage with them.
- Lifted from Kirkden and Broom;
- “Research into the use of biotechnology should … be accompanied by animal welfare assessment, allowing comparisons to be made between alternative approaches”

References

- Eurobarometer: http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_238_en.pdf
- Fiester A. Ethical issues in animal cloning (2005). Perspectives in biology and medicine. **48**, 3, 328-343
- Kirkden R.D. and Broom D.M. (2012). Welfare of Genetically Modified and Cloned Animals Used for Food
- Petetin L. (2012) European Food and Feed Law Review. **7**, 6, 296-311
- Rudenko L. and Matheson J.C. (2007). The US FDA and animal cloning: Risk and regulatory approach. Theriogenology. **67**, 1, 198-206