Multiple uses of pigs: can they help to inform us about people's attitudes towards animal use and genetic modification?

THE UNIVERSITY OF BRITISH COLUMBIA

animal welfare program

W.M.Young Centre for Applied Ethics

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Issue

• There is increasing public concern for animal welfare.
• We have little understanding about people's beliefs and attitudes towards animal use in general and towards the use of animals in genomics research in particular.
• Satisfactory policy related to new developments in genomics research and its applications will depend on a better understanding of public values.

Research Objectives

To examine people's attitudes towards: 1) uses of animals for different applications and 2) genetic modification of animals, 3) to examine the role that animal welfare and other information plays in influencing attitudes, and 4) to determine whether there are alternative policies or practices that might better address relevant concerns and better reflect societal norms.

Methods – Online Survey

Data Collection: 2 comparative surveys randomly assigned to respondents.
Sample: General public and specific stakeholders including animal technicians, veterinarians, animal researchers, animal advocates, and university students.

Survey 1 "Improving organ transplant success"

Fact: Transplantation of organs has become a conventional treatment for the failure of various organs in humans, for example, hearts, lungs, and kidneys.

Fact: The long term survival rate of transplanted organs is low because the immune system of the host rejects the donated organ.

Question 1 How much would you support a government-funded research program that will use 200 pigs for research to study the immunological basis for organ rejection?

No support ⟶ **Full support**

■ **Ask an advisor**
Biomedical Scientist
Health Policy Analyst
Veterinarian (animal welfare)
Animal Advocate

Fact: Research has shown that regulatory T cells play a critical role in the development and progression of chronic rejection of transplanted organs.

Fact: New research in genomics is showing that by genetically modifying mice so that the action of a particular gene which controls the production of regulatory T cells is inhibited, researchers can better study the mechanisms of immunosuppression.

Fact: Pigs are an optimal species for pre-clinical research.

Question 2 How much would you support a government-funded research program that will use approximately 600 pigs to develop a line of genetically modified pigs where the gene which controls the production of regulatory T cells action is inhibited (knocked out)?

No support ⟶ **Full support** ■ **Ask an advisor**

Fact: Researchers have developed a successful knockout pig.

Question 3 How much would you support a government-funded research program that will use approximately 200 pigs to begin research to: 1) study the potential for using regulatory T cells to inhibit graft rejection in pigs, and 2) to begin developing a potential therapy for humans?

No support ⟶ **Full support** ■ **Ask an advisor**

Survey 2 "Reducing high levels of phosphorous excretion into the environment resulting from intense pig production"

Fact: 60- 80% of the phosphorus in traditional pig feed is in the form of phytate.

Fact: 2 problems arise from feeding phytate: 1) phytate binds to important minerals requiring farmers to add costly supplements to the diet, and 2) phytate is poorly digested by pigs resulting in high levels of phosphorous in the manure and ultimately in the environment causing serious pollution.

Question 1 How much do you support funding research that will compare the efficacy of 4 different feeding regimes to reduce the phytate content in the diet of pigs? 1) adding phytase to typical diets, 2) feeding pigs a diet of low phytate containing soy bean, 3) feeding pigs a diet of low phytate containing barley, and 3) adding phytase to diets low in phytate.

■ **Ask an advisor**
Agricultural Scientist
Environmental Policy Analyst
Veterinarian (animal welfare)
Animal Advocate

No support ⟶ **Full support**

Fact: Plant geneticists have developed new genetically modified corns with low phytate contents. They were able to reduce the phytate content by half as well as increase the digestible inorganic phosphorous by 2-3 times.

Question 2 How much would you support a government-funded research program that will use approximately 200 pigs to study the efficacy of feeding pigs genetically modified corn to reduce phosphorous in the environment?

No support ⟶ **Full support** ■ **Ask an advisor**

Fact: The potential of low phytate corns is not fully resolved. Low phytate corn exhibits lower germination and a reduced yield as compared to unmodified lines of the corn.

Fact: Researchers have come up with another solution: they have genetically modified a pig (Enviropig™). By inserting a novel gene from E. coli. the pig can produce phytase in their saliva allowing it to degrade the indigestible phytate and absorb the phosphate.

Question 3 How much would you support a government-funded research program that will use approximately 200 pigs to begin research into developing the Enviropig™ for market consumption?

No support ⟶ **Full support** ■ **Ask an advisor**