

All About Animal Cloning

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Cloning is the most recent evolution of selective assisted breeding in animal husbandry. Cloning animals is a reliable way of reproducing superior livestock genetics and ensuring herds are maintained at the highest quality possible.

It's important to remember that cloning does not manipulate the animal's genetic make up nor change an animal's DNA. It is simply another form of assisted reproduction. Cloning allows livestock breeders to create an exact genetic copy of an existing animal, essentially an identical twin. Clones are superior breeding animals used to produce healthier offspring.

Animal cloning offers great benefits to consumers, farmers, and endangered species:

- ◆ Cloning allows farmers and ranchers to accelerate the reproduction of their most productive livestock in order to better produce safe and healthy food.
- ◆ Cloning reproduces the healthiest animals, thus minimizing the use of antibiotics, growth hormones and other chemicals.
- ◆ Consumers can benefit from cloning because meat and milk will be more healthful, consistent, and safe.
- ◆ Most of the foods from cloning will be from the offspring of clones that are not clones themselves, but sexually reproduced animals.
- ◆ Cloning can be used to protect endangered species. For example, in China, panda cells are being kept on reserve should this species' numbers be threatened by extinction.



Foods Are Safe to Eat

The U.S. Food and Drug Administration (FDA) on January 15, 2008, reaffirmed the safety of meat and milk products from animal clones and their offspring for human consumption .

The FDA Risk Assessment is the most comprehensive science-based evaluation of livestock cloning conducted in the world to date.



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International Acceptance

- ◆ Livestock cloning and the sale of cloned animals is – and always has been – legal and safe in the United States.
- ◆ Cloning research is active in Argentina, Australia, Brazil, China, France, Germany, Iran, Japan, New Zealand, Turkey and the United Kingdom.
- ◆ The governments of France, New Zealand and the European Food Safety Authority have determined foods from cloned animals and their offspring are safe.
- ◆ China has said it plans to build a beef herd equivalent in quality to the United States, and it will use all available technologies including cloning.

Cloning is Slowly Being Adopted

No Restriction on Offspring

The U.S. Department of Agriculture (USDA) also has requested a voluntary withholding of clones from the food supply continue at this time.

Now that the final science-based Risk Assessment has been released, the FDA has signaled that there is no health or safety reason to continue this moratorium.

Cloning companies will continue to work out an orderly marketing transition with the food industry and relevant government agencies – including the FDA and the USDA – as they move toward commercialization.

On January 15, 2008, the USDA noted that the progeny from cloned animals are safe and there is no restriction on their movement into the food supply. Cloning is now being slowly adopted in the United States.



Animal Cloning: In the process of somatic cell nuclear transfer, scientists collect a cell from the animal that is to be cloned (known as the "genetic donor"). The somatic cell contains the DNA of genetic donor animal.

The scientist collects an egg from a female animal (the "egg donor") and discards the nucleus of the egg cell, which is the part of the cell that contains the egg donor's genes. The scientist then inserts the somatic cell into the egg. The resulting fused egg contains the genetic donor's DNA.

The fused egg is transferred into a surrogate mother where it continues to develop. After a full-term pregnancy, the recipient gives birth as normal to an animal that is essentially the identical twin of the genetic donor.

Supply Chain Management Program

BIO members' Supply Chain Management Program is important to the adoption of cloning technology during the transition period. This program allows processors and retailers to meet consumer demands by tracking animal clones through the use of an animal registry. Such tracking is solely for the purpose of consumer information and not an issue with the safety or healthfulness of the food products.



Notable Fact: The number of cloned animals in the barnyard today is miniscule compared to the size of the total livestock population. Cloned animals are almost always used as breeding animals - not for food.