

What is Animal Cloning?

Animal cloning is an assisted reproductive technology that allows livestock breeders to create identical twins of their best animals. This breeding technique does not change the genetic make-up of the animal. Therefore, cloned animals are not genetically modified organisms (GMOs). For more information on cloning, visit www.CloneSafety.org.

The Science of Cloning

The most common technique for cloning animals is somatic cell nuclear transfer (SCNT), which makes it possible to produce many animals from a single donor. SCNT involves transferring the DNA-containing nucleus from one cell into a denucleated egg cell. This process results in an embryo, which is implanted into a surrogate mother, who carries the pregnancy to term.

Natural Birthing Process

Cloned animals experience a natural birth just like *in vitro* fertilized animals. Cloned animals are born naturally and are indistinguishable from their non-cloned counterparts. Experts have described clones as the identical twins of their donor animals, just born at different times.

Government Approved

Beef from cloned animals and their offspring is identical to beef from traditionally bred animals, according to the Food and Drug Administration (FDA) report, *Animal Cloning: A Risk Assessment*, released January 2008 (<http://www.fda.gov/cvm/cloning.htm>). FDA reviewed hundreds of scientific studies covering decades of research on cloning in reaching its conclusion that “edible products from normal, healthy clones or their progeny do not pose increased food consumption risks relative to comparable products from conventional animals.” FDA reviewed about 30,500 public comments received in response to its draft risk assessment released in December 2006.

Clone Safety

Many scientific organizations—both domestically and worldwide—have concluded cloning is a safe, assisted reproductive technology that does not present any unique risks to animal health or human food safety. For example, the National Academy of Sciences (NAS) published two in-depth research reviews concluding “there is no scientific evidence that cloning is associated with any unintended compositional change that results in an unintended health consequence in humans.”

In addition, several other leading government agencies—like those in New Zealand, Australia, Canada and, most recently, the European Union—have or are conducting similar reviews reaching similar conclusions as the United States.

Cloned Beef in the Food Supply

Previously, FDA had a voluntary moratorium on meat and milk products from animal clones and their progeny. But FDA's guidance documents released Jan. 15, 2008, states that "Food from clones would be subject to the same requirements as food from their conventionally bred counterparts... We do not believe that meat or milk from cattle, swine, and goat clones would require any additional controls."

Industry experts say it will be several years before these food products appear in the marketplace because they primarily will be from the offspring of cloned cattle. In its January 2008 release, FDA concluded that the food products from progeny of cloned animals "are suitable to enter the food and feed supply under the same controls as applied to any animal that is the product of sexual reproduction."

Cloning technology still is relatively new and very expensive. According to the Biotechnology Industry Organization, there are fewer than 600 clones in existence and they mostly are used for breeding purposes.

In December 2007, the leading providers of livestock cloning technology announced an industry-led, supply chain management program that will allow clones to be followed throughout their lives. The program works through a national registry of animals produced by cloning.

Benefits of Cloned Beef

Cloning technology is another tool for beef producers to use in providing consistent high-quality, affordable beef to consumers. By selecting for healthy, disease-resistant animals, producers also can improve the overall quality of the final meat product. Ultimately, cloning can reduce the cost of beef to the consumer.

Consumer Opinion

A 2007 International Food Information Council survey on public opinion of biotechnology used in agriculture (*Food Biotechnology: A Study of U.S. Consumer Trends, 2007*) found consumer impressions of animal cloning improved in 2007. In addition, the percent of consumers with favorable opinions of cloning more than doubles with FDA safety assurances.

Additionally, a survey conducted by the University of Maryland's Center for Food, Nutrition and Agriculture Policy (*Consumer Knowledge, Attitudes, Beliefs and Purchase Intent Regarding Food from the Offspring of Cloned Animals, December 2006*) found that more than six out of 10 Americans would continue to buy—or at least consider continuing to buy—meat products from cloned animals and their offspring if FDA determined it was safe.