Facts About Cloning in Livestock

For hundreds of years humans have selectively bred livestock (i.e. cows, pigs, chickens, etc...) and companion animals (i.e. dogs, cats, horses, etc...) for specific traits. For livestock, those traits related to meat production, the ability to breed, health, and performance. As technology advances and the amount of food needed to feed a growing population continues to grow, cloning has become a viable option for improving production efficiencies.

Cloning Livestock is the most recent evolution of selective breeding in animal husbandry. It is an assisted reproductive technology that allows breeders to create animals with the most desirable attributes. The process provides farmers with additional reproductive options, and allows them to obtain increased production at a lower cost.

The technology to clone animals was developed in the 1970s. Cloning is a process where the nuclear material is removed from a somatic cell—a cell which is neither an egg nor a sperm cell—and transferred to an ovum (i.e. egg cell) that has had its nuclear material removed. This process is called somatic cell nuclear transfer (SCNT). This allows a livestock producer to raise a genetic duplicate of the original [a superior] animal. There are an estimated 650 live clones—mostly cattle—in the US, and several thousand exist worldwide. It costs approximately $20,000 to successfully clone an animal.\(^1\)

In reaction to widespread speculation that products coming from cloned livestock are harmful to consumers, the Food and Drug Administration (“FDA”) and National Academy of Sciences (“NAS”) have conducted numerous studies that disprove any such claim. It has been shown that there is no significant evidence that products from cloned animals are in any way harmful to consumers, no harm is brought upon the animals, and that cloning offers a variety of benefits to breeders as well as consumers. Continuing research is being done to further improve the process. Livestock cloning is a developing technology in today’s agriculture and offers benefits that will promote enhanced future success in the industry.

Farm Bureau Policy

The American Farm Bureau Federation (“AFBF”) “supports the continued development of animal cloning as a means to advance assisted reproductive technology such as artificial insemination, embryo transfer and ‘in-vitro’ fertilization.”\(^{ii}\)
Key Issues

Food Safety
Despite having safety approval from the FDA, cloning livestock has been strongly opposed by animal welfare, consumer advocacy groups, environmental organizations, some members of Congress, and many consumers. The FDA determined that there is no current evidence that food products derived from adult somatic cell clones or their progeny present a food safety concern.iii

For more than five years, FDA’s Center for Veterinary Medicine ("CVM") scientists studied hundreds of published reports and other detailed information on livestock clones to evaluate the safety of food from these animals. This resulting report, “A Risk Assessment,” concluded that the composition of food products from cattle, swine, and goat clones, or the offspring of any animal clones, is no different from that of conventionally bred animals.iv

To further examine the research The National Academy of Sciences (NAS) also scrutinized numerous studies, publishing in-depth reviews in 2002 and 2004. These reviews also concluded that there is no scientific evidence that cloning is associated with any unintended compositional change that results in an unintended health consequence in humans.v

Purposes
One of the biggest misconceptions about cloning is that meat from cloned animals would find its way into the commercial meat supply.克隆动物目前非常昂贵，不会作为主要的肉类产品。At a cost of approximately $20,000, cloned livestock are intended to be breeder stock, while it is more likely their offspring may be used for food production.vi

Advantages
Cloning allows farmers and ranchers to accelerate 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. Cloning enables farmers to achieve several desirable characteristics in their livestock.

One characteristic is the ability for cloned animals to become disease resistant. Sick animals are expensive and do not produce as much meat or milk as healthy animals. By eliminating disease from the herd, the farmer decreases medical costs and experiences gains in production.

Another desirable trait achievable through cloning is the ability to breed livestock suitable to the surrounding climate.vii Fertility, desirable body type, and market preference are other desirable characteristics that breeders are able to obtain through cloning. Cloning simply accelerates the age-old process of improving breeding stock in meat animals. The process provides breeders with additional production options.
**Humane Treatment**

The FDA has concluded that cloning is no more invasive than other accepted forms of assisted reproduction, such as in vitro fertilization. viii Because breeding the best possible stock improves the over-all health and disease resistance of animal populations, cloning should reduce animal suffering over time.

A National Academy of Sciences review found that “the health and well-being of somatic cell clones approximated those of normal individuals as they advance into the juvenile stage. Somatic cell cloned cattle reportedly were physiologically, immunologically, and behaviorally normal.” ix

There is no increased risk of Large Offspring Syndrome (LOS) among cloned animals. Where clones have abnormalities at birth, these may continue for the first few months of life, but after the age of six months, they’re completely indistinguishable in appearance and blood measurements from conventionally bred animals of the same age. x

**References**


**Further reading**


