

Cloned beef traced to Wisconsin cow

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Mark Rueth's Holstein cow Paradise had just been crowned supreme champion of the World Dairy Expo in Madison, Wis., in 2000 when a biotechnology company salesman approached him ringside and offered a cut-rate deal to clone Paradise so she could "live forever," and make his farm more profitable.

The Oxford dairy farmer and cattle breeder agreed, and the salesman immediately pricked the prize cow's ear to harvest DNA.

The world of cloning hasn't exactly been paradise for Rueth in the decade since, and especially during the past two weeks. Recent headlines in the British press screamed that two male offspring of a Paradise clone were slaughtered for beef that entered the food chain. Milk from a daughter of a Paradise clone also was traced to the British food supply, setting off consumer fears about food safety.

"The English people get in an uproar about stuff," Rueth said last week, noting that a British reporter and photographer showed up unannounced at his farm. "It's not like you're manipulating or changing the DNA. Half of the DNA from the clone's offspring is from the father."

In the U.S., the [Food and Drug Administration](#) doesn't regulate milk or meat from offspring of cloned animals, and doesn't require labeling. Two years after the agency concluded those food products were safe, they're in the American food supply.

However, the U.S. Department of Agriculture requests that the industry

continue a voluntary moratorium on placing products from original clones in the food supply to allow trade partners in other countries to pursue their own regulations.

Offspring of clones - including the animals that are the focus of British news reports _ are not subject to the voluntary moratorium, and are not identified through a U.S. program that tracks clones. The clone offspring linked to the United Kingdom's food supply were identified by the UK's Food Standards Agency.

Rueth and his partner, Nicky Reape, have gotten out of cloning because Rueth says it's too expensive, and he doesn't believe it's the most efficient way to improve his herd.

"It was popular a few years ago, but it's faded," Rueth said.

Rueth's milking herd includes seven or eight offspring of Paradise clones. And he considers an award-winning daughter of a Paradise clone among the best young cows in his 200-cow herd; the father is a prize bull in Australia.

Milk from the offspring of Paradise clones is shipped to a dairy along with milk from the rest of the herd, Rueth said.

It's unclear how many offspring were produced by Paradise clones, since Rueth exported embryos to the United Kingdom and their offspring weren't officially tracked at the time.

The last Paradise clone on Rueth's farm died two years ago.

Cloning is a laboratory procedure that allows livestock breeders and others to create exact copies of elite animals. It does not change the genetic makeup of the animal.

The most common procedure is known as somatic cell nuclear transfer, which makes it possible to produce many animals from a single donor. The nucleus of a donor egg is removed and replaced with the DNA of the animal to be cloned. A tiny electric jolt stimulates cell division, creating an embryo that is a copy of the original animal. It's implanted into a surrogate mother.

Offspring of clones are produced through sexual reproduction, which means they also have genes contributed by a bull.

The FDA's conclusion that meat and milk from clones and their offspring are safe has made some Americans more comfortable with the idea, but less than half would be willing to consume it, according to the International Food Information Council, an industry-funded group that surveys 1,000 consumers annually.

The percentage of consumers "likely" to purchase meat and milk from cloned animals, given the FDA's safety determination, has increased to 48 percent in 2008 from 36 percent in 2005, when the question was asked hypothetically.

When the FDA was considering its official position on cloning, a coalition of consumer, environmental and animal rights groups petitioned for mandatory safety rules and a moratorium on foods from cloned animals. Some farmers also worried that the cloning issue could make it harder for them to sell products overseas, as some countries already have banned U.S. beef over fears related to growth hormones.

Cloned calves also may be born with severely compromised immune systems, meaning they need large doses of antibiotics to remain healthy. That could open an avenue for large amounts of veterinary drugs to get into the human food supply, the Center for Food Safety has contended.

The chances of milk or meat from original cloned animals getting into the U.S. food supply are slim because [cloned animals](#) are costly to produce and represent the most valuable breeding stock, said Karen Batra, of the Biotechnology Industry Organization.

Batra estimated the cost of cloning an animal at about \$17,000.

Rueth declined to say how much he spent on cloning Paradise, and a representative of the Pennsylvania biochemistry company Cyagra that cloned Paradise declined to be interviewed.

Rueth's business, Rosedale Genetics, has produced many prize-winning show animals since Paradise, and Rueth has a national reputation as a cattle breeder and show judge.

While cloning preserves elite genetics, the ultimate question is whether it moves genetics forward, said Steve Larson, managing editor of Hoard's Dairyman.

"Cloning freezes you in time because you're duplicating something from the past," he said.

"From a technology standpoint, they're better these days at cloning," said Bryan Renk, executive director of the Wisconsin business group BioForward. "But cloning is still pretty expensive and it's not efficient."

Rueth said he's tired of talking about cloning, but he doesn't regret his foray into the technology.

"I'm glad we tried it. It was something unique, and it helped us expand our herd a bit when we were just getting started."

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