

be having important impacts on wildlife, Millam says. For example, millions of women take estrogen in birth control pills and menopause treatments; estrogen is not broken down by water treatment and remains in sewage wastewater. More relevant to birds is the presence of hormone mimics in pesticides and industrial chemicals, which can be ingested by developing chicks.

The finches received a variety of estradiol doses, primarily at levels higher than those encountered in the environment (except the most polluted areas), although some reproductive impacts — such as increased egg breakage and male infertility — were identified at environmental levels. The U.S. Environmental Protection Agency funded the research.

Cloned calf "Rosie" is rosy

A cloned Hereford calf named Rosie is doing well after its birth at UC Davis on May 2.

The reddish-brown and white female is part of an ongoing study aimed at better understanding which types of adult cells are best suited for cloning cows. The researchers hope to improve the cloning technique, eventually using it to produce more healthful meat and milk products.

"We're encouraged that Rosie is feeding well and acting energetic like any other newborn calf," says Gary Anderson, professor and chair of the UC Davis animal science department. However, because young calves are especially vulnerable to respiratory, digestive and umbilical infections, scientists continue to watch her closely.

The calf was cloned from a follicle cell taken from the ovary of a 16-year-old, reddish-brown Hereford cow, and has the same coloring and markings as the cow from which she was cloned.

This is the second calf cloned and delivered at UC Davis. The first was born in August 2001 and died three days later due to multiple birth defects. Worldwide, an estimated 150 cloned calves have been born at about 10 laboratories.

The new calf is expected to remain at UC Davis for about 2 months, then go to a Northern California ranch where the cow from which she was cloned lives.

Cloning may someday enable scientists to produce replicas of individual animals that have valuable traits, such as cows whose milk is particularly nutritious. Cloning could also be used to genetically engineer cows and sheep that can produce pharmaceuticals in their milk.

The current technology used to produce clones in the laboratory, called nuclear transfer, involves removing the nucleus (with its genetic material)

from the unfertilized egg cell of one cow. Then a cell is taken from somatic tissue of a donor animal of the same species and placed next to the "empty" egg. In this case the donor cell was a follicle, supportive tissue in the cow's ovary.

An electrical charge is applied, causing the two cells to fuse together. The fused egg is placed in a lab dish with the appropriate nutrients. Eventually the resulting embryo — which is a genetic copy of the animal that donated the nucleus — is transplanted into a surrogate mother.



Rosie weighed about 100 pounds at birth, a bit larger than the average 75 to 80 pounds usually seen in Hereford calves. Cloned calves are often unusually large, but this calf is considered within the normal range for her breed.

Master Gardeners on page and screen

Published earlier this year, ANR's *California Master Gardener Handbook* is a runaway hit, quickly selling out its first print run (an additional 10,000 more copies have been delivered). "A new bible on the block for home gardeners," one garden editor wrote.

Now home gardeners have another opportunity to learn from UC Master Gardeners: UCTV will broadcast about 20 hours of the program's certification lectures this summer and fall. Broadcasts begin the last week in July and will include classes on integrated pest management, weed identification, the home vineyard and vertebrate pest control. UCTV is a systemwide channel with programming from all UC campuses, labs and ANR; it can be found on Dish Network Channel 9412 and various locations on cable. For information, go to www.uctv.tv.

The *California Master Gardener Handbook* (ANR Publication 3382) is 702 pages, with black-and-white photos, line illustrations and a glossary of terms. It includes chapters on individual crop cultural practices and, when applicable, nutrition of edible crops, plus chapters on related disciplines such as soil and water management, weeds and insect pests, and landscape plants and design. Copies cost \$30, with discounts for ANR personnel and Master Gardeners. To order, go to <http://anrcatalog.ucdavis.edu/> or call 1-800-994-8849 or (510) 642-2431.

— Compiled from UC and other news sources



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