



Livestock, Range & Watershed

Division of Agriculture & Natural Resources

Counties of San Luis Obispo and Monterey

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March 2005

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Announcements

- **RIA Annual Meeting and BBQ**

The San Luis Obispo County Range Improvement Association will be holding its Annual Meeting & BBQ on Thursday April 7, 2005. This will take place at the historic Loomis families Tar Springs Ranch, off Huasna Road, in rural Arroyo Grande. Social Hour will be at 6:00 pm and Dinner is at 7:00 pm. There will be a \$10 dinner charge and \$3 for annual dues. Please contact Jean Rotta 489-2512 for further information. Please RSVP by Friday April 1, at 781-5940.

- **Prescribed Fire Workshop**

There will be prescribed fire workshop Wednesday March 30, 2005, 8:00 am to 1:00 pm, at UC Cooperative Extension Auditorium, 2156 Sierra Way, Suite C, San Luis Obispo. Please see flyer insert for details.

- **California Pacific Section Society for Range Management Spring 2005 Meeting and Tour**

The CALPAC Section of SRM will hold its Spring Meeting and Tour at the Hearst Ranch on April 28-29, 2005. **We are permitted an attendance maximum of 60 attendees.** Thursday April 28th, the section will have a special tour of the Hearst Castle and attendance is capped at 56 people. The Social will begin at 6 PM Thursday evening at the Hearst Ranch Dairy Barn with an excellent dinner to follow at 7:30 PM. The Spring Meeting Program and Field Tour will be held on Friday April 29th. Registration with a Continental Breakfast will begin at 8 AM at the Hearst Ranch Dairy Barn. The morning program of professional presentations will be from 9 AM to noon followed by a great luncheon. The field tour of Hearst Ranch properties will run from 1-5 PM. For information and registration materials please check your SRM newsletter, the California Pacific Section Society for Range Management web page <http://www.casrm.org/>, or contact Royce Larsen at (805) 237-3101.

Livestock Cloning

Wayne Jensen

How is livestock cloning accomplished? To answer this sometimes controversial question, Dr. Alison Van Eenennaam, Cooperative Extension Animal Genomics and Biotechnology Specialist in the Department of Animal Science University of California Davis provided the following information.

A clone is an organism that is descended from, and genetically identical to, a single common ancestor. Animals can be cloned by embryo splitting or nuclear transfer. Embryo splitting involves splitting the multicellular embryo at an early stage of development to generate "twins". This type of cloning occurs naturally and has also been

performed in the laboratory with a number of species.

Cloning can also be achieved by nuclear transfer where the genetic material in the nucleus from one cell is placed into a “recipient” unfertilized egg that has had its genetic material (nucleus) removed by a process called enucleation. It is then necessary to activate the egg to start dividing as if it had been fertilized. In mammals the egg must then be artificially placed into the womb of a surrogate mother where it will grow until birth. The first mammals cloned by this process were born during the mid 1980s, almost 30 years after the initial successful experiments with frogs. Numerous mammalian species have been cloned via this procedure, including mice, rats, rabbits, pigs, goats, sheep, cattle, horse, and rhesus monkeys. There are no documented cases of human cloning.



DOLLY the sheep was the first animal to be cloned from an adult cell. In this case, the genetic material in the nucleus was transferred from an adult somatic (non-egg) cell that had been cultured in the laboratory. This process, which allows cloning to be performed on an adult animal whose traits are well known, is called somatic cell nuclear transfer. A diverse range of adult tissues have been used to successfully clone a variety of species including cattle, pig, horse, cat, rabbit, goat, and fish.

Do clones develop normally?

Currently the cloning procedure is inefficient because the percentage of adult cell nuclei that develop into live animals after transfer into the enucleated egg cell is very low. High rates of pregnancy loss have been observed at various times after placement of the eggs containing the adult cell nuclei into recipient animals. Various abnormalities have been observed in cloned cows and mice after birth and this appears to be at least partially dependent on the type of tissue from which the transferred nucleus was derived. The reasons for the low efficiency of cloning by nuclear transfer are not known. Current ideas are that it might be related to the fact that the reprogramming, which must occur in

the nucleus from the somatic (non-egg) cell, is not sufficient. The genetic material in the nucleus goes from directing the production of an adult somatic cell to directing the production of a whole new embryo, two very different processes.

To date there are no published scientific studies comparing the composition of meat and milk products of livestock clones, their offspring, and conventionally-bred livestock. Several studies are currently in progress to address this topic. The main underlying food safety concern with clones is whether the nuclear reprogramming that occurs during the cloning process has any influence on the composition of animal food products. Producers of cloned animals are currently observing a moratorium on the sale of these animals into the food chain while waiting for guidance from the U.S. Food and Drug Administration (FDA) on the marketing of these animals. The FDA’s Center for Veterinary Medicine is ultimately responsible for evaluating the food safety and animal health implication of cloning, as well as its environmental impact.

Why are animals being cloned?

Cloning involves the production of genetically identical individuals and is not genetic engineering per se, but there is a logical connection between the two technologies. Cloning offers the opportunity to make genetically engineered or transgenic animals more efficiently from cells that have been genetically modified in the laboratory. The main application of livestock cloning will be the production of animals from cells that have been genetically engineered for the purposes of human medicine. The first genetically engineered (transgenic) mammalian clones were sheep born in 1997 carrying the genetic information to make the human clotting factor IX in their milk, which is an important therapeutic treatment for hemophiliacs. Since that time cloned, genetically engineered animals have been reported in other species including goats that produce alpha-I antitrypsin, a cystic fibrosis therapeutic treatment, in their milk. “Xenotransplantation-friendly” pigs, lacking the cell-surface protein that triggers organ rejection, are also being researched for use in transplantation surgery. In the future it may be possible to produce

agricultural livestock with increased disease resistance or improved milk composition. Cloning from frozen tissue samples is also being used for the preservation of rare and endangered species such as the Banteng, and even extinct species such as the Asiatic cheetah.

The Role of Fire in Rangeland Management

Bill Tietje & Royce Larsen

Wildfire and the consequences to property and wildlife are not new to California. Since the beginning of time, fire has shaped the kinds and patterns of vegetation that grows in the state. Many wildlife populations ebb and flow with the occurrence of wildfire and resulting scarcity or abundance of food and cover. The catastrophic Southern California fires of the fall of 2003 put the issue of wildfire consequences and how to respond onto the research and education plate of Cooperative Extension.

Last May the University of California Cooperative Extension (UCCE) met in San Diego to discuss the opportunities for research and education related to prescribed and wild fires. We talked about fire history, fire regimes, fire ecology, and post-fire monitoring. A couple of main points from this meeting include: (1) There has been scientific debate over how the roles of vegetation may have been affected by modern fire suppression, and (2) Information on new advances on firesafe building materials needs to be disseminated to the public, policy makers and government agencies

In San Diego, Terry Salmon and Gary Nakamura from UCCE are developing and disseminating materials on fire ecology, fire effects, fire safety and post-fire vegetation restoration. In 2004, Doug McCreary, Manager of the Integrated Hardwood Range Management Program (IHRMP), compiled information for a review paper, *Fire in California's Oak Woodlands*. The paper summarizes information on the history and ecology of fire. The summary discusses prescribed fire, ecological effects of fire including effects on oak trees and oak regeneration,

effects on water quality, and responses of wildlife to wild fire and prescribed burning. This paper is available in PDF format from the IHRMP website <http://danr.ucop.edu/ihrmp/>. In 2004, a Fire Specialist, Max Moritz, came on board for UCCE. His specialties include Fire Ecology and Management; Disturbance Regimes; GIS and Spatial Analysis; and the effects of historic fires prescribed fire on the occurrence and spread of the Sudden Oak Death disease in California. Max is a statewide specialist located at UC Berkeley. Bill Tietje, UCCE Natural Resources Specialist stationed in the San Luis Obispo County Cooperative Extensive Office, has been studying the effects of fire on wildlife in San Luis Obispo County.

With this year's heavy rainfall, and growth of vegetation fire risk is expected to be high this coming summer and fall. We have scheduled a Prescribed Fire/Habitat Response Workshop for San Luis Obispo on March 30, 2005 (see flyer insert).

West Nile Virus Update

Wayne Jensen

Last Spring I included an article in this newsletter regarding the importance to vaccinate your horses to prevent West Nile Virus. Table 1 shows the data collected by California Department of Food and Agriculture that documented the number of confirmed cases of WNV by County during 2004. It documents the fact that this disease was found in many Counties through out the state and a high percentage of the horses contracting the disease died as a result. I assume many of these deaths were from unvaccinated horses.

It is interesting to note that no horses in Monterey, San Luis Obispo or Santa Barbara Counties were reported listed as contracting this disease. However that was last year. Spring is just around the corner and with the rains we recently received would suggest the possibility of higher mosquito populations in this region of the state. I suggest you talk to your veterinarian in the near future to plan a program to protect your horses from this disease.

Table 1

West Nile Virus Monthly Confirmed Equine Case Report By County (11/19/04-12/17/04)					
County	Cases This Week	Cases YTD	Pending Cases	Exposed Non-Clinical	Equine Died or Euthanized YTD
Alpine	0	3	0	0	0
Butte	0	18	0	0	7
Colusa	0	6	0	0	1
Fresno	0	20	2	3	6
Glenn	0	12	0	0	4
Inyo	0	3	0	0	2
Kern	0	46	0	0	20
Kings	0	1	0	0	0
Lake	0	4	0	0	1
Lassen	0	4	0	1	0
Los Angeles	0	16	0	0	8
Mendocino	0	3	0	0	0
Merced	0	3	0	0	1
Orange	0	2	0	0	1
Placer	0	26	0	1	10
Riverside	0	101	1	6	52
Sacramento	0	83	0	2	43
San Bernardino	0	36	0	0	15
San Diego	0	2	0	0	2
San Joaquin	0	19	0	0	5
Shasta	0	30	0	0	10
Siskiyou	0	5	0	0	3
Solano	0	1	0	0	1
Sonoma	0	1	0	0	1
Stanislaus	0	7	0	0	2
Sutter	0	11	0	0	4
Tehama	0	44	0	0	17
Trinity	0	1	0	0	0
Tulare	0	13	0	0	5
Ventura	0	3	0	0	1
Yolo	0	1	0	0	0
Yuba	0	11	0	0	8
Total	0	536	3	13	230

Farm Water Quality Planning Short Courses

Julie Fallon

The Farm Water Quality Short Course assists growers in addressing nonpoint source pollutants in surface waterbodies and groundwater is being offered by University of California ANR, Cooperative Extension and the USDA Natural Resources Conservation Service.

The program covers 15 hours and includes:

- ✓ A Template Farm Plan and resource materials
- ✓ 8.0 CE hours for PCA, PA
- ✓ A certificate of completion of 15 Regional Board water quality education hours

Upcoming courses for growers in San Luis Obispo and Monterey counties:

- March in Watsonville focusing on orchards, vineyards and caneberries
- April in Paso Robles focusing on vineyards
- April in Carpinteria focusing on orchards and vineyards
- May in Salinas focusing on nurseries
- June in Santa Barbara focusing on nurseries

More courses will be offered monthly through 2007. Visit <http://fwqp.ucanr.org> for the schedule of courses and downloadable registration materials as they are available.

You can also request registration materials by phoning Julie Fallon at (805) 788-2321.

Royce Larsen

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San Luis Obispo and Monterey Counties

Wayne Jensen

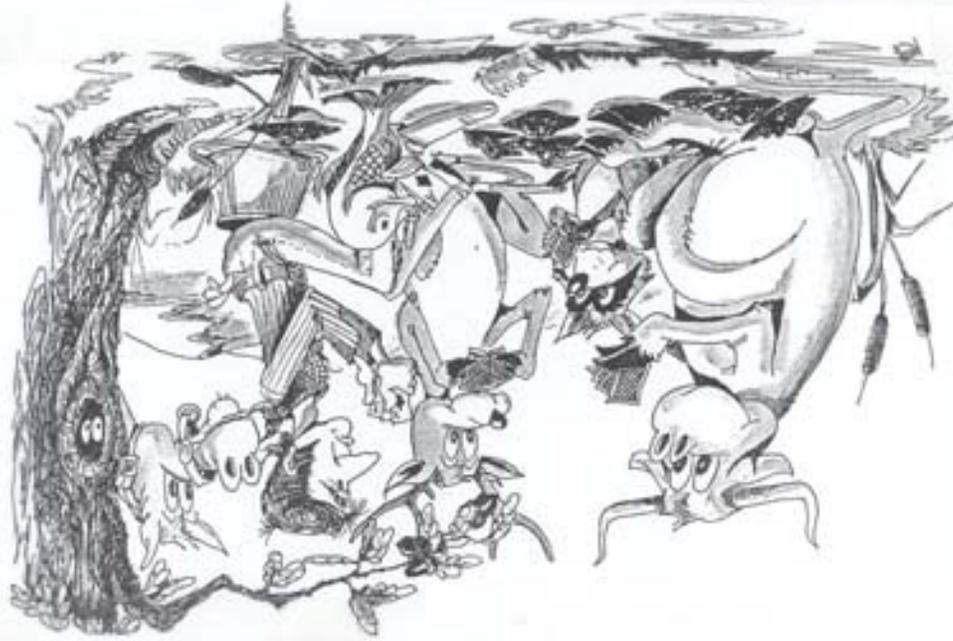
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Pulling together when the chips are down



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