Cooperative Extension --- University of California, Davis

# Environmental Toxicology Newsletter

"Published Occasionally at Irregular Intervals"

~ *Dr. Arthur L. Craigmill* ~
Extension Toxicologist

**Vol. 26 No. 3 -- December 2006**

## "IN THIS ISSUE"

## ~ ~ TOXICOLOGY TIDBITS ~ ~

- CDC's 60th Anniversary: Director's Perspective
- FDA Posts Acrylamide Data
- QuickStats: Age-Adjusted Death Rates for the Five Leading Causes of Death - United States, 2001--2004
- QuickStats: Age-Adjusted Death Rates for Leading Causes of Injury Death, by Year - United States, 1979-2004
- Botulism Associated with Commercial Carrot Juice - Georgia and Florida, September 2006
- "Ask Karen" - Virtual Food Safety Specialist
- Cases of Xylitol Poisoning in Dogs Rise
- Brief Report: Hazardous Materials Release Resulting from Home Production of Biodiesel - Colorado, May 2006
- Gastrointestinal Injuries from Magnet Ingestion in Children - United States, 2003-2006
- The FDA Broadens Access to Lead Screening Test
- USDA Proposes Allowing More Substances in Organic Livestock
- Most Widely Used Organic Pesticide Requires Help to Kill
- DDT - Back by Popular Demand
- Surveillance for Waterborne Disease and Outbreaks Associated with Recreational Water - U.S., 2003-2004
- Lead in Candy Likely To Be Consumed Frequently by Small Children: Recommended Maximum Level and Enforcement Policy

## Veterinary Notes

- How Dairy Foot Baths Affect Farm Crops, Field Lifetime
- Clinical, Pathological and Toxicological Findings of a Latrogenic Selenium Toxicosis Case in Feeder Pigs
- FDA Regulatory Activities

---

## Editorial:

Sandy Ogletree again has compiled a very interesting series of articles for this issue of the *Environmental Toxicology Newsletter* offering a wide ranging look at a number of issues related to human, veterinary and environmental toxicology. One of the most recent relates to the recent release of an assessment done by the Food and

Drug Administration Center for Veterinary Medicine (FDA/CVM) on animal cloning, and in particular, their assessment of the safety of foods derived from animal clones. I have been privilidged to serve on the FDA/CVM Advisory Committee and was involved directly in the review of their assessment. Their assessment was related to cloning done using somatic cell nuclear transfer (SCNT), a process in which the nucleus of an unfertilized egg (ovum) is removed and replaced with the nucleus of a somatic (body) cell from the animal to be cloned. An unfertilized ovum contains half the genes usually found in the normal animal cell. When fertilized by a sperm to give the full number of chromosomes, the ovum then begins to divide to form an embryo. After transfer of the somatic nucleus into the ovum, the ovum has to be coaxed to begin the process of division and formation of an embryo, but once this starts, the process runs its course to form an animal fetus. For a cow, the bovine ovum cell body is half of what is needed to make an fetus. The other half is a nucleus with the full complement of chromosomes. In natural reproduction, half of the chromosomes in the nucleus come from the mother cow, and half from the bull. In SCNT, all of the chromosomes come from the nucleus donor (cow or bull). Either way, the ovum is 100% cow, and nothing but cow! The cloned animal is essentially a twin of the nucleus donor, there are no extra chromosomes added or genetic alterations made, SCNT clones are NOT transgenic animals. These animals are 100% cow, pig, sheep or goat.

The FDA/CVM assessment concluded that foods derived from cloned animals are safe to eat, and I agree completely with that conclusion. In my opinion there is no reason to consider "labeling" from cloned animals or their offspring, if we do, then we should also label all food derived from twin animals as well.

The complete assessment, and review comments are posted on the FDA/CVM website (see article and links below). Be forewarned, these are long documents and full of a lot of detail. SCNT is really a modern reproductive technology, much like artificial insemination was long ago. As we become more familiar with these newer technologies, I hope that those who are skeptical will understand their value in modern agricultural systems. Food safety is simply not an issue when it comes to SCNT cloned animals and their offspring.

As a final statement I would like to refer to the report from the California Department of Pesticide Regulation (DPR) on pesticide use in 2005. Each year DPR issues a report on the amounts of pesticide used, and again this year, we see a reduction of the total number of pounds of "highly toxic" pesticides used, although the total poundage applied rose this year. I would once again like to remind readers that using the total number of pounds of pesticide applied is a very simplistic way to look at pesticide use in California. There are so many toxicological factors to consider with respect to worker health and safety, water quality, and non-target species, that are lost in such an oversimplification. Each chemical truly needs to be evaluated independently, and I KNOW that DPR does this prior to registration of any pesticide for use in California, and in its monitoring programs after approval. For more specific information, readers are referred to the databases maintained on the DPR website.

***~~ Art Craigmill***

---

## A Risk-Based Approach to Evaluate Animal Clones and Their Progeny - DRAFT

This Draft Risk Assessment is the result of a multi-year effort by staff from the US Food and Drug Administration's (FDA's) Center for Veterinary Medicine (CVM or the Center). Since the late 1990s, CVM has been meeting with clone producers and other stakeholders interested in cloning to discuss the safety and

regulatory implications of somatic cell nuclear transfer (SCNT), the process most commonly used to generate animal clones during this time period. In the fall of 2000, CVM tasked the National Academy of Sciences (NAS) to perform an independent, scientific review of the available data on the safety of cloning, including holding a public meeting to identify science-based concerns and elicit data and information on clones and their food products from the scientific community. In July of 2001, the Center issued a CVM Update requesting that clone producers not introduce meat or milk from clones or their progeny into food or feed until the NAS report had been completed, and the agency had had a chance to complete its own review of the safety of those food products.

In October of 2002, NAS issued its report "*Animal Biotechnology: Science-Based Concerns*." Following an overview of the available data on animal clones, the report indicated that the most likely mechanism for generating hazards to clones would stem from reprogramming the donor cell genome, and that any harms that might result from that reprogramming would be observed early in a clone's development. They further noted that there were no published data comparing the composition of meat or milk from clones with conventional animals. Nonetheless, the report concluded that there is "no evidence that food products derived from adult somatic cell clones or their progeny pose a hazard (i.e., there is no evidence that they present a food safety concern)".

This Draft Risk Assessment is CVM's subsequent independent analysis of all of the data relevant to assessing the health of clones and their progeny (and other animals involved in the cloning process) or food consumption risks resulting from edible products from these animals. In order to make the Risk Assessment as transparent as possible, all of this information is available to the public, either by virtue of its publication in peer-reviewed journals, or by "publication" in this risk assessment. We are actively seeking independent peer-review of these data by providing all of the data in raw form (not summaries) either in the text of the risk assessment or in appendices. In addition, we have also described the means by which the methodology was developed to facilitate peer-review by risk assessors.

To read this entire article link to: http://www.fda.gov/cvm/CloneRiskAssessment.htm

REF: FDA/CVM website


## FDA Statement on Foodborne E. coli O157:H7 Outbreak in Spinach
## This statement is current as of October 12, 2006

FDA and the State of California announced today that test results from the field investigation of the outbreak of E.coli O157:H7 in spinach are positive for E.coli O157:H7. Samples of cattle feces on one of the implicated ranches tested positive based on matching genetic fingerprints for the same strain of E. coli that sickened 199 people.

The trace back investigation has narrowed to four implicated fields on four ranches. The outbreak strain of E. coli O157:H7 from cattle feces was identified on one of these four ranches. At this time, testing of other environmental samples from all four ranches that supplied the implicated lot of contaminated spinach are in progress. The positive test result is a significant finding, but is just one aspect of this investigation. More information may come forward as the investigation continues. These four fields, located in Monterey and San

Benito counties, are not currently being used to grow any fresh produce. While the focus of this outbreak has narrowed to these four fields, the history of E. coli O157:H7 outbreaks linked to leafy greens indicates an ongoing problem. As FDA stated in its letter to the lettuce industry in November of 2005, FDA continues to be concerned due to the history of outbreaks and the on-going risk for product contamination of leafy greens. http://www.cfsan.fda.gov/~dms/prodltr2.html

For more information on the illnesses, states affected, advice, recalls, symptoms of E.coli, lettuce safety initiative, and other background information, visit http://www.fda.gov/oc/opacom/hottopics/spinach.html.

This investigation is on-going. FDA, the State of California, the Centers for Disease Control and Prevention (CDC) and the United States Department of Agriculture (USDA) continue to work closely to determine the cause and scope of the *E. coli* O157:H7 outbreak linked to fresh spinach.

For more information link to the FDA website at: FDA Spinach Updates

REF: FDA.GOV website

## Outbreaks of Multidrug-Resistant *Shigella sonnei* Gastroenteritis Associated with Day Care Centers-
## Kansas, Kentucky, and Missouri, 2005

Infection with *Shigella sonnei* that is resistant to antibiotics commonly used in pediatric practice has become more common during the past decade. In 2005, Kansas, Kentucky, and Missouri reported increases in shigellosis cases associated with day care centers caused predominantly by multidrug-resistant (MDR) (i.e., resistant to ampicillin and trimethoprim-sulfamethoxazole [TMP/SMX]) strains of *S. sonnei*. Pulsed-field gel electrophoresis (PFGE) patterns for isolates from Kansas and Missouri were similar, suggesting a common outbreak in the Kansas City area, whereas isolates from Kentucky had a different pattern. This report describes the investigation of two outbreaks of MDR shigellosis associated with day care centers and reviews measures for prevention and control of *S. sonnei* infection in these settings. Given the current rates of resistance to antibiotics available to treat children with shigellosis safely, public health measures initiated during shigellosis outbreaks should focus on promoting appropriate handwashing and diapering practices in day care centers.

**Editorial Note**:

In the United States, *Shigella* species cause an estimated 450,000 cases of gastroenteritis each year, mostly among children aged <5 years. *S. sonnei* is the most common species of laboratory-confirmed *Shigella* infection in the United States and usually causes an acute, self-limited, diarrheal illness. During the past two decades, numerous outbreaks of *S. sonnei* infection have been associated with day care centers. Because few bacteria are required to transmit shigellosis from person to person through the fecal-oral route, shigellosis can propagate in settings with insufficient hygiene practices. Certain states, including the three states in this report, require that children with shigellosis be excluded from day care centers until documentation indicates that they have submitted two consecutive stool specimens that do not yield *S. sonnei*; however, whether excluding children until stool cultures do not yield *Shigella* bacteria reduces transmission is unclear. As a result, the control of shigellosis outbreaks associated with day care centers often requires considerable time, effort, and expense from health departments, day care centers, and affected families.

The emergence of MDR shigellosis highlights the importance of prevention and rapid control of outbreaks. **Appropriate handwashing and diapering practices are critical in minimizing the transmission of shigellosis in day care centers. Scheduling handwashing sessions on arrival at the day care center, before meals, or after playing outdoors; supervising handwashing among young children; and eliminating water play areas have been used to reduce the spread of shigellosis within day care centers and to the community**. Forming cohorts of convalescing children (e.g., asymptomatic children who are culture-positive), by allowing them to attend the day care center but excluding them from interacting with other well children, also has been used to control outbreaks associated with day care centers; however, state regulations in these three states do not allow such measures. Given the current rates of resistance to ampicillin and TMP/SMX, the uncertain safety of administering fluoroquinolones to children, the difficulties in monitoring azithromycin resistance, the absence of an appropriate vaccine, and the unclear benefits of exclusion policies in day care centers, public health measures should focus on prevention of shigellosis outbreaks through appropriate hygiene practices and, where possible and allowed by state regulations, forming cohorts of convalescing children in day care centers.

REF: MMWR Weekly, October 6, 2006, 55(39)


## Toxicology Testing and Results for Suicide Victims - 13 States, 2004

In 2003, an estimated 31,484 suicides (10.7 per 100,000 population) occurred in the United States. Suicide was the fourth leading cause of death among persons aged 10-64 years and the second and third leading causes of death among persons aged 25-34 and 10-24 years, respectively. Few studies have attempted to determine the contribution of substance use to suicide. To assess toxicology testing practices and to determine the prevalence of positive results for alcohol or other drugs, CDC analyzed test results of suicide victims in the 13 states that collected data for the National Violent Death Reporting System (NVDRS) in 2004. This report summarizes the results of that analysis, which determined that 1) the percentage of suicide victims tested varied among states, ranging from 25.9% to 97.7%; 2) of those victims tested, 33.3% were positive for alcohol, and 16.4% were positive for opiates; and 3) similar percentages of poisoning suicide (i. e., suspected intentional overdose) and nonpoisoning suicide victims tested positive for alcohol or other drugs, with the exception of opiates. These results underscore the need to continue monitoring toxicology test results of suicide victims, which might identify patterns of substance use that can help guide development of effective suicide interventions. Such data can be enhanced by uniform, comprehensive, toxicology testing practices on a state and national basis.

Overall, the percentage of suicide victims tested varied by type of substance tested: alcohol (74.4%), cocaine (48.4%), opiates (i.e., heroin or prescription opioid analgesics) (45.3%), amphetamines (38.8%), and marijuana (29.6%). The percentage of victims tested also varied among states by type of substance tested, ranging from 97.4% to 25.1% for alcohol, 95.3% to 1.1% for amphetamines, 96.5% to 7.5% for cocaine, 96.5% to 10.9% for opiates, and 95.3% to 0.4% for marijuana.

Among all suicide victims with positive test results, the greatest percentage tested positive for alcohol (33.3%), followed by opiates (16.4%), cocaine (9.4%), marijuana (7.7%), and amphetamines (3.9%). Among states (excluding those in which fewer than 20 victims were tested), the percentage of positive tests ranged from 27.4% to 40.6% for alcohol, none to 23.0% for amphetamines, 3.1% to 21.8% for cocaine, and 9.6% to 63.7% for opiates. Numbers of positive tests for marijuana in individual states were too small to be considered.

Greater percentages of victims of suicides caused by poisoning were tested than nonpoisoning suicide victims. Tests

for alcohol were conducted in 82.0% of poisoning suicides and 72.9% of nonpoisoning suicides. Similar differences were observed for amphetamines (54.2% versus 35.8%), cocaine (66.0% versus 44.9%), opiates (70.7% versus 40.2%), and marijuana (42.3% versus 27.0%). However, despite greater testing in poisoning suicides, with the exception of opiates, the proportions of tests with positive results were similar for poisoning and nonpoisoning suicides, respectively: 31.6% versus 33.7% for alcohol, 5.8% versus 3.3% for amphetamines, and 8.3% versus 9.7% for cocaine. For opiates, 39.8% of poisoning victims tested positive, compared with 8.2% of nonpoisoning victims.

For the entire article link to: MMWR Weekly

REF: MMWR Weekly, November 24, 2006 / 55(46);1245-1248


## DPR Reports 2005 Pesticide Use Data; Highly Toxic Categories Down Again

The California Department of Pesticide Regulation reported a statewide decline in the use of several highly toxic chemicals in 2005, including fumigants and other pesticides of regulatory concern.

DPR tentative statistics for 2005 show 194 million pounds applied for all commercial uses, compared to 180 million pounds in 2004. Half of the increase was attributed to sulfur, a natural compound used by organic and conventional growers to combat mold and mildew. Wet weather was a factor for many growers in 2005.

At the same time, use of many higher risk chemicals declined, both in pounds applied and acres treated, while use of some reduced-risk compounds increased dramatically.

“DPR continues to put strong emphasis on reducing pesticide risks and use whenever possible,” said DPR Director Mary-Ann Warmerdam. “While last year’s weather presented challenging conditions for growers, we see a growing reliance on sustainable pest management.

“The number of pounds applied is not as significant as the chemicals that contribute to that total,” said Warmerdam. “Increased use of less toxic materials shows that we are moving in the right direction.”

As in previous years, most farm pesticide use occurred in the San Joaquin Valley, the nation's No. 1 agricultural area. Fresno, Kern, Tulare, San Joaquin, and Madera counties had the highest use, as measured in pounds. Other indicators summarized by DPR include the number of applications made and cumulative acreage treated, statewide and county by county.

Pesticide use varies from year to year based on many factors, including types of crops, economics, acreage planted, and other factors – most notably weather. A cool, wet spring in 2005 promoted fungus and other diseases in crops such as grapes, requiring more intensive pest management.

Some details from the 2005 DPR pesticide use summary:

- As measured in pounds, the most used pesticides were sulfur, petroleum oils, metam-sodium, 1,3-

dichloropropene (1,3-D), and mineral oil. Sulfur use increased by 7.3 million pounds (13 percent) and was the most highly used pesticide in 2005, both in pounds applied and acres treated. By pounds, sulfur accounted for 32 percent of all reported pesticide use. Sulfur is a natural fungicide favored by both conventional and organic farmers.

- Fumigant chemicals decreased in pounds applied from 2004 to 2005 (1 million pounds, 2.5 percent) and decreased in cumulative acres treated (54,000 acres, 14 percent). Use of about half of the major fumigants decreased in pounds but nearly all major fumigants decreased in acres treated.
- Pounds of reduced-risk pesticides increased by 630,000 pounds applied (60 percent) and by 2.4 million acres treated (39 percent).
- Crops that showed an overall increase in pesticide pounds applied from 2004 to 2005 included wine grapes (6 million pounds), oranges (2.7 million pounds), raisin and table grapes (1.8 million pounds), walnuts (1.2 million pounds), and almonds (1 million pounds). Major crops or sites with decreased pounds applied included rice (1.5 million pounds), fresh tomatoes (700,000 pounds), strawberries (420,000 pounds), and lemons (370,000 pounds).

For several years, DPR annual pesticide use summaries have included various toxic categories. The statistical summaries for these categories are not risk indicators. DPR uses the data to support regulatory activities to enhance public safety and environmental protection. Some notable changes from 2004 to 2005:

- Pounds of all the higher risk pesticide categories, except for toxic air contaminants, decreased and use of all the lower risk pesticides increased. Acres treated with carcinogens and organophosphates increased, mostly because of increased use of the fungicides mancozeb and maneb and the insecticide chlorpyrifos.
- Chemicals classified as reproductive toxins decreased in pounds applied from 2004 to 2005 (2.1 million pounds or 8.8 percent) and decreased in cumulative acres treated (88,000 acres or 4.1 percent).
- Pounds of insecticide organophosphate and carbamate chemicals, which include compounds of high regulatory concern, continued to decline as they have for nearly every year since 1995.
- Chemicals categorized as toxic air contaminants, another group of pesticides of regulatory concern, remained nearly the same as in 2005 while cumulative acres treated increased by 220,000 (6.1 percent).

REF: CDPR website, November 15, 2006.


## TOXICOLOGY TIDBITS

### CDC's 60th Anniversary: Director's Perspective --- William H. Foege, M.D., M.P.H., 1977--1983

#### Expansion of Public Health

Modern public health began 210 years ago, in 1796, when Edward Jenner, using material from a cowpox lesion on the hand of Sarah Nelmes, vaccinated James Phipps. A later attempt to give Phipps smallpox demonstrated his immunity, and the vaccination era had begun. Although Jenner lacked our understanding of viruses, the immune system, or vaccinology, his clinical observations had convinced him that milkmaids were protected from smallpox because of their

previous exposure to cowpox, and he acted to see if nature could be replicated.

David Sencer reported on the conclusion to the smallpox saga in his Director's Perspective, describing how Jenner's actions were taken to their logical extension during the smallpox eradication program in the 1960s and 1970s. CDC contributed more than 300 workers to this global effort, many of them assigned to the World Health Organization for deployment throughout the world. The importance of this event in the collective energy that defined CDC in 1977 cannot be overstated. Workers at CDC believed they could make a difference. They thought globally, understood teamwork, and were proud to be part of the organization.

For much of the past 210 years, public health has been synonymous with combating infectious diseases. As Sencer points out, although public health had made excursions into occupational health and environmental health, nutrition, birth defects, smoking, and even family planning, the focus was predominantly on the prevention and control of infectious diseases. However, interest in the health of the public increasingly required concern over the toll of chronic diseases, exposure to chemical toxins, the role of intentional and unintentional injury, and the interaction of many risk factors beyond microbes. Public health was changing, and so were the demands on CDC.

For the entire article, please link to: CDC

REF: MMWR, October 6, 2006, 55(39).

## FDA Posts Acrylamide Data

The U.S. Food and Drug Administration (FDA) has been analyzing a variety of U.S. food products for acrylamide and has posted data from its analysis of composite food samples from FDA's Total Diet Study. FDA also surveyed individual food product samples for acrylamide; the individual food product data are available at Survey Data on Acrylamide in Food: Individual Food Products.

For more, see the Survey Data on Acrylamide in Food: Total Diet Study Results

REF: Food Safety Network, FSnet, Nov. 2, 2006.

## QuickStats: Age-Adjusted Death Rates for the Five Leading Causes of Death United States, 2001--2004

The five leading causes of death account for approximately two thirds of all deaths in the United States. The two leading causes of death, heart disease and cancer, account for approximately half of all deaths. Both heart disease and cancer death rates declined substantially during 2001-2004.

Mortality data from the National Vital Statistics System, available at http://www.cdc.gov/nchs/deaths.htm.

REF: MMWR, October 6, 2006, 55(39).

## QuickStats: Age-Adjusted Death Rates for Leading Causes of Injury Death, by Year United States, 1979-2004

During 1979-2004, the three leading causes of injury death in the United States were motor-vehicle traffic, firearm, and poisoning (including drug overdose). In 2004, for the first time since 1968, when such data first became available, the number of reported poisoning deaths (30,308) and the age-adjusted poisoning death rate (10.3 per 1000,000 population) exceeded the number of firearm deaths (29,569) and the firearm death rate (10.0), respectively. During 1999-2004, the poisoning death rate increased 45%, whereas the firearm death rate declined 3%; during the same period, no change occurred in the rate (14.7) for motor-vehicle traffic deaths.

**SOURCE:** Mortality data from the National Vital Statistics Systems. Available at http://www.cdc.gov/nchs/deaths.htm.

REF: MMWR Weekly, Vol 55(50), December 22, 2006.

## Botulism Associated with Commercial Carrot Juice Georgia and Florida, September 2006

On September 8, 2006, the Georgia Division of Public Health (GDPH) and CDC were notified of three suspected cases of foodborne botulism in Washington County, Georgia. On September 25, the Florida Department of Health and CDC were notified of an additional suspected case in Tampa, Florida. This report describes the joint investigation and control measures undertaken by state and local health departments, CDC, and the Food and Drug Administration (FDA).

On September 8, the three patients from Washington County, Georgia, went to a local hospital with cranial nerve palsies(weakness) and progressive descending flaccid paralysis resulting in respiratory failure; the patients had shared meals on September 7. On the evening of September 8, physicians suspected foodborne botulism, notified the state health department, and collected clinical specimens for testing at CDC. On the same evening, CDC provided clinical consultation and dispatched botulinum antitoxin, which was administered to each of the patients the following morning. After receiving antitoxin, the patients had no progression of neurologic symptoms, but they remain hospitalized and on ventilators.

On September 9, the Washington County Health Department, Richmond County Health Department, and GDPH launched an investigation. The three patients had consumed several food items during their two meals together on September 7, including juice from a single 1-liter bottle of Bolthouse Farms carrot juice. The bottle had a "best if used by" date of September 18, 2006. Clinical specimens and leftover food and juice were collected and sent to CDC for

testing. On September 13, botulinum toxin type A was identified in the serum and stool of all three patients. On September 15, leftover carrot juice recovered from the home of one of the patients also tested positive for botulinum toxin type A.

FDA launched an investigation of the Bolthouse Farms, Inc., manufacturing plant in Bakersfield, California. FDA and CDC tested other bottles of the implicated brand of carrot juice, including bottles from different lots, and **all were negative for botulinum toxin**. Because botulinum toxin was found only in the bottle of carrot juice consumed by the three patients, **a lapse in refrigeration of the carrot-juice** bottle during transport or storage was suspected, which would have allowed for growth of *Clostridium botulinum* and subsequent production of botulinum toxin. Based on the CDC test results, on September 17, FDA issued a consumer advisory on the importance of keeping carrot juice refrigerated. However, information obtained from patient interviews regarding storage and transport of the carrot juice did not confirm mishandling by the patients.

*C. botulinum* spores are found in the environment and can be present naturally in carrot juice and other foods that have not undergone the retort canning process, which involves high temperatures and high pressure. Anaerobic conditions, low acidity (pH>4.6), low salt and sugar concentrations, and temperatures >39°F (>4°C) promote germination of *C. botulinum* spores and botulinum toxin production. Carrot juice has low acidity, with a natural pH of approximately 6.0; therefore, in the absence of another inhibitor, refrigeration at temperatures <40°F (<4°C) is necessary to prevent germination of *C. botulinum* spores and production of botulinum toxin. Inhibiting *C. botulinum* growth in other ways, such as through acidification, can retard its growth in juice that is not properly refrigerated.

Suspected botulism cases should be reported immediately to local or state public health officials, who then should call the 24-hour CDC Emergency Operations Center at 770-488-7100; the center will immediately connect them with an on-call botulism specialist. Health-care providers and public health officials are encouraged to inquire specifically about consumption of carrot juice as part of the food history of suspect botulism cases. Additional information on botulism is available at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/botulism_g.htm.

REF: MMWR, October 6, 2006 55(Dispatch)


## Ask Karen

### Virtual Food Safety Specialist

Food safety specialists at the USDA Meat and Poultry Hotline personally answer customers' questions weekdays on the toll-free line. But they're also the brains behind "Ask Karen," the automated information source on the Food Safety and Inspection Service's Web site. With a database of more than 9,300 food safety questions maintained by the Hotline, "Ask Karen," a virtual representative, or vRep, is available 24/7 worldwide. Because "Ask Karen" never sleeps, she's ready with an answer whenever you have a question. How can this innovative Web tool help you? Say you forgot to put your dinner leftovers in the refrigerator. Now, you're ready for a 3:00 a.m. snack. But are these morsels still safe to eat? Or, maybe you're traveling, writing a newsletter in the early hours of the morning, and you need the answer to a food safety question. Is there anybody awake you can ask? It doesn't matter if it's 3 o'clock in the afternoon or 3 o'clock in the morning. Because "Ask Karen" is available on the FSIS Web site, you can type in your question at any time, from any place. Since its launch in April 2004, more than 29,000 customers have done just that and asked more than 91,000 questions.

"More than 20 years of research and experience from the Hotline went into creating the database," said Diane VanLonkhuyzen, the Hotline's manager. "Hotline staff knew what people might ask." This knowledge has grown into the extensive database that is now at Karen's virtual fingertips. In fact, when launched, "Ask Karen" had the largest number of Q&As in the software developer's rollout history. You can be confident that the answers you receive from "Ask Karen" are based on up-to-the-minute information.

The Hotline's food safety experts continue to research new science-based answers, often with the assistance of other FSIS divisions. In addition to responding instantaneously with answers, this cutting edge tool provides links to other Web pages with additional information. Not sure what to ask? Choose questions by category. By clicking the "Help" button, you'll find more than 100 categories from which to choose. Questions in the database relate to meat, poultry and egg products, safe handling, food storage, food preparation, food inspection, food recalls and many other topics.

"Ask Karen" was listed as one of the Government's "Best Practices" at www.webcontent.gov. Through this and other venues, "Ask Karen" is used by other government agencies as a model of how to assist the public with finding answers to questions and to help identify the public's needs for food safety information.

Q How do I know if my chicken is fully cooked and safe to eat?
A Using a food thermometer is the only sure way of knowing if your food has reached a high enough temperature to destroy foodborne bacteria. All poultry should reach a safe minimum internal temperature of 165° F as measured with a food thermometer. A whole chicken must reach a minimum internal temperature of 165° F throughout the bird. Check the internal temperature in the innermost part of the thigh and wing and the thickest part of the breast. For reasons of personal preference, consumers may choose to cook poultry to higher temperatures.

Visit ASK KAREN at www.fsis.usda.gov
Click on "I Want To ... Ask A Food Safety Question"
Call the USDA Meat & Poultry Hotline
1-888-MPHOTLINE (1-888-674-6854)

REF: Be Foodsafe, The FSIS Magazine, Fall 2006.

## Cases of Xylitol Poisoning in Dogs Rise

The Animal Poison Control Center of the American Society for the Prevention of Cruelty to Animals has managed a substantially increased number of cases involving xylitol poisoning in dogs. **Found in sugar-free chewing gum, candy, and baked goods, xylitol is a sweetener that can cause serious and sometimes life-threatening problems for pets.**

The center managed more than 170 cases of xylitol poisoning in 2005, up from approximately 70 in 2004, said Dana Farbman, a certified veterinary technician and spokesperson for the center. As of August, the center had managed nearly 114 cases in 2006.

An increase in availability of xylitol-containing products may be one reason for the rise in cases, Farbman said.

While it was previously thought that only large concentrations of xylitol could cause problems in dogs, lesser amounts of the sweetener may also be harmful, the center reported.

"Our concern used to be mainly with products that contain xylitol as one of the first ingredients," said Dr. Eric Dunayer, who specializes in toxicology at the center. "However, we have begun to see problems developing from

ingestions of products with lesser amounts of this sweetener." Dr. Dunayer said that with smaller concentrations of xylitol, the onset of clinical signs could be delayed as much as 12 hours after ingestion.

According to Dr. Dunayer, dogs ingesting substantial amounts of items sweetened with xylitol could develop a sudden drop in blood sugar, resulting in depression, loss of coordination, and seizures. "These signs can develop quite rapidly, at times less than 30 minutes after ingestion of the product. Therefore, it is crucial that pet owners seek veterinary treatment immediately," Dr. Dunayer said. He also said that there appears to be a strong link between xylitol ingestions and the development of liver failure in dogs.

REF: JAVMA 229(7), October 1, 2006.

## Hazardous Materials Release Resulting from Home Production of Biodiesel Colorado, May 2006

On May 7, 2006, a hazardous materials (HazMat) release occurred in a residential area of Colorado when a homeowner who was processing a tank of homemade biodiesel fuel forgot to turn off the tank's heating element and left for the weekend. The heating element overheated and caused a fire that burned the surrounding shed and equipment. The shed had contained >600 gallons of biodiesel and recycled restaurant cooking oil, smaller amounts of glycerin and sodium hydroxide, and 1-gallon containers of sulfuric and phosphoric acid; a mixture of these ingredients seeped into the ground during the fire. A certified HazMat team and the local fire department responded. Investigators found seven 55-gallon barrels of methanol and other hazardous materials outside the shed. No injuries or evacuations occurred. To prevent potential injuries, biodiesel should be purchased from a licensed commercial source.

The recent rise in petroleum prices has caused an increased interest in alternative fuels such as biodiesel. Although many alternative fuels exist (e.g., ethanol, hydrogen, and natural gas), biodiesel is used increasingly as a diesel-replacement fuel in the United States because it can be manufactured from readily available ingredients such as vegetable oil, animal fat, or recycled restaurant cooking oil. Biodiesel is created through a chemical process involving the reaction of fat or oil with methanol in the presence of a catalyst (e.g., sodium or potassium hydroxide) to produce methyl ester (i.e., biodiesel) and glycerin, a byproduct used in soap and other products. Biodiesel can be used in vehicles and machinery designed to operate on diesel fuel, such as automobiles with diesel (but not gasoline) engines, fuel and heating-oil boilers, and nonaviation turbines.

Biodiesel usually is produced commercially; however, some persons in the United States and elsewhere produce biodiesel in their homes for personal use. Those who produce homemade biodiesel should be aware of the substantial risk for injury. Substances used in biodiesel production can be highly explosive (i.e., methanol) or corrosive (i.e., sodium hydroxide). If improperly handled, these substances can cause severe eye, skin, and upper respiratory irritation; chemical burns; and other serious injuries. During the preceding 10 years, almost all fires and injuries caused by home production of biodiesel of which the National Biodiesel Board (NBB) is aware were caused by improper handling of methanol during production. NBB is the nonprofit trade association coordinating regulatory, technical, and market development of the fuel as a commercial product. The event described in this report is the first known to NBB involving a heating element in an unintentional fire related to home production of biodiesel.
Production of homemade biodiesel can be dangerous for persons without appropriate training and equipment. Therefore, this fuel should be purchased from a licensed source.

REF: MMWR, November 17, 2006 / 55(45);1227-1228

## Gastrointestinal Injuries from Magnet Ingestion in Children - United States, 2003-2006

Ingestion of nonfood objects, inadvertently or intentionally, is common among young children and also occurs with older children and adolescents. Unless the objects are large or sharp, they usually pass through a child's digestive system without health consequences. However, the Consumer Product Safety Commission (CPSC) has become aware of toy products containing small, powerful rare-earth magnets that pose unique health hazards to children. Since 2003, CPSC staff members have identified one death resulting from ingestion of these magnets and 19 other cases of injuries requiring gastrointestinal surgery. This report describes three selected cases and summarizes the 20 cases of magnet ingestion identified by CPSC that occurred during 2003-2006. Caregivers should keep small magnets away from young children and be aware of the unique risks (e.g., volvulus and bowel perforation) that magnets pose if ingested. When evaluating children who have ingested objects, health-care providers should be aware of potential complications if magnets might be involved.

CPSC and the respective manufacturers announced voluntary recalls of Magnetix magnetic building sets by Rose Art Industries, Inc. (Livingston, New Jersey) in March 2006 and of Polly Pocket™ magnetic play sets by Mattel, Inc. (El Segundo, California) in November. However, other toys also include magnets. CPSC is working with the ASTM International toy safety standard (F 963) subcommittee to address hazards associated with toys containing magnets.

For the entire article link to: MMWR Weekly

REF: MMWR, December 8, 2006 / 55(48);1296-1300

## The FDA Broadens Access to Lead Screening Test

In September 2006, the Food and Drug Administration expanded the availability of the first simple and portable lead test system to more than 115,000 certified point-of-care locations nationwide, including health care clinics, mobile health units, and schools. This action will make it easier and faster for children and adults to be tested and treated for lead poisoning.

The LeadCare II Blood Lead Test System is made by ESA Biosciences of Chelmsford, Mass. The test is used to screen children and adults for harmful levels of lead using a finger stick or venous whole blood sample. It is performed while the patient is present, in as little as three minutes. The rapid result means a second sample for further testing can be obtained quickly, if needed, reducing the need for a follow-up visit.

Health care providers will have more opportunities to test for lead exposure in the community and to detect and treat people earlier, before the damaging effects of lead poisoning occur, says Acting FDA Commissioner Andrew C. von Eschenbach, M.D. "FDA's expansion of the test's availability bolsters ongoing efforts to reach populations at greatest risk for lead poisoning and to expand testing inside communities. This may be particularly true for young children and inner city residents who may face obstacles accessing healthcare."

At this time, the test is available only at certain hospitals, private and public health laboratories, and other testing facilities with the capability of performing moderate- and high-complexity testing. Patients whose results are borderline or positive must make a second appointment with their doctor for follow-up testing. But some people fail to do this, and doctors sometimes have difficulty reaching patients to give them their results or to discuss treatment options.

Lead poisoning in children typically results from ingesting dust from deteriorating lead-based paint or from drinking water from corroding plumbing. Lead poisoning may have no symptoms, but symptoms can include headaches, stomach cramps, fatigue, memory loss, high blood pressure, and seizures. Lead poisoning in children has been linked to learning disabilities and developmental delays.

According to the Centers for Disease Control and Prevention (CDC), more than 300,000 children younger than age 6 each year have blood levels that exceed 10 milligrams per deciliter, the threshold used to indicate lead poisoning. The U.S. Department of Housing and Urban Development estimates that 24 million homes in the United States have significant lead-based paint hazards. The American Academy of Pediatrics (AAP) estimates that 1 out of 4 homes with children younger than age 6 has lead contamination.

The CDC and the AAP have issued recommendations for screening children at ages 1 and 2 who live in high-risk homes. The LeadCare II Blood Lead Test System also will aid adults exposed to lead in occupational settings where the availability of immediate lead test results will help to identify problems early.

The ease and accuracy of the test system were evaluated by testing 516 blood samples over a two-month period at 11 sites. The test instrument applies an electrical current to the patient's blood sample, causing lead to collect on disposable sensors. Studies show that nearly 98 percent of the values measured by the test instrument were within Occupational Safety and Health Administration's recommendations for blood lead proficiency testing. Another laboratory method should be used to confirm blood lead values above 10 milligrams per deciliter.

REF: FDA Consumer Magazine, November-December 2006.


## USDA Proposes Allowing More Substances in Organic Livestock

**The Department of Agriculture is proposing to permit additional substances, including those used in a number of medical treatments, in organic livestock production.**

The medical treatments permissible with limitations under the new rule would include administration of

atropine, bismuth subsalicylate, butorphanol, flunixin, furosemide, magnesium hydroxide, poloxalene, tolazoline, and xylazine.

The amendments to the National List of Allowed and Prohibited Substances for organic livestock also would allow the use of peracetic acid for sanitation of facilities and processing equipment, calcium propionate for inhibition of mold in dry herbal products, and excipients in the manufacture of drugs. Excipients are inactive ingredients such as fillers, extenders, diluents, wetting agents, solvents, emulsifiers, preservatives, flavors, absorption enhancers, sustained-release matrices, and coloring agents.

The new rule would reflect recommendations from the National Organic Standards Board. The USDA also consulted with the Food and Drug Administration and the Environmental Protection Agency.

The USDA did not accept the board's recommendation to extend withdrawal periods for drugs to twice the usual FDA requirements. The USDA also did not approve allowing the antimicrobial moxidectin for controlling parasites in organic livestock or allowing activated charcoal, calcium borogluconate, calcium propionate, kaolin pectin, mineral oil, or propylene glycol as veterinary treatments.

REF: JAVMA, 229(5), September 1, 2006.

## Most Widely Used Organic Pesticide Requires Help to Kill

The world's most widely used organic insecticide, a bacterium known as *Bacillus thuringiensis* or Bt for short, requires the assistance of other microbes to perform its insect-slaying work, a new study has found.

The startling new insight into the workings of one of the most important and environmentally friendly weapons in the human arsenal against insect pests has significant implications not only for the control of insects in agriculture, forestry and human health, but for understanding microbial disease in humans and other animals.

For the entire article link to: University of Wisconsin-Madison

REF: Chemically Speaking, October 2006

## DDT - Back by Popular Demand

The Word Health Organization (WHO) has endorsed the indoor spraying of dichlorodiphenyltrichloroethane (DDT) to control malaria-carrying mosquitoes, reversing a 30-year policy. The Organization said there is **little risk from the insecticide when it is used appropriately** and that any risks are far outweighed by the **effectiveness of DDT in controlling a disease that kills one million people annually.** Said one WHO official, “The scientific and programmatic evidence clearly supports this reassessment. DDT presents no health risk when used properly.”

New data that suggest minimal effects to the environment or health from indoor spraying of DDT have largely eliminated the concerns which led to the ban on DDT in the early 1980s. The 2001 Stockholm Convention on Persistent Organic Pollutants implemented a global ban on DDT, but allowed about 25 nations to keep using the insecticide for vector control to combat malaria under strict conditions. The WHO said of the dozen insecticides WHO has approved for house spraying, DDT is the most effective. For about $5, a household of five people can be protected for a year, during which time the incidence of the disease is being reduced by 90%.

One of the proponents of the use of DDT is South Africa, which reintroduced DDT for indoor use several years ago after finding that malaria-carrying mosquitoes had developed resistance to other insecticides. Since then, malaria case and fatality numbers have fallen to all-time low levels and South Africa has moved towards malaria elimination. Currently, 14 countries in Sub-Saharan Africa are using indoor spraying programs and ten of those are using DDT.

Activist organizations are split in their reaction. **Environmental Defense, which launched the anti-DDT campaign in the 1960s, now endorses the indoor use of DDT for malaria control, as does the Sierra Club and the Endangered Wildlife Trust.** Others are less enthusiastic. *(Pesticide & Toxic Chemical News, 9/18/06).*

REF: Chemically Speaking, October 2006.

## Surveillance for Waterborne Disease and Outbreaks Associated with Recreational Water United States, 2003--2004

This report summarizes data from the Waterborne Disease and Outbreak Surveillance System, which tracks the occurrences and causes of waterborne disease and outbreaks (WBDOs) associated with recreational water. During 2003-2004, a total of 62 WBDOs associated with recreational water were reported by 26 states and Guam. Illness occurred in 2,698 persons, resulting in 58 hospitalizations and one death. The median outbreak size was 14 persons (range: 1-617 persons).

REF: MMWR Surveillance Summaries, December 22, 2006.

## Lead in Candy Likely To Be Consumed Frequently by Small Children: Recommended Maximum Level and Enforcement Policy

This guidance provides a recommended maximum lead level of 0.1 ppm in candy likely to be consumed frequently by small children. FDA considers the recommended maximum lead level to be achievable with the use of good manufacturing practices in the production of candy and candy ingredients and to be protective of

human health.

In addition to announcing the recommended maximum lead level, FDA as explained below, is rescinding the previous 0.5 ppm guideline for considering enforcement action against candy products likely to be consumed frequently by small children. FDA is prepared to take enforcement action against any candy product containing lead at levels that may pose a health risk. Further, FDA is reiterating its enforcement policy toward the use of lead-based ink on candy wrappers as originally stated in its 1995 letter to the industry on this subject.

FDA considers the issuance of this guidance to be a prudent public health measure consistent with the Agency's policy of reducing lead levels in the food supply to reduce consumers' lead exposure to the lowest level that can be practicably obtained.

For this entire article link to: FDA/CFSAN

REF: Ednet Update December 2006.

## Veterinary Notes

### How Dairy Foot Baths Affect Farm Crops, Field Lifetime
### Cornell University

Commonly used foot baths to prevent lameness in dairy cows may not only reduce crop yields but also contribute to the copper load in farm fields. To look at how the use of the foot baths' copper sulfate affects three crops' quality and yields and to give farmers an idea of how much copper may be kept in field soil, a research project, funded by the Northern New York Agricultural Development Program (NNYADP), which is supported, in part, by Cornell University, is now under way.

Copper sulfate is the most cost-effective treatment for controlling hairy heel warts that cause lameness in dairy cows. However, much of the copper sulfate used in the cows' foot baths is disposed of in manure slurry applied to farm fields. A William H. Miner Agricultural Research Institute survey of New York and Vermont farms estimates that 4 to 16 pounds of copper sulfate is applied per acre per year to some fields. Since the New York State Department of Environmental Conservation has set a lifetime load limit for copper at 74 pounds per acre, a field could reach its maximum load of copper in 4.5 to 19 years. Over those years, a farmer hopes to harvest maximum crop yields.

Researchers at the Miner Institute in Chazy, N.Y., are evaluating timothy and orchard grass grown in greenhouses using controlled applications of copper sulfate on sandy loam and silt loam soils. A field study on corn is also under way.

"What we want to know is how much and how well copper sulfate is tolerated by field crops," says Everett D. Thomas, vice president of agricultural programs at the institute. "We know of no research that determines how copper in sulfate form affects crop development on different soils. The data from our project will determine how the rate of copper sulfate application affects root growth, forage quality and yield."

Thomas says farmers can consider several alternatives to reduce their use of copper sulfate to protect the environment

and obtain desired crop yields while protecting cow foot health. Those alternatives include adjusting the amount of copper sulfate used in foot baths, reducing the frequency of foot baths, using them less in the winter and improving hoof trimming and stall surfaces.

The Miner Institute, he said, was able to reduce its copper sulfate use by 60 percent and maintain its dairy herd's hoof health through good hoof trimming practices and use of rubber mats throughout the milking barn.

While Thomas says it is too early to release results, "some of the results from the greenhouse study on the forage grasses were eye-opening -- big yield decreases where copper sulfate was used." He is eager, he said, to see the field corn study results.

REF: Penn State Veterinary News, June-August 2006.

## Clinical, Pathological and Toxicological Findings of a Latrogenic Selenium Toxicosis Case in Feeder Pigs

*(A. Casteignau1, A. Fontán2, A. Morillo3, J. A. Oliveros4 & J. Segalés5. 1Unité Pédagogique d'Histologie et Anatomie Pathologique, Ecole Nationale Vétérinaire de Toulouse, France; 2Swine Veterinarian, Altorricón, Spain; 3Test & Trials, S.L., Binéfar, Spain; 4Foganar, S.A., Spain; 5Dept de Sanitat i d'Anatomia Animals, Facultat de Veterinària, Centre de Recerca en Sanitat Animal (CReSA), Universitat Autònoma de Barcelona, Bellaterra, Spain)*

Histopathological and toxicological analyses confirmed a clinical diagnosis of selenium (Se) intoxication in pigs from a farm in Spain. After an initial episode of diarrhea, animals presented both dermatological and neurological signs; the most obvious sign was a marked hind limb paresis. Cutaneous lesions consisted on diffuse alopecia, multifocal skin necrosis and coronary band necrosis of the hooves. Central nervous system lesions involved the cervical and lumbar intumescences of the spinal cord and consisted of a severe, bilateral symmetrical poliomyelomalacia of the ventral horns; pons and medulla oblongata also presented lesions of polioencephalomalacia. Analyses of feed and sera from clinically affected pigs revealed a marked increase in Se concentration. Clinical investigations indicated that a failure in Se dosage in feed was the cause of the toxicosis. *(Journal of Veterinary Medicine Series A*, August 2006, Volume 53, Page 323)

REF: Penn State Veterinary News, June-August 2006.

## FDA Regulatory Activities

A Warning Letter was sent to a farm in Indiana for offering a bull for sale for slaughter as food that was adulterated because of the presence of illegal tissue residues. Analysis of tissue samples collected from the animal identified the presence of gentamicin and flunixin. No tolerance has been established for residues of gentamicin in the edible tissues of cattle as codified in Title 21 of the Code of Federal Regulations (21 CFR). The amount of flunixin found exceeded the tolerance of 125 parts per billion established for residues of flunixin in the liver tissue of cattle as codified in 21 CFR 556.286. The presence of these drug residues in the edible tissues of this animal causes the food to be adulterated within the meaning of the Federal Food, Drug, and Cosmetic Act (FFDCA).

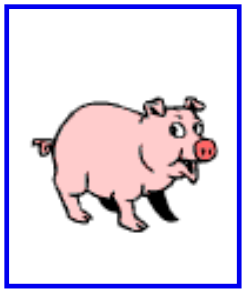
Animals at other facilities were held under conditions so inadequate that medicated animals bearing potentially

harmful drug residues were likely to enter the food supply. For example, each operation lacked an adequate system to ensure that animals medicated by the operation were withheld from slaughter for appropriate periods of time to permit depletion of potentially hazardous residues of drugs from edible tissues. In addition, new animal drugs were adulterated when each of the operations failed to use a drug in conformance with its approved labeling. “Extralabel use,” i.e., the actual or intended use of a drug in an animal in a manner that is not in accordance with the approved labeling, is permitted only if the use is by or on the lawful order of a licensed veterinarian within the context of a valid veterinarian-client-patient relationship. The extralabel use of approved veterinary or human drugs must comply with sections 512(a)(4) and 512(a)(5) of the FFDCA and 21 CFR Part 530. FDA investigations found that the extralabel use of new animal drugs at these operations failed to comply with these requirements and resulted in illegal drug residues. Because the extralabel uses of the drugs were not in compliance with Part 530, the drugs were caused to be unsafe and adulterated. The above violations involved sulfadimethoxine, penicillin G procaine, flunixin, penicillin, and gentamicin in dairy cows.

Animals were held under conditions so inadequate that medicated animals bearing potentially harmful drug residues are likely to enter the food supply. The operations lack an adequate system to ensure that animals medicated by the facilities are withheld from slaughter for appropriate periods of time to permit depletion of potentially hazardous residues of drugs from edible tissues. The above violations involved sulfadimethoxine in a cow; gentamicin in a beef cow; and neomycin, flunixin, sulfamethazine, and gentamicin in a culled calf.

REF: FDA Veterinarian, 2006 - No. II.

**!! CLICK ON THE PIG !!**



Back to the Beginning