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~ Dr. Arthur L. Craigmill ~
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Cow Study Yields Surprises About Source, Amount of Dairy Air Pollution

California dairy cows produce only half the amount of air pollutions had previously been believed and, perhaps more important, most of a dairy cow's contribution to smog comes **not from her manure, but from her belching**, says the UC Davis scientist conducting the first controlled study of its kind.

Those unexpected findings may substantially change the thinking and the practices of California regulators and dairy operators trying to reduce air pollution.

"Our discovery means our whole approach to dairy waste management and air-emissions management might change," said Frank Mitloehner, the UC Davis air-quality specialist who is conducting the study. "We have to re-think that the only good solutions are engineering solutions, such as capping or aerating manure lagoons, and consider biological avenues such as animal feeding and management."

"For the first time we can tell dairy farmers the source of their air pollution," Mitloehner added. "For the most tightly regulated pollutant, the 700 ozone-forming gases collectively called volatile organic compounds, that source is not the cows' waste. It's the cows."

For three months, Mitloehner has studied dairy cows in controlled environmental chambers to collect precise measurements of the volatile organic gas emissions they produce. The information is urgently needed by the $4.6 billion, 1.5 million-cow California dairy industry -- the largest in the world -- as dairy producers try to comply with strict new pollution rules.

The dairy-air study is planned to last for two more weeks, but the California Air Resources Board asked Mitloehner and others to present their preliminary findings today at a meeting of the San Joaquin Valley Air Pollution Control District in Fresno, CA.

The study was prompted by concern over air quality in the San Joaquin Valley, which ranks as the worst in the country. The No. 1 source of ozone (smog) air pollution in the valley is exhaust emissions from trucks and cars. The No. 2 source is thought to be gases from cows on dairy farms.

Using state-of-the-art air-collection and analytical technology, and two environmental chambers to house the cows in, Mitloehner precisely measured animal and waste production of volatile organic gases and other pollutants like ammonia and methane. He also videotaped the cows to correlate the timing of emissions with their activities, such as eating, ruminating and excreting.

His preliminary findings indicate that cows and their waste produce about 6.4 pounds of volatile organic compounds (VOCs) per year.

The only previous estimate of total VOCs -- the estimate that California's rigid new air standard is based on -- is derived from a scientific study conducted in 1938. That old estimate says that a cow produces 12.8 pounds of VOCs per year -- twice the amount that Mitloehner found.

Furthermore, Mitloehner found that about 2.5 pounds of the total 6.4 pounds, or only about 40 percent, comes from excreta.

REF: UC Davis News Service, 26 Jan 2005

Potentially Harmful Fluoride Levels Found in Some Instant Teas

Instant tea, one of the most popular drinks in the United States, may be a source of **harmful levels of fluoride**, researchers at Washington University School of Medicine in St. Louis report. The researchers found that some regular strength preparations contain as much as 6.5 parts per million (ppm) of fluoride, well over the 4 ppm maximum allowed in drinking water by the Environmental Protection Agency and 2.4 ppm permitted in bottled water and beverages by the Food and Drug Administration.

The discovery stemmed from the diagnostic investigation of a middle-aged woman suffering from spine pain attributed to hyperdense bones. Testing for the cause of her symptoms revealed the patient had high levels of fluoride in her urine. She then disclosed a high consumption of iced tea -- claiming to **drink one to two gallons of double-strength instant tea throughout the day** -- which led the researchers to test for fluoride content in several brands of instant tea available on grocery store shelves.

Each of the teas was tested as a regular-strength preparation in fluoride-free water, and each contained fluoride, with amounts ranging from 1.0 to 6.5 parts per million. The study is reported in the January issue of *The American Journal of Medicine*.

"The tea plant is known to accumulate fluoride from the soil and water. Our study points to the need for further investigation of the fluoride content of teas," says Michael Whyte, M.D., professor of medicine, pediatrics and genetics. "We don't know how much variation there is from brand to brand and year to year."

In many communities in the United States, fluoride is added to drinking water to help prevent tooth decay. However, the Public Health Service indicates that the fluoride concentration should not exceed 1.2 ppm.

Physicians have been aware that ingestion of high levels of fluoride cause bone-forming cells to lay down extra skeletal tissue, increasing bone density but also bone brittleness. The resulting disease, called skeletal fluorosis, can manifest in bone pain, calcification of ligaments, bone spurs, fused vertebrae and difficulty in moving joints.

"When fluoride gets into your bones, it stays there for years, and there is no established treatment for skeletal fluorosis," Whyte says. "No one knows if you can fully recover from it."

According to Whyte, the findings could aid in the diagnosis and treatment of patients who have achiness in their bones. In the future, doctors should ask such patients about their tea consumption

REF: *Washington University School of Medicine, 25 January 2005, Whyte MP, Essmyer KE, Gannon FH, Reinus WR. Skeletal fluorosis and instant tea. American Journal of Medicine 2005 Jan;118(1):78-82.*

DPR Releases 2003 Pesticide Use Data; Director Emphasizes Reduced-risk Strategy

The California Department of Pesticide Regulation (DPR) reported a **small increase** in commercial pesticide use during 2003, compared to 2002. A DPR analysis linked the increase primarily to wet, cool spring weather that caused

more disease problems.

Some 175 million pounds of pesticide applications were reported in 2003, a 4 percent increase from the previous year. Although analysts said such variations are normal, DPR Director Mary-Ann Warmerdam will launch an initiative to renew DPR emphasis on reducing pesticide risks and use.

"Maintaining the status quo just isn't good enough," said Warmerdam, who joined DPR last September. "We must do more to reduce risks and encourage IPM -- integrated pest management." (IPM promotes least-toxic pest management with an emphasis on natural methods and chemical use as a last resort.)

"DPR needs to expand its commitment to IPM with a comprehensive, long-term strategy that will maximize the use of our existing resources, while seeking out new opportunities to support IPM on the farm; in schools, parks and other public areas; and in our homes," said Warmerdam.

Toward that goal, Warmerdam will direct DPR's Pest Management Advisory Committee (PMAC) to begin developing a blueprint for IPM progress when the committee holds its next meeting on February 23. Warmerdam noted that DPR budget cuts in recent years eliminated IPM grants for agricultural and urban groups, and slowed advancement of DPR's school IPM program.

"Meanwhile, the need for least-toxic pest management methods has never been greater," said Warmerdam. "Agriculture faces legal and legislative mandates to improve air and water quality, while urban areas are under similar pressure to reduce runoff and pesticide risks in schools. IPM projects sponsored by DPR have already demonstrated success in these areas," she said.

"Most importantly, our experience shows that IPM is good for our economy as well as our environment," said Warmerdam. "Pesticide users who employ IPM save the time and expense associated with the use of highly-toxic, highly-regulated pesticides. It's a win-win situation for business, workers and the public, and for our air and water."

Warmerdam will ask PMAC to respond with an initial set of recommendations in six months. "We also will seek advice and support from a broad range of stakeholders, including the environmental community, industry, legislative representatives, and others," said Warmerdam. "We all recognize the fiscal constraints facing government and the private sector. But that is all the more reason to seek environmental progress that can benefit our economy."

2003 pesticide use summary:

- Increases in pesticide pounds applied from 2002 to 2003 were noted in almonds (1.4 million pounds more, or 12 percent), strawberries (1 million pounds more, 12 percent), carrots (800,000 pounds more, 10 percent), rights-of-way (600,000 million pounds more, 16 percent), and rice (500,000 pounds more, 9 percent).
- Decreased pounds applied were found in wine grapes (600,000 pounds less, or 3 percent), table and raisin grapes (600,000 pounds less, 3 percent), structural pest control (300,000 pounds less, 6 percent), potatoes (300,000 pounds less, 12 percent), and lemons (200,000 pounds less, 5 percent).
- Most-used pesticides as measured by pounds were sulfur, petroleum oils, metam-sodium, and methyl bromide. Sulfur use decreased slightly but remained the most highly used pesticide, both in pounds applied and acres treated. By pounds, sulfur accounted for 53 million pounds, or 30 percent of all pesticide use. It is a natural fungicide favored by both conventional and organic farmers.
- Petroleum oil use decreased by 209,000 pounds; metam sodium use decreased by 322,000 pounds, and methyl bromide use increased by 834,000 pounds.
- Use increased in most pesticide categories. The largest increase in pounds was with the fumigant 1,3-dichloropropene. (Fumigants are applied at high rates, in part, because they treat a volume of space rather than a surface area such as the leaves and stems of plants.)

Some statistical changes from 2002 to 2003 include:

- Chemicals classified as reproductive toxins increased in pounds applied from 2002 to 2003 (up 480,000 pounds, or 2 percent) and increased slightly in cumulative acres treated (up 22,000 acres, less than 1 percent).
- A similar pattern applied to suspected carcinogens. Use of these chemicals increased in overall pounds applied (up 1.9 million pounds, 7 percent) and in cumulative acres treated (up 390,000 acres or 11 percent). The increase in pounds was mainly due to increase in uses of the fumigant 1,3-dichloropropene but the increase in acres treated was due mainly to use of the fungicides maneb, iprodione, mancozeb, and captan.
- Use of organophosphate and carbamate chemicals, which includes compounds of high regulatory concern, continued to decline by pounds, decreasing by 680,000 pounds (about 8 percent). Treated acres were nearly the same, down only 3,000 acres (0.05 percent). Use of chlorpyrifos increased; the largest decreases in use were molinate, thiobencarb, and diazinon.
- Use of chemicals categorized as ground water contaminants was nearly the same in 2003 as in 2002. Use increased by 38,000 pounds applied (less than 2 percent), but cumulative acres treated decreased by about 5,000 acres (0.3 percent). Most of the increase in pounds was in use of diuron and simazine.
- Chemicals categorized as toxic air contaminants, another regulatory concern, increased by 2.6 million pounds applied (8 percent). Cumulative acres treated increased by about 367,000 acres (12 percent). Most of the increase in pounds was due to increased use of methyl bromide and 1,3-dichloropropene. Most of the increase in acres was due to maneb and 2,4-D.
- Use of reduced-risk pesticides increased considerably, by 311,000 pounds applied (41 percent) and 1.8 million acres treated (47 percent).

DPR analyses have shown that pesticide use varies from year to year depending upon pest problems, weather, acreage and types of crops planted, economics, and other factors. The 2003 summary -- which included analyses for 12 crops -- found pest problems for most were higher in 2003 than in 2002, due to the wet and cool spring in 2003. Prices for most of the 12 crops also improved in 2003. The threat of higher financial losses may have prompted some growers to use more pesticides.

Pesticide use is reported as the number of pounds of active ingredient and the total number of acres treated. Data for pounds include both agricultural and nonagricultural applications; data for acres treated are primarily agricultural applications. The number of acres treated is cumulative; one acre treated three times is counted as three acres.

For a summary of total pounds by county, see www.cdpr.ca.gov/docs/pur/pur03rep/lbsby_co.pdf.
For county use statistics and the 2003 Pesticide Use Report Summary, see www.cdpr.ca.gov/docs/pur/pur03rep/03_pur.htm.)

REF: California Department of Pesticide Regulation News, January 26, 2005 (05-01)

DPR Reports on Environmental Justice Project, Releases Illness Statistics for 2003

The California Department of Pesticide Regulation (DPR) announced a pilot project to monitor the air for pesticides in a rural farm community. DPR also released a summary of statewide pesticide injury data for 2003.

DPR Director Mary-Ann Warmerdam said the air monitoring project in Parlier, Fresno County, supports DPR's commitment to equitable environmental protection for all California residents and workers.

"People who live and work closest to agriculture deserve the same high standard of environmental protection as other Californians," said Warmerdam. "High environmental standards will help assure cleaner air and water, better health for our children, and a sustainable future for our agricultural economy."

Warmerdam said DPR will move forward immediately with plans to screen about two dozen pesticides during a 12-month period. First, a local advisory group will be created to assist DPR staff with the project. Monitoring is expected to begin this summer.

Parlier was chosen as the project community from more than 80 potential sites around the state. The selection was selected based on many factors, including the levels of pesticide use and the presence of a significant ethnic population of children and adults. DPR's pilot project is part of an environmental justice initiative launched by the California Environmental Protection Agency.

DPR has a longstanding policy of focusing on worker health and safety, since those who work with or near pesticides face the greatest exposure risk. Extending that focus to farm communities -- and ethnic populations -- is a logical step, Warmerdam said.

While the Parlier study is not directly related to DPR's pesticide illness reporting program, Department scientists will study the Parlier data to determine whether pesticide levels in the community's air could pose excessive hazards. Ultimately, the data could also help DPR devise steps to reduce pesticide exposures and illnesses.

Other DPR health and safety initiatives that focus on rural and ethnic populations:

- DPR is developing a community guide that will help rural residents and others better understand their rights under the pesticide regulatory system, including the illness complaint process.
- DPR redesigned and rewrote its Pesticide Safety Information Series leaflets in 2004 to make them more easily understood by farm workers. The 18 handouts in English and Spanish are available at County Agricultural Commissioner offices or found online at <www.cdpr.ca.gov/docs/whs/psisenglish.htm>.
- In 2003, DPR helped the Fresno County Agricultural Commissioner's office produce a series of worker safety videos in English, Spanish, and Hmong.
- A 2004 survey by DPR and County Agricultural Commissioners found that more than 10,000 California farm workers speak Punjabi, a language of India. Worker safety leaflets will be translated into Punjabi and distributed later this year.
- A training video for Mixtecs -- indigenous Indians from the Mexican state of Oaxaca who have no written language -- was produced by the Fresno Agricultural Commissioner with a $50,000 federal grant secured by DPR. Tens of thousands of Mixtecs work in Central Valley fields. The Mixtec videos were aired on a Fresno TV station in 2004 with a live, question-and-answer session. Copies of the video will be made available for purchase this year.

2003 summary illness statistics reported

DPR's newly-released summary of pesticide illnesses showed a decline from 2002 to 2003. Some 1,232 cases were investigated in 2003, with pesticide exposure suspected or confirmed in 802 cases. In 2002, there were 1,859

investigations, with 1,316 suspected or confirmed. However, these statistics represent a range of illness incidents, rather than a census of individual illnesses.

Of the 802 suspected or confirmed illnesses in 2003, some 405 (50.5 percent) involved the use of agricultural pesticides, and 397 (49.5 percent) involved non-agricultural pesticide exposure. Occupational exposures accounted for 553 (69 percent) of the 802 cases.

DPR continues to emphasize the reporting of pesticide drift incidents, agricultural and non-agricultural. The number of suspected or confirmed drift illnesses declined in 2003 compared to 2002 (256 cases and 33 episodes, compared to 478 cases and 39 episodes).

Non-occupational cases fell dramatically from 2002 to 2003 (725 to 303). That coincided with the end of a project in which California Poison Control System (CPCS) phone operators provided DPR with illness information from physicians. The project lapsed when a federal grant ran out and DPR faced its own budget constraints.

Physician reporting is another factor in non-occupational illness statistics. For years, DPR researchers have highlighted problems with physicians who fail to report suspected pesticide illnesses to their county health officers within 24 hours, as required by state law.

Last fall, DPR began participating in a project with the Office of Environmental Health Hazard Assessment (OEHHA) to improve the timeliness, quality, and completeness of illness reporting. Funded by a $750,000 grant from the U.S. Environmental Protection Agency, the project will seek to reestablish a working relationship with CPCS, train physicians to better recognize and report suspected pesticide illnesses, enhance reporting with Web-based tools, and create a Web-based system for pesticide incident investigation in cooperation with the County Agricultural Commissioners.

In the meantime, DPR has reorganized and enhanced its online resources for physicians at www.cdpr.ca.gov/docs/whs/physician.htm.

For a county-by-county breakdown of suspected pesticide injuries in 2003, see www.cdpr.ca.gov./docs/whs/pisp/2003total.illness.county/pdf.

For the complete summary narrative, see www.cdpr.ca.gov/docs/whs/pdf/hs1857.pdf

For background on the Pesticide Illness Surveillance Program, see www.cdpr.ca.gov/docs/whs/pisp/brochure.pdf.

For more information on DPR's environmental justice initiative, including the Parlier monitoring project, see www.cdpr.ca.gov/docs/envjust/.

REF: Department of Pesticide Regulation News,February 24, 2005 (05-04)

FDA Assesses New Report on Acrylamide

The Food and Drug Administration (FDA) is reviewing a report released on March 2, from the Food and Agriculture Organization and World Health Organization Joint Expert Committee on Food Additives (JECFA) on acrylamide in food. Acrylamide is a natural byproduct that forms when certain carbohydrate-rich foods are fried, baked, or roasted at high temperatures. Acrylamide can cause cancer in laboratory animals at high doses, although it is not clear whether it causes cancer at the much lower levels in food.

Since the discovery of acrylamide in food in 2002, FDA has initiated a broad range of activities on acrylamide, including being at the forefront of new toxicology research on acrylamide. This FDA research includes the carcinogenicity and neurotoxicity studies and the toxicology modeling work cited in the JECFA recommendations. The results of these studies, expected in 2007, will be pivotal for future evaluations of acrylamide.

Experts from FDA participated in the meeting and recent FDA research on acrylamide levels in food and acrylamide toxicology were used for JECFA's evaluation. Although the report concludes that acrylamide may be a human health concern, JECFA also cautions that there are uncertainties in its conclusions because of limitations in the data used to evaluate acrylamide. JECFA also made the following recommendations that are consistent with the FDA's approach:

- Reevaluate acrylamide when ongoing carcinogenicity and long-term neurotoxicity studies are available;
- Continue work on acrylamide using toxicology modeling;
- Continue appropriate efforts to reduce acrylamide concentrations in food; and
- Encourage accumulation of scientific data on acrylamide in foods in developing countries.

At this time, FDA advises consumers to eat a balanced diet, choosing a variety of foods that are low in trans fat and saturated fat, and rich in high-fiber grains, fruits, and vegetables. FDA is also planning to release new data this spring on acrylamide levels in the U.S. diet.

For further information about acrylamide, consumers can turn to the FDA's Center for Food Safety and Applied Nutrition website at http://www.cfsan.fda.gov/~lrd/pestadd.html#acrylamide.

REF: FDA News Press Release, March 3, 2005

USDA Pesticide Data Program to Release 2003 Data

The U.S. Department of Agriculture's Agricultural Marketing Service announced that the *Pesticide Data Program Annual Summary, Calendar Year 2003* and the 2003 data are available via the Internet at http://www.ams.usda.gov/science/pdp/download.htm. Printed copies of the 2003 Annual Summary will be available in mid-March. AMS is making the summary and the data available on the internet in advance of publication.

Congress approved implementation of the Pesticide Data Program (PDP) in January 1991 to improve the quality and quantity of information available on chemical residues in domestically produced and imported food. Since the

program's inception, PDP has a provided statistically-reliable test data for 70 commodities including fresh and processed fruit and vegetables, grains, fluid milk, butter, corn syrup products, pear juice concentrate, meat and poultry, peanut butter and drinking water.

In 2003, the PDP analyzed a total of 12,316 food and drinking water samples. The commodities in the 2003 survey included 10 fresh fruit and vegetables (asparagus, cantaloupe, cucumbers, mushrooms, onions, pears, spinach, sweet bell peppers, sweet potatoes and tomatoes), six processed commodities (canned asparagus, canned green beans, canned peaches, pear juice concentrate/puree, frozen sweet corn, and frozen sweet peas), barley, wheat flour and butter. Finished drinking water samples were collected from community water systems in California, Colorado, Kansas, New York and Texas. PDP also initiated a targeted survey for the triazole class of fungicides and their metabolites in apples, peaches (fresh and canned) and wheat flour.

The information below was taken from the Executive Summary:

> Of the samples tested by multiresidue methods, 43 percent of the fruit and vegetable samples, 8 percent of barley samples, 45 percent of wheat flour samples, and 99 percent of the butter samples had detectable residues. Residues detected in wheat flour resulted primarily from low level detections of the triazole alanine and triazole acetic acid metabolites. Residue findings in butter were primarily low level residues of endosulfan sulfate and the environmental contaminants dieldrin and DDE p,p'.
>
> Overall, approximately 54 percent of all samples tested by multiresidue methods contained no detectable pesticides (parent compound and metabolite(s) is combined), 22 percent contained one pesticide, and 24 percent contained more than one pesticide. Generally, fewer pesticides were found in processed products and grains than in fresh commodities. Low levels of environmental contaminants were detected in cantaloupe, cucumbers, spinach, and butter at concentrations below levels that trigger regulatory actions.
>
> In finished drinking water, PDP detected low levels (measured in parts per trillion) of some pesticides, primarily widely used herbicides. None of the detections exceeded established EPA Maximum Contaminant Levels or Health Advisory levels.
>
> PDP testing found residues exceeding an established tolerance in 0.3 percent of the 11,522 samples (excluding drinking water). A tolerance is the maximum amount of a pesticide residue allowable on a raw agricultural commodity. Established tolerances are listed in the Code of Federal Regulations, Title 40, Part 180. Residues with no established tolerance were found in 1.5 percent of all samples (excluding drinking water). These residues were detected at very low concentrations and may be the result of spray drift, crop rotations, or the use of sanitizers in food handling establishments.

REF: USDA Agricultural Marketing Service, New Release, No. 037-05, March 1, 2005.

Lead Poisoning Associated with Use of Litargirio - Rhode Island, 2003

Lead can damage the neurologic, hematologic, and renal systems. Deteriorated leaded paint in older housing remains the most common source of lead exposure for children in the United States; however, other lead sources increasingly are recognized, particularly among certain racial/ethnic populations. In 2003, the Rhode Island Department of Health (RIDOH) recognized litargirio (also known as litharge or lead monoxide), a yellow or peach-colored powder used as an antiperspirant/deodorant and a folk remedy in the Hispanic community, as a potential source of lead exposure for Hispanic children. This report summarizes a case investigation of elevated blood lead levels (BLLs $\geq$10 μg/dL) associated with litargirio use among two siblings in Rhode Island, the public health action taken, and a survey of parents/guardians in three pediatric clinics in Providence, Rhode Island, to assess litargirio use. Findings underscore the importance of follow-up of elevated BLLs and thorough investigation to identify all lead sources.

Case Report

In May 2003, RIDOH and the Health & Education Leadership for Providence (HELP) Lead Safe Center investigated unexplained increases in BLLs in twin Hispanic boys aged 7 years (twins A and B). Annual BLL screenings for the twins since age 9 months were not elevated until June 2001, when twins A and B had elevated BLLs of 14 μg/dL and 15 μg/dL, respectively. Twin A's BLL increased to 42 μg/dL in May 2003, despite completed remediation of interior lead paint hazards in their home in June 2002 and of exterior lead hazards in May 2003, and provision of parental education about lead poisoning. Similarly, twin B's BLL increased to 26 μg/dL during the same period. In contrast, their younger brother's initial elevated BLL of 17 μg/dL in August 2001, at age 9 months, decreased to 8 μg/dL by November 2002.

In May 2003, RIDOH and HELP Lead Safe Center staff conducted a home inspection, which detected litargirio in a small glass jar in the bedroom of the twins, who used the substance as an antiperspirant/deodorant. The youngest brother did not use litargirio and had a separate bedroom. After the litargirio tested positive for lead by a sodium rhodizonate field test, all litargirio was removed from the home, and a sample was sent to the state laboratory for confirmatory lead testing. The litargirio sample contained 790,000 parts per million (ppm) (79%) lead. Follow-up BLLs decreased for twin A (27 μg/dL in June, 22 μg/dL in August, and 13 μg/dL in November) and twin B (22 μg/dL in June, 17 μg/dL in August, and 9 μg/dL in November).

The twins' visiting grandmother from the Dominican Republic had introduced litargirio into their home and also had given it to the family of their two female cousins, aged 1 and 5 years. In June 2002, the older girl had a BLL of 24 μg/dL, and the younger girl had a BLL of 32 μg/dL. Previous annual BLL screenings for the older girl were not elevated. In July 2002, after a home inspection revealed lead paint hazards, their parents implemented lead hazard control measures. However, the girls BLLs increased to 29 μg/dL and 44 μg/dL, respectively, by January 2003. The older sister used litargirio sporadically until the family ran out of the product in January 2003, after which her BLLs decreased to 20 μg/dL in March, 15 μg/dL in April, and 7 μg/dL in November. Although the younger girl had not used litargirio, she shared a bedroom with her older sister and likely ingested litargirio residue on various surfaces through hand-to-mouth activity. Her BLLs also decreased to 33 μg/dL in March, 29 μg/dL in April, and 16 μg/dL in November after her sister discontinued using litargirio.

Public Health Action

Litargirio is available locally in botanicas (i.e., shops selling herbs) and bodegas (i.e., grocery stores) located in Hispanic communities. It is manufactured and/or packaged by laboratories in the Dominican Republic and sold in small, clear, plastic packets labeled "litargirio" (See Figure Below). A litargirio sample purchased by RIDOH staff from a local botanica contained 360,000 ppm (36%) lead.

Editorial Note:

Litargirio is used in the manufacture of batteries, glass, and ceramics; in the vulcanizing of rubber; and as a paint pigment. Dominicans, particularly those from rural areas, use it as an antiperspirant/deodorant and as a traditional remedy for burns and fungal infections of the feet. This report, the first to describe lead poisoning associated with use of litargirio, demonstrates how a thorough investigation of elevated BLLs led to the discovery of litargirio, a previously unreported source of lead exposure.

Certain racial/ethnic populations at risk for lead exposure through use of traditional or folk remedies might fail to disclose use of these products when asked about use of "traditional or folk remedies," rather than by product name. In this report, the twins' mother repeatedly denied use of "traditional or folk remedies" because she considered litargirio an ordinary product (i.e., deodorant), not a remedy. RIDOH now inquires specifically about use of litargirio when visiting Hispanic families of children with elevated BLLs.

Data regarding dermal absorption of inorganic lead compounds in humans is limited but reportedly substantially lower than absorption through inhalation or ingestion. Although litargirio was applied to the skin of these children, most of the product probably was ingested through hand-to-mouth behavior after contact with the product or with contaminated surfaces. Twin A, who had the higher BLL, sucked his thumb, supporting this premise.

The survey results suggest that the prevalence of litargirio use in Rhode Island was minimal. Later attempts by RIDOH staff to purchase litargirio from botanicas or bodegas failed to locate any litargirio. Because of these findings, RIDOH took no further action. Conversely, in New York City (NYC), the NYC Department of Health and Mental Hygiene was able to purchase litargirio from five of eight botanicas visited in NYC after learning about the Rhode Island litargirio cases. One of the five litargirio samples tested contained lead (430,000 ppm [**43%] lead**). A public warning was issued, and botanica owners were required to remove all litargirio from their stores.

FIGURE. Packages of litargirio, a yellow or peach-colored powder, used as an antiperspirant/deodorant and a folk remedy in the Hispanic community

Photo/New York City Department of Health and Mental Hygiene

REF: MMWR, March 11, 2005, 54(09).

Salmonellosis Associated with Pet Turtles - Wisconsin and Wyoming, 2004

Salmonellosis associated with small pet turtles in the United States was a major public health concern in the 1970s. In 1975, the Food and Drug Administration (FDA) **banned commercial distribution of small turtles** (i.e., those with a carapace of <4 inches). The FDA ban prevents an estimated 100,000 cases of salmonellosis among children each year. However, a recent resurgence in the sale of small turtles has generated concern. In Wisconsin and Wyoming, at least six human cases of salmonellosis have been linked to such turtles. This report describes the investigation into those cases.

Wisconsin

Case 1. While vacationing with her family in Wisconsin in late July 2004, a Kansas girl aged 4 years was taken to an emergency department with diarrhea and fever of 4 days' duration. Her mother was instructed to keep the child on a clear liquid diet until the diarrhea ceased, and the child was released. The next day, the patient was taken to an urgent-care clinic for treatment of bloody diarrhea, cramps, and fever. Stool cultures yielded *Salmonella enterica* serotype Pomona, a rare serotype. The child was placed on a 3-day course of trimethoprim/sulfamethoxazole, and the illness resolved after 5 days.

Epidemiologic investigation by the Wisconsin Division of Public Health (WDPH) determined that the family had purchased a small turtle at a souvenir shop in northwest Wisconsin. Warned by the public health nurse of the possible link between the turtle and the child's illness, the family removed the turtle, so the animal was not available for testing.

Cases 2 and 3. In July 2004, a boy aged 2 years was taken to his physician with watery diarrhea and fever of 4 days' duration. Twelve days later, his mother had onset of diarrhea and fever. The physician counseled the patients; neither patient was treated and both recovered completely.

Cultures of stool samples from both patients yielded *S.* Pomona. Epidemiologic investigation by WDPH determined that the family had recently purchased small turtles at a souvenir shop in south-central Wisconsin. The family provided water specimens obtained from the turtle habitat; these were cultured and yielded *S.* Pomona.

Case 4. In August 2004, a boy aged 10 years was taken to an urgent-care clinic with a 3-day history of diarrhea and vomiting. He was hospitalized for 3 days and treated with antibiotics, after which a stool specimen was obtained for culture; no pathogenic organisms could be isolated. He subsequently had no symptoms for several months. In November 2004, he was taken to an urgent-care facility after a 2-day history of diarrhea and vomiting and was hospitalized for 3 days.

Stool specimens for culture yielded *S.* Pomona. Despite negative cultures of stool specimens obtained 1 month after hospital discharge, the child continued to have occasional loose, mucoid stools as of January 2005.

An epidemiologic investigation by WDPH determined that the family had purchased a small turtle from a souvenir shop during a vacation to south-central Wisconsin in late July 2004; the mother could not recall the name of the store. A week after the first hospitalization, the boy heard media coverage about a link between a pet turtle and an ill child. Consequently, **the boy released the turtle into a neighborhood creek**. Thus, neither the turtle nor its habitat were available for testing.

Public Health Response. In July 2004, WDPH began receiving reports that small turtles were being sold or given away with purchase in several tourist destinations in Wisconsin. WDPH sent a letter to all local health departments on August

5 to alert them to this potential health threat and asked local public health officials to stop the distribution of turtles in their jurisdictions. Local health officers were also asked to determine whether patients with salmonellosis had any contact with reptiles, specifically turtles, and to provide education for reptile owners. WDPH subsequently learned that at least six souvenir shops in four Wisconsin counties were distributing turtles. The public health alert and subsequent media coverage yielded at least three cases (including case 4) of *Salmonella* infection reported in young children who had recently purchased small turtles at Wisconsin tourist destinations. The two most recent cases had onset dates in February 2005 and are under investigation.

When analysis indicated that patterns from the patient and turtle isolates associated with the first three Wisconsin cases were indistinguishable, WDPH issued a press release on August 18, 2004, that identified the link between human cases of disease and contact with pet turtles. The release also provided information on safe handling of these animals and suggested options for surrendering the turtles if owners chose not to keep them.

Once informed of the FDA ban by local health departments, most Wisconsin retailers immediately discontinued selling small turtles. One retailer refused to comply, stating that his turtles were free of *Salmonella* and that he was distributing them for educational purposes only, which was permissible under the FDA ban. The retailer produced a report from a private laboratory indicating that cultures of cloacal swabs obtained from 60 of a source batch of 10,000 turtles were negative for *Salmonella;* the retailer claimed to be distributing turtles that originated solely from this batch. Local health officials informed the retailer that, because of the intermittent nature of bacterial shedding, the results did not ensure that all of the turtles were free of *Salmonella* and that their distribution was illegal, regardless of their carrier status. The retailer refused to comply with the order from the local health department and continued to distribute the animals. WDPH issued an emergency order on August 19 directing him to terminate any public distribution of small turtles.

The retailer contacted a laboratory that agreed to test the turtles and submitted samples from six of his turtles. Cloacal swabs from one turtle yielded a mixture of *S.* Pomona and *S. enterica* serotype I. The retailer stopped distributing turtles on August 24 and returned the remaining animals to the supplier.

When specimens from the patient in case 4 were tested in November 2004, the banding pattern of the PFGE supported an epidemiologic link among all four patients. Although slight differences existed in the banding pattern between this last patient and the cloacal sample from the turtle, epidemiologic and laboratory evidence supported the conclusion that the illnesses in all four cases were the result of **contact with turtles.**

Wyoming

Case 1. In July 2004, a woman aged 80 years from central Wyoming visited her health-care provider with a 5-day history of fever, severe diarrhea, and increased urinary frequency. Cultures of urine, feces, and blood all yielded *S. enterica* serotype Typhimurium. The patient was hospitalized for 5 days, then discharged to a transitional care unit for an additional 9 days. She received intravenous (IV) antibiotics for 10 days during her stay in the hospital and transitional care unit. At the time of discharge, her condition had improved.

Investigation by the Casper-Natrona County Health Department (CNCHD) determined that the woman lived with her daughter and the extended family owned a turtle, but the woman had no known direct contact with the turtle. However, the turtle bowl was cleaned in the family kitchen sink. Cultures of environmental samples obtained from the turtle habitat grew *S.* Typhimurium. PFGE patterns of environmental and patient isolates tested at the Wyoming Public Health Laboratory were indistinguishable.

Case 2. In August 2004, a boy aged 6 years from west-central Wyoming visited his health-care provider with a 3-day history of nausea, diarrhea, and vomiting. Blood cultures were negative, but a stool sample yielded *S.* Typhimurium.

Wyoming Department of Health staff visited the boy's home 7 days after illness onset. His mother reported that the family owned two pet turtles. The boy was allowed to handle the turtles, but his mother fed them and cleaned their aquarium because she was aware of the risk for *Salmonella* infection.

Specimens for culture were obtained from the turtles and their living environment. All samples yielded *S.* Typhimurium and were indistinguishable from the patient's sample by PFGE. The samples did not match the patterns of those from case 1.

Both turtles had been purchased from the same pet store, which had been contacted by CNCHD on two previous occasions regarding its illegal sale of turtles. The pet store informed CNCHD that the turtles were being used solely for educational purposes. After investigating the two cases of human salmonellosis, CNCHD confiscated the remaining turtles from store C. CNCHD publicized this event to discourage future sales of small turtles and to inform the public about the risk for salmonellosis. The Wyoming Department of Health plans to mail an informational packet about reptiles and *Salmonella* to all pet stores in the state in summer 2005.

Editorial Note:

Salmonella infections usually result in a mild, self-limiting gastroenteritis but can also lead to severe invasive illness, such as septicemia or meningitis, especially in infants and immunocompromised persons. Reptiles are a well-recognized source of human salmonellosis, maintaining fecal carriage rates of *Salmonella* of >90%. Contact with reptiles and amphibians accounts for an estimated 74,000 (6%) of the approximately 1.2 million sporadic human *Salmonella* infections that occur annually in the United States.

Successful management of turtle-associated salmonellosis requires public health investigations to incorporate laboratory, epidemiologic, environmental health, and policymaking components. When investigating cases of salmonellosis, health officials should consider patient contact with reptiles and take action to ensure that vendors and stores do not distribute small turtles illegally. Additional information about safe ownership of reptiles is available at http://www.cdc.gov/healthypets/animals/reptiles**.**

REF: MMWR, March 11, 2005, 54(09).

TOXICOLOGY TIDBITS

Herbal Tea for Infant Colic Unsafe

A soothing cup of herbal tea with star anise has traditionally been heralded as an easy way to calm a colicky baby. But before your child takes a sip, consider this. **Contaminants in the herbal tea can cause dangerous neurological problems in infants.**

In recent years, mounting evidence has indicated cross-contamination between Chinese star anise (*Illicium verum*), which is considered generally safe for consumption, and the closely related species Japanese star anise (*Illicium*

anisatum). The Japanese version of star anise contains potent nerve toxins. *(Ed. Note: One of these toxins is anisatin, which is a GABA neurotransmitter antagonist.)* Physicians reporting in the journal Pediatrics treated seven babies, aged 2 to 12 months, with signs of star anise poisoning over a two-year study period. Symptoms of toxicity in these infants included jitteriness, vomiting, irritability, jerky movements, and seizures. All infants had received at-home herbal tea with star anise at least once, although the doses may have varied in all cases from one star to six anise stars boiled in water, and given to the infants as little as once per day to as much as four times per day. Analysis of samples of the anise star herbs used to make the herbal tea showed toxic compounds, some at very high levels. All of the infants experienced complete recovery within 48 hours of treatment.

Barbara M. Garcia Pena, MD, MPH, and co-authors say the toxicities found in the infants could be due to an overdose of Chinese star anise (which at high doses can be toxic to the nervous system), contamination with the Japanese star anise, or a combination of the two.

"Star anise tea should no longer be given to infants because of its potential danger in this population," the authors conclude in the journal report. On Sept. 10, 2003, the U.S. Food and Drug Administration warned consumers not to buy herbal teas brewed from star anise. The statement read: "It has come to FDA's attention that brewed "teas" containing star anise have been associated with illnesses affecting about 40 individuals, including approximately 15 infants."

Star anise tea is also marketed under the name Anise Estella.

REF: November 12, 2004, FSnet Nov. 15/04

Acute Illness from Dry Ice Exposure During Hurricane Ivan - Alabama, 2004

Natural disasters such as hurricanes often impair delivery of essential services, including electricity. When normal refrigeration methods are unavailable, affected populations seek alternative means of protecting perishable foodstuffs. One alternative is to use frozen carbon dioxide (CO_2) (i.e., dry ice).

In September 2004, in anticipation of a power outage during the aftermath of Hurricane Ivan, a man aged 34 years in Mobile, Alabama, purchased a 100-lb block of dry ice from a local ice house. The block of dry ice was divided into four equal parts and packaged in brown paper bags, which were placed in the front seat of the man's pickup truck. The windows were closed, and the air conditioner was set to recirculate air inside the cab of the truck. After driving approximately one quarter mile from the ice house, the man had shortness of breath; his breathing difficulty increased as he drove the next mile. The man telephoned his wife and asked her to call 911. He then pulled his truck into a parking lot, parked, and lost consciousness. His wife drove to the parking lot and located her husband's truck; immediately after she opened the door to the vehicle, her husband began to awaken. Emergency medical services personnel arrived soon afterward. They determined that the man's vital signs were normal and he required no further medical evaluation. Although the man complained of a headache for the next 24 hours, he recovered completely.

Dry ice has a temperature of -109.3°F (-78.5°C) and can be used to keep perishable foods cold. As dry ice melts, it undergoes sublimation (i.e., direct conversion from a solid into gaseous CO_2, bypassing the liquid state). Improper

ventilation during use, transport, or storage of dry ice can lead to inhalation of large concentrations of CO_2 with subsequent harmful effects, including death. Previous reports have described illness and death caused by occupational exposures and unintentional nonoccupational exposures to dry ice in enclosed spaces such as automobiles and submarines. Because CO_2 is colorless and odorless, persons who transport, use, and store dry ice must be educated about its potential dangers.

In the case described in this report, the man did not receive any warnings from the ice house regarding the potential danger of CO_2 exposure from dry ice. If the air conditioner had not been set to recirculate air inside the cab of the truck, the CO_2 poisoning symptoms might not have occurred. In addition, placing the ice in the bed of the man's truck would have reduced exposure.

REF: MMWR, December 24, 2004 / 53(50);1182-1183

Fatal Rat-Bite Fever - Florida and Washington, 2003

Rat-bite fever (RBF) is a rare, systemic illness caused by infection with *Streptobacillus moniliformis*. RBF has a case-fatality rate of 7%-10% among untreated patients. *S. moniliformis* is commonly found in the nasal and oropharyngeal flora of rats. Human infection can result from a bite or scratch from an infected or colonized rat, handling of an infected rat, or ingestion of food or water contaminated with infected rat excreta. An abrupt onset of fever, myalgias, arthralgias, vomiting, and headache typically occurs within 2--10 days of exposure and is usually followed by a maculopapular rash on the extremities. This report summarizes the clinical course and exposure history of two rapidly fatal cases of RBF identified by the CDC Unexplained Deaths and Critical Illnesses (UNEX) Project in 2003. These cases underscore the importance of 1) including RBF in the differential diagnoses of acutely ill patients with reported rat exposures and 2) preventing zoonotic infections among persons with occupational or recreational exposure to rats.

REF: MMWR, January 7, 2005, 53(51 & 52);1198-1202.

Surveillance Summaries: Cryptosporidiosis and Giardiasis

Cryptosporidiosis Surveillance - United States, 1999-2002

Cryptosporidiosis is a gastrointestinal illness caused by protozoa of the genus *Cryptosporidium*. During 1999-2002, the total number of reported cases of cryptosporidiosis reported to CDC increased from 2,769 for 1999 to 3,787 for 2001 and then decreased to 3,016 for 2002. The number of states reporting cryptosporidiosis cases increased from

46 to 50, and the number of states reporting more than four cases per 100,000 population increased from two to five. A greater number of case reports were received for children aged 1-9 years and for adults aged 30-39 years compared with other age groups. Incidence of cryptosporidiosis was particularly high in the upper Midwest and Vermont. Peak onset of illness occurred annually during early summer through early fall.

Transmission of cryptosporidiosis occurs throughout the United States, with increased diagnosis or reporting occurring in northern states. However, state incidence figures should be compared with caution because individual state surveillance systems have varying capabilities to detect cases. The seasonal peak in age-specific case reports coincides with the summer recreational water season and might reflect increased use of communal swimming venues (e.g., lakes, rivers, swimming pools, and water parks) by young children.

Giardiasis Surveillance - United States, 1998-2002

Giardiasis is a gastrointestinal illness caused by the protozoan parasite *Giardia intestinalis*. During 1998-2002, the total number cases of giardiasis reported to CDC decreased from 24,226 for 1998 to 19,708 for 2001 and then increased to 21,300 for 2002. The number of states reporting giardiasis cases increased from 42 to 46; however, the number of states reporting more than 15 cases per 100,000 population decreased from 10 to five. A greater number of case reports were received for children aged 1-9 years and for adults aged 30-39 years compared with other age groups. Incidence of giardiasis was highest in northern states. Peak onset of illness occurred annually during early summer through early fall. The increase observed for 2002 might reflect increased reporting after reporting of giardiasis as a nationally notifiable disease began in 2002. Transmission of giardiasis occurs throughout the United States, with increased diagnosis or reporting occurring in northern states. However, state incidence figures should be compared with caution because individual state surveillance systems have varying capabilities to detect cases. The seasonal peak in age-specific case reports coincides with the summer recreational water season and might reflect increased use of communal swimming venues (e.g., lakes, rivers, swimming pools, and water parks) by young children.

REF: MMWR, *Surveillance Summaries*, Volume 54, No. SS-1, January 28, 2005

EPA Launches New Spanish Website

The EPA has launched a new consolidated Spanish website as part of its ongoing effort to provide information in this language. Lead poisoning, asthma triggers, and pesticide management are among the topics at the site (www.epa.gov/espanol). (EPA OPP Update, 1/21/05).

REF: Chemically Speaking, February 2005.

EPA Provides List of Alternatives to CCA-Treated Wood for Residential Use

In response to requests from consumers regarding available alternatives to chromated copper arsenate- (CCA) treated wood for use in residential settings, EPA has made available online information about arsenic-free wood preservatives and alternative building materials. Effective December 31, 2003, wood can no longer be treated with CCA for most residential uses. Since the December 31 cancellation, EPA has received many queries about what alternatives to CCA-treated wood are available. Making this information available via the Web empowers consumers to make educated building material choices. You can find more information on these alternatives at http://www.epa.gov/oppad001/reregistration/cca/alternativestocca.htm.

This list of alternatives to CCA is being introduced as part of our effort to reorganize and update the CCA Web pages on epa.gov. By reorganizing the information on those pages from a chronological to topical structure, EPA hopes to make it easier for the general public and other stakeholders to find the information they seek. The new and improved CCA page is available online at http://www.epa.gov/pesticides/antimicrobials/reregistration/cca/.

REF: EPA News Release.

The National Toxicology Program Announces the Release of the 11th Report on Carcinogens

The Department of Health and Human Services released its Eleventh Edition of the Report on Carcinogens today, adding seventeen substances to the growing list of cancer-causing agents, bringing the total to 246. For the first time ever, viruses are listed in the report: hepatitis B virus, hepatitis C virus, and some human papillomaviruses that cause common sexually transmitted diseases. Other new listings include lead and lead compounds, X-rays, compounds found in grilled meats, and a host of substances used in textile dyes, paints and inks.

The full report is available at the NTP website http://ntp.niehs.nih.gov.

REF: National Toxicology Program Press Release, Jan 31, 2005.

CHEERS

Everyone agrees that the protection of children's health is a primary goal of pesticide regulation. The problem

has been difficulty in determining and measuring the risks. To address this problem, EPA initiated the **Children's Health Environmental Exposure Risk Study (CHEERS)**. *It is not a study of the top party schools.* The two-year study will collect information about families who volunteered to participate in the project. The data will include household pesticide use and potential exposure for children up to three years old. The participating families will be asked not to change their normal routine of pesticide use (unless spraying their kids is the status quo). The scientists will collect samples of food from the homes and urine samples from the children. The information will be used to estimate the children's exposure to pesticides and phthalates. Phthalates are chemicals commonly used to make plastics; there is some concern that phthalates can interfere with human hormones.

At the request of EPA, the Batelle Memorial Institute, the University of North Carolina, the Duval County (Florida) Health Department, and the University of Florida reviewed the scientific merit of the study and the protection of human subjects. All of the institutions approved the study in 2004. The EPA has decided to send the project design out for another external, independent review by an expert panel made up of members of the Science Advisory Board, the Science Advisory Panel, and the Children's Health Protection Advisory Committee.

The results of this study could drive significant pesticide decisions. The risks to children may be greater or less than we currently think. It is imperative that the design of this study be above criticism by groups that are either pro- or anti-pesticide.

You will find more information about CHEERS at this address. **http://www.epa.gov/cheers/basic.htm** You cannot volunteer to participate unless you live in the Florida study area.

REF: Georgia Pest Management Newsletter, December 2004/Volume 27, No. 12

Surgeon General's Advisory on Alcohol Use in Pregnancy

In February 2005, the U.S. Surgeon General issued an Advisory on Alcohol Use in Pregnancy to raise public awareness about this important health concern. Research demonstrates that prenatal alcohol exposure can result in a spectrum of birth defects that can affect a child's growth, appearance, cognitive development, and behavior. Fetal alcohol spectrum disorders are preventable if a woman abstains from drinking alcohol while pregnant.

In 2003, approximately 10% of pregnant women reported alcohol use, with 4% of them reporting binge drinking. In addition, nearly 55% of women who might become pregnant report drinking alcohol, and more than 12% report binge drinking. Because approximately 50% of pregnancies are unplanned, prevention efforts should target not only pregnant women and women planning a pregnancy but also women of childbearing age who are sexually active and not using an effective form of birth control. This new advisory reaches out to this broader group of women and urges them to abstain from alcohol.

The Surgeon General's Advisory on Alcohol Use in Pregnancy is available at http://www.hhs.gov/surgeongeneral/pressreleases/sg02222005.html. Additional information about alcohol use and pregnancy is available from CDC at http://www.cdc.gov/ncbddd/fas, the National Institute on Alcohol Abuse and

Alcoholism at http://www.niaaa.nih.gov, and the Substance Abuse and Mental Health Services Administration at http://www.fascenter.samhsa.gov.

REF: MMWR, March 11, 2005, 54(09).

VETERINARY NOTES

Michigan Hunter Contracts Bovine TB

A hunter who cut his hand while gutting a deer is the first living person diagnosed with a cutaneous form of bovine tuberculosis found in some northern Michigan deer and cattle, officials said on Jan 6, 2005. The man killed the deer in Alcona County in October 2004 and sought medical attention after spotting telltale lesions in the animal's chest cavity, said TJ Bucholz, spokesman for the Michigan Department of Community Health. He said the man is being treated and is expected to recover.

The community health department laboratory in Lansing identified the TB strain early in January. The strain also was found during an autopsy of an elderly person who died in 2002, but it was not the cause of death, Bucholz said. Different strains of the disease have been found in 8 people from foreign countries in Michigan since 1995. The disease -- rare in humans but highly contagious in animals -- has saddled Michigan farmers with costly testing requirements and hampered their ability to market cattle in neighboring states during the decade-long outbreak in the northern Lower Peninsula.

The Centers for Disease Control and Prevention have no statistics on bovine TB in humans, spokeswoman Karlie Stanton said. But studies show that eradication programs and milk pasteurization have reduced the number of cases over the years. Human cases usually are caused by breathing infected barn air or drinking unpasteurized milk from a sick cow. It's extremely rare to get the disease the way it happened in the latest case [cutaneous transmission].

"This appearance of bovine TB in a human underscores the human health risk of the disease in free-ranging deer," said Janet Olszewski, state community health director. "People should not consume wild animals that appear or are confirmed to be sick, regardless of the circumstance."

The case also shows the importance for hunters of wearing gloves while gutting deer and washing hands afterwards, said Rebecca Humphries, director of the Michigan Department of Natural Resources. The infected man was not wearing gloves.

The USDA revoked Michigan's status as free of bovine TB in 2000. State officials have ordered testing of the state's nearly one million cattle, and some herds have undergone multiple testing, said Bridget Patrick, coordinator of the

state's eradication task force. Cattle on 34 farms and 483 deer have tested positive. Goats and elk are among other animals susceptible to the deadly sickness, which attacks the lungs and sometimes the digestive tract. Michigan has asked the USDA to restore the TB-free status in the Upper Peninsula, where no cases have been found. The federal agency in 2004 upgraded most of Michigan to "modified accredited advanced," the rating immediately below TB-free. 11 counties and parts of 2 others in the northern Lower Peninsula retained a lower rating.

REF: From AnimalNet-L January 12, 2005

Lab Notes from CAHFS
(California Animal Health and Food Safety Laboratory System)

Cattle

Nitrate toxicosis was the cause of death of 90 dry cows and heifers on a dairy. The three affected pens had 40-100% death rate after consuming a diet solely of alfalfa hay received the day before. Ocular fluid nitrates were high, and the hay was heavily contaminated with **lambsquarter**, a nitrate accumulator. Hay nitrate was 5%.

English Yew (*taxus baccata*) was the cause of sudden death in two, 3-year-old Limousin heifers that had been fed **cemetery clippings**. The plant was identified in the rumen and the toxic principle taxine found. In cattle, the estimated toxic dose is 0.36-0.7 g fresh plant/kg body weight, or 0.75 lbs to kill an adult cow.

Horses

Oleander poisoning was diagnosed in a 19-year-old Quarter horse. Oleander bushes were present around the property. The stomach and colon content were positive for the cardiac glycoside, oleandrin. **All parts of the oleander, dried and fresh, are considered toxic**. Four other cases were diagnosed in horses throughout California over a period of six months.

English Yew (taxus baccata) was also found at 2.25% in stomach contents of a 2-year-old Thoroughbred gelding that died with an hour of eating. Fresh, dried, or stored leaves contain the toxic and can be lethal. Taxine is reported to affect the heart conduction resulting in a bradycardia, eventually leading to heart stoppage and death. In most cases, animals die within minutes, without much premonitory signs. Death may occur a few minutes after eating the plant or up to several days later.

Llamas

Oleander toxicosis caused the death of three adult llamas after exposure to oleander trimmings. Oleandrin was identified in the stomach contents.

REF: Lab Notes, 17(1), Fall 2004.

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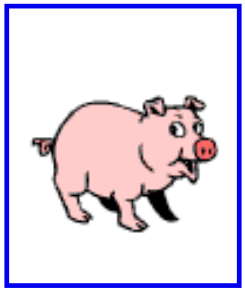

Back to the Beginning