Cooperative Extension --- University of California, Davis

Environmental Toxicology Newsletter

"Published Occasionally at Irregular Intervals"

Arthur L. Craigmill
Extension Toxicologist

Vol. 23 No. 3 -- April 2003

"IN THIS ISSUE"

2002

- Veterans and Agent Orange: Update 2002
- Treated Lumber Can Be Recycled to Preserve Forests, Landfills
- If You Use Manure in Your Garden, Take Precautions
- Salmonellosis Outbreak Prompt Alfalfa Sprout Recall
- DPR Announces "Right-To-Know" Initiative, Releases Illness Data
- DPR Proposes New Regulations to Protect Ground Water
- Prevalence of Current Cigarette Smoking Among Adults and Changes in Prevalence of Current and Some Day Smoking - United States, 1996-2001
- Illegal Pesticide Products

TOXICOLOGY TIDBITS

- New Agriculture Fact Book Is Now Available
- America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses

VETERINARY NOTES

- FDA Information for Manufacturers of Animal Feed Mineral Mixes
- Extra-label Drug Use in Veterinary Medicine
- Comfrey in Animal Products

Poisoning by an Illegally Imported Chinese Rodenticide Containing Tetramethylenedisulfotetramine New York City, 2002

Illegally imported foreign products can result in domestic exposures to unusual toxic chemicals, and health-care providers might not be able to provide appropriate therapy because the chemical ingredients might not be listed or recognized even after translation of the product label. This report describes the first known case in the United States of exposure to a Chinese rodenticide containing the toxin tetramethylenedisulfotetramine (TETS), a convulsant poison. The report of this investigation highlights the need to prevent such poisonings through increased public education, awareness, and enforcement of laws banning the importation of illegal toxic chemicals.

On May 15, 2002, a previously healthy female infant aged 15 months living with her family in New York City was found by her parents to be playing with a white rodenticide powder that they had brought from China and applied in the corner of their kitchen. After 15 minutes, the child had generalized seizures and was taken to an emergency department. Despite aggressive therapy with lorazepam, phenobarbital, and pyridoxine, she had intermittent generalized seizure activity for 4 hours and required intubation. After 3 days, the infant was extubated successfully but appeared to have multiple neurologic deficits, including absence seizures and possibly cortical blindness. The infant was discharged in June; as of November 5, the infant remained severely developmentally delayed and was on valproic acid therapy for seizure control.

Translation of the rodenticide package labeling from Chinese to English did not clarify its contents (see Figure 1 below). A search of the China National Poison Control Center's (NPCC) website for rodenticides suggested that the ingredients might have included sodium monofluoroacetate, fluoroacetamide, tetramethylenedinitrosotetramine, or strychnine. However, an initial laboratory analysis was negative for sodium fluoroacetate, fluoroacetamide, bromethalin, strychnine, 1,3-difluoro, 2-propanol, and carbamate insecticides.

On September 14, a snack shop owner in China poisoned food in a competitor's snack shop with a rodenticide identified as Dushuqiang, resulting in 38 deaths. Although Dushuqiang, which contains TETS, has been banned for sale since the mid-1980s, it is still widely available in China. Following news reports of this incident, the New York City Poison Control Center conducted additional laboratory testing of the product associated with the poisoning in New York City and confirmed TETS in the product by gas chromatography-mass spectrometry (GC-MS). TETS concentration was 6.4% weight/weight [w/w] in one rodenticide packet and 13.8% w/w in another.

Editorial Note: TETS is a little-known, often unrecognized, and highly lethal neurotoxic rodenticide that once was used widely. An odorless, tasteless, and water-soluble white crystalline powder that acts as gamma-amino butyric acid (GABA) antagonist, TETS, like picrotoxin, binds noncompetitively and irreversibly to the GABA receptor on the neuronal cell membrane and blocks chloride channels. The most common routes of exposures are through ingestion and inhalation. TETS is not registered by the U.S. Environmental Protection Agency for use in the United States, and **its importation, manufacture, and use in the United States are illegal.**

TETS meets criteria for inclusion in the list of extremely hazardous pesticides maintained by the World Health Organization (WHO) and is more lethal than WHO's most toxic registered pesticide, sodium fluoroacetate. Multiple large intentional and unintentional exposures in China have demonstrated the human toxicity of TETS. The dose at which TETS kills 50% of mammals (LD50) is 0.1-0.3 mg/kg; a dose of 7.0-10.0 mg is considered lethal in humans. TETS is potentially 100 times more toxic to humans than potassium cyanide and might be a more powerful human convulsant than strychnine.

The most recognizable clinical signs after a TETS exposure are refractory seizures. Other potentially serious signs

include coma and possible electrocardiogram evidence of ischemia. Symptoms typically begin within 30 minutes after exposure and can begin as long as 13 hours after exposure. Severe poisonings are usually fatal within 3 hours. TETS intoxication is determined rapidly from history and clinical suspicion. TETS is registered with the Chemical Abstract Service Division of the American Chemical Society as number 80-12-6, molecular weight 240, and chemical formula of C4H8N4O4 S2. Every attempt should be made to identify this chemical if it is suspected.

No proven antidote exists for TETS poisoning. Treatment should follow accepted modalities for a poisoned, altered, or seizing patient. Universal precautions should be taken to prevent secondary exposure of health-care workers. If TETS is suspected, regional poison control centers can provide information and guidance. A small study of rodents conducted in China suggested that intravenous pyridoxine and dimercaptosuccinic acid might be effective treatments. In China, charcoal hemoperfusion and hemodialysis are used to provide extracorporeal removal in patients poisoned with TETS.

This is the first known case of TETS poisoning in the United States. The chemical's morbidity and lethality and the lack of a known antidote present a danger to human health in areas where TETS might be imported illegally, especially large urban areas with substantial immigrant populations. The appearance of a banned or illegal substance presents challenges to regulatory and enforcement agencies because of the increased risk for unintentional and intentional exposures. **Poisoning caused by TETS exposure can be prevented with heightened public health education, increased awareness, and adequate enforcement by customs, border, and regulatory agencies.**

FIGURE. Package of Chinese rodenticide implicated in the poisoning of a female infant aged 15 months — New York City, 2002

Photo/New York City Poison Control Center

REF:Centers for Disease Control and Prevention *Morbidity and Mortality Weekly Report*, March 14, 2003 / 52(10);199-201
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5210a4.htm

Veterans and Agent Orange: Update 2002
New Report Supports Association Between Agent Orange and One Form of Chronic Leukemia

A re-evaluation of evidence now supports an association between exposure to herbicides used during the Vietnam War and the development of a specific form of leukemia in veterans, says a new report from the Institute of Medicine (IOM) of the National Academies. The report is the latest update in a series examining the health effects of defoliants – including Agent Orange - and chemicals that contaminate them.

As part of its biennial update, the committee that wrote the report reassessed six studies of herbicide exposure that provided information on chronic lymphocytic leukemia (CLL) among other health effects. The reexamination revealed sufficient evidence of an association between exposure to chemicals sprayed in Vietnam and risk of developing CLL.

In previous updates on the health risk to veterans posed by exposure to Agent Orange and other chemicals used in Vietnam, IOM had considered all forms of leukemia collectively when examining research on links between herbicide exposure and risk of cancer. The combined evidence was found to be inadequate or insufficient to determine whether any association exists between leukemia and exposure to the herbicides or their contaminants. However, although classified as a form of leukemia, CLL shares many traits with Hodgkin's disease and non-Hodgkin's lymphoma, both of which previously have been found to be associated with herbicide exposure. Both CLL and lymphoma originate from malignant Bcells, and CLL can transform into an aggressive non-Hodgkin's lymphoma known as Richter's Syndrome.

"The similarities between CLL and lymphoma—which we have long known to be associated with exposure to the types of chemicals used in Agent Orange and other defoliants—began to raise questions about whether CLL should be considered separately from other forms of leukemia," said committee chair Irva Hertz-Picciotto, professor of epidemiology, University of North Carolina, Chapel Hill, and University of California, Davis. "At the request of the Department of Veteran Affairs, we looked into the matter, and our reassessment indicates that CLL is indeed a special case. The data are sufficient to support a link between herbicide exposure and this type of cancer."

The committee's new assessment of CLL is based on evidence from six studies that looked at cancer rates, including specific forms of leukemia, and other health effects among agricultural workers exposed to herbicides, as well as individuals who reside in agrarian settings. The risk for CLL was found to be elevated in those whose occupations

involved handlings of or exposure to the types of herbicidal chemicals also used during the Vietnam War.

The ability of researchers to pinpoint the health risks faced by individual veterans is hampered by inadequate information about exposure levels of troops in Vietnam. Most information comes from studies of civilians who have been exposed on the job or in industrial accidents to herbicides or their contaminants. However, most veterans probably experienced lower levels of exposure than people who have worked with these chemicals over long periods in occupational or agricultural settings, and it is difficult to say precisely which troops may have been exposed to larger amounts.

CLL is the most common form of leukemia, with roughly 7,000 new cases diagnosed in the United States last year. However, it is among the rarer forms of cancer, making it difficult to do large-scale studies to determine causes. There are no accurate estimates of how many Vietnam veterans have been diagnosed with CLL.

The committee's congressionally mandated report also reaffirms findings from previous IOM updates. In addition to non-Hodgkin's lymphoma, Hodgkin's disease, and now CLL, there is sufficient evidence of a link between exposure to chemical defoliants or their contaminants and the development of soft-tissue sarcoma and chloracne in veterans. Also, scientific studies continue to offer limited or suggestive evidence of an association with other diseases in veterans—including Type 2 diabetes, respiratory cancers, prostate cancer, and multiple myeloma—as well as the congenital birth defect spina bifida in veteran's children.

U.S. forces sprayed Agent Orange and other defoliants over parts of south Vietnam and Cambodia beginning in 1962. Most large-scale sprayings were conducted from airplanes and helicopters, but considerable quantities of herbicides were dispersed from boats and ground vehicles or by soldiers wearing back-mounted equipment. A 1969 scientific report concluded that one of the primary chemicals used in Agent Orange could cause birth defects in laboratory animals. The U.S. military therefore suspended the use of Agent Orange in 1970 and halted all herbicide spraying in Vietnam the following year. The committee's work is sponsored by the U.S. Department of Veterans Affairs.

Read the full text of Veterans and Agent Orange: Update 2002 for free on the Web as well as over 2,500 other publications from the National Academies. Printed copies will be available for purchase from the National Academies Press; tel. (202) 334-3313 or 1-800-624-6242 or on the Internet at http://www.nap.edu. (Food Industry Environmental Network e-mail update, January 28, 2003)

REF: *Pesticide Reports*, Oklahoma State Cooperative Extension, March 2003.

Treated Lumber Can Be Recycled to Preserve Forests, Landfills

The use of Chromated Copper Arsenic (CCA) treated wood has garnered a great deal of media attention over the past few years due to possible environmental and public safety concerns. "Another concern of this material has just recently

gained attention from researchers, environmentalists, and government organizations," says Bob Smith, Virginia Tech's wood science and forest products associate professor in the College of Natural Resources. "That is the amount of CCA-treated wood being removed from people's homes and businesses and going to the nation's landfills."

Chromated Copper Arsenate, or CCA as it is commonly known, is the chemical compound used to pressure treat wood in order to resist attack from insects and decay. Smith explains that CCA can typically extend the life of wood in an outdoor environment by 30 to 40 years, thus saving the forest resource. “Since the early 1970's, CCA-treated wood has been used in approximately 80 percent of residential decks built in the United States,” Smith states.

The Environmental Protection Agency (EPA) and the wood preserving industry have voluntary removed the use of CCA for the treatment of wood in residential applications starting in January 2004. "This will end much of the media hype in the possible adverse side affects that CCA may produce because of the arsenic in its formulation," predicts Virginia Tech's wood science research assistant, Dave Bailey. "However, another concern is the amount of CCA-treated wood that could end up in landfills, especially from residential decks. Several researchers across the country have indicated that the amount of discarded CCA-treated wood reaching landfills is increasing and the tonnage is expected to rise substantially over the next several decades."

Research performed at Virginia Tech by the wood science and forest products department and the USDA Forest Service in Blacksburg, Va., have estimated that 1 billion board feet of CCA-treated wood is removed from residential decks and disposed primarily in landfills each year. Researchers from other universities have examined the possible leaching of CCA chemicals from wood in to unlined landfills, in hopes to determine if the rate of CCA chemical leachate will contaminant groundwater supplies. "This research could cause tighter regulations on the disposal of CCA-treated wood, and force the cost of disposing old decks to increase over the next few years," explains Smith.

To help reduce the burden on landfills and the demand of timber harvested for use by the wood industry, research is being conducted at the Brooks Forest Products Laboratory at Virginia Tech to extend the useful life of used CCA-treated material. This research has evaluated the amount of useful material that a deck contains, which instead of ending up in a landfill could be re-used.

'The research has calculated the amount of CCA-treated wood in a residential deck prior to demolition, and then determined the amount of usable CCA-treated material capable of being recycled," notes Bailey. "We have determined that over 80 percent of a discarded CCA-treated deck can be recovered into useable lumber such as 5/4” radius edge decking, 1”x6” boards and 2”x4”, 2”x6”, and 2”x8” lumber."

The physical and mechanical properties of the spent CCA-treated wood were also evaluated, to verify if this used material can perform to needed standards. The chemical retention levels (the amount of chemicals in the wood) of the used CCA-treated wood were similar to that of new CCA-treated wood found in many local home improvement centers. The strength of the old wood was also tested for comparison to new CCA-treated wood. The mechanical tests concluded that the strength properties of the discarded CCA-treated wood, destined for the landfill, were similar as new CCA-treated wood.

A variety of products were made from the used CCA-treated wood that could be easily produced by the deck owner, recycling companies, or local community organizations. Some of the products manufactured included different residential decks and deck components, such as railings, steps, or posts, trellises, trash can containers, pallets, and outdoor furniture such as chairs, benches, porch swings, and utility tables. The new guidelines regarding CCA for treated lumber does not affect wood currently in service. The EPA has suggested that the lumber be coated with a protective barrier if small children will be be exposed to the material. EPA recommends an oil-based transparent stain be applied on a regular basis. For more information on the ruling, visit the website (www.epa.gov/pesticides/factsheets/cca_transition.htm).

Other products that could also be produced are landscaping components, such as planter boxes, raised flowerbeds, and retaining walls, material for parks and recreation facilities, such as sign posts, trial guides, and walking bridges. Many homeowners, community organizations, and governments could find the products made from used CCA-treated wood of equal quality compared to using new CCA-treated wood, and more cost effective.

Smith says, “We are currently evaluating what it would take for landfill managers to be willing to separate out the CCA-treated wood to sell or donate to parties that could recycle the materials into the useable products we have identified. Our research has helped to recognize the potential of discarded CCA-treated wood. It could certainly reduce the burden on landfills and lessen the demand of our forests by extending the life of current forest products.”

REF: http://www.cnr.vt.edu/cnr_webpages/news/022503.htm

If You Use Manure in Your Garden, Take Precautions

Recent food poisoning outbreaks have been traced to fruits and vegetables eaten raw. Sprouts, lettuce, cabbage, tomatoes and melons have all been involved in isolated outbreaks, explained Carolyn Raab, food and nutrition specialist with the Oregon State University Extension Service.

"The sources of contamination included manure, irrigation water, ice, unsanitary human handling, harvesting equipment or transport vehicles," said Raab.

Home gardeners should be aware that if they grow their produce in soil amended with unsterilized animal manure, they may expose their families to pathogens, microorganisms which may cause disease.

Microorganisms which have been linked to manure applications include bacteria such as Listeria, Salmonella and E. coli 0157:H7. Parasites found in manure include roundworms and tapeworms. These hazards can be avoided by home gardeners with a little common sense and care, said Raab.

If you use unsterilized manure to amend your soil, you should be especially careful when washing garden produce that has had direct contact with soil or irrigation water. Carrots, onions, lettuce, radishes, and other crops eaten raw should be especially well washed. Peeling vegetables also helps insure your produce is safe.

"It is better to be safe than sorry," said Raab. "To reduce health risks, wash all fruits and vegetables thoroughly under running water before eating them. Use a vegetable brush to remove visible soil."

"Safe handling is particularly important when fruits and vegetables will be eaten by people who are more prone to get food poisoning," she said. "Young children, pregnant women, older adults and those with cancers, AIDS and other illnesses that affect the immune system are more susceptible than others."

If a family member is at higher risk, Raab recommends serving cooked or canned vegetables and fruits for an extra margin of safety. Heating kills bacteria and parasites. But don't go overboard with soap, as the residues can be harmful.

To lower your risk from soil-borne pathogens:

- Apply manure at least 60 days before harvesting any garden vegetables to be eaten raw. Fall is the best time to amend soil with manure; it allows enough time for breakdown of pathogens before spring planting.
- Never apply manure after root crops or to produce that comes in contact with the soil is planted.
- Do not use dog, cat or pig manures in gardens or compost piles because pathogens or parasites may survive and remain infectious to people.

REF: http://extension.oregonstate.edu/news/story.php

Salmonellosis Outbreak Prompt Alfalfa Sprout Recall

Public health officials in the Oregon Department of Human Services today announced a voluntary recall of Harmony Farms brand alfalfa sprouts from retail outlets throughout Oregon and Southwest Washington.

"These alfalfa sprouts have been identified as the cause of an ongoing outbreak of salmonellosis," said Emilio DeBess, DVM, MPH, epidemiologist in DHS. "Consumers who have them in their refrigerators should discard them immediately." To date in 2003, eight persons in Oregon and one Southwest Washington state resident have been infected by Salmonella serotype Saintpaul. More cases are expected. "The number of cases has increased steadily over the past few days," De Bess says.

The contaminated sprouts were sold under the name of Harmony Farms of Auburn, Washington. Sprouts are distributed through a number of wholesalers to grocery stores, restaurants, and other retail outlets in Oregon, Washington, Alaska and Northern California.

" Harmony Farms has agreed to voluntarily recall its alfalfa sprouts and is cooperating fully with our ongoing investigation," DeBess said.

The recall covers all alfalfa sprouts produced by Harmony Farms. These sprouts have been sold in 5-oz. plastic "clamshell" packages labeled as "Fresh Alfalfa Sprouts," "Gourmet Salad Sprouts" and "Fresh Alfalfa and Oregon Onion Sprouts," and all contain alfalfa sprouts. Also included in this recall are cases of Harmony Farms 1 pound, 2 pound and 3 pound "Alfalfa Sprouts." They are sold in many supermarkets including Safeway, Fred Meyer, Winco Foods and other grocery outlets.

State and federal agencies are working with Harmony Farms to remove potentially contaminated sprouts from distribution. Retailers and wholesalers who hold any of the recalled sprouts should segregate them from other produce and contact Harmony Farms (253) 833-8945 for additional information. Restaurant and deli operators should check their stock immediately to identify and pull any of the recalled product.

Salmonellosis is an acute bacterial infection that can cause diarrhea, fever, and vomiting. Symptoms usually develop within one to five days after eating contaminated food. Most cases resolve without the need for medical attention, and antibiotics are not recommended for persons with uncomplicated diarrheal illness. People who have eaten sprouts and developed severe symptoms should discuss this exposure with their doctor. Some persons with salmonellosis develop serious illness that can lead to hospitalization and even death, according to DeBess.

The Saintpaul serotype is "uncommon" in Oregon; over the past decade only 11 cases per year each year.

DeBess said that raw sprouts have been repeatedly identified as the cause of outbreaks of salmonellosis, E. coli O157:H7 infections and other diseases. "This is the fifth sprout-caused outbreak that has sickened Oregonians since 1996," DeBess said. "We suspect there have probably been others that went undetected. None of the other outbreaks have been associated with Harmony Farms."

"Anyone concerned about their risk of foodborne disease should consider this information before deciding to eat sprouts. The risk of severe illness is particularly high among the elderly, the immunocompromised, and the very young, although it is worth pointing out that none of the cases identified so far in this outbreak fit that high-risk profile," said DeBess.

REF: FDA Press Release, March 2003.

DPR Announces "Right-To-Know" Initiative, Releases Illness Data

The California Department of Pesticide Regulation today announced a farm worker "right-to-know" initiative to help prevent pesticide injuries in the field. DPR also released a summary of 2001 pesticide illness reports.

The initiative will focus on keeping workers better informed when pesticides are used in their vicinity. Regulations to be developed by DPR would require prompt communication between pesticide applicators and growers to reduce the risk that workers may enter an area too soon after pesticides have been applied. Beginning this spring, DPR will discuss the proposals with agricultural organizations, worker advocacy groups, and the U.S. Environmental Protection Agency. Formal regulations could take effect in 2004.

Estimates of California's farm labor force range from 500,000 to more than one million workers.

"In the course of their daily work, these individuals face more potential risks from pesticide exposure than almost anyone else," said DPR Director Paul Helliker. "Workers have a right to know what pesticides are used on or near the job, and how to minimize risks from those pesticides. The focus of this regulatory package is on improving communications -- among growers, workers, and applicators -- to reduce those pesticide risks."

Data from DPR's Pesticide Illness Surveillance Program and the DPR Enforcement Branch found that early entry violations contributed to 47 reported episodes involving 171 worker illnesses from 1991 through 1999. DPR's investigation revealed that in two-thirds of those episodes, victims did not know fields had been treated.

DPR also has released a summary of all pesticide illness data for 2001, now available online at
www.cdpr.ca.gov/docs/whs/pdf/hs1843.pdf
A county-by-county breakdown of suspected or confirmed illness reports may be found with the news release posted at
www.cdpr.ca.gov/docs/pressrls/presmenu.htm

DPR investigated 979 suspected pesticide illnesses in 2001, a decrease of 165 (14 percent) from 2000, when 1,144 cases were investigated. Pesticides were found to be at least a possible factor in 616 (63 percent) of the cases. Of those, 192 (31 percent) involved use of pesticides in agriculture, and 424 (69 percent) occurred in other settings.

DPR evaluates illness reports to assess the effectiveness of regulatory efforts, set enforcement priorities, and develop additional safety measures. Although state law requires physicians to report suspected pesticide illnesses, compliance is low. DPR obtains reports from other sources and continues to seek improvement in physician reporting. All illness reports go to County Agricultural Commissioners for initial investigation. DPR provides local authorities with technical investigative support and training.

Since the illness surveillance program depends upon reported illnesses and injuries, it does not produce a "census" of pesticide injuries. Studies by DPR's Worker Health and Safety Branch indicate that occupational and agricultural-related injuries are more likely to be reported than exposures that occur at home. The studies also indicate that the illness surveillance program is very effective in detecting illnesses involving a group of people injured in a single episode.

DPR's "right-to-know" initiative seeks to prevent worker injuries by making pesticide information more readily available, more easily understood, and by reinforcing compliance measures in the field. DPR is considering requirements that would:

- clarify the responsibility of a pest control business to notify the property operator (typically a grower) before a pesticide application occurs. Property operators would also be notified if changes are made in scheduled applications, and notified again when applications are completed.
- clarify that the property operator is responsible for notifying workers about pesticide use, including employees of a contractor. DPR found that the current system makes it difficult to determine who bears ultimate responsibility for notification, which may cause confusion among pesticide applicators, field crew leaders, and growers.
- require that workers at the application site receive verbal notification of recent pesticide treatments, as well as written information about recent treatments within one-quarter-mile of the site. Current rules allow posting of pesticide information at a "central location" that may be miles away, perhaps in another county.
- require field warning signs to carry the date when a reentry waiting period expires. Currently, the signs carry a date only if the waiting period exceeds seven days.
- expand and clarify the information given to some workers (such as irrigators) whose duties require them to enter a field before the reentry waiting period expires.

Those proposals are based in part on Worker Health and Safety Branch studies HS-1819 and HS-1833, available at www.cdpr.ca.gov/docs/whs/whsrep.htm

Among other efforts to reduce worker illness, the Worker Health and Safety Branch is conducting an in-depth evaluation of irrigator illnesses, based on reports from the Pesticide Illness Surveillance Program. Completion of that study is expected this year. Preliminary research suggests that additional protection may be needed for irrigators and others whose work requires early entry into treated fields.

As another part of its "right-to-know" initiative, DPR later this year will publish revised Pesticide Safety Information Series leaflets, which educate workers about pesticide safety requirements in both English and Spanish. DPR will consult worker advocacy groups to help make the leaflets easier to understand.

DPR also recently developed booklets that help farm worker employers comply with worker health and safety requirements. These guides are available online and from County Agricultural Commissioners. Topics include display of required information, pesticide decontamination facilities, emergency medical care, personal protective equipment, safety training, and more. See www.cdpr.ca.gov/docs/enfcmpli/cmpliast/bkltmenu.htm

REF: California Department of Pesticide Regulation News Press Release, March 27, 2003 (03-06)

DPR Proposes New Regulations to Protect Ground Water

The California Department of Pesticide Regulation has proposed new regulations to protect ground water by identifying areas vulnerable to pesticide contamination. DPR's initiative will prevent ground water contamination before it can occur.

"We can now identify areas vulnerable to ground water contamination in California and take prudent steps to prevent contamination before it occurs in those areas," said DPR Director Paul Helliker. "These regulations will ensure that pesticides are used safely, and that growers have a range of options."

Since 1986, efforts to protect ground water have been guided by the Pesticide Contamination Prevention Act (Assembly Bill 2021). Under the law, pesticides detected in ground water were expected to be prohibited from use unless future contamination could be controlled. The regulatory program was based on largely voluntary mitigation measures and applied only to the one-square-mile "pesticide management zones" around contaminated wells.

Before a pesticide product can be registered for use in California, DPR requires data to show that it is unlikely to contaminate ground water. Only eight actively registered pesticides have been found in California ground water after almost 20 years of ground water monitoring. The proposed regulations focus on preventing further contamination from those pesticides. DPR will continue monitoring for other pesticides in ground water, and take action as appropriate.

The cornerstone of DPR's proposed regulations is a new, scientifically proven technique developed by DPR scientists. The CalVul ("California Vulnerability") Computer Model can identify broad geographic areas of the state where pesticides may run off or leach into soil.

The model was constructed using almost 20 years of well monitoring data and other research now compiled in DPR's well inventory database. Together, the database and CalVul have given DPR the capability to identify the critical factors that lead to contamination -- including farming practices and soil conditions -- associated with the soil-applied herbicides that most often find their way into ground water.

Under the new regulations, scattered "pesticide management zones" (now a total of about 313,000 acres statewide) will be replaced by broader "ground water protection areas." DPR has identified about 2.4 million acres statewide that would qualify as ground water protection areas under the new regulations.

Some highlights of the proposed regulations:

- Seven pesticides now listed as ground water contaminants (atrazine, simazine, bromacil, diuron, prometon, bentazon, and norflurazon) will require use permits within ground water protection areas (GWPAs).
- Specific use practices will be required with any permits issued for those pesticides, but growers will also have various mitigation options from which to choose.
- Protection areas may be designated as "runoff GWPAs" that require proper soil preparation before a pesticide application (such as tilling), or other measures that effectively reduce runoff.

- Protection areas may be designated as "leaching GWPAs" if soil conditions allow pesticide residues to move downward with percolating irrigation water.
- Mixing, loading, storing, and other activities involving pesticides would be prohibited within 100 feet of water wells, unless they are sited or protected to prevent contamination.

County-by-county lists and maps of proposed GWPAs are available online at <www.cdpr.ca.gov/docs/empm/gwp_prog/gwp_prog.htm>. A fact sheet on DPR's Ground Water Protection Program and a summary of the proposed regulations may be found at the same site.

For the full text of proposed regulations, go to <www.cdpr.ca.gov/docs/legbills/rulepkgs.htm>.

REF: California Department of Pesticide Regulation News, April 8, 2003 (03-09).

Prevalence of Current Cigarette Smoking Among Adults and Changes in Prevalence of Current and Some Day Smoking United States, 1996--2001

Tobacco use, particularly cigarette smoking, is the leading preventable cause of death in the United States and is responsible for approximately 440,000 deaths each year. One of the national health objectives for 2010 is to reduce the prevalence of cigarette smoking among adults to <12%. To examine the prevalence of smoking for the 50 states, the District of Columbia (DC), Guam, Puerto Rico, and the Virgin Islands, CDC analyzed data from the 2001 Behavioral Risk Factor Surveillance System (BRFSS). This report summarizes the results of that analysis, which indicate that, during 2001, the median adult current smoking prevalence was 23.4% for the states and DC, and 12.5% for Guam, Puerto Rico, and the Virgin Islands. During 1996-2001, the prevalence of current smoking was relatively stable in 41 states and DC, and the proportion of current smokers who were some day smokers increased significantly in 31 of those states and DC. "Current smokers" were defined as those who reported having smoked >100 cigarettes during their lifetime and who currently smoked every day or some days. "Some day" smokers were current smokers who responded that they smoked some days. Data on current smoking have been available since 1996. Because the only safe alternative to smoking is cessation, interventions should target all smokers to help them quit smoking completely.

In 2001, the median prevalence of current smoking in the 50 states and DC was 23.4%. Prevalence was highest in Kentucky (30.9%), Oklahoma (28.8%), West Virginia (28.2%), Ohio (27.7%), Indiana (27.5%), Nevada (27.0%), South Carolina (26.2%), and Alaska (26.1%), and lowest in Utah (13.3%), **California (17.2%)**, Massachusetts (19.7%), Idaho (19.7%), Nebraska (20.4%), Oregon (20.5%), Hawaii (20.6%), Connecticut (20.8%), and DC (20.8%). Current smoking prevalence was 9.8% in the Virgin Islands, 12.5% in Puerto Rico, and 31.4% in Guam.

Editorial Note: The median prevalence of current smoking did not change substantially during 2000-2001. However, smoking prevalence varied among the states, DC, Guam, Puerto Rico, and the Virgin Islands. As in 2000, during 2001, Kentucky and Nevada remained among the states with the highest prevalence, and **Utah, California, and Puerto Rico remained among all areas with the lowest prevalence.**

During 2001, the national health objective for 2010 of <12% of adults smoking cigarettes was achieved only in the Virgin Islands (9.8%). The low prevalence of smoking in the Virgin Islands, Puerto Rico, and Utah might be the result of stronger social and cultural norms against tobacco use compared with other parts of the country.

The findings in this report document that even though current state-specific smoking rates have not declined significantly since 1996, the pattern of smoking has changed. Factors that might have contributed to the shift include increased retail price of cigarettes and smoking bans in public places. Massachusetts and California have reported other changes in smoking patterns. An independent evaluation of the Massachusetts Tobacco Control Program reported a decline in smoking prevalence from 22.6% in 1993 to 20.9% in 1999, with a small but significant decline in the proportion of persons reporting smoking daily (81% in 1993 compared with 79% in 1999). Data collected through the California Tobacco Survey indicated that, along with overall decreases in prevalence of current smoking, the proportion of current smokers who were some day smokers increased significantly from 25.9% in 1992 to 32.1% in 1996 and from 32.1% in 1996 to 36.4% in 1999.

The data in this report are consistent with characteristics of some day smokers observed in the 1997 and 1998 NHIS, except for the higher prevalence of some day smoking among men and the higher prevalence of some day smoking reported by respondents aged >65 years in BRFSS. Although some smokers appear to be reducing their cigarette consumption, results from a recent large cohort study indicate that **reduction of daily tobacco consumption by >50% without quitting did not decrease mortality rates from tobacco-related diseases** compared with smokers who continued to smoke heavily (>15 cigarettes per day). States are encouraged to implement comprehensive tobacco control programs such as those implemented in California and Massachusetts during the 1990s, which encourage smokers to stop smoking completely.

REF: Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report*, April 11, 2003 / 52(14);303-307

Illegal Pesticide Products

You may have seen people selling them on the street or in small neighborhood stores. They go by names like *Tres Pasitos* or *Chalk*, and they come with a guarantee to kill roaches, mice and other household pests like nothing else on the market. But most such products are illegal. And illegal pesticides can hurt much more than roaches. They can harm you and your family.

Illegal pesticides are often much more toxic than registered pesticides. They often come in familiar shapes and packaging. EPA has identified illegal flea and tick repellents for pets, antibacterial cleansers, mothballs, and other products that claim to get rid of household pests.

Across the country, EPA has initiated an effort to protect consumers from these products. In areas where illegal products are an acute problem, EPA has increased enforcement actions against companies selling or distributing illegal household pesticides. EPA has also increased efforts to raise public awareness of these product dangers.

Why be concerned?

Many illegal pesticides are very toxic. Others contain unknown ingredients, or the ingredients may vary from time to time. Some of the illegal products are also available to the public in legal, EPA registered versions. However, consumers may unknowingly purchase or obtain the illegal versions. Though the illegal products may look similar to and make the same claims as their legal counterparts, these products have not been thoroughly tested. And since the products are unregistered, their labels have not been reviewed for clear directions and safety warnings.

Common Illegal Pest Products

Illegal naphthalene moth repellent products - mothballs - pose a hazard to young children. Mothballs can be easily mistaken for candy, or simply tempt young children to touch and play with them. Recent studies have linked naphthalene to illnesses, including nasal cancer. Widespread sale and distribution of these products make illegal mothballs a particular concern.

Illegal Insecticide Chalk is also known as "Miraculous Chalk" or "Chinese Chalk." You may have seen the chalk in a neighborhood store or sold on the street for about $1 a box. It is mostly imported illegally from China and often bears a label in both English and Chinese. Sometimes the manufacturer claims that the chalk is "harmless to human beings and animals" and "safe to use." These claims are untrue and dangerous.

Illegal Pet Products, including foreign-labeled, unregistered versions of the common pet products Advantage and Frontline, have been illegally imported and sold throughout the U.S. Though registered for use in other countries, some foreign-labeled versions have omitted important warnings, especially those pertaining to children, that are required in the U.S. Versions imported from England and Australia often give doses in metric units, which can cause Americans to accidentally over-dose or under-dose pets.

"Tres Pasitos" is imported illegally from Mexico and other Latin American countries. Its name means "three little steps" in English, because after eating it, this is all mice can muster before dying. The active ingredient (or the chemical that actually kills the pest) in "Tres Pasitos" is a chemical called aldicarb. EPA considers aldicarb to be a very toxic chemical - and one that should never be used in your home. Children are especially vulnerable to poisoning by aldicarb when it is sprinkled around the home to control roaches, mice and rats. Exposure to high amounts of aldicarb can cause weakness, blurred vision, headache, nausea, tearing, sweating, and tremors in people. Very high doses can kill people, because it can paralyze the respiratory system. What "Tres Pasitos" does to pests, it can also do to you.

Antibacterial products. Many common household products, ranging from cleansers to cutting boards, claim to protect against bacteria. Such claims are illegal unless the product is registered with EPA or the claim only applies to protecting the item itself from damage by microorganisms, not to provide additional health benefits. In addition, the pesticide used to treat the item must be registered for use in or on the treated item.

What You Should Do

Here are some simple rules to follow when looking for a pesticide to use in your home:

- Look for an EPA registration number on the pesticide's container. This number tells you that EPA has reviewed health and environmental information about the pesticide, and **if the label says so**, that the product is okay to use in your home.
- Look for a list of the **active ingredients** on the label. Any product registered with EPA must state the active ingredients on the label.
- Trust your instincts. If a person offers you a product on the street, chances are it is illegal and could harm you and your family. Shop for pesticides only in stores you know and trust. If the shopkeeper gives you a product that is packed or wrapped suspiciously, don't buy it.
- Contact the EPA Regional Pesticide unit that covers your location. EPA is happy to answer any questions you might have about pesticides you are thinking of using in your home. You can also call the **National Pesticide Information Center at 1-800-858-7378.**
- Be aware that EPA registers some pesticides (like farm pesticides) that are not meant to be used in the home. **Look for information on the label that states that the product can be used by the general public, indoors, in the home.**
- When you do find a pesticide that is registered with EPA for use in your home, always remember to read the label first. EPA reviews all pesticide labels before products can be sold. If you follow all the label directions, you will reduce your risk of harming yourself and the environment. The label provides important information you need to protect yourself and the children in your care.

For more information link to the EPA Region 9 website at: http://www.epa.gov/pesticides/health/illegalproducts/

Toxicology Tidbits

• New Agriculture Fact Book is Now Available

"Agriculture is integral part of our nation's economic and social fabric," Veneman said. "This new publication provides useful information on a variety of topics including homeland security, conservation, biotechnology, organic foods and energy sources."

The Agriculture Fact Book 2001-2002 includes general information and statistical data about American food consumption, the agricultural sector and rural America. The book also describes USDA's wide-ranging programs and services, such as farm programs; exports; rural development, food safety; nutrition; management of land, water, and forests; protecting U.S. borders from pests and diseases; and scientific agricultural research.

As part of USDA's effort to provide information through the Internet, the Agriculture Fact Book 2001-2002 can be accessed through the web at http://www.usda.gov/factbook. The site includes links and other media that provide further information about agriculture, food, conservation, nutrition, food safety and related issues. Hard copies of the

publication are available for sale by the Government Printing Office and can be ordered online at http://bookstore.gpo.gov/.

REF: USDA News Release No. 0101.03

· America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses

America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses is the U.S. Environmental Protection Agency's second report on trends in environmental factors related to the health and well-being of children in the United States. EPA's first report, America's Children and the Environment: A First View of Available Measures, published in December 2000, presented the results of EPA's initial effort to collect and analyze existing, readily available data on measures relevant to children's health and the environment. This second report improves on the first edition by adding new measures for important contaminants, exposures, and childhood illnesses and by including data for additional years. The report also includes more analysis of these measures by race/ethnicity of children and family income.

This report is available at www.epa.gov/envirohealth/children. In addition, the Web site includes links to other information on children's environmental health, additional data tables, information by state where such data are available, and references.

REF: EPA website.

VETERINARY NOTES.....

FDA Information for Manufacturers of Animal Feed Mineral Mixes

FDA is alerting firms manufacturing mineral mixes and mineral premixes for use in animal feed that minerals that are by-products or co-products of industrial metal production may contain dioxin. Recently, FDA found that some of these by-products or co-products contained high levels of dioxin, and requested that the specific products be recalled. In March 2002, FDA requested a recall of protected minerals and mineral premixes because of high levels of dioxin. In the 2002 case, the source of the dioxins was related to the high temperature process used in making the protected minerals. The Agency believes that in the current case the process used to produce brass resulted in the dioxin contamination of zinc oxide. FDA will be actively checking these and similar products for dioxin.

Dioxins are ubiquitous, low level environmental contaminants. With cumulative exposure, they are potential carcinogens and may cause reproductive or developmental health problems. Environmental sources of dioxin pollution have been markedly reduced over the past decade. The result has been a significant reduction in overall dioxin exposure to the public. Presently, the primary source of human exposure to dioxins is through food.

Earlier this year, FDA's food and feed surveillance programs detected elevated levels of dioxin in a feed and traced the dioxin to a mineral component of that feed. The implicated zinc oxide and zinc oxide premixes that were used in livestock, aquaculture, and poultry feed contained extremely high levels of dioxin. A recall of these products and feed containing the zinc oxide has been implemented. An additional mineral component (copper oxide) is also being investigated as a possible source of dioxin. Both mineral components currently under investigation are reclamation products from industrial metal production.

FDA's public health objective is to reduce the level of exposure to dioxin in the animal and human foods by finding and stopping sources of added dioxin from entering the food supply. To further reduce public exposure to dioxins, FDA will continue its food and feed surveillance programs, and continue investigating whether other products from industrial metal production that are used as feed ingredients are a source of dioxin.

REF: FDA/CVM Update March 12, 2003

Extra-label Drug Use in Veterinary Medicine

Since 1994, when Congress passed the Animal Medicinal Drug Use Clarification Act of 1994 (AMDUCA), veterinarians in the U.S. have enjoyed legitimate extra-label use (ELU) privileges. Veterinarians can safeguard ELU privileges by following AMDUCA, and by educating clients (particularly food animal producers) on AMDUCA and prudent drug use principles. This article outlines key points of AMDUCA in plain language.

The Current List of Drugs Prohibited From Extra-Label Use (As listed in 21 CFR 530.41). These drugs (both animal and human), families of drugs, and substances are currently prohibited for extra-label uses in all food-producing animals, (including horses intended for human food):

- **Chloramphenicol**
- **Clenbuterol**

- **Diethylstilbestrol (DES)**
- **Dimetridazole**
- **Ipronidazole and other nitroimidazoles**
- **Furazolidone, Nitrofurazone, other nitrofurans**
- **Sulfonamide drugs in lactating dairy cattle (except approved use of sulfadimethoxine, sulfabromomethazine, and sulfaethoxypyridazine)**
- **Fluoroquinolones**
- **Glycopeptides**
- **Phenylbutazone (female dairy cattle 20 months of age or older)**

Conclusion

AMDUCA legalized extra-label use of approved animal and human drugs in animals when that use is under the supervision of a veterinarian and in accordance with FDA regulations. AMDUCA provided veterinarians with privileges comparable to those generally enjoyed by physicians. Veterinarians can protect these privileges by complying with AMDUCA, and understanding the permitted and prohibited extra-label drugs and uses (including compounding). For more information on AMDUCA, other regulations and policies, and to request hard copies, please visit the CVM Home Page, http://www.fda.gov/cvm/ default.html, and look under Quick Index. Notices of proposed rulemaking and final rules, such as additions to prohibited drug list, are announced by *Federal Register* notices and posted on the CVM Home Page, http://www.fda.gov/cvm/default.html and the FDA Dockets Advanced Publication Display website, http://www.accessdata.fda.gov/scripts/oc/ohrms/index.cfm.

REF: *FDA Veterinarian*, March/April 2003 Vol. XVIII, No. II

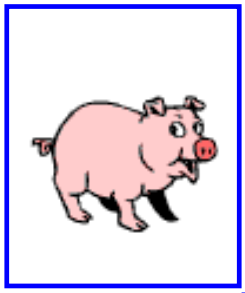
Comfrey in Animal Products

The FDA Center for Veterinary Medicine (CVM) supports recent action by the Association of American Feed Control Officials, Inc. (AAFCO) in recommending to State feed control officials that enforcement action be initiated to **remove from distribution animal products containing comfrey**. AAFCO's guidance to State feed control officials on March 3, 2003, follows the announcement made at AAFCO's Annual Meeting in August 2002, that comfrey, determined to be a health and safety concern in animals, is recommended for removal from all animal feeds.

AFCO's Enforcement Strategy for Marketed Ingredients Task Force identified comfrey as the target ingredient. This Task Force based its selection on published scientific information provided by CVM. **Comfrey has been shown to cause liver damage in humans and in animals**. Due to safety concerns, the FDA advised manufacturers on July 6, 2001, that comfrey should not be used in human dietary supplements.

REF: *FDA Veterinarian*, March/April 2003 Vol. XVIII, No. II

!! Click on the Pig !!



Back to the Beginning

Home