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"IN THIS ISSUE"

TOXICOLOGY TIDBITS

VETERINARY NOTES

Dioxin in Feed Anti-caking Agents Guidance

In the *Federal Register* of October 15, 1999 (64 FR 55948), FDA published a notice of availability of a guidance entitled "Dioxin in Anti-caking Agents Used in Animal Feed and Feed Ingredients." This guidance was issued as a Level 1 guidance consistent with FDA's good guidance practices (62 FR 8961, February 27, 1997). It was implemented without prior public comment because of concern for the public health. The guidance was intended to notify the feed industry of recent findings regarding the presence of dioxins in mined clays that may be used as anti-caking agents in animal feeds and to offer general advice regarding monitoring of these clays.

Status of this Guidance

This guidance represents the agency's current thinking on the presence of dioxin congeners in anti-caking agents. It does not create or confer any rights for or on any person and does not operate to bind FDA or the public. An alternative approach may be used if such approach satisfies the requirements of the applicable statute, regulations, or both.

FDA plans to continue to sample regulated clay and non-clay anti-caking products for dioxin in conjunction with the Environmental Protection Agency and other Government agencies. Plans are also underway to sample other feed components for dioxin.

For more info: http://www.fda.gov/cvm/fda/TOCs/guideline.html.

REF: *Federal Register*, 65(76), April 19, 2000.

Here's the Buzz on Mosquito Control

SACRAMENTO -- Spring is in the air -- and so is the buzzing of tiny, voracious mosquitoes. Warm, wet weather conditions across California have encouraged early swarms of mosquitos and raised concerns about the diseases they transmit. The California Department of Pesticide Regulation reminds consumers that effective mosquito control begins at home, and it need not require heavy use of pesticides. DPR's pest management experts offer these recommendations:

- -- Stop mosquitoes before they take wing. Mosquitoes breed in standing water and a typical backyard can generate thousands of mosquitoes a week. Since several species of mosquitoes prefer to bite close to their breeding sites, getting rid of "skeeter nurseries" on your property can help. Make sure gutters, pipes, and other water sources drain away from your house. Drain water that collects in pool and spa covers, flower pots or barrels.

- -- For permanent water basins such as bird baths, ornamental ponds and fountains, consider stocking them with mosquito fish (scientific name *Gambusia affinis*) that feed on mosquito larvae. You can obtain these fish from your local mosquito control district. (Look in the county government pages of your phone book under "mosquito" or "vector control," or call your county agricultural commissioner to find out how to reach your mosquito district.) The common guppy, available at pet stores, is another 'skeeter eater, though it's a bit more fragile for outdoor life.

- -- Also check your local nursery for a biological control product to put in small lakes and ponds. This microbial pesticide, *Bacillus thuringiensis israelensis* -- "B.t.i." for short -- is formulated into doughnut shapes that float on the water. These products slowly release a natural chemical that kills feeding mosquito larvae.

- -- Pesticide foggers may provide temporary relief, but your best bet is to control larvae at the source. If your prevention efforts are too late, then minimize time outdoors in early morning and at twilight, when mosquitoes are most active.

- -- If you need to use a repellent, check for U.S. EPA approval on the label and read all directions before applying the product. Although reactions to repellents are rare, it is always best to use them sparingly. Moisture, warmth, and carbon dioxide emitted by humans attract mosquitoes, and even in small quantities, repellents can block the receptors on mosquito antenna that allow them to home in on humans.

The most common repellent products use the chemical DEET, which has been in general use for more than 40 years and is still considered the single most effective product, according to mosquito researchers.

The Mayo Clinic offers these safety tips for using DEET and other repellents: Start with a low concentration product and reapply if necessary; it's better to build up to an effective level of protection than to start with more than you need. Do not apply over cuts, wounds, or irritated skin, or near eyes and mouth. For children, a DEET-solution product of 10 percent or less is recommended. Do not apply any repellent to the hands of young children, since they often stick their fingers in their mouths. Use just enough to cover exposed skin, but do not use under clothing. To protect infants when outside, opt for mosquito netting over baby carriages or playpens. Avoid breathing a repellent spray. Do not use sprays near food.

For more tips on safe use of repellents, check DPR's "Using Insect Repellents Safely" at http://www.cdpr.ca.gov/docs/factshts/repel.htm.

DPR's Web site also offers links to other sources of information, including the University of California. (See http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html for tips on controlling mosquitoes and other household pests.) Or contact your University of California Cooperative Extension office, listed under county government offices in the phone book.

State Health Department Reminds Californians of Lyme Disease Threat

SACRAMENTO – Campers, hikers and anyone working or playing outdoors should be extra watchful for ticks this time of year because some of them carry the bacteria that cause Lyme disease, ehrlichiosis and other tick-borne diseases, the California Department of Health Services advised. More than half of the estimated 150 cases of Lyme disease every year in California are contracted during the spring and early summer months when the very small, immature forms of ticks are most common.

The western black-legged tick, *Ixodes pacificus*, is the only tick of the approximately 50 species found in California that is known to transmit Lyme disease. The immature nymphal tick is roughly the size of a poppy seed and the adult is about one-quarter inch in length. The tick feeds on humans and other animals by embedding its mouth into the skin and sucking blood.

Ticks may be found in tall grass and brush areas in urban, suburban and rural settings. The western black-legged tick has been found in 55 of California's 58 counties, but is most common in the humid northwestern coastal areas and the western slope of the northern Sierra Nevada range.

Ticks climb to the tips of vegetation, often alongside animal trails or paths, and wait for a host to brush against them. In the early stages of growth, ticks can also be found on the ground in leaf litter in shaded areas.

"Early symptoms of Lyme disease include a characteristic spreading rash usually accompanied by flu-like symptoms, such as fever and body aches," said State Health Director Bontá, R.N., Dr. PH. "Lyme disease is readily treated with antibiotics and nearly all patients recover completely without complications. However, if left untreated, symptoms can progress into heart or nervous system disorders as well as arthritis."

The most common symptom of early Lyme disease is a red, blotchy, expanding skin rash that may grow to several inches in diameter and commonly clears in the center, producing a ring-like appearance. This rash usually appears seven to 10 days after the bite of an infected tick in 90 percent or more of patients.

Additional lesions sometimes occur later and in different areas of the body. Flu-like symptoms, such as fatigue, chills and fever, headache, muscle and joint pain, are common. These symptoms may persist, change, disappear and reappear intermittently for several weeks. Other symptoms may include facial nerve paralysis and irregularities of heart rhythm.

Symptoms of late-stage Lyme disease, which may not appear until weeks, months or years after a tick bite, include arthritis and nervous system disorders.

Symptoms of another tick-borne disease, ehrlichiosis, can range from no symptoms at all to severe disease. Like Lyme disease, symptoms are generally nonspecific and flu-like. And, as with Lyme disease, individuals with ehrlichiosis can be readily treated with antibiotics.

Bontá offered the following suggestions to help people reduce their chances of being bitten by ticks when walking in areas of dense vegetation.

- Wear long pants and long sleeved shirts. Tuck pants legs into boots or socks and tuck shirts into pants.
- Wear light-colored clothing so ticks can be easily seen.
- Use a repellent registered for use against ticks. Always follow directions on the container and be extra careful when applying to infants and children.
- Avoid trail margins, brush and grassy areas when in tick country.
- Mow grass along trails, buildings and camping areas.
- Remove brush along trails and other frequently trafficked areas.
- Inspect your body at least once a day for attached ticks.

Individuals who discover a tick attached to their body should remove it as soon as possible to reduce the possibility of infection. **The tick can be removed by grasping it as close to the skin as possible, preferably with fine-pointed tweezers, and pulling it gently but firmly straight out.**

Insecticides, lighted matches or **gasoline** should **not be used** to remove ticks because these methods are ineffective. Individuals are then advised to **wash their hands and apply antiseptic to the wound**. Individuals who develop symptoms similar to those described after being bitten by a tick should consult their physician.

In December 1998, a Lyme disease vaccine was approved for human use. Individuals who have frequent or prolonged activity in areas of vegetation known to contain ticks may wish to consult with their physician regarding the potential benefits and risks of the vaccine.

REF: California Department of Health Services, Office of Public Affairs, Press Release #26-00, May 1, 2000.

Health Claims for Soy Protein, Questions About Other Components

Vegetarians and health enthusiasts have known for years that foods rich in soy protein offer a good alternative to meat, poultry, and other animal-based products. As consumers have pursued healthier lifestyles in recent years, consumption of soy foods has risen steadily, bolstered by scientific studies showing health benefits from these products. Last October, the Food and Drug Administration (FDA) gave food manufacturers permission to put labels on products

high in soy protein indicating that these foods may help lower heart disease risk.

No sooner had FDA proposed the health claim regulation, however, than concerns arose about certain components in soy products, particularly isoflavones. Resulting questions have engulfed the regulation in controversy.

Much of the research to date has examined dietary soy in the form of whole foods such as tofu, soy milk, or as soy protein added to foods, and the public health community mostly concurs that these whole foods can be worthwhile additions to a healthy diet. The recently raised concerns, however, focus on specific components of soy, such as the soy isoflavones daidzein and genistein, not the whole food or intact soy protein. These chemicals, available over the counter in pills and powders, are often advertised as dietary supplements for use by women to help lessen menopausal symptoms such as hot flashes.

The problem, researchers say, is that isoflavones are phytoestrogens, a weak form of estrogen that could have a drug-like effect in the body. This may be pronounced in postmenopausal women, and some studies suggest that high isoflavone levels might increase the risk of cancer, particularly breast cancer. Research data, however, are far from conclusive, and some studies show just the opposite -- that under some conditions, soy may help prevent breast cancer. It is this scientific conundrum, where evidence simultaneously points to benefits and possible risks, that is causing some researchers to urge caution.

Unlike the controversy surrounding soy isoflavones, available evidence on soy protein benefits is much clearer. That's why FDA limited its health claim to foods containing intact soy protein. The claim does not extend to isolated substances from soy protein such as the isoflavones genistein and daidzein.

For more on this story see: http://www.fda.gov/fdac/default.htm

REF: *FDA Consumer magazine*, May-June 2000.

DDT and Human Health

The termination of DDT spraying in Mozambique during the early 1970s may cause even more misery for the flood-ravaged nation. Thomas DeGregori, an economics professor at the University of Houston, warns in an editorial for the American Council on Health Sciences. "As the water recedes into stagnant pools ideal for breeding malaria-bearing mosquitoes, the ongoing tragedy of Mozambique may be compounded by the upsurge of illness and death from malaria," DeGregori writes. Quoting from a report in the March 11 issue of the *British Medical Journal*, he explains that the use of DDT in Mozambique "was stopped several decades ago because 80% of the country's health budget came from donor funds, and donors refused to allow the use of DDT." Malaria is the leading cause of death in Mozambique. Several South African nations have resumed spraying DDT because there was an "explosion" of malaria even before the flooding. "There is now an attempt being made to enact a legally binding treaty for a global ban on the use of DDT and other persistent organic pollutants." The groups supporting the ban "also want to ban the use of chlorine for sanitation, and the use of genetically modified crops -- including those like nutrient-enhanced rice that would so greatly benefit the poorest and neediest of the world's population." It is estimated that malaria strikes 300-500 million people annually. Ninety percent of the cases occur in Africa. (From: Pesticide & Toxic Chemical News, 28(22).

REF: *Kansas Pesticide Newsletter*, **23**(4), April 17, 2000.

Scombroid Fish Poisoning --- Pennsylvania, 1998

In December 1998, the Chester County Health Department (CCHD) in Pennsylvania received reports of four cases of scombroid fish poisoning among patrons at a local restaurant. This report summarizes the investigation of these cases by CCHD, the Pennsylvania Department of Agriculture (PDAg), and the Pennsylvania Department of Health (PDOH). Findings from this investigation suggest that initial processes that are not regulated by the Food and Drug Administration (FDA) (i.e., from hooking the fish to unloading the fish on the dock) may permit scombrotoxin formation.

On December 3, 1998, four adults became ill after eating tuna-spinach salad at the restaurant. Symptoms of illness included a burning sensation in the mouth, a metallic taste, facial flushing, nausea, diarrhea, sweating, and headache; symptoms occurred approximately 5 minutes to 2 hours after eating the salad. One patient was taken to the local emergency department and treated with diphenhydramine, cimetidine, and epinephrine. The other three patients were not examined by physicians and their symptoms resolved within a few hours. A presumptive diagnosis of scombroid fish poisoning was made based on clinical and epidemiologic features of the illness.

A sample of the remaining fish obtained from the restaurant was sent to PDOH for testing. The fish was positive for coliform and *Escherichia coli*, and tests were positive for histamine levels >50 ppm (fresh fish normally contain histamine levels of <10 ppm using an enzyme-linked immunoabsorbent assay).

Editorial Note: Scombroid fish poisoning has been associated primarily with the consumption of tuna, mahi-mahi, and bluefish. It is caused by histamine and other products produced by certain bacteria on some types of fish; these bacteria grow in warm temperatures and produce the enzyme histidine decarboxylase that converts free histidine in fish flesh to histamine and other products.

National surveillance data on scombroid fish poisoning is based on outbreaks of acute foodborne disease reported by state health departments to CDC. During 1988-1997, scombroid fish poisoning was reported in 145 outbreaks involving 811 persons from at least 20 states; however, many cases probably are not reported.

Since December 18, 1997, all processors of fish are required by FDA to conduct a hazard analysis of their operation and to implement a HACCP plan to control each identified hazard. The HACCP plan must be specific for each location where fish and fish products are processed and for each species processed. The fish implicated in these scombroid fish poisonings was caught by the long-line method of fishing, which consists of suspending a monofilament line, up to 60 miles long, with up to 3000 baited hooks in the water. The retrieval process may take up to 12-14 hours, and the fish may be retained on the lines up to 20 hours. Although no deviations in HACCP procedures were documented in this outbreak, the time from hooking the fish to unloading the fish on the dock is not covered by HACCP. Conditions permitting histamine production could have occurred while the fish were in warm water suspended on the long line.

Scombrotoxin formation also could have resulted from fish handling practices anywhere along the distribution chain after the fish was caught to serving at the restaurant. The reportedly good color and appearance of the fish at the retailer and the lack of other reported illnesses may indicate that scombrotoxin formation occurred at the restaurant during processing and handling of the fish.

This outbreak suggests interventions that could reduce the risk for scombroid poisoning. First, consideration should be given to limiting the amount of time that fish can remain on the line during the long-line method of fishing. Second, efforts should focus on maintaining adequate refrigeration of fish during distribution and in restaurants to prevent conditions favorable for scombrotoxin production. The key to prevention of scombroid fish poisoning is continuous icing or refrigeration at <32 F (<0 C) of all potential scombrotoxin-producing fish from the time they are caught until they are cooked.

REF: *Morbidity and Mortality Weekly Report*, 49(18), May 12, 2000.

National database shows drug residue monitoring program for milk is working

Fiscal 1999 (Oct. 1, 1998 - Sept. 30, 1999) results from the National Milk Drug Residue Database show that of 4,232,665 samples analyzed for animal drug residues, only 4,270, or about 0.1%, were positive for a residue. More than 4 million tests and 49 different methods were used to test the samples for 15 different groups of individual drugs.

The National Milk Residue Database is a voluntary industry reporting program that incorporates the mandatory reporting required by states and the National Conference on Interstate Milk Shipments (NCIMS), the results of the National Drug Residue Monitoring Program administered by FDA, and other voluntary testing done by industry. The information in the database excludes company information and is not used for regulatory action.

According to the database, in 1998, 0.088% of bulk milk pick-up tankers tested positive, whereas in 1999, only 0.085% tested positive. From 1998 to 1999, pasteurized fluid milk and milk products positives declined from 0.005% to 0.004%, and producer samples increased slightly from 0.164% to 0.179%. Other positive samples declined from 0.065% in 1998 to 0.047% in 1999. All of these figures include both Grade A and non-Grade A milk, and results of both industry and regulatory tests.

These changes are slight and industry and FDA agree that the results indicate a positive trend not just in the decreasing number of positives, but also in the increasing number of samples being reported. Since industry is required to report all positives, more voluntary reporting by industry gives a more accurate picture of the overall number of negatives detected as well.

The National Milk Producers Federation and the International Dairy Foods Association (IDFA) agreed that the database offered no surprises this year and continued to show that there was a strong monitoring program in place. IDFA's Cary Frye said the database is important because it keeps the information all in one place and can be held up to consumers, Congress or FDA whenever there are questions about the safety of the milk supply.

The 1999 annual report on the database is available on CFSAN's Web site at www.vm.cfsan.fda.gov.

REF: *Food Chemical News*, 42(8), April 10, 2000.

FDA's new analysis finds ephedra 'responsible for a significant public health hazard'

The FDA reported that an analysis of 132 new reports related to ephedra use indicate that the herbal dietary supplement ingredient "is responsible for a significant public health hazard that primarily involves young to middle age adults, and can result in untoward cardiovascular and nervous system effects. Moreover, many of these adverse effects are serious in nature, resulting in morbidity and mortality that would not be expected in a young population, and that could further compromise the health of more vulnerable older populations or those with underlying health conditions."

FDA formally withdrew the labeling usage and duration limits on ephedra that it had proposed June 4, 1997, after the General Accounting Office last year criticized its reliance on unsupported reports of so-called adverse events as a basis for the proposed regulation. The dietary supplement industry has strongly criticized FDA's prior analysis of adverse events associated with ephedra, and defended the stimulant's use in popular weight-loss and energy-enhancement products as safe.

The agency said its analysis of the new reports found that 60% of health problems associated with ephedra involved cardiovascular and nervous system problems in young to middle-aged women. Men who use ephedra-containing dietary supplements for fitness purposes "appear to be at increased risk for developing serious nervous system effects including seizure. ... This pattern is different from that observed in women using these products, where cardiovascular events predominate irrespective of whether the product was used for weight loss or fitness purposes."

Strenuous exercise by men who use ephedra "may increase the likelihood and/or severity of a subsequent adverse event, and strenuous exercise may also play a role in the frequency or severity of adverse events reported as occurring in young women using the products for weight loss purposes. Such serious adverse events would not be expected to occur in a young healthy population, irrespective of gender."

REF: *Food Chemical News*, 42(8), April 10, 2000.

Pesticide Exposure and Children
Part 3: Estimating Doses for Children

by Dr. Richard A. Fenske, Professor of Environmental Health, University of Washington

In the February and March issues of *Agrichemical and Environmental News* (AENews Nos. 166 and 167), I shared some background on the concerns surrounding children's exposure to pesticides and I outlined University of Washington (UW) studies on children in the Wenatchee area. In the last week of April, a new analysis of our Wenatchee studies was published in *Environmental Health Perspectives*, a scientific journal sponsored by one of the National Institutes of Health (see note at end of article). Once published, a paper like this can become news, and this one did. The information released by the University of Washington Office of Health Sciences and Medical Affairs was headlined: "UW Study Finds Many Farm Children Are Exposed to Pesticides." This was translated in the Seattle Times on April 25, 2000, as "Kids' Pesticide Levels Unsafe."

Why did our findings draw media attention? Did our paper really demonstrate that children are exposed to pesticides at "unsafe" levels? In our report, we tried to answer the question that parents and others ask when they learn about our studies of children and pesticides: "What are the risks? Are the levels safe?" These are not easy questions to answer.

Methodology in Brief

Our study evaluated the exposures of 109 children living in Chelan and Douglas counties. Most (91) had parents working in agriculture. The others (18) did not have any household members involved in agriculture, and lived at least one-quarter mile from treated farmland. The metabolites we measured in the children's urine are common to several organophosphorus (OP) pesticides, including azinphos-methyl and phosmet. Our approach was to convert the OP pesticide metabolites found in the urine of children to estimates of the total amount of pesticides the children probably absorbed on the day we sampled. These dose estimates were then compared to guidelines developed by the Environmental Protection Agency (EPA) and the World Health Organization (WHO).

Our analysis assumed that the metabolites were the result of exposure to either azinphos-methyl or phosmet, the two

chemicals found in nearly all of the house dust samples we collected from the children's homes.

Findings in Brief

We found that for children whose parents worked in agriculture as either orchard applicators or field-workers, more than half of the doses estimated for the spray season exceeded the U.S. EPA's chronic dietary reference dose (RfD) and about one fifth exceeded the WHO's acceptable daily intake (ADI) values for azinphos-methyl. For children whose parents did not work in agriculture the values were 44% and 22%, respectively. When we considered that the metabolites were due to phosmet exposure, we found that less than 10% of the children exceeded the EPA and WHO reference values. None of the dose estimates exceeded what is called the "no effect" level determined in animal studies. We also noted that the study took place during a period of active spraying, and we cautioned readers not to generalize to other times of the year, or other regions. Nevertheless, it seems reasonable to assume that these children were exposed at these levels across the 40 to 50 days of the spraying season.

The Public Health Message

What do these numbers and comparisons really mean for children's health? **The major public health message is that these findings are cause for concern, but not for alarm.** We can say with some certainty that these exposures fall short of causing acute health effects, since the WHO and EPA guidelines incorporate large uncertainty factors. But it is also clear that the exposures for many of these children fall into that zone of uncertainty.

Some will argue that the current guidelines are too stringent, but others argue that they are not protective enough, particularly for children. Current regulatory methods are based on measurements of residues in food, water, and the environment, from which models are developed to estimate dose. Often these models include very conservative or protective assumptions, which can lead to high estimates and the appearance of risk that may or may not be present. Biological monitoring data are not normally used in the regulatory process, as they are very cumbersome to obtain and complex to coordinate. Yet it seems clear that they can provide a more accurate estimate of the dose that a child receives. The primary scientific message is that biological measurements, such as pesticide metabolites in urine, can give us reasonably good estimates of dose and risk. As we monitor more children we will be able to see patterns that can aid in developing commonsense and cost-effective methods to reduce exposures.

The University of Washington paper, "Biologically Based Pesticide Dose Estimates for Children in an Agricultural Community," appears in the June 2000 issue of *Environmental Health Perspectives*. General information on this publication, and abstracts of some articles, are available on the Internet at http://ehpnet1.niehs.nih.gov/docs/. Actual articles are available on-line by subscription only.

This entire article is in the June 2000 issue of Agrichemical and Environmental News.

No evidence that genetically modified foods currently on market are unsafe, says NAS report

There is no evidence suggesting that genetically modified foods currently on the market are unsafe to eat, the National Research Council concluded in a report released April 5. Although NRC, an arm of the National Academies, arrived at this conclusion, it said regulators must "do a better job" of coordinating their work related to transgenic plants.

The report, "Genetically Modified Pest-Protected Plants: Science and Regulation," was released amid complaints from Capitol Hill and various environmental and public interest groups that seven of the 12 panelists who wrote it had

conflicts of interest. Critics also claim that the authors of the report did not have a mandate to examine food safety issues.

The report is available on the Internet at http://books.nap.edu/catalog/9795.html

REF: *Food Chemical News*, 42(8), April 10, 2000.

Unwisdom from the Academy

A long awaited report from the National Academy of Sciences (NAS) on proposed Environmental Protection Agency (EPA) regulation of recombinant DNA-manipulated plants that was released last month has been interpreted in contradictory ways. The *Washington Post* reported that "crops that are genetically engineered to produce their own pesticides appear to be safe," and CBS news observed that the NAS review was "the closest thing to a seal of approval gene-altered foods have ever received." Not surprisingly, therefore, many of those long opposed to biotechnology promptly denounced it as "junk science." However, the always-antibiotech Environmental Defense had a still different take, interpreting the report as condemning too-lenient regulation by the government. Its creative press release headline was "Scientific Panel Calls for Stronger Controls on Biotechnology; Short-Sighted Government Approach Fails to Protect Long-Term Public Interest."

To read this entire article see http://www.thescientist.com/

REF: *The Scientist*, 14(9), May 1, 2000.

Toxicology Tidbits

Risk of Lung Cancer Found Higher in Women Smokers

Women smokers may be more than twice as likely to develop lung cancer as male smokers, say researchers at Pennsylvania State University who recently discovered that a gene linked to the abnormal growth of lung cells is not as active in men. The study showed that the action of the gastrin-releasing peptide receptor, or GRPR, which plays a key role in the development of the lungs, increased lung cancer risk in both women and men smokers. But that risk was much higher for women smokers compared with their male counterparts. Differences in the action of the gene in women made the risk associated with GRPR 12 times higher for women and only 2.4 times higher for men smokers.

Researchers say that GRPR becomes active in men only in the presence of tobacco smoke or some other respiratory attack, but remains active in women whether they smoke or not. (*Journal of the National Cancer Institute*, January 2000)

REF: *FDA Consumer magazine*, May-June 2000.

Salmonella Rate Drops, Egg Safety Steps Credited

The rate of salmonella illness from eating raw or undercooked eggs dropped by more than one-third between 1996 and 1998, according to the Centers for Disease Control and Prevention (CDC) in Atlanta. This represents a turn-around from the soaring rate of egg-related salmonella sicknesses reported in the 1980s and early 1990s. CDC says the annual rate went from 0.6 cases per 100,000 people in 1976 to 3.6 in 1996, but that the number of cases per year dropped to 2.2 per 100,000 between 1996 and 1998. CDC credits the decrease with better safety measures for egg production and preparation.

REF: *FDA Consumer magazine*, May-June 2000.

Standard Lyme Disease Therapy Shown Effective

The prognosis for most people with Lyme disease who receive conventional treatment is excellent, says a study by Yale University researchers and a team of Connecticut doctors. In the largest long-term study of the effects of the disease, patients who received conventional treatment suffered no more long-term health problems than individuals who never had Lyme disease. (*Journal of the American Medical Association*, February 2000)

REF: *FDA Consumer magazine*, May-June 2000.

Insecticidal Genes

Part 3: *Long Live the Monarch*

Move over bald eagle. There's a new symbol of environmental destruction in town. The Monarch butterfly (*Danaus plexippus*) has become the new Bambi, giving environmental advocacy groups something fresh to fawn over in their battle against transgenic crops. The butterfly argument metamorphosed out of a paper published last year in the well-respected weekly science journal *Nature*. Professor Losey and coworkers from Cornell University reported that Monarchs died when they fed on milkweed leaves dusted with corn pollen originating from a transgenic line of corn containing the gene that makes the toxic Bt (*Bacillus thuringiensis*) protein.

Three areas of potential ecological risk have surfaced regarding transgenic crops:

- adverse effects on nontarget organisms;
- pollen flow and cross hybridization of transgenes with other nonengineered plants; and
- development of pest resistance.

This month's essay deals with risks to nontarget organisms such as our friend the Monarch.

For more info: http://www2.tricity.wsu.edu/aenews/

Insecticidal Genes
Part 4: *Resisting Resistance*

No pest control technique--with the arguable exception of the flyswatter--is immune to the possibility of resistance. Over 400 insect pest species are estimated to have developed resistance to one or more classes of insecticides.

Of all the ecological concerns regarding the Bt toxin, resistance is the one that has already occurred. But it's not resistance to the transgenic version of the protein toxin; it's widespread resistance to Bt sprays, specifically those used to control the diamondback moth (*Plutella xylostella*) and the Indian meal moth (*Plodia interpunctella*). Laboratory experiments show that resistance in other insect species may follow. This article deals with the resistance issue in Bt transgenic crops in the context of Bt resistance as a whole.

For more info: http://www2.tricity.wsu.edu/aenews/

Final Rule Issued to Reduce Pollution from Lawn & Garden Engines

New emission reduction standards are now in place for small hand-held engines at or below 25 horsepower that are used in lawn and garden equipment such as trimmers and chainsaws. When the new standards are fully in place in 2007, the ground-level ozone pollution caused by these engines will be cut by 70% or 350,000 tons/yr. The 20,000,000 small engines sold each year contribute about 1/10 of the total US mobile source hydrocarbon emissions and are the largest single contributor to these non-road emissions. Since this equipment is used mostly during the hot summer months, when ground-level ozone is the highest, it causes problems for asthmatics and aggravates other respiratory conditions. These new standards will also increase fuel efficiency by 30% which will lower consumer operating costs. Manufacturers of hand-held garden engines have already made significant improvements in emission control technologies since the first standards became effective in 1997. The final rule will be published in the Federal Register during the week of March 13, 2000.

For more info: http://www.access.gpo.gov/su_docs/aces/aces140.html

REF: *EPA Press*, March 9, 2000.

Why Bother? FIT® Fruit & Vegetable Wash

Farm Advisor Larry Costello recently called for some information about the Proctor and Gamble product called FIT®, which is advertised as a means to remove pesticide residues from fruits and vegetables. My initial reaction to this was "Why bother?"

It remains my reaction to the product. Consider that almost 90% of all commercial produce tested in California for the last 8 years has either no detectable residues or less than 10% of the allowable tolerance.

If you are interested to see the advertising for this product, you can find it at the following address, and as above this is NOT an endorsement or recommendation for the product!

http://www.tryfit.com/

Safe Drinking Water Information System (SDWIS)

http://www.epa.gov/enviro/html/sdwis/sdwis_query.html

Drinking Water information is stored in EPA's Safe Drinking Water Information System (SDWIS). SDWIS contains information about public water systems and their violations of EPA's regulations for safe drinking water. These statutes

and accompanying regulations establish maximum contaminant levels (MCLs), treatment techniques, and monitoring and reporting requirements to ensure that water provided to customers is safe for human consumption. The Safe Drinking Water Query Form will allow you to locate your drinking water supplier and view its violations and enforcement history for the last ten years.

REF: EPA Internet Newsbrief, May 12, 2000.

CDC Parasitic Pathways - Drinking Water

http://www.cdc.gov/ncidod/dpd/parasiticpathways/drinkingwater.htm

This page on the Center for Disease Control's Division of Parasitic Diseases' website is dedicated to parasites that can be found in drinking water. The page contains information on a number of parasites found in drinking water that can cause diseases, such as Cryptosporidium and Entamoeba histolytica. This page also has summaries of disease outbreaks from the mid-80s to the mid-90s, an Emerging Infectious Disease (EID) report on the chlorine disinfection of pools for Cryptosporidium, and a guide for people with HIV on the safe handling and preparation of food and water.

REF: *EPA Internet Newsbrief*, May 12, 2000.

Coffee may help prevent Parkinson's

A recent report in the *Journal of the American Medical Association* has shown an inverse correlation between caffeine intake and Parkinson's Disease (PD). In a study done with more than 8000 Japanese-American men in Honolulu, the authors of this report found that the incidence of PD declined consistently with increased caffeine consumption, from 10.4 per 10,000 in non-coffee drinkers to 1.9 per 10,000 in men who drank 28 or more ounces of coffee per day, and that this relationship was unaltered by intake of milk and sugar.

The authors note that while this could be due to a "protective" effect of caffeine, it could also reflect a physiological aversion to caffeine in patients who are likely to develop PD. Stay tuned for more developments!

I'm going to have a little more coffee.....

REF: JAMA, 283(20):2674-2679, 2000.

Antibiotics can worsen *E. coli* complications

The *New England Journal of Medicine* recently released an article before it was published because of its therapeutic implications. The authors of this study were from the University of Washington School of Medicine, and did a prospective cohort study of 71 children who had diarrhea caused by *E. coli* 0157:H7. They assessed the incidence of the hemolytic-uremic syndrome (HUS) in these children and found that antibiotic treatment increased the risk of HUS. The authors recommend that antibiotics not be used in children who may be infected with *E. coli* 0157:H7 until stool culture results indicate that the diarrhea is caused by a pathogen which can be treated with an antibiotic (they note that several studies have shown that antibiotics do not ameliorate *E. coli* 0157:H7 infections). The HUS is a severe syndrome which develops in about 15 percent of children infected with *E. coli* 0157:H7 very soon after the onset of diarrhea.

REF: New England Journal of Medicine (http://www.nejm.org)

Docs see red over kids coloring contacts

Preteens across the nation are using food coloring on their contact lenses to create a new look. But doctors say the kids are risking infection and other eye problems. The American Optometric Association (AOA) is warning against the practice. Food coloring "is not necessarily sterile," says Robert Davis of the AOA. "It's important that the lenses be properly cleaned and worn according to the instructions."

REF: *USA Today*, May 24, 2000.

Federal Trade Commission warning parents about giving dietary supplements to children

The Federal Trade Commission has fired a broad shot at the dietary supplement industry in a new consumer guidance that warns parents about giving supplements to their children. "Before giving your child a dietary supplement, be aware that many dietary supplements, especially herbal products, have not been tested in kids to determine their safety or effectiveness," the FTC says in "Promotions for Kids' Dietary Supplements Leave Sour Taste."

"Dietary supplements in this country are not held to any set of federal standards for quality or purity," says the federal regulator of advertising claims. FDA, which has responsibility for claims made in product labeling, is working to develop such good manufacturing practices (GMPs) for the supplement industry.

For more info: http://www.ftc.gov/bcp/conline/features/kidsupp.htm

REF: *Food Chemical News Daily*, 2(226), May 19, 2000.

AMA Urges FDA Not to Allow Pregnancy-Related Claims for Dietary Supplements

The American Medical Association (AMA) has advised FDA that it should prohibit dietary supplement structure/function claims for any conditions in pregnant women. The agency's final regulation published in the January 6 *Federal Register* governing what claims can be made for dietary supplement products regarding their effect on the structure or function of the human body broadened permissible claims to include common and mild pregnancy-related conditions such as morning sickness and leg edema. Almost immediately after the rule was published, the agency asked dietary supplement manufacturers not to make pregnancy-related claims because of health-related concerns.

Ratcliffe Anderson, AMA executive vice president and CEO, told FDA in an April 21 letter that the association regrets the agency's January decision to revise criteria that apply to conditions associated with natural states and urges FDA to revisit the issue. Specifically, Anderson said AMA "disagrees with the FDA's position that 'common conditions associated with natural states or processes that do not cause significant or permanent harm will not be treated as diseases.' AMA believes that conditions, such as hot flashes with menopause, premenstrual syndrome, morning sickness associated with pregnancy, mild memory loss associated with aging, and noncystic acne should be classified as diseases. Dietary supplements should not be allowed to make claims for these conditions."

Anderson also said FDA should require the following precautionary statement on the labels of such dietary supplements: "Precaution: It is not known whether (name of product) can cause harm to a fetus or newborn infant. Pregnant women and nursing mothers should talk to their doctors before taking (name of product)."

REF: *Food Chemical News*, 42(13), May 15, 2000.

National Pesticide Telecommunications Network publishes 1999 Annual Report

Almost 23,000 calls were answered by EPA's National Pesticide Telecommunications Network (NPTN) during the year ending March 31, according to the NPTN 1999 Annual Report. Of the 22,721 calls the network received, 8.6% involved pesticide incidents, 37.8% were for information about specific pesticide active ingredients or products, and 48.2% were for general pesticide-related information. The active ingredient chlorpyrifos generated more inquiries, almost 1,100, than any other active ingredient. Of these, 19% were incident calls.

An independently-conducted random survey of the network's clientele found that over 90% of respondents had a favorable or highly favorable opinion of NPTN's level of service, says the report. According to NPTN's mission

statement, it's job is to serve as a source of objective, science-based pesticide information on a wide variety of pesticide-related subjects, including pesticide products, recognition and management of pesticide poisonings, toxicology and environmental chemistry. NPTN, which is in its fifth year of operation, also provides referrals for: laboratory analyses, investigation of pesticide incidents, and emergency treatment; safety practices; health and environmental effects; and clean-up and disposal.

The report is available on the NPTN's Web site at http://nptn.orst.edu/reports.htm.

REF: *Food Chemical News Daily*, 2(231), May 30, 2000.

VETERINARY NOTES

USDA May Soon Begin Condemning Entire Carcasses Based on Marker Tissue Results

USDA may soon begin condemning entire carcasses based solely on the presence of illegal drug residues in marker tissues (organs such as the liver or kidneys) regardless of whether the department has been able to detect elevated levels of drugs in animal muscle. This change by the USDA's Food Safety and Inspection Service would have a huge economic impact on the meat industry, since it would increase the number of condemned carcasses. Under current agency policy, FSIS passes carcasses that test within the allowable range for drug residues in muscle, even if the marker tissues are violative (in which case only the organs are condemned).

It appears that the FDA sets tolerances for drugs in food animals with the understanding that carcasses would be condemned also if marker tissues exceeded the tolerance, whereas FSIS thought that violative levels had to be found in muscle to condemn the whole carcass.

The likely policy change has renewed concerns about the apparent inequities in residue surveillance at different plants --- and the residue problems that aren't being picked up in plants that the government isn't testing aggressively. A tightened policy would bolster the argument that residues pose a significant health hazard to consumers.

REF: *Food Chemical News*, 42(12), May 8, 2000.

Reasons for Antibiotic Residues

The Northwest Dairy Association field staff documented reasons for antibiotic residues over a two and one-half year period. The goal was to document every incident of dumped milk due to a confirmed drug residue. This included milk dumped at the farm prior to bulk milk pick-up and milk dumped due to a positive screen test at a receiving plant.

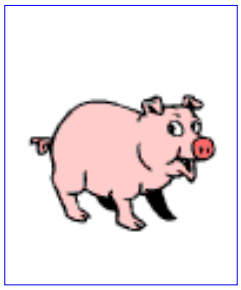
Seven primary causes for antibiotic residue violations were identified:

1. *Cow identification problems.* (15.6%)
   *After treatment, the cow was not identified as being treated. (10.8%)
   *After treatment, the cow lost her identification. (2.6%)
   *The treated cow was misidentified or the wrong cow was treated. (2.2%)
2. *A treated dry cow was milked into the tank.* (13.1%)
3. *Pasteurized Milk Ordinance (PMO) prohibited procedures.* (31.3%)
   *The extra label use of drugs. Treated cows were not withheld long enough. Cows were treated consecutive days and withheld as if one treatment. Multiple drugs were used. Cows were given a double dose, but withheld as if one dose. Wrong route of administration. (17.2%)
4. *The inattention of an employee during milking, cows were well-marked, but missed during milking.* (13.4%)
5. *Unknown.* (20.1%)
   * After a thorough investigation, no clear cause was determined. (9%)
   * Insufficient information was provided by the report. The dairy producer was suspicious of a cause, but could not prove it. (11.2%)
6. *Lack of communication between employees, the owner and employees, or lack of training for new employees.* (4.1%)
7. *Other.* (2.2%)

The average pounds of milk disposed of on the farm due to an antibiotic residue was 12,523 pounds per incident. However, when the violative residue was detected at a receiving plant, the average amount of milk disposed of increased to 39,174 pounds per incident. Although no system is foolproof, it is recommended that producers test each tank of milk prior to pick-up. (taken from: Udder Topics, 23(1), January 2000)

REF: *University of Nebraska-Lincoln Veterinary and Biomedical Sciences Extension Newsletter*, 29(3), March 2000.

!! Click on the pig !!



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