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# PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE

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DOCUMENTS

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IN THIS ISSUE

PAGE

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<b>DEPARTMENT OF AGRICULTURE PROPOSED VOLUNTARY</b>	
<b>ATRAZINE BEST MANAGEMENT PRACTICES</b> .....	139
<b>DIATOMACEOUS EARTH</b> .....	140
<b>AS A GRAIN PROTECTANT</b> .....	140
<b>PESTICIDE NEWS</b> .....	142
<b>MISCELLANEOUS</b> .....	145
<b>DIAL U</b> .....	145

**PLEASE NOTE:** This is the last issue of the *Plant Pest Newsletter* for the 1990-91 season. The 1991-92 season will begin the week of April 19, 1991. If you have not sent in your subscription form for the new season, please do so as soon as possible.

**DEPARTMENT OF AGRICULTURE PROPOSED VOLUNTARY ATRAZINE BEST MANAGEMENT PRACTICES**—The State Department of Agriculture is seeking information or opinions from sources outside the agency in preparing Best Management Practices for the herbicide atrazine. Voluntary best management practices for atrazine are being proposed in an effort to prevent groundwater contamination.

Interested persons or groups are encouraged to submit

written or oral information or opinions by 3/29/91 to:

Jerry Spetzman  
Minnesota Department of Agriculture  
Agronomy Services Division  
90 West Plato Blvd.  
St. Paul, MN 55107

Telephone: (612) 297-7269

**For more information regarding the Plant Pest Newsletter  
contact Extension Plant Pathology at 612-625-6290**

# Proposed Voluntary Atrazine Best Management Practices

## HERBICIDE SELECTION RECOMMENDATIONS

- 1) Use Integrated Pest Management techniques for pest control.
  - a) Scout fields to identify weed species present.
  - b) Assess population levels.
  - c) Determine whether herbicide treatments are merited and if so, which herbicides are appropriate.
  - d) Consider alternatives to atrazine use that may do the same job with less potential negative impact on water resources.
  - e) Apply the least amount of herbicide necessary to control the weeds, and only where weed problems exist or are anticipated.
- 2) Maintain a field history which includes soil test results, crops, pest problems, pesticides used (brand names, active ingredients, rates), application dates, and results.

## MIXING AND LOADING

- 1) Mix, load, or clean equipment containing atrazine a minimum of 150 feet from a sinkhole (outer edge of slope), streambed, lake, wetland, water impoundment, river or similar areas.
- 2) Mix, load and clean-out equipment on impervious surfaces. Atrazine mixing/loading and equipment clean-out should be carried out on an impervious surface such as a mixing and loading pad. Equipment and container wash waters should be applied evenly over labeled areas or used as part of dilution make-up water.

## APPLICATION RATES

### 1) Sensitive Areas

Limit to one and one-half pounds or less active ingredient per acre per calendar year in sensitive areas. The application rate for atrazine of 1.6 lbs. active ingredient equivalent to 1.6 qts. of 4L, 2.0 lbs. of 80W, or 1.8 lbs. of 90% WDG or DF formulations. Sensitive areas, until further defined by the Department of Natural Resources, include highly permeable geologic material such as:

- a) fractured rock aquifers (including karst, sinkhole areas) or:
- b) where sands, loamy sands, and/or sandy loams are the prevalent soil texture within a field (greater than 50% of the soil surface) and where the water table is less than thirty feet below the surface.

It should be noted that portions of every Minnesota county may include one, or all, of these conditions. Contact your local Soil Conservation Service for further information on specific soil conditions on your farm.

Counties in which these conditions are prevalent include: Anoka, Becker, Benton, Brown, Chisago, Dakota, Fillmore, Goodhue, Houston, Hubbard, Isanti, Morrison, Mower, Olmsted, Ottertail, Pope, Rock, Sherburne, Stearns, Todd, Wabasha, Wadena, Washington, and Winona.

### 2) Statewide

Limit to no more than 3 lbs. active ingredient per acre per calendar year. The maximum application rate for atrazine is equivalent to 3 pts. of 4L, 3 3/4 lbs. of 80W, or 3.3 lbs. of 90% WDG or DF formulations except in sensitive areas where rate restrictions apply.

## ATRAZINE USE RECOMMENDATIONS

- 1) Only apply atrazine between spring thaw and July 31. Do not apply atrazine in the fall or winter.
- 2) Establish and maintain buffer areas. Buffer areas are grassy water ways or vegetation strips around sinkholes, drainage wells and other areas where distance limitations apply. Avoid atrazine drift into these buffer areas.
- 3) Follow proven irrigation management practices to minimize leaching. Do not over irrigate. Contact University of Minnesota Extension Service Irrigation Specialist for irrigation recommendations.

## CONTAINER MANAGEMENT

- 1) Rinse containers immediately. Delay in rinsing atrazine containers results in a residue that, upon drying, is highly resistant to rinsing. Proper rinsing may be accomplished by pressure rinsing or triple rinsing immediately after emptying container. Use rinsate as dilution make-up water. Apply rinsate evenly over a labeled site.
- 2) Properly dispose of rinsed atrazine containers. Recycle or dispose of container as solid waste. Contact Minnesota Department of Agriculture for further information on recycling and disposal.

## LEGAL REQUIREMENTS

- 1) Read and follow label directions. Recent label changes have occurred on atrazine containing products. Be sure to read and follow all directions and precautions appearing on the label in your possession. Certain atrazine BMP recommendations are mandatory if listed on the label in the users possession.
- 2) Atrazine is a Restricted Use Pesticide. Purchasers and applicators must have proper MDA issued or certification. All sales must be reported to MDA by the RUP dealers at the end of each year.

- 3) Do not mix near cisterns or wells. Follow Minnesota Water Well Code which currently prohibits mixing, loading or cleaning of application equipment within 150 ft. of a cistern or a well (including a farm well, drinking water well, abandoned well, irrigation well or drainage well).
- 4) Properly calibrate equipment so that label rates are accurately delivered to the target site.
- 5) Avoid backsiphoning by utilization of a fixed airgap or other MDA approved anti-backsiphoning device.

#### COMMISSIONER'S ORDER

Atrazine may not be applied through an irrigation system.

#### ASSISTANCE TO ATRAZINE USERS

Contact the Minnesota Department of Agriculture or the Minnesota Extension Service for further information on Atrazine Best Management Practices.

*Jerry Spetzman  
Minnesota Department of Agriculture*

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## DIATOMACEOUS EARTH

**AS A GRAIN PROTECTANT**—diatomaceous earth (DE) is being promoted throughout Minnesota for use as a grain protectant under the trade name "Insecto"

DE is a light, friable, siliceous, mineral product that resembles chalk and is derived from the silica remains of unicellular colonial algae known as diatoms. DE occurs in large sedimentary deposits in many parts of the world and is marketed for many industrial uses. The material is a chemically inert dust that has a highly abrasive crystalline composition.

The insecticidal effects of inert dusts (such as road dusts) have been known for centuries. They abrad the cuticle (skin) of insects and cause a rapid water loss and death by desiccation.

Considerable research has been conducted during the last 50 years with various dusts including silica aerogel, magnesium oxide, aluminum oxide, activated clays and DE. DE has shown some promise in a number of areas.

The most extensive research involving DE has been done at the USDA U.S. Grain Marketing Research Center, Agricultural Research Service, Manhattan, Kansas, where it has been evaluated against various insecticides to protect stored wheat, corn, rice and grain sorghum from-stored product insect pests. At rates of 120-300 lbs/1000 bu, DE was superior to the standard treatment of 1 pt. of premium grade malathion in preventing insect infestations in wheat but did not protect grain sorghum for more than one month. At low rates of 15-45 lbs/1000 bu it did not give satisfactory control. Label information for DE currently being promoted suggests the use of 1-2 lbs per ton (2,000 lbs) of grain which would be 33.3 lbs/bu of wheat.

In wheat, the cost of applying DE at the high rates puts it at a competitive disadvantage to protectant insecticides (\$2.50/lb when purchased in small quantities). Other drawbacks are DE decreases grain test weight; DE-treated wheat slows grain machinery and is highly abrasive to machinery parts, DE results in machinery maintenance problems, and DE airborne dust is a fire hazard and a nuisance factor. According to the Occupational Safety and Health Administration, the inhalation of silica dusts can result in a serious lung disorder called silicosis in workers.

DE is not a fumigant. Therefore, top-dress treatment with the product in a grain bin will not control insects that may be feeding under the area of treatment. Insects may be controlled when they come into contact with DE. Currently there is no field research available to document that DE will provide the insect control desired if used as labeled. Until such evidence becomes available, especially where considering the potential disadvantages of using DE as a grain protectant, potential users should be cautioned about accepting DE as a means of protecting stored grain from insect infestations.

According to revised Federal Grain Inspection Service (FGIS) regulations, if there is a request for an examination for the presence of DE on grain and DE is found but there is no other unknown foreign substance or quality problem, then the grain will be graded as if DE was not present except that its presence will be noted in the remarks section of the certificate. Under the old FGIS regulations, DE in a grain sample would previously have drawn a distinctly low quality designation and consequently a sample grade.

*—Phillip Harein  
Extension Entomologist*

## PESTICIDE NEWS

Starting with this issue of the *Plant Pest Newsletter*, I will be providing information/news on pesticides and pesticide-related issues that are of interest to a wide range of clients in Minnesota. The "Pesticide News" column will appear in the *Plant Pest Newsletter* weekly or at least two to three times a month. If you would like specific information on pesticides, such as impact/effects of pesticides in the environment, pesticide safety, and pesticide regulations, please write or call me at (612) 624-9292.

**EPA PRIORITIES**—The priorities of the Office of Pesticide Programs (OPP), Environmental Protection Agency (EPA), for this year and the coming years include the following: 1) reregistration; 2) follow a risk reduction course; 3) increase emphasis on ecological effects; and 4) enactment of food safety legislation.

**TOLERANCE EXEMPTION FOR BENEFICIAL INSECTS**—EPA proposed a rule exempting predaceous and parasitic insects used to control insect pests of stored grain from tolerance requirements. These beneficial insects can be used in stored raw whole corn, small grains, rice, soybeans, peanuts, and other legumes, either bulked or bagged. Beneficial insects can be also used in facilities, structures, and warehouses, where such use does not contaminate food. Thirteen parasitic insects and two predatory insects were listed in the proposal. Inclusion of additional species is also expected.

EPA's exemption from tolerance requirements would allow for mass release of the beneficials into storage ecosystems. To date, the effectiveness of the beneficials in suppressing insect pests of grain has been determined only in simulated warehouses or in small bulks of grain. Currently, data are inadequate to recommend these beneficials for controlling insects in stored grain.

**PLANT GROWTH REGULATORS EXEMPT FROM TOLERANCES**—EPA on Nov. 14 exempted indole butyric acid (IBA) and gibberellins (GA3) from tolerance requirements in or on the following raw agricultural commodities: barley; beans; sugar beets; broccoli; brussels sprouts; cabbage; cauliflower; field, sweet, and pop corn; cotton; cucumbers; grape fruit; lemons; lettuce; melons; mustard greens; oats; onions; oranges; peanuts; peppers; potatoes; rice; rye; sorghum (milo); soybeans; spinach; squash; strawberries; sugarcane; tomatoes; turnips; and wheat. These growth regulators were also cleared for use at application rates of less than 20 grams of active ingredient (AI) per acre.

**CARBOFURAN LABEL AND MIGRATORY BIRD TREATY ACT**—James E. Weaver, Acting Regional Director, US Fish & Wildlife Service, Mass., indicated that the current carbofuran label violates the Migratory Bird Treaty Act. Under the Environmental Hazards part of the label, it is clearly indicated that carbofuran is toxic to birds, and other predators that feed on dead birds. The label recommends burying dead birds to prevent poisoning of other wildlife. Weaver said that burying dead birds would be construed as getting rid of the evidence, and makes investigations of bird kills less likely. He suggested that the label be changed to read, "... users are urged to immediately contact their state game department or the US Fish & Wildlife Service upon the finding of any birds killed by carbofuran." In the mean time, users of carbofuran upon finding dead birds are requested to contact their US Fish & Wildlife Service, and cooperate in any investigations aimed at determining the association between the use of carbofuran and bird kill.

**ADVERSE EFFECTS OF PET CARE PRODUCTS**—EPA reminded veterinary groups and 225 registrants of pet care products to comply with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 6 (a) (2) requirements for reporting adverse effects of products on pets within 30 days. Report on adverse effects must be sent to the following address:

EPA Product Manager  
FIFRA Section 6 (a) (2) Document Processing Desk  
Program Management & Support Division (H 75504C)  
US EPA  
401 M Street SW  
Washington, D.C. 20460

**VETERINARIANS EXEMPT FROM PESTICIDE LICENSING?**—Veterinarians have urged EPA to exempt them from pesticide training and certification requirements. One veterinarian of the Michigan-based Columbia Hospital for Animals said, "I know I am more qualified than the Orkin man to handle....chemicals." However, Purdue School of Veterinary Medicine supported EPA's proposal requiring vets to be certified to apply restricted-use chemicals.

**WARFARIN THERAPY CAN PREVENT STROKES**—Low doses of warfarin, an anticoagulant used as a rodenticide, can prevent strokes in people with nonrheumatic atrial fibrillation. This study was done by the Massachusetts General Hospital, and according to the

hospital sources, warfarin treatment could prevent the occurrence of 60,000 strokes per year in the US. This study also concluded that the benefits from using warfarin far outweigh the risks, such as bleeding in brain.

**NEMATODE-FIGHTING BACTERIA**—The University of Massachusetts Plant Pathologist, Bert Zuckerman, isolated a bacteria from Mexican soil samples that confuses nematodes in their search for food, inhibits their reproduction, and kills them. Pilot tests have shown that the bacteria is 75-80% effective in controlling nematodes attacking tomatoes and strawberries. Currently, additional tests are in progress in Mexico, Guatemala, Costa Rica, and Puerto Rico to determine the efficacy of the bacteria in controlling nematodes in the field.

**PESTICIDES PROHIBITED ON DNR LANDS IN MINNESOTA**—The Pesticide Review Committee of the Minnesota's Department of Natural Resources (DNR) has determined a list of pesticides to be prohibited from use on DNR-administered lands or in public waters.

**All uses prohibited**—Carbofuran (pelletized form); fonofos (pelletized form); phorate (pelletized form); lindane (used for controlling cone & seed insects); alachlor (herbicide commonly found in groundwater); and dichlobenil.

**Specific use prohibited**—Atrazine (common groundwater contaminant).

**FARM WORKER PROTECTION REGULATION**—EPA set April 1991 as the date for issuing a final regulation on farm worker protection.

**REGISTRANTS LIABLE FOR REFILLABLE CONTAINERS**—Proposed revisions to the pesticide storage and disposal regulations mandate the registrants for providing information on the proper cleanup of refillable pesticide containers prior to disposal. Proposed rules for the recall, storage, disposal, indemnification of suspended and cancelled pesticides will be published by EPA later this year.

**MSDS**—A study by the Occupational Safety and Health Administration (OSHA) on the accuracy of information contained in the Material Safety Data Sheets (MSDS) should be completed early in 1991.

**PERSISTENCE OF HERBICIDES**—Research hydrologists at an American Geophysical Union meeting in San Francisco, held during Dec. 5-6, reported that atrazine is more persistent in the subsurface than surface soils. There is no adsorption or degradation of atrazine at a depth of 11 meters, and degradation is slower in sterile soils. Herbi-

cides such as cyanazine, alachlor, and atrazine were found year-round in surface water samples from the Midwest, and some samples showed a 10-fold increase in concentrations following runoff events. Another study suggested that encapsulating herbicides would significantly reduce problems associated with runoff. For example, starch-encapsulated herbicides may decrease concentrations in the first flush by a factor of 20. A study by USGS researchers in St. Paul, MN revealed baseflow concentrations of atrazine of 0.05 parts per billion (ppb) in the Minnesota River Basin. Concentrations in snow and melted snow were 0.1-0.2 ppb. These findings suggested that atrazine is present in the environment year-round.

**ORGANIC FOOD STANDARDS**—The organic food standards and certification program established by the 1990 Farm Bill will not be set up until next year.

**INTERSTATE DISPOSAL OF HAZARDOUS WASTE**—Rep. Erdreich (D-Alabama) introduced a bill, HR 607, to amend Resource Conservation and Recovery Act (RCRA). This bill would grant states the authority to regulate interstate disposal of hazardous and solid waste. This law would allow states to prohibit the transportation of all waste originating from other states or particular types of hazardous waste.

**PESTICIDES IN GROUNDWATER**—The following 27 pesticides have been found in well samples in four or more states and/or have been detected in 25 or more locations based on a 1988 survey: 1,2-D; 2,4,5-T; 2,4-D; alachlor; aldicarb; aldrin; atrazine; bromocil; carbofuran; chlordane; cyanazine; DBC; DDT; dacthal; dicamba; dieldrin; dinoseb; EDB; endosulfan; heptachlor; lindane; metolachlor; metribuzin; PCP; picloram; simazine; and trifluralin.

**GROUNDWATER AND RESTRICTED USE-PESTICIDES**—EPA will shortly issue two options in the groundwater restricted-use criteria proposal. According to option 1, the criteria for selecting pesticides for restricted-use classification are based on the measured persistence and mobility of an ingredient of the pesticide product, or detection of the ingredient in groundwater at least three times in distinct locations. Option 2 criteria are based on the measured persistence and mobility of an ingredient; whether the ingredient is found in three or more counties at levels greater than 10% of the maximum contamination level (MCL), or if no MCL is established, above 10% of the lifetime health advisory level (HAL); and whether the ingredient is found in at least 25 different wells in four or more states. Under options 1 and 2, 24 and 10 pesticides, respectively, would be classified as restricted use. The

regulatory costs (costs of training, record keeping, and operating the training courses) associated with this new proposal are estimated to be between \$ 1.3 and \$ 13.42 million.

**CANCELLATION OF CARBOFURAN FORMULATIONS EXPECTED**—EPA is considering cancelling uses of flowable carbofuran, without special review of this insecticide. The granular and flowable regulatory decisions may be issued some time this spring. Flowable carbofuran has been implicated in bird kills, and this is the primary reason for considering cancellation. An Office of Pesticide Programs (OPP) paper also discussed revoking tolerances for granular carbofuran on bananas, rice, cranberries, and peanuts.

**FDA TO TEST GREEN COFFEE BEANS FOR RESIDUES**—The Food and Drug Administration (FDA) is sampling and analyzing coffee beans exported from 20 countries (to the US) for residues of pesticides. Pesticides of concern include: EBDCs, N-methyl carbamate, benomyl, thiophanate-methyl, and carbendazim. The sampling will be done in San Francisco. Three samples will be taken from green coffee beans from Ethiopia, Yemen, Uganda, Ecuador, Dominican Republic, Costa Rica, India, Indonesia, Honduras, Jamaica, Brazil, Guatemala, Panama, Kenya, Mexico, Philippines, Colombia, El Salvador, and Papua New Guinea. Samples will be collected between now and 30 September 1991, and analyzed by 15 October 1991. Samples with violative residues will be roasted and reanalyzed to determine if residues are lost during roasting.

**SENATE HEARING ON LAWCARE PESTICIDES**—The Senate Subcommittee on Toxic Substances, Environmental Oversight, Research and Development, Committee on Environment and Public Works, is planning an April hearing on garden and lawn pesticide issues. Sen. Reid (D-Nevada), chairman of the subcommittee, proposed a national notification system that would require sprayers to notify neighbors who are chemically sensitive to lawncare products. Members of Chemical Producers and Distributors Association (CPDA) said that the notification law would open lawncare businesses to liability, and harassment from environmental groups.

**HERBICIDES PACKAGED IN RECYCLED PLASTIC**—The Gemini and Lorox soybean herbicides (DuPont) will be packaged in plastic containers made of 25% recycled plastic and 75% virgin polyethylene at Va Diest Supply Co., Webster, Iowa.

**PROPOSED CERTIFICATION CHANGES**—EPA has proposed changing certain aspects of the applicator certification program. Proposed changes include meeting competency standards in newly developed subcategories, even though states do not adopt the subcategories. The subcategories are: 1) agricultural pests (animal & plant pests); 2) fumigation of soil and agricultural products; 3) chemigation (greenhouse & nursery); and 4) aerial application. According to the new changes, all private applicators can be tested over soil and agricultural products fumigation, chemigation, and aerial application.

EPA proposes to change the use definition to include mixing, loading, application, transportation, storage and handling after manufacturer's seal is broken; care and maintenance of application and handling equipment; and disposal of pesticides and their containers. This would require a person performing any of the jobs listed above to be certified or trained if the pesticide is a restricted-use chemical.

EPA also proposes a three-tier restricted-use category: 1) use by a certified applicator only; 2) use by a noncertified applicator but with a certified applicator within 5 minutes of the noncertified applicator; and 3) use by a noncertified applicator but under the supervision of a certified applicator.

EPA proposed establishing a new commercial category for disinfection of equipment and structures. This broad category includes sterilization of medical/veterinary equipment; food/beverage/drug processing equipment; disinfecting hospital and nursing homes; food processing areas; and plant and animal breeding areas.

There are several other proposed changes. If you would like information on these proposed changes, contact Wayne Dally [(612) 297-2746] for a copy of the EPA notice.

## 1991 RECERTIFICATION OPPORTUNITIES

**March 18 & 19**—Minnesota Structural Pest Control Operators' Conference. Medina Ballroom, Hamel, MN.

**March 19 & 20**—Shade Tree Short Course. Tree Inspector Certification & Pesticide Applicator Recertification (Categories I & E). Earle Brown Center, University of Minnesota, St. Paul, MN.

**March 22 & 23**—Beekeepers' Management Short Course. Room 495, Hodson Hall, University of Minnesota, St. Paul, MN.

Call Jacqueline Larson at (612) 624-3636 for information on these conferences.

—Bh. Subramanyam  
Assistant Extension Entomologist  
Pesticide Impact Assessment Program

## MISCELLANEOUS

### DIAL U

County Agents Please Alert Master Gardeners to the Following Items

**Pruning Trees and Shrubs**—We're getting lots of calls on pruning, now. This is the perfect time to prune fruit trees; their wounds will heal rapidly once new growth resumes in a few weeks. Hedges may also be pruned now...as long as you aren't concerned about whether they'll bloom this spring. (You can wait until they've finished blooming, if you prefer.) Shade trees may be pruned now, but they may ooze lots of sap from the wounds as weather warms. This should not harm them, however. Wait until you see new growth to prune evergreens; this is too early.

**Starting Seeds Indoors**—Many people start bedding plants indoors from seed. For success you must begin with clean containers, fresh sterilized (pasteurized, really) potting soil, good seeds, and plenty of light. Even a sunny windowsill will probably result in stretched, spindly plants. It's better to suspend a fixture with fluorescent lights, not necessarily the expensive plant lights, three to six inches above the sprouted seedlings. Keep the lights on for at least twelve hours daily, and raise them slowly as the plants grow taller.

**Time to Fertilize Houseplants**—Yes, it's time to resume fertilizing houseplants just coming out of the winter doldrums. Days are growing longer (thank heaven!) and the sun is growing brighter. The increased light has a positive impact on plants indoors; they start to grow more actively. And the time to feed them is when they are actively growing. It's still a good idea to mix fertilizer at 1/2 the normal label-recommended strength. You can always add more, but it's difficult, if not impossible, to undo the damage resulting from too much fertilizer.

**Carpenter ants**—Sightings of carpenter ants in homes have been common recently, due to warmer weather. Because it is still too cold for ants to be active outdoors, their activity indicates an indoor nest. If carpenter ants are only seen during warm, sunny days, the nest is probably located in an outside wall or attic. Locate the nest and apply an appropriate insecticide into it for the most effective, permanent control. Although detecting the nest can be difficult, watch for large numbers of carpenter ants, sawdust,

winged ants (queens and males), and evidence of water-damaged wood to aid in determining the nest's location. See AG-FS-1015, *Carpenter Ants*.

**Zoysia Grass Not for Minnesota**—Many people call Dial U after reading the glossy ads about zoysia grass. The ads claim wonderful results from zoysia, but it's far from wonderful when grown this far north. Zoysia is a "warm season" grass, which means it turns brown at the first nip of cool weather in autumn and is very slow to green up in spring. People who plant zoysia plugs usually call to find out how to get rid of the patches each plug creates in their lawn.

**Cytospora Canker**—Now is the time to inspect the lower branches of large spruce trees, especially blue spruce. Lower branches with discolored needles or none at all and copious amounts of bluish to white sap on the branches signal the presence of a disease called Cytospora canker. This fungal disease attacks the branches of weak trees (those on poor sites, overcrowded, damaged, etc.) starting with the lower branches and proceeding right up to the top. Control: First, improve the vigor of the tree by correcting conditions which stress the tree. Where this is not possible the tree will continually be susceptible to this disease. Next, remove and destroy infected branches **right now**.

This disease can be avoided by planting white spruce and Black Hills spruce which are much less susceptible, by allowing proper spacing in landscape designs and by planting trees on the sites where they grow best. In general, healthy trees have far fewer diseases.

**Oak pruning reminder**—Prune oak trees before April 15 to prevent the threat of oak wilt.

**Snow fleas** are not true fleas but unrelated insects known as springtails. They live in the soil and leaf litter, feeding on decaying plant material and fungi. Snow fleas normally hibernate during winter but warmer weather can waken them, causing them to move up through breaks in the snow and congregate in large numbers on top. Their dark color makes them conspicuous against the background of the snow. They are harmless and just a curiosity of late winter.

## DIAL U /Continued

**Indianmeal moths** continue to be common entomology calls. In most cases, these moths are seen in the kitchen, although in one case, Indianmeal moths were reported in the living room at night, attracted to the television. The caterpillars are sometimes reported on the ceiling or walls.

Exclusion is the best method of control. Check for the presence of insects in all dried food products, such as flour, cereals, pastas, spices, dried fruit, bird seed, pet food and similar items. Wrap and throw out heavily infested food. Save lightly infested food by cold treating it at 0°F for three to seven days. This food is not contaminated and can be eaten. Automatically cold treat unopened packages that have been in homes longer than two months. Store suscep-

tible, uninfested food in insect-proof containers with tight lids, such as glass jars and heavy plastic (e.g. Tupperware). Also remove crumbs that accumulate around cupboards, toasters, silverware drawers, spice drawers and other similar places.

Insecticides are unnecessary and discouraged. Most insects are protected from insecticides because they are inside food packages. Insecticides do not prevent insects from infesting unprotected food. The most effective control in the long run is to properly protect susceptible food. See AG-FS-1000 *Pantry Pests*.

*Jeffrey Hahn*  
*Entomology*

*Deborah Brown*  
*Horticulture*

*Cynthia Ash*  
*Plant Pathology*

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