



School IPM Program Honored by Iowa Governor

by Shelly Peterson, Civil/Environmental Engineer, and Doug Woodley, Operations Supervisor, West Des Moines Community School District

Iowa Governor Tom Vilsack presented a 2003 Iowa Environmental Excellence Award and a Special Recognition in Waste Management to West Des Moines Community School District (WDMCSD) on February 16, 2004. Given annually, these awards recognize leadership and innovation in managing Iowa's natural resources.

WDMCSD includes more than 8,675 students and 1,200 staff and encompasses 36.6 square miles in Polk and Dallas counties. In addition to regular school activities, the 18 buildings operated by the district host church organizations, scout groups, before and after school care programs, community education courses/events, and recreational sports.

The proactive environmental management program by WDMCSD demonstrates that schools can integrate environmental concerns into daily operations and realize significant economic, health, and safety benefits. During the 2000-2001 school year, staff from operations and teaching combined efforts to identify several opportunities for environmental improvement. These were then prioritized and several projects initiated as a result.

One of the programs adopted for WDMCSD was Integrated Pest Management (IPM) services for the entire district. Traditional pest control used routine pesticide spraying, such as monthly baseboard treatment, without regard to the number or type of

pests present. The new IPM program focuses instead on preventive measures, such as eliminating pest entry, food sources, and harborage, as well as trapping or vacuuming. In WDMCSD pesticides are used as a last course of action, with specific criteria for the type, formulation, and placement of these controls.

Iowa does not currently require IPM; however, Iowa State University Extension (ISUE) has initiated a School IPM program, headed by Mark Shour, to help schools develop IPM programs. With his assistance, WDMCSD became the first in the state to prepare formal bid and contract documents to procure an IPM contractor. In addition, a series of four informational



West Des Moines Community School District receiving Governor's Iowa Environmental Excellence Award. Left to right: Jim Aipperspach, John Ambrosion, Doug Woodley, Shelly Peterson, Gov. Tom Vilsack, and Galen Howsare.

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brochures on IPM has been developed and printed. These documents, and the developing IPM program, serve as a model for other schools participating in the ISUE program.

Other environmental management programs adopted by WDMCSD include:

- Through the “Rehab the Lab” program, “sweeps” were conducted to remove potentially hazardous materials from custodial supply closets, chemistry storage rooms, science facilities, and art rooms.
- Green building concepts are being followed in the design and construction of a new elementary school.
- Resource Management (RM) focuses on providing incentives for the solid waste contractor to work with the District to reduce the quantity and/or toxicity of wastes generated. This is the first RM implementation by a school system in the United States.
- Landfill diversion of bulk goods has been accomplished through a regular series of warehouse sales and an internal Internet material exchange program known as WDMBay.
- Recycling programs are currently in place for paper, cardboard, shrink wrap, ink-jet cartridges, pallets, plastic bottles, pop cans, textbooks, and electronic equipment.

The IPM and RM projects have proven that service contractors in Iowa are capable of providing sustainable operating practices when given the opportunity to break away from traditional methodologies. The contractors, as experts in their

fields, have become part of a management team with incentive for the program to be successful.

The success of the IPM and RM projects was evident when bids indicated that sustainable waste management and pest management services could be retained at contract costs comparable, or less than, standard practices.

- With the introduction of the RM program, solid waste hauling services were cut by about 45 percent, with many recycled commodities becoming a revenue source.
- Prior to implementing IPM, standard pest control services resulted in the annual application of more than 2,000 gallons of pesticide. While it is too early in the program to have quantifiable results, a reduction of greater than 50 percent is anticipated based on the success of IPM in other states. The total chemical cost savings is not directly realized, but is redirected to technical consulting services provided by the contractor. Through the elimination of pest entry into school facilities, there will be an indirect savings in reduced heating and cooling costs, labor savings in cleaning costs, and reduced property and structural damage.

The cost of programs to improve the health and safety of the school grounds is more than offset through reductions in staff sick days and worker compensation claims; reduced compliance costs, including avoidance of violations and fees; reduced insurance and liability; and improved student performance.

Interior Pests: Mealybugs

by Mark Shour, Extension Entomologist, Iowa State University

Houseplants – wonderful, living, green additions to a classroom or office that soften harsh interior edges, provide oxygen to the environment, and remind us of spring activity during the cold days of winter.

Unfortunately, it is possible that some houseplant leaves have curled or developed yellow or white speckles, flowers may be drooping early, stems have died, or a sticky, shiny covering is seen on many plants and nearby furniture and floors. These telltale symptoms are the result of feeding by small and uninvited arthropod pests. Aphids, cyclamen mites, spider mites, scales, thrips, and whiteflies are commonly found on indoor plants and can produce significant damage to them. There is yet another houseplant pest worthy of discussion: mealybugs.

Mealybugs are small (1 to 4 mm long), flattened, oval insects appearing as miniature

sowbugs. They are covered with white, powdery wax that resembles finely ground meal, thus the origin of their name. Many species are ornamented with filaments of wax around the margin and posterior end of their body. Mealybugs are related to scales, aphids, and whiteflies.

Although there are more than 275 species of mealybugs in the continental United States, two main species commonly are found on houseplants.

- The citrus mealybug, *Planococcus citri*, will feed on every flowering species grown in the greenhouse. Adult female citrus mealybugs produce 300 to 600 eggs, which are deposited in a white, fluffy case called an ovisac. These ovisacs are commonly seen under leaves and along the stems of houseplants.
- The longtailed mealybug, *Pseudococcus longispinus*, also has a wide host plant range. Its name is derived from the long (3 to 4 mm) waxy filaments extending from the rear of adult females. Fewer eggs (about



A type of mealybug, Pseudococcus calceolariae. When disturbed, these mealybugs secrete a red liquid as a means of defense. Photo by Q. Holdman, USDA-ARS.

200) are produced by adult females, but this species produces live young and no ovisacs are present.

Mealybugs have needle-like sucking mouthparts. Feeding activity can cause a yellowing of host leaves, distorted growth, premature leaf drop, and, with heavy populations, plant death. Mealybugs also produce large amounts of a sweet, sticky liquid waste product called honeydew. A black fungus called sooty mold may grow on the honeydew.

Four to six broods of mealybugs can be produced each year indoors. Most stages of the mealybug life cycle are mobile. These insects crawl from one feeding surface to another or from one plant to another, especially when leaves or branches overlap.

This pest is usually brought into your office or classroom on an infested plant. Therefore, one of the

best ways to manage mealybugs on houseplants is to carefully check plants being considered for purchase and reject any infested plants. Quarantine new plants for 7 to 10 days in an isolated spot and check for symptoms of mealybugs or other pests before placing the plants in a more permanent location in your room.

Other suggestions for controlling mealybugs include the following:

- Dabbing each insect with an alcohol-soaked cotton swab
- Gently rubbing the insects from leaves or stems
- Placing the plant in a deep sink and knocking them off with a brisk water spray
- Carefully washing plants with soapy water; one tablespoon of liquid dish detergent in one quart of water is a good ratio to use.
- Spraying houseplants with a registered insecticide should be considered only if the other methods are not effective and you want to keep the plant. Check with your IPM Coordinator to devise a plan to control this insect, using the least toxic product and in a location where no one else will be exposed to the treatment. Waiting until warm weather arrives and treating the plant outside should be an element in this plan. Use of a granular soil-applied systemic insecticide is not recommended because of residual toxicity concerns.

When an indoor plant is heavily infested with mealybugs and your control efforts have not been successful, discarding the plant and purchasing an insect-free plant should be considered before the pests spread to other houseplants.

Exterior Pests: Snow Molds

by Paula Flynn, ISU Extension Plant Pathologist

Most of the organisms that cause problems on outdoor plants take a break during the winter. Unfortunately for lawns, a group of nonconforming fungi exist—the snow mold fungi. The term “snow mold” might bring up interesting images of a fuzzy green growth creeping across snow banks. But snow molds actually are quite discreet, making themselves known only when the snow begins to melt.

Although snow mold fungi can infect several different types of plants, the most troublesome attack turfgrass. Because snow molds prefer to work under a protective blanket of snow, problems commonly occur in years with prolonged snow cover. Snow molds may get an early start when a wet, deep snow falls on unfrozen ground.

In Iowa, two different types of snow mold diseases may develop, pink snow mold and gray snow mold. As you might speculate, these common names describe the damage they cause. When wet, the bleached patches of grass caused by the pink snow mold fungus may show a light pink fluffy growth, especially at the outer edge of the patch. Patches caused by the gray snow mold fungus tend to be covered by whitish gray strands of fungus that glue the grass blades together.

Both snow mold groups have similar features. As the snow melts, circular bleached patches a few inches to a foot in diameter become obvious. These patches sometimes overlap and cause large irregular areas of browning. On occasion, both types of snow mold may occur together.

**Integrated Pest Management
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Our lawns are a tempting food source for snow mold fungi because they often are kept in a lush growing condition until snowfall arrives. Without time to properly prepare for winter conditions, grass plants may be in a vulnerable state and less able to defend against fungal attack. Injury can be made worse by activities that compact the snow, such as sledding, skiing, or snowmobiling.

If a snow mold problem appears on the school lawn this spring, several cultural practices can help manage the disease. Injury usually can be repaired by raking the affected areas and by lightly fertilizing to encourage new growth. An excessive layer of thatch (more than 1/2 inch of dead plant material found between the soil and the leaf blades) should be controlled because it provides a nice place for the fungus to hide during the hot summer months. Also improve drainage if necessary, because areas that stay wet can provide favorable conditions for a number of disease organisms.

To prevent snow mold damage from reoccurring, avoid late fall applications of quick-



release nitrogen fertilizers, since lush growth late in the fall is more susceptible to attack. Keeping the grass mowed until growth has stopped in the fall also will help prevent lush growth going into winter. Snow fences can be used to prevent drifting in key lawn areas. Fungicides labeled for snow molds are an option for high-value areas or areas where snow mold is a problem year after year. If the IPM coordinator approves this management tool, these products are applied in the fall, before snow cover.

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