

larvae tunneling and girdling the inner bark of the tree, is usually the first symptom. Raised ridges in the bark due to the girdling and D-shaped exit holes may be visible to indicate bronze birch borer activity.

Bronze birch borers only survive in weakened or stressed birch. Birch, native to the northern forests of Minnesota, enjoy cool, shaded conditions. However, when planted in the urban environment, birch often are placed in the open with little or no ground cover to protect their shallow roots. As a result, the birch becomes weakened and loses vigor. Water once a week if there is not sufficient rainfall. Add a layer of mulch around the tree under the canopy to reduce moisture loss and help keep the soil temperature cool. Older trees on poor soil should be fertilized in the spring every two to three years.

Small branches that have died should be pruned in August, cutting the limb two feet beyond the point of damage to ensure all bronze birch borer larvae are taken out. August is the best time to do this because the adults are not laying eggs and the wound heals better during reduced sap flow at that time. If the damage is in a large limb or trunk, the tree is probably too far gone to be helped.

There is no effective insecticidal control this late in the season. Professional applicators could have applied ben-

diocarb (Turcam) starting the end of May. These applications will not protect the birch if it remains unhealthy.

## U of M GROUP ADDRESSES PUBLIC CONCERN ON PESTICIDES

Too much of almost anything -- table salt, aspirin, water, vitamin D -- can be harmful to humans.

But recent public alarm over pesticide residues in the food supply and what this could be doing to the health of children and adults has more than 20 people involved at the University of Minnesota. They are taking time from other duties to collect information and ponder all sides of the residue problem. Their group is informally called: Pesticide Education: Residue vs. Risk.

Jim Cink, Assistant Entomologist with the Minnesota Extension Service, is coordinating these efforts. Cink's group is putting together three brief publications to explain dosages and chemicals to a public that Cink says is "chemically illiterate." The publications will cover pesticides and their toxicity, establishing food tolerances and pesticide risk perception. Cink emphasizes, "The group's pesticide education project is not out to promote or con-

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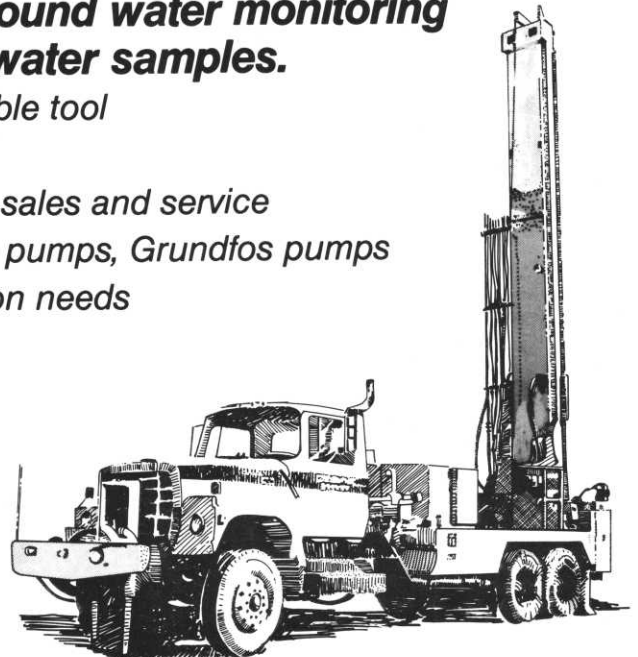
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demn the use of any pesticide product."

While the campus participants include representatives from agronomy, entomology, food science and nutrition, home economics, horticulture and plant pathology, there is input from agencies such as the Environmental Protection Agency (EPA), Minnesota Department of Agriculture, Food and Drug Administration (FDA), Hennepin County Poison Control Center and National Agricultural Chemical Association among others.

"Any chemicals can be labeled a pesticide if it is used to control or destroy a pest problem," Cink says. He mentions boric acid, used in a variety of products, as an example. "It can be a disinfectant in eye washes, a flame retardant in clothing and an insecticide to kill cockroaches." Table salt has been used by farmers and ranchers in the southwest to kill cactus. Beer is sometimes used to control garden slugs.

However, not all the chemicals used in food production actually kill pests. Growth regulators, such as daminozide (Alar), are an example. These chemicals control how insect or plants develop or allow timed harvesting so that the crop matures simultaneously and labor and transportation costs can be dealt with efficiently. Cink calls this "a chemical being used as a management tool."

The FDA and EPA are quiet on their testing, but they are constantly on the alert to problems, Cink says. Something he believes the public should know about is the Tolerance Assessment System (referred to as TAS), which the EPA began in 1987. It is a computerized database program in which chemical residues in food and their set tolerances take into account ethnic backgrounds, age groups and dietary habits to assure that no group is exposed to unacceptable risk levels--currently, greater than 1 in a million.

In agriculture, Cink notes that recommended application rates in some chemical families are being reduced. Some older pesticides that used to call for a gallon or a pint to treat an acre of small grain are being replaced with chemicals applied at a rate of 1/16 ounce per acre.

A third of the United States' agricultural production is lost each year to insects, weeds, flood or drought. Today's philosophy seems to be toward integrated pest management, managing the crop to avoid the use of chemicals when possible.

All new pesticides are tested to establish the kind of toxicity and dosage which would produce a toxic reaction. The burden of proof for safety is placed on the manufacturer of the pesticide, Cink says. Toxicity tests are based on two premises: that toxicity in laboratory

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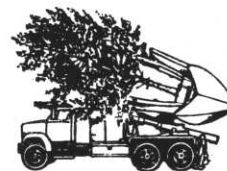


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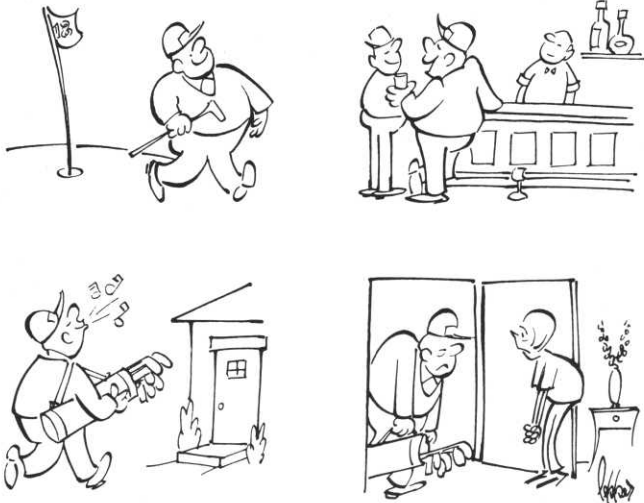
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animals can be used to predict toxicity in humans, and that administering large doses of a chemical to animals for a short time can predict human toxicity for exposure of small doses over a long time span. Equating mice or rat tumors reported in lab trials to the human response is difficult, he points out.

Cink quotes the "Journal of the American Medical Association" as saying that to date only two pesticides have been proven to be human carcinogens (cancer-causing substances): vinyl chloride and arsenic.



## GCSAA DONATES \$25,000 FOR TURFGRASS RESEARCH

The Golf Course Superintendents Association of America recently contributed \$25,000 to the USGA/GCSAA Turfgrass Research Committee to support ongoing scientific work on new turfgrass varieties that would require less water and be more disease resistant. GCSAA President Dennis D. Lyon, CGCS, made the presentation June 14 at the annual USGA/Golf Writers Association of American banquet during the U.S. Open in Rochester, N.Y.

More than \$2.8 million has been distributed by the committee since 1983, according to William H. Bengeyfield national director of the USGA Green Section. The Committee currently supports 25 research project, he said.

"We do thank GCSAA for the research funding they provide, and we also appreciate the time people like (GCSAA Vice President) Jerry Faubel, Dennis Lyon and (GCSAA Executive Director) John Schilling contribute to the committee." Bengeyfield said. "And \$25,000 is absolutely fantastic."

Lyon said: "GCSAA sincerely supports the USGA turfgrass research project. We look forward to working together with the USGA on other projects in the future."

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