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Glyphosate, Paraquat Effects On Seed Germination Studied

Effects of glyphosate and paraquat on turfgrass seed germination were evaluated recently in research conducted at Beltsville, Md., Agricultural Research Center carried out by Dayton L. Klingman and J. J. Murray.

Tests showed that glyphosate caused little effect on germination of Kentucky bluegrass, red fescue and tall fescue when applied directly over the seed on the soil surface.

Paraquat sprayed directly over the seed on the soil surface prevented germination of most of the seeds on the three grass species. Covering seeds on the soil surface with clippings from grass turf sprayed with paraquat greatly reduced germination. About half of those that germinated either died later or were severely chlorotic, it was reported in *Weed Science*. Covering seeds on the surface of the soil with clippings from turf that had been sprayed with glyphosate did not significantly reduce the number of seedlings established.

Artificial Turf Makes Gains In Expanding Sales Market

"Plastic grass," artificial turf, may take its lumps from NFL owners, football players and stadium owners but it is finding plenty of running room in other markets.

The turf manufacturers are shifting the market from football stadium into other sales areas and finding it greener there. American Biltrete now sells a covering for tennis courts, gymnasiums and in other indoor and outdoor uses while Monsanto Co.'s Astroturf is enjoying a new market in automobile floors and thresholds, patios, pool decks, putting greens and grave coverings. Highway medians and landscaping are the recent domains of 3M's Tartan product. Its Tartan Turf rated highest for safety trials on football fields it covers.

Although players complain of skin burns, injuries and poor performances caused by artificial turf, and have had some bad experiences as in the case of Miami, Fla., which threw out $250,000 worth of two year old, treacherous, slippery, and fading turf, the future isn't closed. Since natural grass can't withstand punishment by play, research will likely try to develop a safe and easy playing material.

Trees Provide Varied Uses As Insulatory Energy Savers

The use of trees as shade devices extends for centuries but now a Cleveland, Ohio contractor is suggesting their use as insulatory and energy saving helps for the home.

As part of his check list to cut energy needs for heating homes he builds as much as 45 percent, Robert F. Schmitt suggests planting evergreen material on the building's north side with extensive use of deciduous trees to the south. This is beneficial, he says, since the evergreens help shield out the winter wind and chill as the deciduous trees allow direct sunshine. In summer, the deciduous provide shade for the house so less air conditioning is needed.

Gypsy Moths Controlled With New Market Chemical

Thompson-Howard Chemical Company has introduced a new chemical product, Dimilin chitin inhibitor, for control of gypsy moths.

When applied by air at low levels, the chemical reported nearly 100 percent control, based upon larval kill and egg mass counts. It kills the pests within two or three days when they reach a new molt and continues control for two years by preventing egg masses from being deposited.

The chemical has EPA granting registration, causes very low incidence of environmental effects and breaks down in soil with 50 percent degradation in several days.

Supers Get News Update On Hyperodes Weevil

Golf managers can arm themselves with new knowledge about the hyperodes weevil, according to the Metropolitan Golf Course Superintendents Association.

Dr. H. Tashino, Cornell University, addressed an audience of the MGCSA concerning his research of the weevil since 1972.

Dr. Tashino's research in the weevil's life cycle points to to their overwintering as mature adults in the bases of fescue tufts. They generally spend this time beneath trees or other protected areas. With the advent of warm weather, the adults travel into areas infested with *Poa Annua* and feed eat the leaves. At this time, damage is not very serious.

During April and May, the insects leave their eggs on leaf sheaths and the larva devour stem tissue following their five stage metamorphosis. After eating the stem tissue, the pests eat the crown at the plant's base causing greater, more visible damage. The larva then progress into a pupa and adult. They are visible at night in the beams of a flashlight.

Dr. Tashino is now studying the life span of the Hyperodes to see if they have more than one generation and more than one species. He is also studying the activity of the weevil in comparison with the flowering period of dogwood and other common plants.

Seven Washington Area Firms Get Landscape Awards

The Landscape Contractors of Metropolitan Washington recently announced their 1976 Environ-

mental Landscape Awards Program awards winners. Seven Washington area firms were honored.

The entries were judged in residential, commercial or industrial, and institutional or municipal categories based upon quality of design, workmanship, materials and maintenance on site visitation.

The grand prize for institutional or municipal landscaping went to Holland Gardens Nursery and Landscape, Inc., Beltsville, Maryland, for its installation for LaFayette Park, known as the Presidents' Park.

Chapel Valley Nursery Company, Woodbine, Maryland, received the grand award for commercial or industrial landscaping for its installation of the Christ Church Harbor Plaza Complex. The project was designed by Hisaka and Associates/Behnke Associates.

The grand award for residential landscaping went to Ten Oaks Nursery, Clarksville, Maryland, for the installing of Land Design/Research, Inc.'s design of the Dr. Brenner home in Clarksville.

Merits awards winners were: Gustin Gardens, Inc., Gaithersburg, Maryland, for the Raymond Ruf residence; Garden Gate Landscaping, Silver Spring, Maryland, for the Calomiris residence; Stadler Nursery, Laytonsville, Maryland, for the Alfandre residence; and Holland Gardens Nursery and Landscape, Inc., Beltsville, Maryland, for the library of the Zoology Complex at the University of Maryland.

Program judges were: Tevy Shalafman, President, Potomac Chapter of the American Society of Landscape Architects; Richard Brillantine, landscape architect, District of Columbia Office of Beautification; Carl Hahn, horticulturalist, Maryland National Park and Planning Commission; and Ted Human, landscape architect.

U.S. Grant Promotes Study Of Ohio Mining, Hydrology

The U.S. Bureau of Mines has approved a $2.35 million grant to the Research Center, the USDA's Agricultural Research Service, and the U.S. Geological Survey to conduct five years' studies on the effects of coal strip mining on hydrology and quality of surface and ground water in Ohio.

The research is expected to expand the Ohio Agricultural Research and Development Center's strip mine reclamation research work.

The U.S. Soil Conservation Service, Muskingum Watershed Conservancy District and three privately owned mining companies are also involved.

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Natural Enemies Studied As Alternative Pest Control

Instead of resorting solely to pesticides to control insect pests, science is now developing means of control through the predatory and parasite relationship of natural pest enemies.

Dr. Frank Gilstrap, a scientist with the Department of Entomology at Texas A & M University, now controls populations of spider mites, tiny red insects which destroy houseplants, by introducing Phytoseiulus persimilus, a beneficial mite species, the spider mite's natural enemy. The predator mites eat all the spider mites and starve after their task is through. They may be brought back again if spider mites return.

Such processes are also used in controlling pests which form galls on ornamental plants and trees. Gordon W. Frankie, also with the Department of Entomology, uses beneficial wasps to feast upon the small wasps, flies, caterpillars or beetles that lay their eggs or feed on plant tissue, forming galls. The galls are not harmful to plant tissue but are considered unsightly. Scientists theorize that secretions of chemicals from the insect's body create abnormal growth when they react to the plants' chemicals.

EPA Gives Daconil Approval; Rate Reduction Underway

EPA has given approval for a rate reduction for Diamond Shamrock's Daconil 2787 Flowable Fungicide.

The company has changed rates from six to eight ounces per 1,000 sq. ft. to four to eight ounces per 1,000 sq. ft. Other curative rates will stay the same.

Daconil is used on golf course and ornamental turf grass. It is used to treat dollar spot, helminthosporium leaf spot and melting out.

USDA Develops Polymer Used Against Weeds, Insects

The USDA has developed a new film-forming polymer for creating barriers against weeds or insects.

Made of sewage sludge, methyl

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alcohol and a starch compound, the pesticide-polymer dries to an invisible film after being applied as a spray on soil or plants. A polymer is a compound created by combining small molecules or units to form large molecules.

According to William B. Roth, Agricultural Research Service (ARS) scientist, the polymer film won't dissolve in water. It keeps the pesticide in a barrier that will destroy emerging weeds or attacking insects and minimizes environmental pollution by reducing pesticide runoff and evaporation. After the pesticide is exhausted, the film decomposes into natural soil components.

The new polymer also increases the effectiveness of a commercial herbicide and needs a low rate of herbicide application to stop grass weed growth. It was as successful as greater applications and amounts of herbicide without the polymer. With the polymer, the herbicide didn't require mixing with soil to prevent evaporation. Instead, the herbicide-polymer was sprayed on the soil surface and dried as a weed-emergence barrier.

Roth developed the polymer from a viscous product which was found by Edwin N. Davis, a microbiologist, and Lowell L. Wallen, a chemist, at the Northern Center. Their studies revealed the bacteria in activated sludge form a thick, black product when methyl alcohol is mixed and aerated with the sludge.

In other actions, Roth adds the pesticide to the sludge-alcohol and combines it with dialdehyde starch as a cross-linking agent. The starch compound was another Northern Center discovery and is marketed as a paper strengthening agent.

The pesticide-containing polymer may be added to water for spraying on soils or plants so it dries to the film barrier. These could be dried as films or sheets in the manufacturing plant and used in solid forms.

This is the second pesticide-control development from the USDA ARS Northern Regional Research Center since encapsulating chemicals with starch xanthate were announced in May.

Roth is now preparing studies to form delayed reaction and on-target pellets for the polymer.

350,000 Acres of Timber Affected by Pitch Canker

Forest experts are still baffled by the outbreak of pitch canker disease in Volusia and Flagler counties in Florida and the southeast.

The disease affects shade and ornamental pine in addition to forest pine.

According to the latest esti-

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mates, some 350,000 acres of slash pine in these two counties are affected by the destructive disease, representing a potential timber growth loss of nearly $2 million. Less severe pitch canker infections are showing up in other areas of Florida and the southeast.

A *fusarium* fungus is the prime suspect in causing the disease, but no one is certain how it is spread and there are no known controls available at present, according to a University of Florida forest pathologist.

First observed in 1945, the disease has occurred periodically over the years, seemingly at random. During the last serious outbreak in 1969, many trees were infected, but few died. Many trees actually recovered. The present rate of spread, however, has been particularly alarming, says Dr. Robert A. Schmidt, associate professor with the Institute of Food and Agricultural Sciences (IFAS) at the UF.

"We are presently experiencing a high incidence of pitch canker in slash pine plantations and seed orchards. Entire crops are involved and tree mortality is very high in some areas. Heretofore, only a few terminal branches were attacked and tree mortality was not severe," he explains.

Environmental Plant List, Index, Offered by Society

The American Horticulture Society has published a series of valuable publications relating to plants and its own history in horticulture studies.

The educational Horticultural Committee of the Society recently printed "Environmentally Tolerant Trees, Shrubs and Ground Covers," a 30-page listing of environmentally tolerant plants for all 10 U.S. hardiness zones. It is of special interest to public planting agencies dealing with high pollution levels and such other factors as human and animal traffic, financial restrictions, growing conditions and maintenance.

An index of 50 years of the National Horticulture Magazine, Vols. 1-38, 1922-1959, and American Horticultural Magazine, Vols. 39-50, 1960-1971, is now available.

The reference tool is 109 pages long and is a complete grouping of all issues. It was produced by Dr. Richard A. Howard, Director, Arnold Arboretum, and the American Horticultural Society Cumulative Index Committee.

"Environmentally Tolerant Trees, Shrubs and Ground Covers" costs $2.95 post paid from the American Horticultural Society, Mount Vernon, Virginia, 22121 and the index is $10 a copy from Cumulative Index Committee, c/o The American Horticultural Society, Mount Vernon, Virginia 22121.