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GOVERNMENT

UPDATE

EPA officials to see arborists work

A special demonstration, arranged by the National Arborist Association for EPA enforcement officials, will take place in Rockville, Md., on June 7. NAA Executive Secretary Bob Felix said other industries have performed such demonstrations to eliminate any misunderstandings about the application of potentially toxic materials by professionals.

Environmentalists focus on cities

Barbara Blum, deputy administrator of EPA, has challenged the environmental movement to focus on the nation's cities. Speaking to the Sierra Club in Berkeley, Ca., in May, Blum said, "It is the urban environment and urban people who are our most endangered species." Blum recommended the creation of 100,000 new environmentally-related jobs to work on sewage, air pollution, and other city projects. What effect this could have on city landscaping projects and minority business project awards is yet undetermined.

Labor act now up to Senate

Debate on the labor reform act began in the Senate in mid-May, and its effect on the industry at that time was mixed; the bill retained an exemption for agricultural employers, meaning that employees of plant growers, such as those who work growing trees and shrubs, are not allowed to join a union. The negative effect, however, was a fear that other businessmen, such as landscapers, would be much more vulnerable to union-organizing efforts if the bill passes.

Senators opposing the bill were attempting to filibuster and prevent a floor vote when debate began. The bill has passed the House of Representatives, 257-163.

The major concern of industry officials is that, if the bill passes, employers with just a few employees will be the targets of organized labor.

"They (organized labor) are interested in organizing the 'Mom and Pop' shops," said Bob Lederer, executive vice president for the American Association of Nurserymen. Lederer backs up his contention by saying that more than 2,000 union elections in 1976 involved firms with less than 10 employees.

The proposed revisions in the law require employers to hold union elections 15 days after the employees ask for it. Currently, there is no time limit. If the employer fails, the National Labor Relations Board would hold the election.

The proposals call for back pay if a worker is punished for union activities and penalties for employers who violate the orders of the court or labor relations board.

Two maybes, one yes against 2,4-D

EPA officials have indicated that there is little doubt that fetotoxicity is a valid trigger for a RPAR against 2,4-D. Teratogenicity and carcinogenicity are "definite maybes". Conflicting reviews of a study, "Chronic Toxicity of 2,4-D in Rats and Dogs", leave some doubt as to carcinogenicity. The EPA's Carcinogen Assessment Group (CAG) has not reviewed the study, but a consultant has and indicates some positive evidence. The National Cancer Institute found the study did not present convincing evidence.

Roy Beattie, public relations director for Jacobsen, said the impending sale would not effect golf car or other turf equipment sales and service.

TURF

Still no pact on seed burning

No decision has yet been announced on the amount of land that grass seed growers in Oregon will be allowed to burn this year for their 1979 crop.

The U.S. Environmental Protection Agency's regional office in Seattle is trying to determine if the growers can use up to 180,000 acres, the amount they have used in previous years. Environmental groups have opposed that figure, saying particulates from the burning fields create health hazards in Eugene and Springfield and violate the federal government's Clean Air Act.

Dave Nelson, executive secretary for the Oregon Seed Council, has predicted that the quality and quantity of seed for next year will decrease if strict limits are imposed. He has said, however, that the council will take their battle to court if the EPA's decision does not meet their needs.

LAWN CARE

Manufacturers invited to Chicago by group

More than 2,000 lawn and garden manufacturers have been invited to an introductory meeting of the newly-formed Lawn and Garden Manufacturers Association on June 19 and 20 at the Hyatt Regency O'Hare Hotel in Chicago.

A director's reception will be held at 6:30 p.m. June 19. The following day, speakers will give an industry perspective of the association, hear a trade press representative, and talk about the definition and scope of the industry. A three-year plan to develop the association and other long-range goals will be discussed by Sanford J. Hill, the association's executive director.

Some charter members of the new group are Nursery Specialty Products, Seaboard Seed Co., Heston Manufacturing, Melnor Industries and Plant Marvel.

Association headquarters is at 111 E. Wacker Dr., Chicago, Ill. 60601. The phone number is 312/644-6610.

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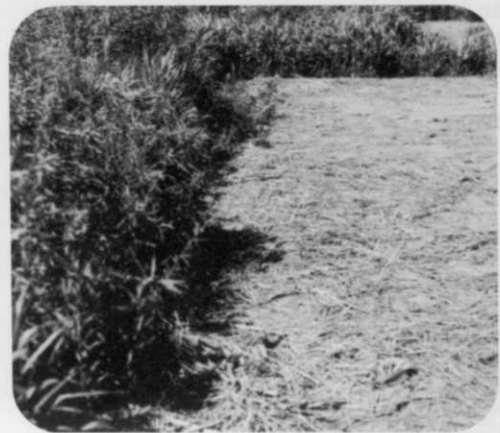
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PEOPLE

Thomas C. Atkins was presented the Pennsylvania Nurserymen's Association Nurseryman of the Year Award for 1977 at the PNA Annual Banquet held in conjunction with the 1978 Pennsylvania Nurserymen's and Allied Industry Conference at Pennsylvania State University. The award is presented to the individual who has, through his accomplishments, achieved great strides in advancing the nursery industry in Pennsylvania.

Atkins is currently president of Erb Brothers, a wholesale nursery and landscape firm in Lancaster. He is also serving as chairman of the PNA Research Fund and was co-chairman of the aforementioned conference. He is a registered landscape architect.

Wayne J. Watkins has been appointed sales representative for Rancho Verde Turf Farms. Watkins attended California State Polytechnic University where he studied ornamental horticulture with emphasis on turfgrass management. He also was the recipient of the Southern California Golf Course Superintendent Scholarship for 1977.

David J. Hayes has joined the staff of Great Western Seed Company at their headquarters in Albany, Oregon. Hayes' new capacity will include production, marketing, and new product development, with special emphasis on expanding the company's existing position in the forage seed markets. He had been working as an agronomic consultant throughout the Willamette Valley. Great Western Seed is a wholly-owned subsidiary of Lofts Pedigreed Seed Company of Boundbrook, New Jersey.

William D. Ruckelshaus is the featured speaker at the opening of the Pacific Horticultural Trade Show scheduled for the Anaheim Convention Center in California, September 20-22. Ruckelshaus has served as Federal Administrator of EPA, acting director of the FBI, and deputy attorney general of the United States. He is currently senior vice president of the Weyerhaeuser Company based in Seattle.

Cuyahoga County presiding probate judge Francis J. Talty has announced the appointment of **Eleanore B. Kapel** to the Cleveland (Ohio) Metroparks System Board of Park Commissioners. Kapel, the



David J. Hayes



Eleanore B. Kapel



Robby D. Layton



William D. Ruckelshaus

wife of northeastern Ohio builder and developer Milan S. Kapel, is actively engaged in the management and operation of Kapel Management which has its headquarters in suburban Euclid, Ohio. She serves as an elected officer and director of several Kapel corporations in Ohio that are involved in real estate, recreation and lodging.

"The appointment of Eleanore B. Kapel to the Metropolitan Park Board is the most recent extension of a long line of services to worthy private and public causes that have characterized her and her family," Judge Talty said in announcing Mrs. Kapel's appointment.

Among the enterprises of Milan S. Kapel is the Berkshire Hills Country Club in Chesterland, Ohio. Because of this personal involvement and activity in golfing, tennis, horseback riding and other outdoor recreation, Mrs. Kapel's prime interest, no doubt, will be the operation and improvement of the Metropark system's six championship and excellent golf courses, plus the nearly 20,000 acres of prime recreational facilities provided by the Parks system in a wide, three-county area.

The Weather-matic Division of Telsco Industries has awarded their annual scholarship to **Robby D. Layton**. The \$500 stipend is awarded annually to a park administration major at Texas Tech's School of Horticulture. Layton was chosen because of his excellent scholastic record. He is also active in the student chapter of the American Society of Landscape Architects and has worked summers with park departments in Austin, Texas and Boulder, Colorado.

Deputy Administrator **Karl S. Bowers** has been named acting administrator of the Federal Highway Administration. He took over the new post following the May 1 resignation of Administrator William M. Cox, who is returning to his home state of Kentucky.

A native of Estill, S.C., Bowers joined the Federal Highway Administration as deputy administrator a year ago after having served three years as the first chairman emeritus (1976) and state highway commissioner with the South Carolina State Highway and Public Transportation Commission. He is a captain in the Air National Guard, and a former judge of Magistrate's Court of Hampton County, S.C.



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MANAGING AQUATIC PLANTS IN SMALL LAKES AND PONDS

Small lakes and ponds make attractive additions to parks, golf courses, commercial landscapes, and private estates. However, it is the role of nature to fill in a body of water with time. Proper maintenance and construction can slow down the process.

Natural lakes through siltation become shallower and thus better growing sites for aquatic weeds. Fertilization of watershed areas for whatever reason encourages growth of vegetation in lakes and ponds. Seepage from sewage treatment systems serves to feed aquatic vegetation. Or perhaps, man has simply entered an area where aquatic vegetation was already established and he wants to eliminate it from his property.

Whatever the cause, any aquatic weed problem cannot be solved without investigation of all the reasons why a small lake or pond has an overabundance of weeds.

Construction

More than seven million acres of lakes have been constructed on U.S. farms alone. Most of these were constructed under U.S. Department of Agriculture Soil Conservation guidelines. Owners of privately constructed lakes may not have had the benefit of knowledge available to the farmers.

The following points should be considered when building a small lake or altering an existing lake:

- depths less than three ft. should be avoided. Eight to ten ft. is satisfactory for a small lake.
- for each acre of lake surface there should be approximately 15 acres of watershed if the lake is not stream-fed.
- lakes much smaller than one acre do not provide good natural conditions for fish.
- a spillway should be built to control overflow during heavy rains. Lakes with more than 20 acres of watershed per acre of lake surface should have a cement or stone spillway.
- the lake should not be surrounded by tall trees which shade the water surface. Trees should not be planted close to the shore since roots may encourage erosion.
- measures should be taken to prevent wave erosion for lakes in windy locations.
- sand should not be used heavily for lake beaches since it will quickly drift to the bottom causing depth problems.
- loose soil should be avoided in the watershed area to avoid rapid siltation. Siltation should not exceed one percent of the original depth of the lake in one year.
- if there are a number of lakes fed from one stream, it is preferable to branch each lake off the stream, rather than to have one lake feeding into another.
- good air circulation above the lake is needed to mix upper and lower water levels if the lake is not stream-fed.
- aquatic vegetation produces oxygen during photosynthesis and is therefore necessary for good



fish production. It also serves to stabilize bottom sediment.

—the lake bottom should be watertight to the degree that serious drops in water level are not experienced in dry weather. Periodic checks for damage by burrowing animals is advisable.

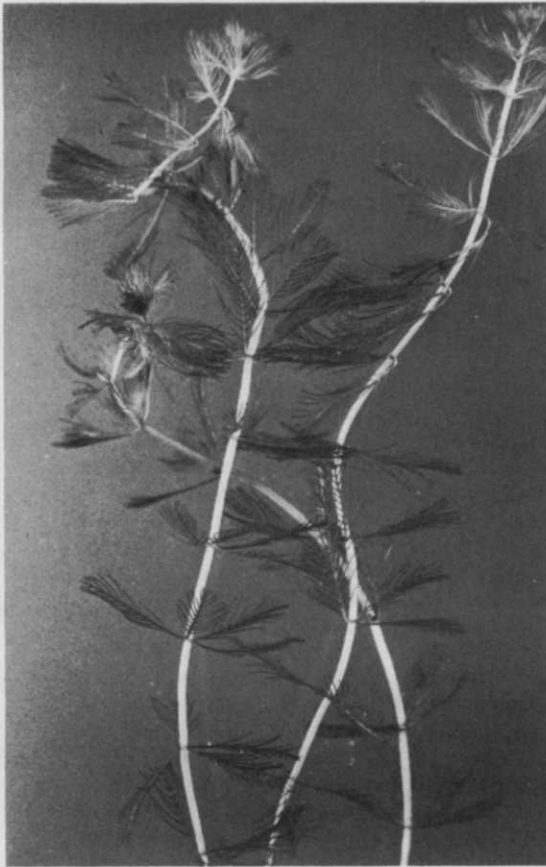
Oxygen content is a crucial factor in lake management. Water holds less dissolved oxygen as it gets warmer. Spring water, although cold, does not carry much oxygen since it has not been exposed to the air. The oxygen content in a lake drops in the summer, especially at lower depths.

A phenomenon called stratification also can occur in the summer. Stratification is the separation of the water into definite layers caused by differences in density as a result of temperature differences. The warmer, less dense, surface layer does not mix with the colder and denser lower layers. Consequently, oxygen does not reach the lower depths of the lake.

Oxygen depletion can also be caused by decay (oxidation) of organic matter in the water. Sewage or organic effluent from livestock can cause severe reduction in oxygen content of the water. Also, lakes near swamps may suffer from an excess of organic matter.

Fish, cold-blooded animals, experience increased respiration as the temperature of the water rises. Consequently, fish use up more oxygen in warmer water. If fish begin to swim at the surface of the lake a serious oxygen problem exists.

Winter presents oxygen problems as well. A thick, snow-covered layer of ice over a lake not



Infestations of aquatic weeds can cause serious drops in land value (far left). Specimen of the submerged watermilfoil (left). The white amur is an exotic species of carp which has great promise for small lake weed control.



only seals out air from the water, but shades the plants under the ice and stops their photosynthesis and oxygen production.

Bubblers and other devices to keep the water layers mixed are available. They can reduce the chance of stratification in the summer and prevent total ice coverage in the winter. Kembro, Inc. makes such a unit.

A small lake should have a natural balance insured by proper maintenance and construction. If it gets out of balance, then the need for a variety of methods to achieve control over aquatic vegetation is evident.

Types of Aquatic Vegetation

Four types of aquatic vegetation are of primary concern in weed control; algae, submergent weeds, emergent weeds, and floating weeds.

Algae are small plant organisms that, when abundant, or in bloom, create an unsightly, smelly, and damaging problem. Algae can clog water filters, irrigation systems, and other machinery. Algal blooms can shade out submerged plants or deplete oxygen dangerously from nighttime respiration. Massive kill-off of other aquatic vegetation can create tremendous amounts of decaying material in a body of water and rob it of its oxygen content. Certain forms of algae are toxic to animals and serve to transmit fish diseases and parasitic infections.

Submergent weeds are rooted in the lake bottom and are totally under water.

Emergent weeds grow in shallow areas with stems and leaves usually out of water.

Floating weeds are either free-floating or bottom-rooted plants which have leaves that float on the water's surface.

Overabundance of any of these plants can interfere with the recreational uses of a lake, speed up the rate of siltation, clog irrigation and drainage systems, cause unpleasant odors, impart a bad taste to the water, crowd out wildlife, and reduce the value of property the lake is on.

Control Measures

Prevention is the first method of aquatic weed control. Regular observation and maintenance of the lake is as critical as any other form of vegetation management. A healthy balance of the aquatic environment should reduce the need for artificial control measures, except for swampy areas where man has entered.

When the lake environment gets out of balance, effective mechanical, biological and chemical means to control weeds are available. Each has particular advantages and disadvantages. In the case of small lakes and ponds, control techniques designed primarily for large lakes are not practical. Attention should be paid not to create a large amount of dead and decaying vegetation in the lake at any one time.

Chemical control of algae is most practical. Application rates should be closely figured and adhered to to avoid any danger to fish. Copper-based compounds, especially in pelleted form, are very useful and are available from a number of manufacturers: 3M Co., Great Lakes Biochemical

Small Lake

Submersed Weeds

Pondweed
Hydrilla
Buttercup
Cabomba
Coontail
Watermilfoil
Slender naiad
American Elodea
Bladderwort

Emergent Weeds

Arrowhead
Bullrush
Cattails
Water primrose
Alligator Weed
Water willow
Smartweed

Floating Weeds

Duckweed
Water Pennywort
Water Lily
Water Lettuce
Salvinia
Water Hyacinth



Hydrilla

Co., Phelps Dodge Refining Corp., Applied Biochemists Inc., and Thompson-Hayward Chemical Co. (See list for addresses.)

Other chemicals for algae control are Aquazine from Ciba Giegy Corp., Diquat from Ortho Div. of Chevron Chemical Co., and Aquathol K from the Agchem Div. of Pennwalt.

Higher aquatic plants are hardier than algae and control is consequently more difficult. The first alternative is to cut and remove them mechanically. This could be done by hand for small areas. Larger jobs may require harvesters that cut swaths of weeds from pontoon-like platforms. Aquamarine Corp., and Air-Lec Industries, Inc. manufacture such devices. Harvested weeds should be removed from the lake and disposed of away from the watershed area. Dredging, burning, and lowering the water level for winter are a few other methods of mechanical control.

Although a number of biological control methods have been tried, the white amur, a species of carp imported from China appears to have the most promise for small lake weed control. The fish is outlawed in most states at the present time, but research by Sutton at the University of Florida may help legalize the fish in more states.

Sea-Ranch Inc. produces white amur commercially. The fish are legal in the states of Arkansas, Florida, Mississippi, and Alabama. The amur con-

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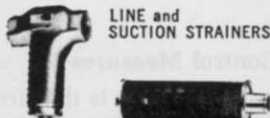
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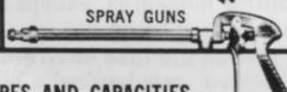
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Pictured left to right: Model 698, Model 608, Model 657, and Model 600. WEED EATER®, Inc., a subsidiary of Emerson Electric Co.

Small Lake

sumes large amounts of aquatic vegetation and does not reproduce successfully in the U.S.

Other natural consumers of aquatic vegetation are crayfish, ducks and geese, other types of fish, snails, and insects.

Chemicals for higher aquatic weeds are applied to the lake bottom after the water level has been drawn down, as granules that sink to the lake bottom, as liquid spray onto the surface, or as a foliar spray. Most chemicals require swimming restriction for a period of time after application. Also, if lake water is used for irrigation, there may be restrictions on use for irrigation. If this is the case, treatment should be avoided in the summer when the demand for irrigation water is greatest.

For submerged weeds the following chemicals are available: Aquazine by Ciba Geigy Corp.; Aquathol and Hydrothol by Pennwalt; Diquat by Ortho Div. of Chevron Chemical Co.; Casoron by Thompson-Hayward; Fenac and 2,4-D by Amchem Products, Inc.; and Systems E and L by 3M.

For emergent weeds the following products are available: Diquat; Dalapon by Dow; Casoron; Weedtrine-D by Applied Biochemists Inc.; and 2,4-D products from Amchem.

For floating weeds there is Aquathol and Diquat.

It is extremely important to read the label of any product and to ask for full information about products from dealers.

Dosages are in pounds per acre-foot. Acre feet are derived by multiplying the surface area of the lake in acres by the average depth in feet. The dealer will also help you make these calculations.

Aquatic weed control is not a simple matter. There are many considerations to be made and questions to ask before going ahead with a weed control program.

WTT

Manufacturers of Aquatic Weed Control Products

Air-Lec Industries, Inc., 3306 Commercial Ave., Madison, Wi. 53714.

Amchem Products Inc., Brookside Ave., Ambler, Pa. 19002
Applied Biochemists, Inc., 5300 W. County Line Rd., Mequon, Wi. 53092

Aquamarine Corp., 225 N. Grand Ave., Waukesha, Wi. 53186

Chevron Chemical Co., Ortho Div., 575 Market St., P.O. Box 3744, San Francisco, Ca. 94105

Ciba Geigy Corp., P.O. Box 11422, Greensboro, NC 27409

Dow Chemical Corp. P.O. Box 1706, Midland, Mi. 48640

Great Lakes Biochemical, 6120 W. Douglas, Milwaukee, Wi. 53218

Kembro, Box 205, Mequon, Wi. 53092

Pennwalt Corp., 1630 E. Shaw Ave., Fresno, Ca. 93710

Sea-Ranch Inc., Rt. 2, Box 604, Sheridan, Ark. 72150

Thompson-Hayward Chemical Co., 5200 Speaker Rd., Kansas City, Ks. 66110

3M Co., 3M Center, St. Paul, Minn. 55101.

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