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WORMS, WORDS AND WILLINGNESS

(from page 23)

has three primary advantages. "The first," he said, "is timeliness. The oil formulation can be applied one quart undiluted per acre. That contains one pound of the active ingredient. Compared to diluted or water formulations, we could thus treat four times more acreage per load. This enabled us to treat 10,000 acres in two weeks using only two helicopters. Since we had to contract for extra helicopters. and pilots, we were able to reduce our costs and pass along the savings to the towns."

"Secondly," Canning continued, "the material saves handling. We got bulk delivery of the product in tank trucks direct from the point of manufacture. The tank truck went right into our warehouse and pumped into our nurse tanks."

The third advantage cited by Canning was good control. "From the customers point of view," he said, "this is the most important benefit of all. Sevin-4 Oil remains on leaf surfaces despite heavy rains in the spring. It provides consistent performance — and that's what gets you repeat business year after year."

Keeping the spray material on the trees is also important from an ecological standpoint, according to Emile Ollivier. "Even with all the rain we had during the spraying period, we had no complaints where we sprayed. There were no fish kills and no apparent effect on wildlife," he said.

About the only complaint Ollivier did hear during the successful spray program was a far cry from complaints he had heard earlier from environmentalists. Some residents were unhappy that their property could not be sprayed. Because state regulations prohibited spraying the heavily wooded, sparsely populated areas, many individual property owners within these areas were missed in the spray program. Ollivier received, in fact, over 400 requests for spraying from residents within the out-of-bounds areas.

"That's one of every eight people in Orleans," he noted. "Last year during the big anti-spraying debate, people signed petitions against spraying. This year, after the big infestation, the same people were begging us to spray." □

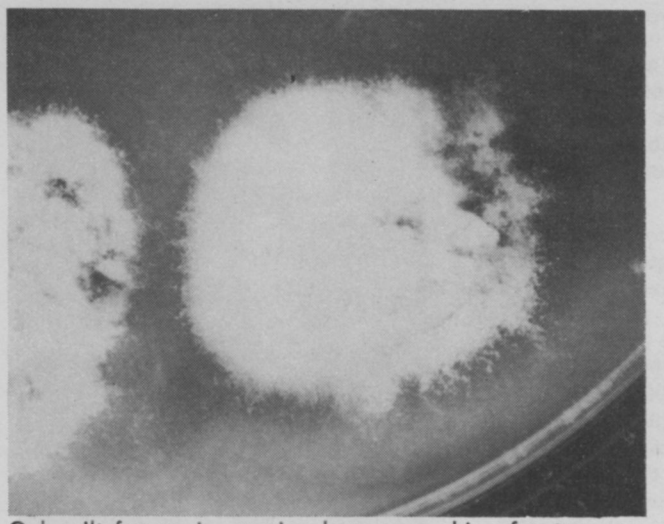
Fungo Turf Fungicide Introduced by Mallinckrodt

Mallinckrodt Chemical Works is introducing Fungo—50 brand turf 'fungicide, a broad spectrum, systemic agent for control of a wide variety of turf diseases.

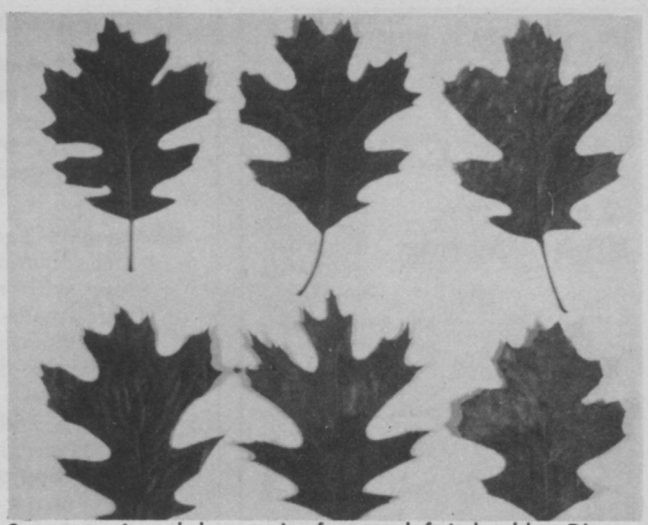
According to an announcement by Stan Frederiksen, manager of specialty agricultural products, Fungo controls most of the important diseases which attack turf. At modest treatment rates, it controls Brown Patch, dollar spot, Fusarium patch (pink snow mold), and copper spot. At somewhat higher rates, carefully drenched in, Fungo—50 readily controls Fusarium blight (Fusarium roseum), stripe smut, and powdery mildew.

Fungo may be tank-mixed with Koban fungicide to achieve a even broader spectrum of control, including pythium, or with Thiramad, maneb, or zineb for control of leaf spot and/or melting out diseases during spring and fall.

Highly effective, and quite economical in use, FUNGO is safe on the finest turf. Rates as high as eight times the minimums have thus far produced no turf damage or discoloration.



Oak wilt fungus is growing here on a chip of a tree previously infected. This is one of the cultural techniques used to identify the disease.



Symptoms in oak leaves. Leaf at top left is healthy. Disease progresses (l-r) until leaves become brown and lifeless as in the lower right.

TREE DESTROYER *(from page 20)*

Close observation and removal of the infected areas or the entire diseased tree must be accomplished to prevent infection of healthy trees.

One of the best guards against disease is a rapidly growing tree. This can normally best be accomplished in the forest stand by removing the poor trees and allowing the remaining trees to maintain a high degree of vigor. Valuable shade trees and ornamentals should be planted on the proper site, be relatively free of competition and be given adequate fertilization and water.

To further clarify the host/disease relationship that may occur let's look at oak wilt disease in detail. As an illustrative disease, it will enable us to understand the concept of a tree disease more thoroughly. It will also help in initiating programs to reduce the loss of valuable plantings.

Oak wilt is thought to be native to the United States. It is not known to occur in any other country.[1] It was first reported in 1942. The fungus now has spread from Wisconsin to as far south as Texas, east to Pennsylvania, and west to the Great Plains.[27]

Oak wilt disease is caused by a fungus, *Ceratocystis fagacearum* which invades the water-conducting vessels of the sapwood through fresh wounds or by root grafts connecting healthy and diseased trees. The fungus has been found affecting and causing the death of all our native oaks as well as chinkapin,[9] Spanish and Chinese chestnut,[8] ash,[12] beech,[2] dogwood,[2] hophornbeam,[2] hickory,[2] sassafras,[2] sourwood,[2] and wild cherry.[12]

The symptoms or plant expression to the disease organism tend to vary little throughout the United States. The first symptom observed is a crinkling of the leaves with the leaf stem turning black. Leaves at the top of the tree or towards the tip of lateral branches nearly always wilt first. The affected leaves become dull and somewhat lighter in color as compared to healthy ones. Upper leaves turn brown at the tips and margins. This produces a sharp line between the healthy tissues and the infected, killed reddish-brown tissue.

This reddish-brown or bronze color progresses downward in the leaf toward the petiole. The affected leaves curl inward with the petiole drooping and turning black. Young leaves may not show the reddish-brown color but may just turn black and drop from the tree. Infected trees may defoliate any time after infection occurs, but usually they defoliate four to five weeks after the first symptoms are observed.

Trees in the red oak group usually die in the first year[23] while white oaks may take years to die.[5]

(Editor's Note: Research conducted by the University of Wisconsin on oak wilt indicates that in some cases white oaks recover after one season of infection. Microscopic examination shows that new wood has been laid down over the infected

(continued on page 47)

ROPE SAFETY *(from page 36)*

WTT: Let's look at some of the advantages of modern synthetic rope. How does it compare in strength, wearability, temperature, water absorption and use life?

Liebenauer: Let's compare a one-inch diameter standard manila rope with a one-inch diameter rope made of polyester filament fibers. Dry tensile strength of manila is 9,000 pounds compared to 22,000 pounds for Dacron and 20,000 pounds for Esterlon. This makes the polyester rope over twice as strong.

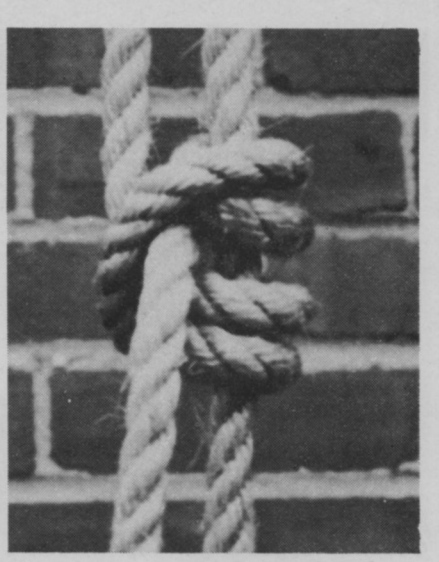
In terms of wear, manila is good, but polyester is excellent. It can absorb shock loads far better than manila and the repeat loading characteristics of polyester make it ideal for use in lowering limbs.

Temperature properties of polyester are far superior to manila. A manila rope running quickly through the crotch of a tree will rapidly heat up. It loses strength in the rope as it heats, but you don't see this and think that nothing has happened. Polyester fibers resist high temperatures. The tendency to glaze a tree with a polyester rope will be less because there is less heat generated.

Manila rope is poor in terms of water absorption. It will take up to 100 percent of it's weight in water where polyester rope will absorb less than one percent.

Use life of manila rope is generally poor. It's affected by rot, mildew and other organisms. Polyester rope is essentially 100 percent resistant. It's use life is practically indefinite.

Even new Esterlon rope makes a knot that holds. Polyester fibers can be flexed many times without damaging the rope.



Manila rope has been the standard among arborists for years. Newer fibers such as Dacron and Esterlon are beginning to replace manila rope.

WTT: What about color? Does that make a difference?

Liebenauer: Synthetic ropes are mostly white, whereas manila ropes have a golden color. The dark brown manila rope has been treated with more oil than a natural manila rope.

I think it is fair to mention at this time that management should insist that the worker give synthetics a fair trial. The men who use this rope should be educated to the fact that synthetic is so superior to manila that they shouldn't consider anything but changing over.

OSHA laws are going to require that a man use this type of rope. I am quite certain that this ruling is coming very soon.

WTT: What other advantages are in store for the user of a synthetic rope?

Liebenauer: A climber who uses a three-fourths inch manila lowering line will find that a one-half inch synthetic rope will hold the same load. In other words, a man can work with a smaller rope and have greater strength plus the fact that synthetic rope will take repeated loading shock.

A polyester rope used for climbing has a sort of tacky feel on the outside surface. Actually

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it is a wax used to lubricate the rope, but this wax gives this tacky feeling and allows a man to hang on to the rope more easily. After the rope has been used a bit it gets a slightly fuzzy surface which makes it excellent to handle. A manila rope after the same amount of use develops little slivers of fiber which can get into a climber's hands.

WTT: Can you use synthetic ropes in the construction of saddles?

Liebenauer: This gets back to one of the accidents which I mentioned earlier in our discussion. You recall that a man fell from a tree because his manila rope broke at a knot. Actually this knot was located on the man's saddle where it had been continuously tied since the saddle was constructed. When the knot broke the saddle failed and the man fell. Saddles are made out of leather with a rope reinforcement. In our business we haven't sold a saddle or let our own men use one that had any manila rope in it for over three years. We insist on saddles with synthetic rope reinforcement. Nobody can afford to have an accident.

WTT: Does synthetic lend itself to leather better than manila?

Liebenauer: Not necessarily. We have found no difference between the two. The single factor against using synthetics is in braiding the eyes or the temples at the end of the rope. You can't braid synthetic ropes, quite as readily as you can manila. When you finish a braid, you must hold it together with a wire clip and fiberglass tape to keep it from unraveling.

Synthetic rope has a memory. It does not want to have to change in lay other than when it was made. This is the nature of most plastics — they revert back to the original form or twist. We have never had any trouble, however, with a failure where any eye was braided into a synthetic rope.

WTT: What is the maximum length of life of synthetic rope when used in normal day-to-day operations?

Liebenauer: We don't know how long they will last. Some of the early users of nylon ropes are still using these ropes. The biggest factor affecting the use of synthetic rope is cost. This rope is more expensive. (In the case of accidental cutting with a saw or axe, a climber quickly finds that synthetic rope cuts just as easily as manila.) Synthetic ropes cost between 2½ to 3 times as much as manila rope initially. But at the same time they have 2½ times as much initial strength which remains constant. And the life expectancy is indefinite. So actually it is a better investment.

WTT: We take it that you are an advocate for synthetic rope. Does this mean that more arborists should be considering this type of rope?

Liebenauer: More arborists are definitely moving to synthetics. The only resistance is change itself and the fact that some arborists are working on a limited budget and cannot afford the added initial investment. However, the added investment in a period of two years will more than pay for itself. At the end of two years, unless you have physically damaged synthetic rope, it will still be good. Anyone who has used a manila rope over a year is out of their mind. I wouldn't trust it longer than that.

WTT: You have given us a convincing argument for using synthetic rope. Thank you for your interest and your concern for safety in the tree care industry. □

Is Parker Sweeper Booklet "Lawn Grooming Made Easy"

Parker Sweeper Company has prepared an eight-page booklet entitled "Lawn Grooming Made Easy."

The booklet was written for Parker Sweeper by Dr. Robert W. Schery, director of the Lawn Institute.

The booklet contains information on new varieties of grasses and how to cope with common maintenance problems. Reviewed are such areas as fertilization, watering and pest control.

The booklet also gives instructions on how to best use mechanical aids in lawn care, particularly in controlling thatch.

"Lawn Grooming Made Easy" is available without charge by writing Parker Sweeper Company, P. O. Box 720, Springfield, Ohio 45501.

TREE DESTROYER *(from page 43)*

annual ring. The fungus is thus walled off, or "buried" and the tree recovers.)

Little is known about the penetration of the oak wilt fungus into the tree. It has been reported that the fungus probably needs a wound caused by man, insects, animals, weather, or any number of ways to gain entrance into the tree,[10] and that infection can occur through the roots, stems, twigs, buds, leaves or flowers if a wound is present.

The fungus survives the winter by living in the bole of trees infected late in the summer. It later spreads throughout the plant and causes death the next spring; thus, serving as a source of innoculum for reinfection of other trees.[28]

The local spreading of the oak wilt fungus from one infected tree to another is thought to be caused in a great part by root grafts between the oak trees.[4,24] The fungus is also thought to be spread long distances as well as in the localized area by different species of beetles in the Nitidulidae family.[14,20,21,26] It has also been confirmed that the fungus can be spread by mites,[19] wind,[12] squirrels,[15] pomace fly,[3] tools,[17,22] and the fruit fly.

(It should be pointed out that oak wilt can often be confused with anthracnose. Early symptoms of each disease are quite similar. Anthracnose turns lower leaves brown and they curl badly in early June, but the trees are seldom killed. New foliage usually replaces the infected leaves by midsummer. The big difference is that oak wilt usually affects the upper part of the tree first while anthracnose attacks the lower leaves. Additionally, oaks are sensitive to changes in soil levels about their roots. Thus, in areas where new housing exists, trees may appear to have wilt symptoms but may actually be suffering from excavation, soil compaction or soil smothering. Cir. G1693, Oak Wilt In Wisconsin, G. L. Worf and J. E. Kuntz)

An effective control for the oak wilt disease has not been established to date. Local spread of the fungus by root grafts may be controlled to a limited extent by removing all the trees 100 feet on all sides of the diseased tree.[24,25] Killing all trees around an infected tree or trenching around infected trees to a depth that all root grafts between the trees are severed will normally control the local spread of the fungus.[24] A vigorous pruning of infected white oaks has been effective in saving individual trees.[13]

(Editor's Note: Investigative studies are underway to determine whether Benlate benomyl fungicide has activity on oak wilt. Because it is a vascular wilt like Dutch Elm Disease, it is believed that Benlate holds promise in the control of the fungus.)

Due to the slow rate of spread of the oak wilt disease, it does not appear to be of great economic importance. However, given an effective agent to spread the fungus, it has the potential to be of great economic importance. A forest in Illinois of 1800 acres was estimated over a period of eight years to have lost a total volume of timber equal to 50 acres of prime red oak.[11] Young,[24] in 1945, reported that at Pilot Knob State Park in Iowa 4,895 oak trees were killed by oak wilt with a resulting 38 percent mortality. Perhaps even more dramatic is the possibility of entire oak populations within a predominantly oak planted community being infected. The result could be more devastating than that created by Dutch Elm Disease.

Therefore, it can be concluded that on the national scale the disease

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industry people on the move

JAMES L. LEVENTHAL, becomes product manager for Cushman golf cars, turfcare vehicles and Ryan turf equipment for Outboard Marine Corporation. He succeeds **JAMES B. DAHLBERG** who becomes regional manager-Cushman distributor sales in the southeastern United States.

* * *

RICHARD O. GRUNEWALD, elected marketing services manager for White Farm Equipment Company, a subsidiary of White Motor Corp. He will be responsible for advertising, sales promotion, public relations and product development activities for the company.

* * *

T. G. MORGAN, appointed product manager in the pesticide department of American Cyanamid Company.

* * *

DR. JAMES C. CAMPBELL becomes manager of the western research branch laboratory for the agricultural chemical division of FMC Corporation. **DR. IRWYN A. RAMMER** becomes senior research biologist for the company.

* * *

GERALD WEED, appointed west coast sales manager of Par Ex brand products for Swift Chemical Company.

* * *

ANTHONY J. ADOLFI, promoted from manager of public relations to director of communications for the agricultural division of Ciba-Geigy Corporation. He will be responsible for advertising and promotion, public relations and merchandising. He succeeds **N. B. DEMANCZUK** who has retired. **RICH G. HANSEN** replaces Adolfi as public relations manager.

* * *

MICHAEL H. SMALL becomes an irrigation specialist for residential and commercial markets on the west coast for Toro's Irrigation Division. **FRANK E. MOFFETT, JR.** appointed a field service representative for the midwest, based in Chicago. **JOHN Y. MORRIS,** becomes administrative/marketing assistant to **ROBERT LANDESMAN,** divisional manager of market planning and development. Toro says that all three positions are new.

* * *

JERRY O'DONNELL appointed ProTurf representative in Wisconsin for O. M. Scott & Sons. He was super of Nakoma Golf Club, Madison, Wisc. **MIKE REDMOND,** also a former super at Brightwood Hills Golf Course, New Brighton, Minn., joins the ProTurf group. **DOUG SMITH,** becomes a ProTurf technical representative in southern Indiana and Kentucky. He was foreman in charge of construction and maintenance at Brookshire Country Club, Carmel, Ind.

* * *

JAMES J. GALVIN, becomes executive vice president of the agricultural chemicals group of W. R. Grace & Co.

* * *

ROBERT HIGBY, named to the new position of administrative assistant to the general manager at the agchem-decco division of Pennwalt Corporation. **RAY ORITO** becomes controller for the division.

* * *

R. DAVID STILES, appointed a representative of the F. A. Bartlett Tree Expert Company. He will operate out of the Chattanooga office, a new district office for the company.

TREE DESTROYER *(from page 47)*

may not be of great economic importance, but in localized areas it could be very destructive. Should the disease infect timber resources, foresters could salvage the tree for market as the fungus does not destroy the structural qualities of the tree.[6,7]

We have taken a brief look at one disease affecting oaks and a variety of other tree species. Multiply the diseases into the hundreds and add in the hundreds of different species of plants affected by the diseases and the stage is set for a series of events that occur daily wherever trees grow.

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—meeting dates—

South Carolina Turfgrass Conference, 4th annual, Clemson House, Clemson, S.C., July 10-11.

Ohio Chapter, International Shade Tree Conference, summer meeting, Benjamin Wegerzyn Garden Center, Dayton, Ohio, July 11.

American Association of Nurserymen, Radisson Hotel, Minneapolis, Minn., July 14-18.

Hyacinth Control Society, Hotel Monteleon, New Orleans, July 15-18.

American Sod Producers Association, annual summer meeting and field day, Denver, Colo., July 16-19.

Michigan Pesticide Association, summer tour, Shanty Creek Lodge, Bellaire, Mich., July 29-31.

Penn Allied Nursery Trade Show, Pennsylvania Nurserymen's Association, Allenberry, Boiling Springs, Pa., July 31-Aug. 2.

USDA Turfgrass Field Day, Agricultural Research Center-West, Beltsville, Md., Aug. 1.

Penn State Turfgrass Field Day, Joseph Valentine Turfgrass Research Center, Campus, University Park, Pa., Aug. 1-2.

Plant Science Day of the Connecticut Agricultural Experiment Station, Lockwood Farm, Hamden, Conn., Aug. 8.

International Shade Tree Conference, 49th annual meeting, Sheraton-Boston Hotel, Boston, Mass., Aug. 13-16.

International Pesticide Applicators Association, annual meeting, Marriott Inn, Berkeley Marina, Berkeley, Calif., Aug. 15-18.

North Dakota State Horticultural Society, annual meeting, Canada Department of Agriculture Research Station, Morden, Manitoba, Aug. 21-22.

Turf and Landscape Day, Ohio Agricultural Research and Development Center (OARDC), Wooster, Ohio, Sept. 11.

Midwest Agricultural Chemicals Association, annual meeting, Lodge of the Four Seasons, Lake Ozark, Mo., Sept. 12-14.

Michigan Turfgrass Field Day, Crop Science Field Lab, Michigan State University, E. Lansing, Mich., Sept. 13.

Lawn & Garden Distributors Association, annual meeting, Sheraton-O'Hare, Chicago, Sept. 19-21.

Course for Licensing of Tree Pruners, Agricultural Extension Centre, Brandon, Manitoba, Canada, Oct. 1-5.

American Horticultural Congress, meeting of the American Horticultural Society, New Orleans, Oct. 1-7.

Society of Municipal Arborists, 9th annual meeting, Flint, Mich., Oct. 3-5.

Tropical Plant Industries Trade Show, sponsored by the Florida Nurserymen and Growers Association, Diplomat Hotel, Hallandale Beach, Fla., Oct. 5-7.

Southwest Turfgrass Conference, Albuquerque, N.M., Oct. 11-12.