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One application controls white grubs from season-to-season.

There's only one insecticide that controls white grubs from season-to-season.

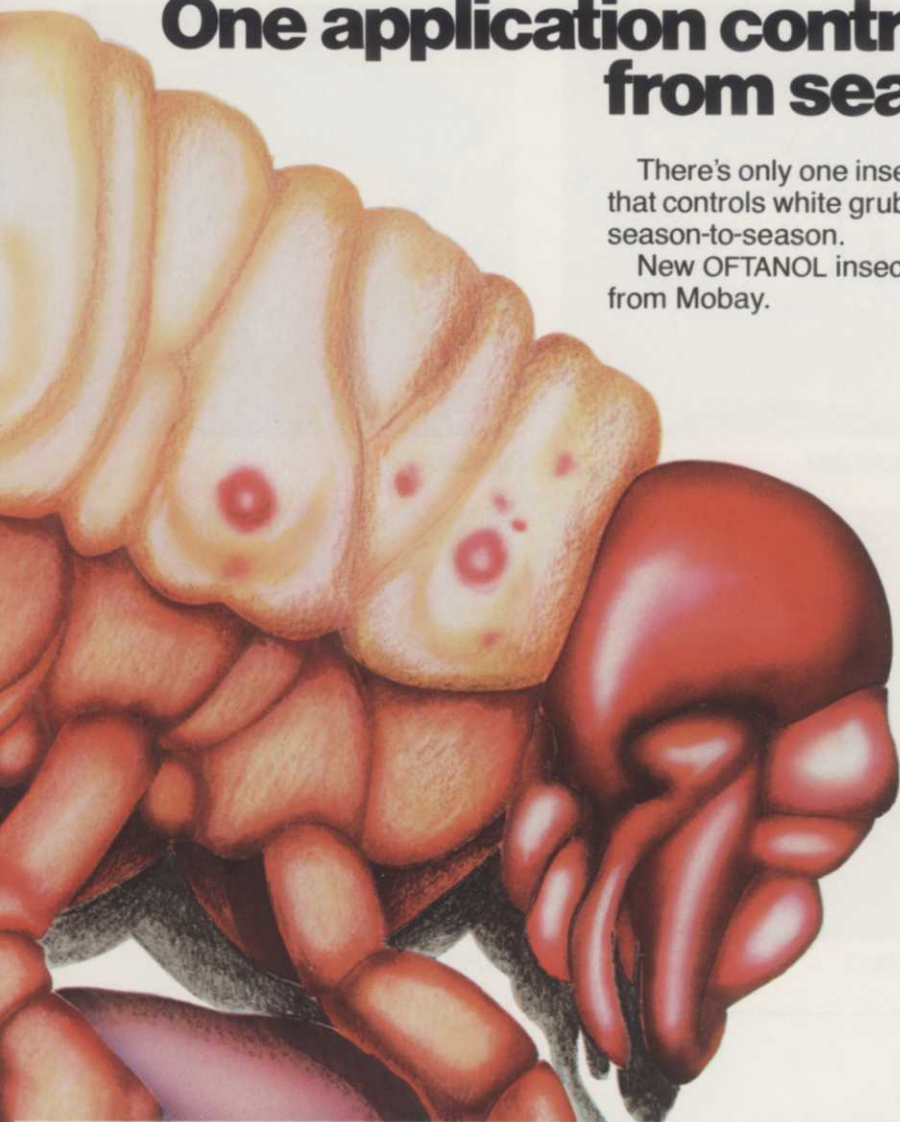
New OFTANOL insecticide from Mobay.

OFTANOL delivers unparalleled residual control of white grubs. In fact, you can expect one application of OFTANOL at the highest recommended rate to control white grubs until about the same time next year.

OFTANOL also offers these additional advantages compared to present white grub materials:

- OFTANOL does not require watering-in.
- OFTANOL does not tie-up in thatch.
- OFTANOL does not require critical application timing.

One application. Once a year. That's the OFTANOL one-shot advantage.



Mobay Chemical Corporation
Agricultural Chemicals Division
Specialty Chemicals Group
Box 4913, Kansas City, MO 64120



**New,
one-shot
white grub
control.**

OFTANOL also controls these major turf insects.

OFTANOL has been proven effective for control of sod webworm, Hyperodes weevil, billbugs and chinch bugs. Consult the product label for the proper timing for control of these pests.

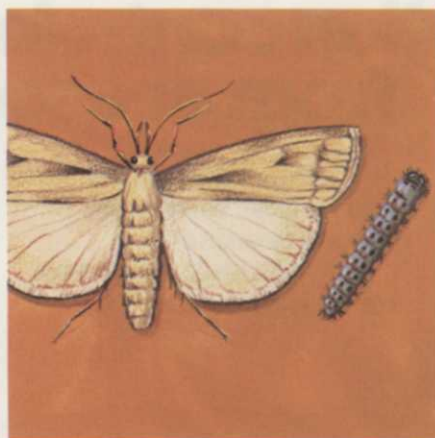
New OFTANOL. For one-shot white grub control and in-season control of other pests. Available from many leading turf chemical suppliers.

The use of OFTANOL for turf pest control is registered in many states. Check with your state extension office for details.



Mobay Chemical Corporation
Agricultural Chemicals Division
Specialty Chemicals Group
Box 4913, Kansas City, MO 64120

OFTANOL and BAYLETON are Reg. TM's of the Parent Company of Farbenfabriken Bayer GmbH, Leverkusen.



SOD WEBWORM



BILLBUG



CHINCH BUG



HYPERODES WEEVIL

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Agricultural Chemicals Division
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What are your major turf pests? _____

What are your major turf diseases? _____

Who is your turf chemical distributor? _____

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Table 2. 5 year average performance ratings of selected winter overseeding entries evaluated on the putting greens of Mississippi State University — Lakeside Golf Course.

Visual Turfgrass Performance Ratings ¹	
Overseeding entry	5 Year Average
CBS	6
Pennfine	6
Derby	6
Winterturf 1	7
Citation	6
Regal	7
Medalist 5	6
Dixie Green	6
Dixie Green + Sabre	7

¹Visual performance rating scored 1-9; 1 = poorest and 9 = best.

entries were replicated twice and provided space for 18 selections. Overseeding entries used in the evaluations were limited to commercially available monostands, blends and/or mixtures marketed for overseeding use. Performance evaluations were based on a minimum of monthly visual observations and ratings using a numerical scale of 1 — 9; with 1 = poorest and 9 = best. Performance ratings were conducted by various groups including golf course superintendents, golfers, golf professionals and university students and researchers. All seed companies participating in these tests supplied entries on a voluntary basis and were required to supply seed for 2 replications. Seeding rates and choice of entries were decided by the seed companies cooperating. Due to changes in yearly participation of individual seed companies and entry choices, a wide variety of different entries were used in the overall 5 year evaluation period. The list of overseeding entries used for one or more years over the past 5 years is presented in Table 1. Overseeding performance scores which are reported represent only those selections which were evaluated 3 or more years out of 5 (Table 2). The findings in overseeding performance, as shown in Table 2, are generally representative of the other entries included in the evaluation program 2 years or less. The entire evaluation using putting greens for plot area was carried out over 5 consecutive years (1976-1980).

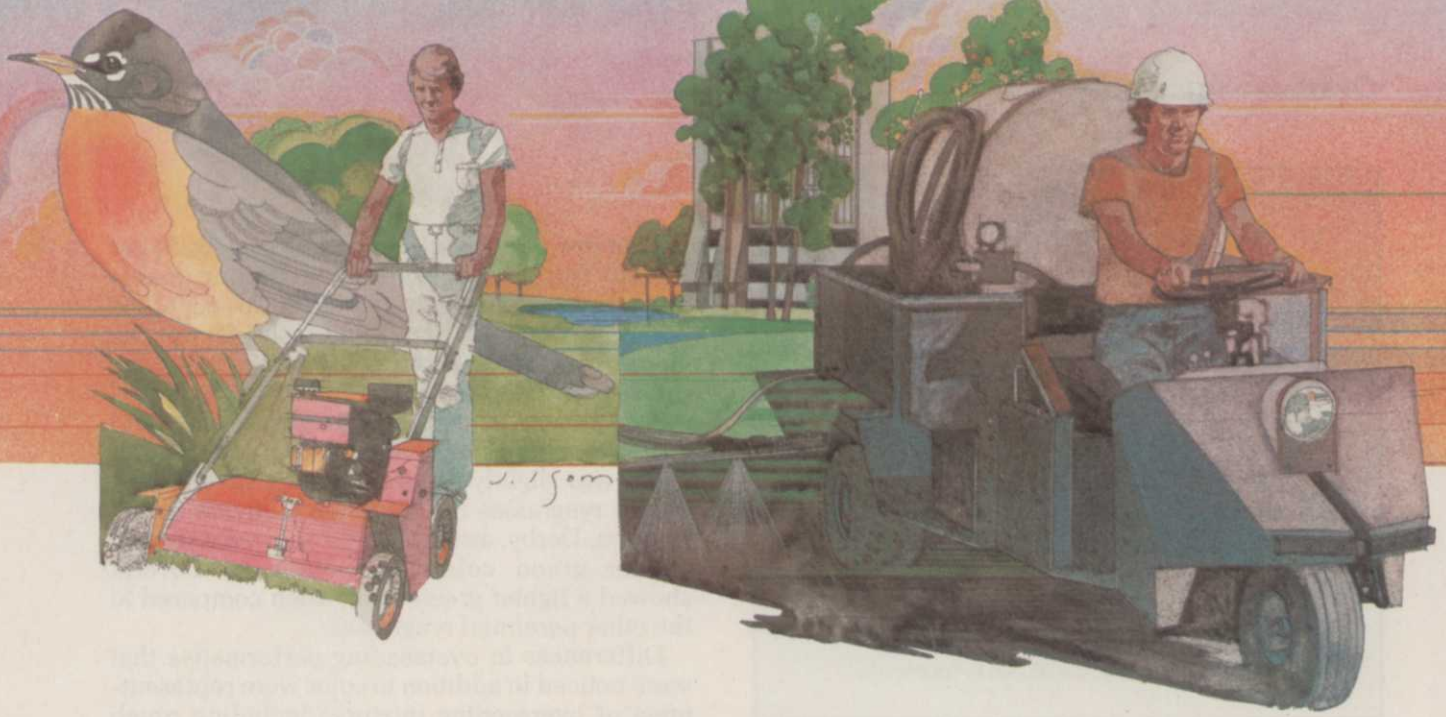
The 5 year average scores showed little or no difference between winter overseeding entries when compared side by side under actual putting green conditions. The anticipated complaints from golfers putting across the center dividing lines on each green rarely occurred. Nearly all golfers were surprised to learn they had just played across 18 different overseeding combinations. No entry evaluated showed consistently

high or low performance ratings across the 5 year period. The greatest similarity in putting quality among overseeding entries were observed for the perennial ryegrass blends and monostands. The characteristics of texture, uniformity, density, disease resistance, wear, fall transition and spring transition were similar for all perennial ryegrass blends and monostands evaluated. Color was slightly different among several perennial ryegrasses in which the cultivars Regal, Citation, Derby, and Caravelle showed a slightly darker green coloration; whereas, Loretta showed a lighter green color when compared to the other perennial ryegrasses.

Differences in overseeding performance that were noticed in addition to color were representative of overseeding mixtures including rough bluegrass (*Poa trivialis*). These overseeding mixtures which included perennial ryegrass plus rough bluegrass were Marvelgreen + Sabre, Super Celebrity or Dixie Green + Sabre. Differences in these mixtures compared to blends or monostands of perennial ryegrass were most noticeable in the spring. The rough bluegrass mixtures generally showed higher shoot density, finer-leaf texture and greater smoothness compared to the other entries. Mixtures containing rough bluegrass, however, did not rank superior overall as based on a seasonal average. This was due, in part, to poor spring transition characteristics which resulted in prolonged persistence into the spring and inhibition of the bermudagrass spring green-up.

The differences in seasonal average scores were not found statistically different and therefore can not be attributed solely to the overseeded entries. Greens characteristics, including soil type, drainage, slope exposure, shade and/or other factors collectively resulted in more variation than could be overcome by an individual overseeding entry. This result points out the high variability in environmental and site conditions golf course superintendents manage turf and close similarity of the overseeding entries evaluated. This similarity in putting quality and performance ratings of the perennial ryegrass entries provides the consumers (golfer, golf course superintendents, golf professionals, etc.) with the option to direct additional attention to price and service when products perform equally. The overseeding mixtures including rough bluegrass showed improved characteristics of putting quality and performance which can be utilized by individual golf courses based on needs. Care should be taken, however, to manage and control the inherent growth characteristics of rough bluegrass for a smooth and controlled spring transition.

WTT



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BLUEGRASS
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WORK IN THE
REAL WORLD.**



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But times are changing. Increasingly you're finding yourself pinched by escalating costs for materials and labor. And there's a growing movement among environmentalists to lessen dependence on fertilizers.

Rugby Kentucky Bluegrass answers these problems.

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Rugby is a new Kentucky bluegrass. But it's not unproven. Before it was ready to be introduced to you, years of extensive testing were performed under a broad range of climatic and soil conditions. Test sites were located not only in the United States, but Canada as well.

The results? Our testing has shown Rugby to be unique. It's a truly *different* variety from anything else on the market, with superior performance.

How is it superior? Read on.

A TRUE LOW-MAINTENANCE TURF.

The most singular advantage of Rugby is its ability to provide high-quality dark green turf when maintained at *low* nitrogen fertility and restricted moisture levels.

Most improved Kentucky bluegrass varieties are *not* low-fertility types. You may be told they performed well in turf trials. Unfortunately, you're *not* told that those trials are often conducted using *optimum* nitrogen levels. So it's no wonder you have to fertilize the heck out of these varieties to get good results.

Not so with Rugby. *You can actually get better results with Rugby than with other Kentucky bluegrass varieties while using less nitrogen fertilizer.*

And you'll also save on the *labor* it would take to apply that extra fertilizer and to do the extra mowing.

A HIGH-QUALITY TURF.

But no matter how much we tell you about the low-maintenance aspects of Rugby, ultimately you look for — and demand — *superior turf*. Your professional standards wouldn't settle for anything less. And we wouldn't want it any other way.

Rugby has a rapid spring green-up rate and excellent fall color. And it

also displays *sustained growth during the mid-summer heat stress period*, even under low nitrogen fertility and restricted moisture.

Moreover, Rugby possesses a high level of resistance to most of the common and current turfgrass diseases. This is another factor which may well result in significant savings in turf management costs.

THE ENVIRONMENTALIST'S GRASS.

Using less water and fertilizer means potential dollar savings for you, of course. But you can also take satisfaction in the fact you'll be using *fewer natural resources*.

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For more information on Rugby, write Rugby Kentucky Bluegrass, P.O. Box 923, Minneapolis, MN 55440.

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LATE FLOWERING TREES PROVIDE MID-SUMMER COLOR, INTEREST

By Douglas J. Chapman, Horticulturist, Dow Gardens, Midland, MI

Trees which flower early to mid-summer can be particularly important in the landscape. These trees add not only color at a time when the landscape is otherwise green, but diversity as well. Four particularly exciting plants for mid-summer bloom include Yellowwood, Goldenraintree, Kousa Dogwood, and Goldenchain Tree.

American Yellowwood (*Cladrastis lutea*), a native mid-summer flowering tree is particularly spectacular. This round-headed tree, at maturity, reaches 30 to 50 feet in height and width. While young, it is somewhat narrow and upright. V-crotches can be a problem, but prompt pruning will correct the problem. The bark is smooth and gray, resembling American Beech. The pinnate compound leaves make this plant particularly interesting. Each leaf has seven to eleven leaflets which are oval and smooth.

The new and summer foliage is a vibrant yellow-green. Fall color, which is quite dependable in Central Michigan, is a good yellow to brown. The white flowers are at their peak in Central Michigan during mid- to late June. These drooping flowers normally are in full bloom in the Boston and northern Ohio areas during late May or early June. The white flowers are held in drooping clusters or racemes, 8 to 16 inches in length. Fruit becomes brown and is quite effective with the shape mirroring the flower shape. This is an excellent specimen tree in groups or as single plants.

Yellowwood prefers fertile, well-drained soil, while being adapted to a wide range of pH's, from acid to alkaline. It should be planted in full sun or at least 80% sun. When planted in semi-shaded areas, *Botryosphaeria* Canker can become a severe problem.



Drooping clusters of white flowers grace American Yellowwood in late May or early June in northern states.

Goldenraintree (*Koelreutaria paniculata*) has a bipinnately compound leaf, about 14 inches long, with seven to fifteen leaflets. At maturity, this perfectly round, dense small tree, reaches 25 to 35 feet in height. The leaves are purple when unfolding early in the spring, becoming a dull green during the summer with dependable yellow to yellow-orange fall color. *Koelreutaria* flowers during mid-July with unique bright yellow flowers, 12 to 15 inches in length.

This plant competes extremely well in turf or in beds. It prefers well-drained to droughty soils and is quite adaptable to areas of high air pollutants, as well as salt and many urban problems. It is a particularly outstanding tree with few or no insect or disease problems.



The bright yellow flowers in mid-July are just one benefit of the relatively disease and insect free Goldenraintree.

Kousa Dogwood (*Cornus kousa*), a native of China, should be looked upon as an exciting understory or specimen plant in full sun. It is more upright than Flowering Dogwood, usually reaching 25 to 30 feet in height. When young, it is somewhat upright-vase-shaped, becoming oval at maturity. It can be grown as a multiple-stem or single-stem tree. The bark is spectacular as the plant becomes older, exfoliating, being multi-colored (pale yellow and brown).

Flowering in the most northerly area is dependable. In Central Michigan, it flowers from early through late June, sometimes into July after the leaves are out. Kousa Dogwood's flowering bracts are a pale to clear white. They are usually somewhat pointed and, again, extremely low temperature hardy, often to minus 30°F. Of the cultivars available, *Cornus kousa chinensis* 'Milky Way' is the most dynamic, with a somewhat more spreading habit of growth and the flowers being considerably more delicate with

extremely pointed bracts. *C. kousa* can be used as a small tree specimen or in mass planting. It seems to thrive in sunnier locations as contrasted to *C. florida*.

The fruit is effective late August through October, being 1/2 to 1 inch in diameter. This reddish, globular fruit somewhat resembles raspberries. Although seedy, they are quite tasty.

The summer foliage is a good clear green with fall color either not developing or developing extremely late in the season. When it does develop, the fall color is a dull maroon. Kousa Dogwood's main advantages over our native *C. florida* include extremely low temperature hardy flower buds, ease of transplanting, and flowering during early summer. Kousa Dogwood is an exciting addition to our summer landscape.

Goldenchain Tree (*X Laburnum watereri*) is 12 to 16 feet in height with a 9- to 10-foot spread. The foliage is a dull blue-green with little or no fall color. The trifoliate leaves are all elliptical in



June flowers of the Goldenchain Tree add to the tree's effectiveness in mass plantings.

shape. Perfect yellow flowers come out during early or mid-June. They are borne in 7- to 10-inch pendulous racemes. This small tree is a good specimen in full sun or in protected areas, usually exposed to the north or northeast.

These trees with summer flowers are not only outstanding as specimens, but also integrate well into mass plantings. They all seem relatively drought tolerant, having few or no insect and disease problems.

Although their fall color varies, the uniqueness of early to mid-summer blooms makes these truly exciting additions to the landscape. Although borderline hardy in Central and Northern Michigan, they should be considered somewhat commonplace from Detroit all the way south to the Washington, DC area.

When looking for diversity with excitement, yet low maintenance, Yellowwood, Goldenrain-tree, Kousa Dogwood, and Goldenchain Tree should be high on the list. **WTT**

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GYPSY MOTH INVASION RUNS ARBORIST RAGGED

by Gil Troy, editorial assistant

It's 4:30 a.m. The arborist wearily hops into his truck to start yet another day of non-stop spraying against the gypsy moth. He may work as late as 10 or 11 this night. Some of his fellow arborists start spraying college campuses, industrial parks and normally bustling city streets at that hour. Our hero works through the Memorial Day weekend. He works over the Fourth. Hopefully, he'll be able to take some time off soon. But it's not up to him—he's held captive by the whims of the dreaded gypsy moth.

This spring and early summer, throughout the Northeast and scattered parts of the rest of the country, arborists took up the herculean task of controlling the gypsy moth. By many accounts, this year's infestation was the worst ever. Experts estimate that between 10 and 15 million acres were defoliated this year, surpassing the record five million acres defoliated in 1980. The area from Maine through Wilmington, DE, extending as far west as Pennsylvania Dutch Country, was blanketed by the ravenous insects. Isolated infestations were reported in California, Oregon, Nebraska, Michigan, Ohio, Florida and Vancouver, British Columbia.

"I've been spraying since 1955, and this is the worst year I've ever seen," says Robert Mullane, president of Alpine Tree Care, Inc., in White Plains, NY, confirming most arborists' observations. Erik Haupt, president of Haupt Tree Company in southwestern Massachusetts, contends that this year "had the greatest variety in the stages and life cycle of the moth I've ever seen in 25 years. The gypsy moths started laying eggs in late April, early May, and they were still hatching the end of May into June. There were all stages of instar at the same time. This was more from lack of food rather than pronounced, staggered hatching."

Arborists Inundated

The intensity and the expanse of the infestation caused widespread public distress. Arborists were inundated with calls. "You couldn't reach any tree company," says Walt Dages, public relations manager of the F. A. Bartlett Tree Company in Stamford, CT. "A lot of people complained that our phone was off the hook." The firms weren't refusing to answer calls; they were constantly on the phone. Alpine Tree Company didn't take any orders after April 1. Other companies were also unable to satisfy all of the customers in need.

Carl Bosenberg, president of H.F. Bosenberg and Son Corporation in North Brunswick, NJ,

didn't take over half the calls that came in. "It's very unfair to customers to say 'yes, we'll be there to spray,' when you know in your heart that you'll never be able to make it. It's like a guy with a doctor's appointment at two who sits around until four, and then is rushed through by the doctor who's in a hurry to get home."

Bosenberg is not willing to sacrifice the quality of his service in order to satisfy the increased demand. "We could have done a lot more if we had been willing to cut corners. We don't try to produce volume. Doing fewer jobs and doing them well is more important. Others' business more than doubled. They'd work until 10 and wake up at five. It's fine if you do it for a couple of days. But after a while, you become so bleary eyed you're just going through the motions."

Business Booms

Despite all the unanswered calls, business increased dramatically. Bosenberg's company had at least a 30-40 percent increase in spraying jobs over the previous year. Estimates by other arborists ranged from a 20 percent increase to 100 percent. Robert Mullane says that established companies would tend to have a less dramatic rise. "When you've been in business a long time you get a lot of regular customers. Ninety to ninety-five percent of our business is from return customers."

The increase experienced by both new and old firms strained supplies of chemicals, labor and equipment. Eric Haupt says that even though his company was braced for an increase in demand, they still ran out of spray on occasions. "When you're involved in a major increase of that type, no matter how carefully you plan it's difficult to set up.

"It was impossible to foresee," Haupt explains. "We ran through three, four, five times the amount of spray material expected. The gypsy moth respects no calendar, it respects no weather forecast. You're vulnerable to weather and to other factors. But you have to move quickly, a tree has leaves one day and is defoliated the next."

Walt Dages estimates that business at the Bartlett Company is "almost double. We could have done a lot more but we lacked equipment and trained manpower." Bartlett and other firms updated, reequipped, and purchased new machines.

Supply and Demand

The Agriculture Machine Division of FMC

Continues on page 32



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