
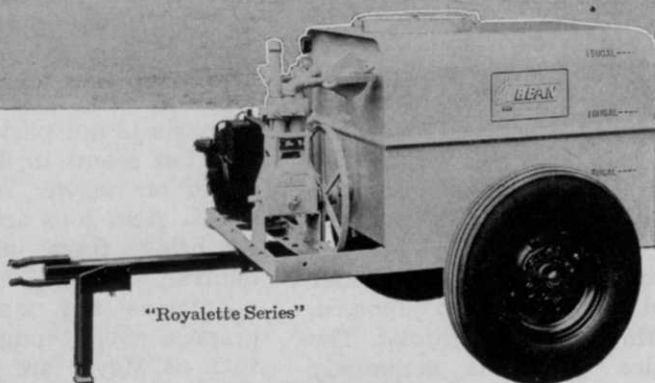


leadership  *engineering* pushes performance up - prices down

JOHN BEAN: CHOICE OF CUSTOM OPERATORS



John Bean leads the way when you "spray for pay". You select from four basic sprayer series . . . plenty of choice to let you get size, type, capacity and price just right for your needs. Bean Bond lined tanks and lifetime Saphite cylinders assure long, trouble free service. Trailer-type, skid-mounted or PTO models. Wide choice of accessories. Versatility unlimited: weed and brush control, turf spraying, applying liquid fertilizer, shrub and tree spraying, root feeding, dust abatement, row crop spraying. To be sure sprayday is payday, get the facts on John Bean high-pressure sprayers.



"Royalette Series"

CHOOSE FROM FOUR BASIC SERIES

- "ROYAL" SPRAYERS—25 to 60 GPM, pressures to 800 p.s.i., 200 to 1000-gallon tanks.
- "ROYALIER" SPRAYERS—15 to 20 GPM, pressures to 400 p.s.i., 200 to 500-gallon tanks.
- "ROYALETTE" SPRAYERS—5 to 10 GPM, pressures to 400 p.s.i., 50 to 300-gallon tanks.
- "TROJAN & SPARTAN" SPRAYERS—Mobile, push-type. 3 GPM, 60 p.s.i. (Trojan) or to 300 p.s.i. (Spartan)

GET THE FACTS! Clip coupon to your letterhead.

- Royal Royalier Royalette Rotomist Mist-Type Sprayers
- Trojan-Spartan Mosquito Control Facts Dutch Elm Disease Facts



JOHN BEAN DIVISION

Lansing, Mich. - Orlando, Fla. - San Jose, Calif.

Turfgrass Portraits VI:

Zoysia

By DR. ROBERT W. SCHERY

Director, The Lawn Institute
Marysville, Ohio

This is the sixth in a series of nine articles on the basic traits and maintenance procedures for common turfgrasses. Next month author Schery discusses bahiagrass.

ZOYSIA, glamour name among turfgrasses second only to bluegrass, is native to eastern Asia and its outlying islands. Zoysia, named for Karl von Zois, an Austrian botanist of the 18th century, is conserved over Osterdamia. Species boundaries within the genus are obscure. Forbes lumped all turfgrass types as *Z. matrella*. Yet most literature still calls forms wider leaved than matrella *Z. japonica*, very fine ones *Z. tenuifolia*. The japonica group is commonly known as Korean or Japanese lawngrass, reflecting collections from that portion of the globe by USDA plant explorer Frank N. Meyer in 1906. The matrellas are designated manilagrass, because of Piper's introduction of this type from the Philippines in 1911. *Tenuifolias* are called mascarene, Korean velvet, patio or flagstone grass.

Forbes, at the Tifton (Georgia) Experiment Station, has hybridized different forms, and the well-known "Emerald" is a selection from crossing japonica with *tenuifolia*. Unfortunately, Emerald sometimes grows

"puffy" like *tenuifolia*, and then mows poorly. The Meyer variety is a dense, hardy selection from japonica seedlings at Beltsville, Maryland, named for the explorer. Flawn was an early matrella selection, hardy along the East Coast nearly to New England, and also much planted in the Southwest. Recently Purdue has released Midwestern zoysia, and yet unnamed selections are today under test far and wide.

Thus zoysias, like most prominent turfgrasses, occur in tremendous variety, from very fine-leaved and low-growing *tenuifolia* sorts (ground covers of the deep South, so low as to scarcely need mowing), to coarser japonicas in many "sizes and shapes." Seed, mainly imported from the Far East, but occasionally harvested on sod farms in this country, exhibits genetic reassortment typical of sexual crossing, and must be considered "japonica." All named varieties are propagated vegetatively, to assure trueness to type. Through the years there have been many local selections across the South, chiefly matrellas, as good as any for their areas.

Adaptation and Preferences

Zoysia is not particular about soil, but seems to do somewhat better on heavier soils than on sands. Acid soils are best limed to bring them more nearly neutral.

Zoysias are warm-season grasses, even though selections such as Meyer are quite hardy even into Canada. But like bermuda and annual weeds, zoysia is discolored by cold weather, remains brown the winter through. In middle latitudes it is typically dormant from October until April, not much of a recommendation for climates where cool-season grasses such as Kentucky bluegrass, fine fescues and bentgrasses give ten months of greenness. As such, zoysia remains primarily a southern beauty, even though its growing season may be a little more prolonged than other southern grasses.

Zoysia has received heady ac-

colades, alternating with spells of disappointment because it did not always live up to extravagant claims made for it. In the early 1950's zoysia was to become the lawn savior in the crabgrass belt, in combination with the then new Merion Kentucky bluegrass. Apparently it didn't worry authorities urging this upon the American homeowner that brown zoysia was just as ugly as brown crabgrass in the winter lawn! Nor that two grasses of such divergent habits are seldom compatible, do not intersperse one within the other evenly and easily. As a matter of fact, I have still to see a permanently successful interplanting of these grasses,—the combination that was to conquer American lawns!

Nor has everything been completely rosy in the South. The enthusiasm of the 1950's for starting zoysia sod nurseries didn't reckon with the facts of life as that the vaunted Meyer strain discolored more readily in the South than local matrellas; that zoysia in time develops thatch (and consequent problems) which can cause debilitation; that diseases and insects eventually would find zoysia attractive (billbug has recently about finished off the zoysia sod business in Florida); that the very characteristics which make zoysia so wear-resistant underfoot, also make necessary an expensive heavy-duty mower to attend it.

In short, zoysia cannot be all things to all people in all locations. But among zoysias are the finest lawngrasses available for the South, aristocrats the equal of the better bermudas. Zoysia won't establish so readily as bermuda, but it will wear better. It can stand shade. It requires only modest fertilization. Seedheads are not abundant, little bother. It is not a rampaging pest at borders as is bermuda, and it is reasonably resistant to salt spray, so useful near the coast. But it is not a turf to endure neglect ungrudgingly, as so often implied. Nor is it adapted to wet places.

Zoysia's capabilities are better understood now, and there is a revival of interest in it for areas

where it was something of a flop earlier. For example, it may help golf fairways planted to U-3 bermuda in bluegrass country, which have suffered so much recently from winterkill (on north slopes especially) and from spring dead spot disease.

Growth

Zoysia spreads by above-ground runners (stolons), and underground stems (rhizomes). Rate varies greatly, and among the selections now under test are many potential releases that spread much more rapidly than is generally expected of zoysia. One of the drawbacks to zoysia has always been the lengthy period needed to fully establish it as a sod—a full growing year even in southern Florida, usually three years in northerly areas. During this interval weeds must be controlled, lest the zoysia be further slowed or even lost. A zoysia lawn has been expensive, and only for the patient man.

But once established, slow growth becomes a virtue. Mowing need not be so frequent as with bermuda, although the turf should be "evened up" regularly, at least each ten days. No grass makes a thicker, more resilient carpet than does zoysia. But here too, there are side effects. Such durability and tightness builds thatch in time, in some lawns so tight that water runs from the surface as from a shingled roof. The turf may then dry brown even though watered. And lawn mowers sufficiently powered to mow zoysia are not the inexpensive sorts. A heavy-duty machine with an extra reel blade is almost needed. Likewise, thinning heavily accumulated zoysia thatch requires special machines or skilled burning, just too much for the average homeowner-with-a-rake. And because of slow recovery, mistakes show for quite a while.

Zoysia has no terribly serious diseases; dollar spot and brown patch are sometimes found, but respond to fungicidal prevention. Until billbugs came along, siliceous zoysia was not greatly bothered by insects. Billbug larvae work deep in the grass, and unless organic phosphates

thoroughly douse the sod, control is difficult. Nematodes also attack zoysia, often seriously in Florida.

Not being the rampant grower that is bermuda, fertility needs are not so great with zoysia. "Average" fertilization for the soil and region is suggested, generally about 6 lbs. nitrogen/M/year. Resistance to drought is pretty good, though occasional irrigation is needed to keep a lawn continuously attractive. Mowing varies with use and variety, ranging from about $\frac{3}{4}$ inch to as high as 2 inches in more northerly locations. The tight growth of zoysia is quite a help in preventing weeds. Where weeds do pock the lawn, the 2,4-D family of herbicides takes out most broadleaf sorts without injury to zoysia. Nor will the usual preemergence and arsonate checks against annual grasses damage the grass.

Planting

Zoysia is best started in spring or early summer, to give the maximum period of warm weather for establishment. Seed is available only for unselected *Z. japonica*, usually sowed about 2 lb./M. Zoysia seed fits nicely

seeding mixtures for everyday lawns, where the special characteristics of varietal selections are not important.

Named varieties, of course, must be planted from living starts, sprigs (stems about three nodes in length, one extremity to be buried, the other exposed), or by plugs (biscuits of sod). New plantings generally show little activity for 2-3 weeks. Tests indicate slightly more rapid spread from sprigs than from plugs, but the planting is more of a chore and keeping the new planting sufficiently moist more of a problem. Likewise, larger plugs have proven more enduring than smaller ones, especially if interplanted into existing turf. Spacing between starts should not be more than six inches, lest filling to a complete sod take unduly long.

Quickest fill results from planting into a cultivated and well-fertilized seedbed. If the soil cannot be sterilized, weeds may be checked somewhat with herbicides and hand pulling. In Florida Simazine and Atrazine have checked weeds without setback to zoysia, when sprayed over a new planting the same as recommended for St. Augustine.



Cross section of *Zoysia matrella* sod with soil washed away. (Photo courtesy Asgrow Seed Company).

Weeds Trees and Turf's 1964 Index of Articles

An alphabetical reference to subjects and titles of all major feature articles, feature columns, news stories, letters published in *Weeds Trees and Turf* in 1964. A list of authors of this year's articles follows the Directory.

KEY

(f) feature article (ns) news story (c) feature column
(ed) editorial (L) letter (br) book review

	Issue Pg.
A	
Accidents, Arborists' Big Job: Cut Out the "Little" (f)	Aug 8
Aeration Help "Old Turf," Report Says, Controlled Irrigation and Deep Soil (ns)	Jul 31
Aerify, Dethatch, Wet, Turf Areas for Dry Spot Control (ns)	Oct 21
(Aquatic Weed Control) Hyacinth Control Society Report (nf)	Aug 26
Aquatic Weed Control, How We Use Scuba Divers in, by Henry Carsner and Ralph Grenfell (f)	Feb 16
Aquatic Weed Control Specs for Ill., New Bulletin Gives (ns)	Apr 34
Aquatic Weedmen Stir Up More Questions Than Answers at 1964 Chicago Meet, Fact-Seeking (nf)	Mar 16
Arborists' Big Job: Cut Out the "Little" Accidents (f)	Aug 8
Arborists: Build A Better Image, Unanimous Advice of Speakers at 40th Shade Tree Conference Convention (nf)	Sep 18
Association of Spraymen? Why Join a National, by Larry Nipp (f)	Oct 12
(Association, National) All or Nothing! (ed)	May 6
(Association, National) HSAF Convention Report (nf)	Dec 8
B	
<i>Bacillus thuringiensis</i> , Report on Aerial Application of (ns)	May 29
(Bahagrass) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 18
Bahigrass Kept at Desirable Level with MH, Unmown (ns)	Sep 30
(Bandane) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Bentgrass) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 19
Bentgrasses, Turfgrass Portraits III., by Dr. Robert W. Schery (f)	Sep 16
(Bermudagrass) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 18
Bermudagrass Mite, Controlling the, by Wayne C. Morgan (f)	Jun 8
Bermudagrasses, Turfgrass Portraits V., by Dr. Robert W. Schery (f)	Nov 8
(Betasan) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
Bluegrass, Annual; Know Your Species (c)	Apr 24
Bluegrass, Turfgrass Portraits I: Kentucky, by Dr. Robert W. Schery (f)	Jul 12
(Bluegrasses) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 19
(Bromacil) Water Soluble Hyvar Developed (ns)	Apr 27
Brush Up On Brush Control (f)	May 13
(Brush Control) Southern Weed Conference Reports (ns)	Mar 27
Brush Control, Dormant Season, by Dr. B. A. Sprayberry (f)	Sep 10
C	
(Calcium Arsenate) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Calcium Propyl Arsenate) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Carbaryl) Controlling Japanese Beetles at Cleveland's Airport (f)	Sep 13
(Caterpillars) Dichondra Pests and Controls Outlined in Council Bulletin (ns)	Oct 20
(Centipede) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 18
Chickweed, Silvex Controls (ns)	Feb 24
(Chlordane) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Chlorosis) Iron Shortage May Cause Yellow Color on Pin Oak (ns)	Sep 28
Cool-Season Grasses, Advice on (ns)	Sep 28
(Contracts, Spraying) HSAF Convention Report (nf)	Dec 8
Crabgrass, Making Sense About, by Dr. W. H. Daniel (f)	Mar 10
(Credit) Florida Turfgrass Trade Show Report, by Walter D. Anderson (nf)	Jul 14
D	
(Dacamine) Colorado State Lists Results of 1963 Herbicide Tests (ns)	Jul 10
(Dacthal) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Dacthal) NE Weed Control Conference Report (nf)	Feb 20
Dallisgrass; Know Your Species (c)	Nov 15
Dead Spot, Fertilizer Advice on Tap at 5th University of Missouri Lawn and Turf Conference, Tips on Spring, by Dave Miller (nf)	Nov 14
(Dead Spot, Spring) Internat'l Turfgrass Conference Report (nf)	Mar 20
Dethatch, Wet, Turf Areas for Dry Spot Control, Aerify, (ns)	Oct 21
(Dicamba) Colorado State Lists Results of 1963 Herbicide Tests (ns)	Jul 10
(Dicamba) NE Weed Control Conference Report (nf)	Feb 20
(Dicamba) Weed Society of America Report (nf)	Mar 14
(Dichlobenil) NE Weed Control Conference Report (nf)	Feb 20
Dichondra Pests and Controls Outlined in Council Bulletin (ns)	Oct 20
(Diphenatril) Making Sense About Crabgrass, by Dr. W. H. Daniel (f)	Mar 11
(Diquat) Aquatic Weed Control Society Report (nf)	Mar 18
Disease, Called <i>Fusarium</i> Blight, Penn State Finds New Turf (ns)	Aug 30
(Disease, Dutch Elm) Intelligent Tree Planting Will Determine America's Future Beauty, Minn. Treemen Hear (ns)	Nov 11
Disease, Effect of Cold Injury and Freezing, Noninfectious Tree, Part I, by Dr. Richard Campana (f)	Aug 10
(Disease, Littleleaf) Internat'l Shade Tree Conference Convention Report (nf)	Sep 23
Dormant Season Brush Control, by Dr. B. A. Sprayberry (f)	Sep 10
Dormant Spray for Scales, Maryland Expert Advices, Use (ns)	Mar 26
Dry Spot Control, Aerify, Dethatch, Wet, Turf Areas for (ns)	Oct 21
E	
(Elm Leaf Beetle) Virus Diseases and Moth Populations Studied at New England Tree Meeting, by Terry Stock (nf)	May 26
(Equipment, Custom) Texas Know-How Creates Homemade Spray Rig, by Pauline Neff (f)	Oct 14
(Equipment) Dick Evans, Inc., Contract Applicator (f)	Jun 12
F	
(Fenac) Colorado State Lists Results of 1963 Herbicide Tests (ns)	Jul 10
Fertilizer Advice on Tap at 5th Univ. of Missouri Lawn and Turf Conference, Tips on Spring Dead Spot, by Dave Miller (nf)	Nov 14
Fertilizer Applications Improve Turf in Southern California, Well-Timed, by Howard H. Hawkins (ns)	Jul 18
Fertilizer Needs, Undaunted by Dora, Delegates at Auburn Turf Course Study Soil Chemistry, Learn of, by R. E. Stevenson (nf)	Oct 18
(Fescues) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 19
Fescues, Turfgrass Portraits II: Fine, by Dr. Robert W. Schery (f)	Aug 16
(Formulations) Quick-Breaking Emulsions Not Necessarily Cheap (L)	May 8
Formulations You Buy? How Good Are the, by Frank L. Wilson (f)	Jan 8
(Fumigants, Soil) What Turf Managers Need to Know About Nematodes (f)	Feb 26
<i>Fusarium</i> Blight, Penn State Finds New Turf Disease, Called (ns)	Aug 30
G	
(Gypsy Moth) Report on Aerial Application of <i>Bacillus thuringiensis</i> (ns)	May 29
H	
(Hadacidin) Weed Society of America Report (nf)	Mar 14
Hemlock Looper, Air Striking the, by Tom Burrier (f)	Apr 12
Hemlock Scale Control, Maryland U. Entomologist Tells of (ns)	Jul 27
Hyacinth Controls, New Spray Systems on Society Agenda at Tallahassee, June 20-30, Expanded, (nf)	Aug 26
I	
(Irrigation) Aerify, Dethatch, Wet, Turf Areas for Dry Spot Control (ns)	Oct 21
Invert Emulsions: The Inside-Out Sprays by Jack Taylor (f)	Jan 12
Irrigation and Deep Soil Aeration Help "Old Turf," Report Says, Controlled (ns)	Jul 31
(Irrigation) Effects of Excess Rain on Turf Management, by J. R. Watson, Jr. (f)	Nov 6
(Irrigation) "How to Use Water in Turf Management" Attracts 275 to 30th Iowa Conference, by Dr. Eliot C. Roberts (nf)	May 22
Irrigation, 730 Delegates at Ohio Short Course Study Turf Diseases, Weed Control (ns)	Apr 28
J-K	
Japanese Beetles at Cleveland's Airport, Controlling (f)	Sep 12
(Kentucky Bluegrass) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f)	Apr 16
L	
Lambsquarters; Know Your Species (c)	Jul 20
(Landscape) Proper Grade Is Key to Successful Lawn (ns)	Jun 20
(Landscape) Intelligent Tree Planting Will Determine America's Future Beauty, Minn. Treemen Hear (nf)	Nov 10

(Lawngrasses) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f) Apr 18
 (Lead Arsenate) Making Sense About Crabgrass, by Dr. W. H. Daniel (f) Mar 11
 Legislation, How to Live With, by N. Curtis Peterson, Jr. (f) Oct 10
 (Legislation) Major Pesticide Curbs Unlikely, Texas Aerial Applicators Hear, by G. L. Earle (nf) Apr 22
 Line Clearance, A Review of Shade Tree Pruning Practices for Streetside (f) Aug 12

M

MH-30T, Slowing Tree and Shrub Growth With Retardant, by Dr. John Zukel (f) Aug 20
 MH, Unmown Bahiagrass Kept at Desirable Level With (ns) Sep 30
 Mite, Controlling the Bermudagrass, by Wayne C. Morgan (f) Jun 8
 Mites, Identify, Control Spider (ns) Jan 17
 Mites in N. Y., Spider (L) Apr 10
 (Moth, Lucerne) Dichondra Pests and Controls Outlined in Council Bulletin (ns) Oct 20
 Moth Populations Studied at New England Tree Meeting, Virus Diseases and, by Terry Stock (nf) May 26

N

Nematodes, What Turf Managers Need to Know About (f) Feb 10
 New Mexico Turf Group; Conference Studies Turf Varieties, Mowing, Patterson to Head (ns) Dec 47
 Northeastern Weed Control Conference, "The Public Must Be Told," Weedmen Decide at 18th (nf) Feb 18
 Northwest Spraymen's Conference, Sept. 25-26, Increased Professionalism, Better Trade Organization Foretold at (nf) Nov 12
 Nutsedge; Know Your Species (c) Dec 44

O

Oak Wilt Disease, Prune in Winter Months to Avoid (ns) Feb 28
 (Overseeding) Making Sense About Crabgrass, by Dr. W. H. Daniel (f) Mar 11

P

Parathion Labels, USDA Warns Industry; Observe (ns) Jun 18
 Poison Ivy; Know Your Species (c) Oct 24
 Prostrate Knotweed; Know Your Species (c) Jun 16
 Pruning Practices For Streetside Line Clearance, A Review of Shade Tree (f) Aug 12
 Pruning Schedule, Shrub Bloom Determines (ns) Jun 16
 (Pruning, Utility) Virus Diseases and Moth Populations at New England Tree Meeting, by Terry Stock (nf) May 26
 Puncturevine; Know Your Species (c) Aug 24
 Purslane; Know Your Species (c) Jan 16

Q

Quackgrass; Know Your Species (c) Sep 24

R

Rain on Turf Management, Effects of Excess, by J. R. Watson, Jr. (f) Nov 6
 Red Sorrel; Know Your Species (c) Mar 24
 (Renovation, Turf) Weed Society of America Report (nf) Mar 14
 (Rhap-Trol System) Hyacinth Control Society Report (nf) Aug 26
 Roadside Spraying, How to Answer the Critics of, by Fred A. Ashbaugh (f) Jul 8
 (Ryegrass) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f) Apr 19

S

(Safety) Arborists' Big Job: Cut Out the "Little" Accidents (f) Aug 8
 Scale Control, Maryland U. Entomologist Tells of (ns) Jul 27
 Scales, Maryland Expert Advises, Use Dormant Spray for (ns) Mar 26
 Scale, Stop Oyster Shell (ns) Jul 23
 Scuba Divers in Aquatic Weed Control, How We Use, by Henry Carsner and Ralph Grenfell (f) Feb 16
 (Sevin) Air Striking the Hemlock Looper, by Tom Burrier (f) Apr 14
 (Sevin) Controlling Japanese Beetles at Cleveland's Airport (f) Sep 13
 (Sevin) Virus Diseases and Moth Populations Studied at New England Tree Meeting, by Terry Stock (nf) May 26
 Shade Tree Conference Convention, Arborists: Build a Better Image, Unanimous Advice of Speakers at 40th (nf) Sep 18
 Spraymen? Why Join a National Association of, by Larry Nipp (f) Oct 12
 (St. Augustine) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f) Apr 18
 St. Johnswort; Know Your Species (c) Feb 24
 (Striped Smut) Use Your Ag Experiment Station (f) Jul 17
 Suppliers Guide, 1965 Weeds, Trees and Turf (f) Dec 16
 (Surfactants) Weed Society of America Report (nf) Mar 12
 (Surfactants) NE Weed Control Conference Report (nf) Feb 18
 (Systemic Insecticide) Root-Absorbed Insecticide Protects Plant as It Grows (ns) Jun 14

T

(Tordon) Colorado State Lists Results of 1963 Herbicide Tests (ns) Jul 10
 Tree and Shrub Growth With Retardant MH-30-T, Slowing, by Dr. John Zukel (f) Aug 20
 Tree Pruning Practices for Streetside Line Clearance, A Review of Shade (f) Aug 12

(Trees, Books About) Brush Up on Brush Control (f) May 16
 (Trees, List of Recommended Street) Intelligent Tree Planting Will Determine America's Future Beauty, Minn. Treemen Hear (nf) Nov 11
 (Trifluralin) Making Sense About Crabgrass, by Dr. W. H. Daniel (f) Mar 11
 (Tritac-D) Colorado State Lists Results of 1963 Herbicide Tests (ns) Jul 10
 Turfgrass, How to Select the Right, by Dr. Robert W. Schery (f) Apr 16
 Turfgrass Conference, Show Last Month, Record Crowd of 2755 Delegates Hails Program Exhibits at 35th International (nf) Mar 20
 Turfgrass Portraits, by Dr. Robert W. Schery (f)
 I: Kentucky Bluegrass Jul 12
 II: Fine Fescues Aug 16
 III: Bentgrasses Sep 16
 IV: "Wintergrass" Oct 16
 V: Bermudagrasses Nov 8
 VI: Zoysia Dec 12
 Turfgrass Trade Show to Success, Field Demonstrations, Sunny Weather, Added Exhibits Spur 3rd Annual Florida, by Walter D. Anderson (nf) Jul 14
 Turf Management, Effects of Excess Rain on, by J. R. Watson, Jr. (f) Nov 6
 Turf Management" Attracts 275 to 30th Iowa Conference, "How to Use Water in, by Dr. Eliot C. Roberts (nf) May 22
 Turf Problems, Cornell Sells Color Photo Guide to (ns) Apr 34

U-V

Uroxy Herbicide Developed to Mix With Asphalt or Tar (ns) Jun 18
 (Vapam) New Controls to Help Combat Dutch Elm Disease; N. C. Reports Spread of Elm Problem (ns) Jul 26

W X Y Z

Weed Control Conference, "The Public Must Be Told" Weedmen Decide at 18th Northeastern (nf) Feb 18
 Weed Society Sets New Goals, Reflects on Accomplishments at Biennial Meeting in Chicago, Optimistic (nf) Mar 12
 "Wintergrass," Turfgrass Portraits IV, by Dr. Robert W. Schery (f) Oct 16
 Worms Can Become Lawn Nuisance, Beneficial (ns) Sep 14
 (Zectran) Dichondra Pests and Controls Outlined in Council Bulletin (ns) Oct 20
 (Zoysia) How to Select the Right Turfgrass, by Dr. Robert W. Schery (f) Apr 18
 Zoysia, Turfgrass Portraits VI, by Dr. Robert W. Schery (f) Dec 12
 (Zytron) Making Sense About Crabgrass, by Dr. W. H. Daniel (f) Mar 11

AUTHORS

Anderson, Walter D., "Field Demonstrations, Sunny Weather, Added Exhibits Spur 3rd Annual Florida Turfgrass Trade Show to Success" Jul 14
 Ashbaugh, Fred A., "How to Answer Critics of Roadside Spraying" Jul 8
 Burrier, Tom, "Air Striking the Hemlock Looper" Apr 12
 Campana, Dr. Richard, "Noninfectious Tree Disease, Part I, Effect of Cold Injury and Freezing" Aug 10
 Carsner, Henry, "How We Use Scuba Divers in Aquatic Weed Control" Feb 16
 Earle, George L., "Major Pesticide Curbs Unlikely, Texas Aerial Applicators Hear" Apr 22
 Grenfell, Ralph, "How We Use Scuba Divers in Aquatic Weed Control" Feb 16
 Hawkins, Howard H., "Well-Timed Fertilizer Applications Improve Turf in Southern California" Jul 18
 Miller, Dave, "Tips on Spring Dead Spot, Fertilizer Advice on Tap at 5th Univ. of Missouri Lawn and Turf Conference" Nov 14
 Morgan, Wayne, "Controlling the Bermudagrass Mite" Jun 8
 Neff, Pauline, "Texas Know-How Creates Homemade Spray Rig" Oct 14
 Nelson, Josephine B., "Share Your 'Secrets', Experts Urge 300 Turf Pros at Minnesota Course" May 23
 Roberts, Dr. Eliot C., "How to Use Water in Turf Management" Attracts 275 to 30th Iowa Conference" May 22
 Schery, Dr. Robert W., "How to Select the Right Turfgrass, a Basic Guide for Turfgrass Managers" Apr 16
 "Turfgrass Portraits I: Kentucky Bluegrass" Jul 12
 "Turfgrass Portraits II: Fine Fescues" Aug 16
 "Turfgrass Portraits III: Bentgrasses" Sep 16
 "Turfgrass Portraits IV: 'Wintergrass'" Oct 16
 "Turfgrass Portraits V: Bermudagrasses" Nov 8
 "Turfgrass Portraits VI: Zoysia" Dec 12
 Sprayberry, Dr. B. A., "Dormant Season Brush Control" Sep 10
 Stevenson, R. E., "Undaunted by Dora, Delegates at Auburn Turf Course Study Soil Chemistry, Learn of Fertilizer Needs" Oct 18
 Stock, Terry, "Virus Diseases and Moth Populations Studied at New England Tree Meeting" May 26
 Taylor, Jack, "Invert Emulsions: The Inside-Out Sprays" Jan 12
 Watson, J. R., Jr., "Effects of Excess Rain on Turf Management" Nov 6
 Wilson, Frank L., "How Good Are the Formulations You Buy?" Jan 8
 Zukel, Dr. John, "Slowing Tree and Shrub Growth With Retardant MH-30T" Aug 20

WEEDS TREES AND TURF 1965 SUPPLIERS GUIDE

Weeds Trees and Turf presents below its annual Guide to Suppliers of vegetation control chemicals and equipment for use in urban/industrial areas. There is a mixture of common and trade-marked names (indicated by an asterisk*). This has been unavoidable since usage and recommendations of researchers refer to a particular chemical by one or the other, depending upon the newness of the compound, whether its common name is easier to use, or industry acceptance. There will also be

some differences of opinion over the inclusion or omission of certain chemicals under particular use categories. Here again confusion exists among reference sources. We have made our choices on the basis of most frequent mention in our surveys which preceded this compilation. Readers' comments and suggestions are invited to help us improve future editions. Keep this year's Guide handy for frequent use.

Advertisers in *Weeds Trees and Turf* are listed in boldface type.

HERBICIDES

SOIL STERILANTS

AMIZINE*

Amchem Products, Inc.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Gabriel Chemicals, Ltd.
Hub States Chemical & Equip. Co.
Residex Corp.

AMMONIUM SULFAMATE

Brayton Chemicals, Inc.
Chipman Chemical Co.
E. I. du Pont de Nemours & Co.
General Chemical Div., ACC
Hub States Chemical & Equip. Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.
Triangle Chemical Co.

ATRAZINE

American Fluoride Corp.
Armour Agricultural Chemical Co.
Archem Corp.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Campbell Mfg. Co.
Gabriel Chemicals, Ltd.
Geigy Agricultural Chemicals
Hub States Chemical & Equip. Co.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Nalco Chemical Co.
Prentiss Drug & Chemical Co., Inc.
Residex Corp.
Riverdale Chemical Co.
O. M. Scott & Sons
Southern Mill Creek Products Co.
Triangle Chemical Co.
Woolfolk Chemical Works, Ltd.

BENZABOR*

Brayton Chemicals, Inc.
Miller Products Co.
U. S. Borax

BORATE COMPOUNDS, HYDRATED

American Potash & Chemical Corp.

BORATE-BROMACIL MIXES

Chipman Chemical Co.
Nalco Chemical Co.

BORATE-CHLORATE, MIXES

Hooker Chemical Corp.
Utility Chemical Co.

BORATE-CHLORATE-BROMACIL

Chipman Chemical Co.

BORATE-DIURON MIXES

Nalco Chemical Co.

BORATE-MONURON MIXES

Chipman Chemical Co.
Nalco Chemical Co.
U. S. Borax
Wood Treating Chemicals Co.

BORATE-UREA MIXES

Chipman Chemical Co.
Diamond Alkali Co.
Hub States Chemical & Equip. Co.
Riverdale Chemical Co.
U. S. Borax

BROMACIL

R. H. Bogle Co.
Brayton Chemicals, Inc.
Chapman Chemical Co.
E. I. du Pont de Nemours & Co.
General Chemical Div., ACC
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.

CALCIUM CHLORIDE

R. H. Bogle Co.
Brayton Chemicals, Inc.
The Dow Chemical Co.
General Chemical Div., ACC
Hub States Chemical & Equip. Co.
Miller Chemical & Fertilizer Corp.
Pittsburgh Plate Glass Co.
Utility Chemical Co.

CHLOREA*

Brayton Chemicals, Inc.
Chipman Chemical Co.
Hub States Chemical & Equip. Co.
Miller Products Co.
Triangle Chemical Co.

DIURON

Armour Agricultural Chemical Co.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Chapman Chemical Co.
E. I. du Pont de Nemours & Co.
Gabriel Chemicals, Ltd.
General Chemical Div., ACC
Miller Chemical & Fertilizer Co.
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.
Andrew Wilson Co., Inc.

ERBON

Brayton Chemicals, Inc.
Dow Chemical Co.
Nalco Chemical Co.
Residex Corp.

FENAC

Amchem Products, Inc.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Nalco Chemical Co.
Residex Corp.

FENATROL*

Amchem Products, Inc.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Residex Corp.

HCA*

General Chemical Div., ACC
Southern Mill Creek Products Co.

MONOBOR-CHLORATE*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Miller Products Co.
U. S. Borax

MONURON

R. H. Bogle Co.
Brayton Chemicals, Inc.
Destruxol Corp.
E. I. du Pont de Nemours & Co.
E-Z Flo Chemical Co.
Gabriel Chemicals, Ltd.
General Chemical Div., ACC
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.
Wood Treating Chemicals Co.

PBA



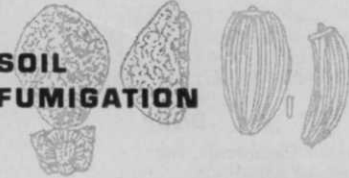


Amchem Products, Inc.
Brayton Chemicals, Inc.
E. I. du Pont de Nemours & Co.
Gabriel Chemicals, Ltd.

PROMETONE*

Archem Corp.
Armour Agricultural Chemical Co.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Geigy Agricultural Chemicals
Hub States Chemical & Equip. Co.
Miller Products Co.
Prentiss Drug & Chemical Co.
Residex Corp.

VELSICOL TURF CHEMICALS

FOR COMPLETE TURF PEST CONTROL

 <p>TURF DISEASE CONTROL</p>	<p>VELSICOL "2-1" MERCURIC FUNGICIDE</p>	<p>Controls brown patch, dollar spot, and snow mold. New formulation has greater wettability, more stability in suspension and less foaming action than any other comparable product.</p>
 <p>WEED CONTROL</p>	<p>VELSICOL BANVEL[®] D 4S</p>	<p>Banvel D 4S gives excellent control of knotweed, common chickweed, clover, red sorrel, mouse-ear chickweed, stitchwort, dog fennel, chicory, curly dock, and many other hard-to-kill perennial broad-leaf weeds.</p>
 <p>SOIL FUMIGATION</p>	<p>VELSICOL PESTMASTER[®] SOIL FUMIGANT-1</p>	<p>Soil Fumigant-1 contains methyl bromide with 2% chloropicrin. It will remove weeds, weed seeds and obnoxious grasses in an old golf green, or in the soil before new grass is planted. Economical, easy-to-apply, fast acting.</p>
 <p>PRE-EMERGENCE CRABGRASS CONTROL</p>	<p>CHLORDANE BANDANE[®]</p>	<p>Chlordane provides exceptionally effective pre-emergence crabgrass control, and complete protection against damaging soil insects. Bandane is a newer pre-emergence control, notable for effective control plus safety to seedling grass and established turf. It also kills ants, grubs, and other insects.</p>
 <p>TURF INSECT CONTROL</p>	<p>CHLORDANE HEPTACHLOR</p>	<p>Both Chlordane and Heptachlor kill most common insect pests of turf, plus many harmful or annoying insects that live on the surface of the soil. Grubs, mole crickets, wireworms, cutworms, ticks, chiggers, ants, mosquitoes, sod webworms, earwigs and many other insects can be controlled with these versatile insecticides.</p>

CONTACT YOUR DISTRIBUTOR NOW FOR THE COMPLETE LINE OF VELSICOL TURF PEST CONTROL CHEMICALS!
FOR MORE INFORMATION WRITE



VELSICOL CHEMICAL CORPORATION / 341 E. OHIO STREET, CHICAGO, ILLINOIS 60611

Southern Mill Creek Products Co.
Triangle Chemical Co.

SIMAZINE

Agricultural Chemicals, Inc.
American Fluoride Corp.
Armour Agricultural Chemical Co.
Barada & Page Co.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Campbell Mfg. Co.
Gabriel Chemicals, Ltd.
Geigy Agricultural Chemicals
Hub States Chemical & Equip. Co.
Neil A. Maclean Co., Inc.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Nalco Chemical Co.
Prentiss Drug & Chemical Co., Inc.
Riverdale Chemical Co.
Pest Control Equipment Co.
Residex Corp.
Southern Mill Creek Products Co.
Triangle Chemical Co.

SODIUM ARSENITE

Acme Quality Paints, Inc.
American Fluoride Corp.
American Liquid Fertilizer Co., Inc.
Baird & McGuire, Inc.
R. H. Bogle Co.
Bonide Chemical Co., Inc.
Brayton Chemicals, Inc.
Burlin & Co., Inc.
California Chemical Co., Ortho Div.
California Farm Supply Co.
Chapman Chemical Co.
Chipman Chemical Co.
Destruxol Corp.
E-Z Flo Chemical Co.
Faesy & Besthoff, Inc.
Gabriel Chemicals, Ltd.
General Chemical Div., ACC
Hopkins Agricultural Chemical Co.
Hub States Chemical & Equip. Co.
Industrial Materials Co.
Lobel Chemical Corp.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
National Chemsearch Corp.
Niagara Chemical Div., FMC
Pennsalt Chemicals Corp.
B. G. Pratt Co.
Sherwin-Williams Co.
Southern Mill Creek Products Co.
Thompson-Hayward Chemical Co.
Triangle Chemical Co.
U. S. Borax
Utility Chemical Co.
Andrew Wilson Co., Inc.
Wood Treating Chemicals Co.

SODIUM CHLORATE

Agricultural Chemicals, Inc.
American Potash & Chemical Co.
Baird Chemical Corp.
Barada & Page Co.
R. H. Bogle Co.
Braun-Knecht-Heimann Co.
Chipman Chemical Co.
General Chemical Div., ACC
Hooker Chemical Corp.
Miller Products Co.
Nalco Chemical Co.
Pennsalt Chemicals Corp.
Pittsburgh Plate Glass Co.
Utility Chemical Co.

TBA

Amchem Products, Inc.
E. I. du Pont de Nemours & Co., Inc.
Miller Products Co.
Nalco Chemical Co.
Residex Corp.

TCA

Amchem Products, Inc.
Armour Agricultural Chemical Co.

R. H. Bogle Co.
Braun-Knecht-Heimann Co.
Brayton Chemicals, Inc.
Chapman Chemical Co.
Dow Chemical Co.
General Chemical Div., ACC
Miller Products Co.
Nalco Chemical Co.
Robeco Chemicals, Inc.
Southern Mill Creek Products Co.
Thompson-Hayward Chemical Co.

TRITAC*

Hooker Chemical Corp.
Miller Products Co.
U. S. Borax

URAB*

Brayton Chemicals, Inc.
General Chemical Div., ACC
Niagara Chemical Div., FMC
Southern Mill Creek Products Co.
Triangle Chemical Co.

UREABOR*

Brayton Chemicals, Inc.
Hub States Chemical & Equip. Co.
Miller Products Co.
U. S. Borax

UROX* WEEDKILLERS

Brayton Chemicals, Inc.
General Chemical Div., ACC
Hub States Chemical & Equip. Co.
Niagara Chemical Div., FMC
Southern Mill Creek Products Co.
Triangle Chemical Co.

PREEMERGENCE

(Selective)

ALANAP*

Brayton Chemicals, Inc.
Gabriel Chemicals, Ltd.
General Chemical Div., ACC
Hub States Chemical & Equip. Co.
Miller Products Co.
Naugatuck Chemical
Niagara Chemical Div., FMC
Riverdale Chemical Co.
Thompson-Hayward Chemical Co.

AMIBEN*

Amchem Products, Inc.
Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Gabriel Chemicals, Ltd.
Riverdale Chemical Co.

ATRAZINE

See Soil Sterilants

AZAK*

Hercules Powder Co.
Southern Mill Creek Products Co.

BANDANE*

Archem Corp.

Tell Advertisers

You Learned About Them

in

WEEDS TREES and TURF

Brayton Chemicals, Inc.
Chapman Chemical Co.
Prentiss Drug & Chemical Co.
Residex Corp.
Riverdale Chemical Co.
Seacoast Laboratories, Inc.
Southern Mill Creek Products Co.
Thompson-Hayward Chemical Co.
Velsicol Chemical Corp.

BENEFIN

Elanco Products Co.

BETASAN*

Stauffer Chemical Co.

CALCIUM PROPYL ARSONATE

W. A. Cleary Corp.
Lobel Chemical Corp.
Vineland Chemical Sales Corp.

CASORON*

Miller Products Co.
Thompson-Hayward Chemical Co.

CHLORDANE

See Insecticides

CIPC

Brayton Chemicals, Inc.
Miller Products Co.
Pittsburgh Plate Glass Co.
Riverdale Chemical Co.
Thompson-Hayward Chemical Co.
Woodbury Chemical Co.

DACTHAL*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Chipman Chemical Co.
Diamond Alkali Co.
Gabriel Chemicals, Ltd.
Heritage House Products, Inc.
Hub States Chemical & Equip. Co.
International Minerals & Chem.
Corp.
Riverdale Chemical Co.
Seacoast Laboratories, Inc.
Smith Douglass Co., Inc.
Southern Mill Creek Products Co.

DNBP

Brayton Chemicals, Inc.
Diamond Alkali Co.

DIPHENAMID

Armour Agricultural Chemical Co.
Elanco Products Co.

DIPHENATRILE

Bonide Chemical Co., Inc.
Elanco Products Co.

DIPROPALIN

Elanco Products Co.

DIURON

See Soil Sterilants

ENDOTHALL

Brayton Chemicals, Inc.
Chipman Chemical Co.
Gabriel Chemicals, Ltd.
Miller Products Co.
Pennsalt Chemicals Corp.
Residex Corp.

EPTAM*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Miller Products Co.
Riverdale Chemical Co.
Stauffer Chemical Co.
Woolfolk Chemical Works, Ltd.



**If you can't find the herbicide
you're looking for in the new Residex Catalogue
— try this.**

The new Residex catalogue provides technical information, prices and product listings for our complete line of 19 herbicides, especially formulated for industrial weed-control operations.

Since 1954, Residex has pioneered in distributing superior weed and turf products for custom applicators.



Why not use *our* experience to help you get started in this new and profitable field. Let us first help analyze your weed problems. Then, let us supply the specific herbicide, or mixture of herbicides, to *solve* the problem quickly and economically. Start cashing in on the weed and turf market now. Call or write today.

With this Residex Catalogue on hand,
you'll never end up pulling weeds by hand.

RESIDEX

CORPORATION

225 Terminal Avenue, Clark, New Jersey

HERBAN*

Brayton Chemicals, Inc.
Hercules Powder Co.
Triangle Chemical Co.

IPC

Pittsburgh Plate Glass Co.

LINURON

E. I. du Pont de Nemours & Co.

NEBURON

Brayton Chemicals, Inc.
E. I. du Pont de Nemours & Co.
Residex Corp.
O. M. Scott & Sons

PRE-SAN*

Mallinckrodt Chemical Works

PROPAZINE*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Geigy Agricultural Chemicals
Residex Corp.
Southern Mill Creek Products Co.

SESONE

Amchem Products, Inc.
Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Miller Products Co.

SIMAZINE

See Soil Sterilants

TILLAM*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Miller Products Co.
Stauffer Chemical Co.
Triangle Chemical Co.

TREFLAN*

Elanco Products Co.

TRICALCIUM ARSENATE

Chipman Chemical Co.
General Chemical Div., ACC
Sherwin-Williams Co.
Woolfolk Chemical Works, Ltd.

ZYTRON*

Amchem Products, Inc.
Armour Agricultural Chemical Co.
Bonide Chemical Co., Inc.
Brayton Chemicals, Inc.
Dow Chemical Co.
Miller Products Co.
Residex Corp.
Riverdale Chemical Co.
Southern Mill Creek Products Co.
Thompson-Hayward Chemical Co.
Woodbury Chemical Co.

POSTEMERGENCE

(Selective and Nonselective)

AMITROLE

Amchem Products, Inc.
American Cyanamid Co.
R. H. Bogle Co.
Brayton Chemicals, Inc.
General Chemical Div., ACC
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Riverdale Chemical Co.
Wood Treating Chemicals Co.

AMMONIUM METHYL ARSONATE

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
W. A. Cleary Corp.
Doggett Fison Co.
General Chemical Div., ACC
B. G. Pratt Co.
Seacoast Laboratories, Inc.
Southern Mill Creek Products Co.
Vineland Chemical Sales Corp.
Wood Treating Chemicals Co.

AMMONIUM THIOCYANATE

J. T. Baker Chemical Co.
Utility Chemical Co.

AMMONIUM SULFAMATE

See Soil Sterilants

ARSENIC ACID

Alco Chemical Co.
Armour Agricultural Chemical Co.
R. H. Bogle Co.
Chipman Chemical Co.
General Chemical Div., ACC
Hub States Chemical & Equip. Co.
Niagara Chemical Div., FMC
Sherwin-Williams Co.
Wood Treating Chemicals Co.

ATRAZINE

See Soil Sterilants

BANVEL-D*

R. H. Bogle Co.
Brayton Chemicals, Inc.
General Chemical Div., ACC
Miller Products Co.
Riverdale Chemical Co.
Southern Mill Creek Products Co.
Velsicol Chemical Corp.

BORATE COMPOUNDS

See Soil Sterilants

BROMACIL

See Soil Sterilants

CACODYLIC ACID

The Ansul Co.
Bonide Chemical Co., Inc.
Chapman Chemical Co.
Southern Mill Creek Products Co.

CALCIUM ACID METHYL ARSONATE

Brayton Chemicals, Inc.
Doggett Fison Co.
General Chemical Div., ACC
Vineland Chemical Sales Corp.

CALCIUM PROPYL ARSONATE

See Preemergence Herbicides

DACAMINE*

Armour Agricultural Chemical Co.
Brayton Chemicals, Inc.
Diamond Alkali Co.
Gabriel Chemicals, Ltd.
Heritage House Products, Inc.
Southern Mill Creek Products Co.

DALAPON

Armour Agricultural Chemical Co.
R. H. Bogle Co.
Brayton Chemicals, Inc.
Dow Chemical Co.
Hub States Chemical & Equip. Co.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Riverdale Chemical Co.
Southern Mill Creek Products Co.

DINITRO COMPOUNDS

Woodbury Chemical Co.

DIURON

See Soil Sterilants

DMA

Alco Chemical Co.
The Ansul Co.
Armour Agricultural Chemical Co.
Chapman Chemical Co.
Chipman Chemical Co.
W. A. Cleary Corp.
Diamond Alkali Co.
Dow Chemical Co.
Elanco Products Co.
General Chemical Div., ACC
Lobel Chemical Corp.
Miller Chemical & Fertilizer Corp.
O. M. Scott & Sons
Stauffer Chemical Co.
Southern Mill Creek Products Co.
Vineland Chemical Sales Corp.
Wood Treating Chemicals Co.

ENDOTHALL

See Preemergence

FENAC

See Soil Sterilants

FENURON

R. H. Bogle Co.
Brayton Chemicals, Inc.
E. I. du Pont de Nemours & Co., Inc.
General Chemical Div., ACC
Miller Products Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.

LINURON

E. I. du Pont de Nemours & Co.

MCPA

Amchem Products, Inc.
Brayton Chemicals, Inc.
Chipman Chemical Co.
Diamond Alkali Co.
Dow Chemical Co.
General Chemical Div., ACC
Miller Products Co.
Nalco Chemical Co.
Riverdale Chemical Co.

MCPP

Chipman Chemical Co.
W. A. Cleary Corp.
Doggett Fison Co.
Miller Products Co.
Morton Chemical Co.
Niagara Chemical Div., FMC

MSMA

The Ansul Co.

METHANEARSONIC ACID

O. M. Scott & Sons
Vineland Chemical Sales Corp.

MONURON

See Soil Sterilants

PENTACHLOROPHENOL

American Fluoride Corp.
Archem Corp.
Barada & Page Co.
Bonide Chemical Co., Inc.
Braun-Knecht-Heimann Co.
Brayton Chemicals, Inc.
Browning Chemical Corp.
Chapman Chemical Co.
Daly-Herring Co.
The Dow Chemical Co.