

WTT Report on

TURF HERBICIDES

WEEDS TREES & TURF is following its recent turf fungicide report with a detailed study of major manufacturers' turf herbicides. Those contacted were asked to identify their products and what weeds they can control. Their responses were:

J. & L. Adikes, Inc., manufactures two turf herbicides suitable for controlling a wide range of turf weeds. Their Gro-Well crabgrass and broadleaf weed killer can control crabgrass, chickweed and a variety of broadleaf lawn weeds such as dandelion, plantain, knotweed, spotted spurge, pennywort and purslane.

It should be used with care on bents, fescues and clover since it could cause temporary discoloration. This product is not designed for use on St. Augustine, carpet or centipede grasses or on bent golf greens.

Its active ingredients are 8 percent dodecylammonium methanearsonate; 8 percent octylammonium methanearsonate and 5.44 percent octylamine salt of 2,4-dichlorophenoxyacetic acid.

The company's Gro-Well dandelion and broadleaf weed killer can control bluegrass, ryegrass, fescue, Bermuda and Zoysia lawns. Its special targets are knotweed, chickweed, spotted spurge, henbit, black medic, sheep sorrel, bedstraw, buckhorn, chicory, dock, ground ivy, heal-all, lambsquarters, lespedeza, mallow, morning glory, peppergrass, pigweed, plantains, poison ivy, poison oak, purslane, ragweed, shepherd's purse, speedwell, spurge, wild carrot, wild garlic, wild lettuce, wild onion and yarrow.

It is not recommended for use on centipede and St. Augustine grass lawns and shouldn't be applied to

dichondra, carpetgrass or lawns with desirable bentgrass or clovers.

Its active ingredients are: 3.66 percent dimethylamine salt of 2-(2-methyl-4-chlorophenoxy) propionic acid; 8.07 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid; .84 percent dimethylamine salt of dicamba (3,6-dichloro-o-anisic acid) and .11 percent dimethylamine salt of related compounds.

Rhodia, Inc., Monmouth Junction, N.J., markets five herbicides. Chipco Bucril can control blue mustard, groundsel, lambsquarters and tarweed.

Chemically, it's 33.8 percent octanoic acid ester of bromoxynil (3,5-dibromo-4-hydroxydenzotrile), a broadleaf herbicide.

Chipco Turf Herbicide "D" works against buckhorn, and other plantains, curled dock, dandelion, red sorrel, wild garlic and wild onions.

Its active chemical component is 49.8 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid.

The company's Chipco Turf Herbicide MCPP works to control surface creeping broadleaf weeds such as common chickweed, mouse-ear chickweed, red clover, white clover, ground ivy, stitchwort and knotweed.

Its active ingredient is 32.8 percent diethanolamine salt of 2-(2-methyl-4-chlorophenoxy) propionic acid.

Chipco Turf Kleen combines MCPP and 2,4-D to control a wider range of weeds than either product. These include curly dock, dandelion, buckhorn and common chickweed.

Chipco Crab Kleen can control grassy weeds as dalligrass, sandbur, bahiagrass, nutsedge, chickweed and wood sorrel.

Its chemically active ingredient is 21.76 percent disodium methanearsonate.

DuPont, Wilmington, Del., manufactures Tuperan Siduron weed killer for use on annual weed grasses. It is designed for pre-emergence control of annual weed grasses such as both smooth and hairy crabgrass, foxtail and barnyardgrass. Clover, annual bluegrass (*Poa annua*) and most broadleaf weeds are not controlled by Tuperan.

Its chemical makeup of active ingredient is 50 percent siduron (1-2-methylcyclohexyl)-3-phenylurea).

Uniroyal Chemical, Nauagatuck, Conn. produces Slo-Gro, a growth retardant which controls annual bluegrass by reducing reseeding of *Poa annua*.

Active component is 58 percent dimethanolamine salt of 6-hydroxy-3-(2H)-pyridiazione.

Diamond Shamrock, Cleveland, Ohio, markets a number of turf herbicides for pre-emerging weeds. Its Dachtal herbicide can control both smooth and large crabgrass, *Poa annua*, goosegrass, carpetweed, common chickweed, johnsongrass (from seed), lambsquarters, lovegrass, purslane, and Veronica (creeping speedwell).

It is not recommended for putting greens or bentgrasses mowed at putting green height.

Its chemically active ingredient is 75 percent dimethyl tetrachloroterephthalate.

Daconate 6 is manufactured for use in selective control of bahiagrass, dalligrass, barnyardgrass and grassy weeds like chickweed, nutsedge, sandbur and wood sorrel. It also controls barnyard cocklebur, goosegrass, and johnsongrass.

Daconate 6 may injure bent-

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grasses and fescues and is not designed for application on St. Augustine grass, carpetgrass, centipede grass or dichondra lawns.

Its active ingredient is 48.35 percent monosodium methanearsonate.

Dacamine can control annual chickweed, broadleaf plantain, buckhorn, buttercup, bull thistle, hoary cress, knotweed, leafy spurge, morning glory, milkweed, mustard, Canada thistle, carpetweed, chickory, curly dock, dandelion, field bindweed, ground ivy, henbit, puncturevine, purslane, ragweed, shepherd's purse, wild carrot, wild garlic and wild onion.

Active ingredients are 33 percent N-oleyl-1, 3-propylene-diamine salt of 2,4-dichlorophenoxyacetic acid.

W. A. Cleary, Somerset, N.J., has several postemergent herbicides for turf. AMA plus 2,4-D can control crabgrass, dandelion, plantain, chickweed, silver crabgrass, dalligrass and knotweed. It may cause temporary discoloration of bents, fescues and clovers and should not be used on St. Augustine, carpet or centipede grasses or bent golf courses.

Super Methar can control dalligrass and crabgrasses but may discolor fescue and bentgrasses and should not be used on St. Augustine, carpet or centipede grasses.

Active ingredients are 8 percent octylammonium methanearsonate; 8 percent dodecylammonium methanearsonate and 5.44 percent octylammonium salt of 2,4-D dichlorophenoxyacetic acid.

Methar 30 is marketed to control crabgrass and dalligrass and should not be applied to St. Augustine, carpet or centipede grasses. It may discolor fescue and bentgrass areas.

It is actively 18.90 percent disodium methanearsonate anhydrous.

Methar 80 can control crabgrass but may discolor fescue and bentgrass. It is not designed for St. Augustine, carpet or centipede grasses.

Chemically, it is 50 percent disodium methanearsonate.

Cleary's MCPP can control chickweed (common and mouse-ear

chickweed), knotweed, clover and common plantain.

It is 25.9 percent potassium salt of 2-(2-methyl-4-chlorophenoxy) propionic acid (MCP).

Cleary's MCP-2,4-D can control broadleaves. It can control dandelion, clover, common chickweed, plantain, pigweed, ragweed, lambsquarters and is less successful on knotweed, black medic, English daisy, dock, purslane, wood sorrel and mallow.

The herbicide is not intended for uses on home lawns or golf greens or tees.

Active chemical components are 31 percent diethanolamine salt of 2-(2-methyl-4-chlorophenoxy) propionic acid and 15.35 percent diethanolamine salt of 2,4-dichlorophenoxyacetic acid.

Lawn Medic, Rochester, N.Y. has developed three turf herbicides. Crabgrass Preventer 1 can control smooth and hairy crabgrasses, foxtail and barnyardgrass. Its use on other bentgrass or Bermudagrass may damage turf or golf greens. This product will not control weeds on *Poa annua*, clover or most broadleaf weeds.

Its active ingredient, 7.66 percent, is siduron (1-(2-methylcyclohexyl)-3-phenylurea).

Crabgrass Preventer 2 can control carpetweed, common chickweed, fall panicum, Florida pusley, green foxtail, hairy crabgrass, johnsongrass (from seed), lovegrass, purslane, smooth crabgrass, Texas millet, witch grass, yellow foxtail, and lambsquarters. It should not be used on cohansy, Toronto bents or dichondra.

Its 6.86 percent concentration is its active ingredient, dimethyl tetrachloroterephthalate.

"Liquid" crabgrass killer can control crabgrass in its two and three leaf stage and as branched crabgrass. It may injure fescue and bentgrasses and shouldn't be used on St. Augustine grass.

Its active ingredient is 18.90 percent disodium methanearsonate anhydrous. **Rohm and Haas**, Philadelphia, manufactures Kerb 50-W, a herbicide which can control *Poa annua* in Bermudagrass. It can

also control perennial bluegrass, barnyardgrass, canarygrass, cheatgrass, crabgrass, downy brome, fall panicum, foxtail, goosegrass, lovegrass, orchardgrass, quackgrass, ryegrass, volunteer barley, volunteer oats, volunteer rye, volunteer wheat, annual morning glory, carpetweed, henbit, knotweed, lambsquarter, London rocket, mustards, nettle-leaf goosefoot, nettles, nightshades, purslane, shepherd's purse, smartweeds, and volunteer tomatoes. Kerb will not work on nutgrass (sedges), Bermudagrass, johnsongrass, or such members of the composite family as dandelion, pineapple weed, dog fennel, galinsoga, groundsol, wild lettuce, sowthistle, clover and black medic.

ProTurf of **Scotts**, Marysville, Ohio, produces a wide spectrum of turf herbicides. ProTurf fertilizer with weedgrass preventer can control sprouting grassy weeds of crabgrass, foxtail, goosegrass and *Poa annua* and sprouting broadleaf weeds of lambsquarters, pigweed, shepherd's purse and henbit. It works best on all turfgrasses and dichondra but is not recommended for use on turf areas having 50 percent *Poa annua* or more. Its fertilizer analysis is 26-0-12 (nitrogen sources — 17.3 percent water soluble from urea and methylene ureas, 8.7 percent water insoluble from methylene ureas). Its herbicide is bensulide.

ProTurf fertilizer plus dicot weed control is effective against black medic, buckhorn, buttonweed, chickweed, clover, cudweed, curly dock, shepherd's purse, yellow rocket, ground ivy, heal-all, knotweed, dandelion, filaree, pepperweed, plantain, purslane, lambsquarter, matchweed, English daisy, horseweed, pennywort, pigweed, prickly lettuce, ragweed and sheep sorrel. It is not made to use on St. Augustine, carpetgrass, dichondra or on putting greens. Fertilizer analysis is 30-50-3 (nitrogen sources — 1.2 percent from ammoniated phosphate, 18.8 percent soluble from urea and methylene ureas, 10 percent water insoluble from methylene ureas). Other components are phosphorus from am-

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moniated phosphate, potassium from potassium sulfate. Its active herbicide is dicamba and 2,4-D.

ProTurf fertilizer plus dicot weed control II is recommended for use against aster, bittercress, black medic, buckhorn, buttonweed, chickweed, chicory, cinquefoil, white clover, cudweed, curly dock, daisy fleabane, dandelion, English daisy, evening primrose, filaree, galinsoga, ground ivy, heal-all, henbit, knotweed (seedling), lambsquarters, lippia (matchweed), moneywort, morning glory, mustard, pennywort, pepperweed, pigweed, plantain, prickly lettuce, puncturevine, purslane, ragweed, shepherd's purse, smartweed, stitchwort, thyme-leaved sandwort, vetch, whitlowgrass and yellow rocket.

Only creeping bentgrasses, putting greens, St. Augustine, carpetgrass and dichondra are not recommended.

Its chemical fertilizer composition is 30-5-3 with nitrogen sources of 1.2 percent from ammoniated phosphate, 18.8 percent soluble from urea and methylene ureas, 10 percent water insoluble from methylene ureas. Phosphorus from an ammoniated phosphate, potassium from potassium phosphate. Its herbicide is 2,4-D and MCP. P.

ProTurf starter fertilizer with pre-emergence weed control can control sprouting of crabgrass, foxtail and barnyardgrass and is used for seeding of all grasses except pennycross, seaside, astoria, C-1, C-7, C-19, and nemesilla. It is not recommended for use on Bermuda grass or zoysia and will not control established grassy weeds.

Its fertilizer analysis is 16-21-5 and nitrogen sources of 4.9 percent ammonical from ammoniated phosphate, 7.4 percent water soluble from urea and methylene ureas, 3.7 percent water insoluble from methylene ureas. It also contains phosphorus from ammoniated phosphate, and potassium from muriate of potash. Its herbicide is siduron.

ProTurf *Poa annua* control plus fertilizer can control *Poa annua*, bluegrass and bentgrass and is designed for use on Bermudagrass.

It may discolor golf greens, however, if applied before severe cold or freezing.

It uses the herbicide pronamide (kerb) and has a fertilizer analysis of 27-0-13 with nitrogen sources 18 percent water soluble from urea and methylene ureas, 9 percent water insoluble from methylene ureas.

ProTurf weedgrass preventer controls sprouting grass weeds such as *Poa annua*, barnyardgrass, crabgrass, goosegrass and foxtail. It is not designed for use on turf areas having 50 percent *Poa annua* or more and contain the active ingredient bensulide.

ProTurf Weedicide II can control the weeds black medic, buckhorn, bur clover, chickweed, clover, cudweed, daisy fleabane, dandelion, dollarweed, English daisy, filaree, ground ivy, heal-all, knotweed (seedling), lambsquarters, pepperweed, pigweed, plantain, purslane, ragweed, shepherd's purse, yellow rocket.

It is mixed to use on all cool season grasses and Bermuda and bahia but should not be used on creeping bentgrasses, St. Augustine grasses, carpetgrass, dichondra, lippia or similar ground covers.

Its active ingredients are 2,4-D and MCP. P.

ProTurf K-O-G- weed control is effective on weeds black medic, common chickweed, mouse-ear chickweed, clover, cudweed, curly dock, ground ivy, horseweed, knotweed, sheep sorrel, Canada thistle, wild garlic, wild onion and yarrow. Application is approved for all turfgrasses except St. Augustine and dichondra.

Dicamba is its active ingredient.

ProTurf monocot weed control can control barnyardgrass, crabgrass, foxtail, witchgrass, goosegrass (in its immature stage up to the size of a silver dollar) and paspalum (such as dallgrass, except in California). Use on St. Augustine, centipede, bahia or carpetgrass for methods other than non-selective spot treatment are not suggested.

The product uses DSMA (disodium methanearsonate) as its active ingredient.

Mallinckrodt, Inc., St. Louis,

has four turf herbicides. Po-San can control *Poa annua* while retarding growth of chickweed, dandelion, clover and Veronica, and is used in non-crop areas.

Its active ingredients are 8.5 percent methyl 2-chloro-9-hydroxyfluorene-9-carboxylate; 2.3 percent methyl 9-hydroxyfluorene-9-carboxylate, and 1.7 percent methyl 2, 7-dichloro-9-hydroxyfluorene-9-carboxylate, in one solution and 22 percent diethanolamine salt of 6-hydroxy-3-(2H)-pyridazine.

Pre-San can control smooth and hairy crabgrass, annual bluegrass, silver crabgrass (goosegrass), watergrass, lambsquarters, shepherd's purse, deadnettle and redroot pigweed. It works on *Poa annua* in bentgrass and perennial grass, clover and dichondra turf.

Active ingredients are 45 percent s-(0,0-disopropyl phosphorodithioate) ester of N-(2-mercaptoethyl) benzene-sulfonamide.

Trex-San can control bedstraw, black medic, buckhorn, burdock, chicory, checkweed, clover, dandelion, dock, ground ivy, heal-all, henbit, knotweed, lambsquarters, lespedeza, mallow, morning glory, peppergrass, pigweed, plantains, poison ivy, poison oak, purslane, ragweed; sheep sorrel, shepherd's purse, speedwell, spurge, thistle, wild carrot, wild garlic, wild lettuce, wild onion, and yarrow.

The herbicide may injure centipede, dichondra, and St. Augustine grass and will harm clover.

Active ingredients are 32.07 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid, 16.12 percent dimethylamine salt of 2-(2-methyl-r-chlorophenoxy) propionic acid, 4.04 percent dimethylamine salt of dicamba (3,6-dichloro-o-anistic acid) and .05 percent dimethylamine salts of related compounds.

Trex-San Bent can control bedstraw, black medic, buckhorn, chicory, chickweed, clover, dandelion, dock, ground ivy, heal-all, henbit, knotweed, lambsquarter, lespedeza, mallow, morning glory, peppergrass, pigweed,

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plantains, poison ivy, poison oak, purslane, ragweed, sheep sorrel, shepherd's purse, speedwell, spurge, wild carrot, wild garlic, wild onion, and yarrow.

Damage may result if applied to centipede, St. Augustine, or clover.

Active ingredients are 6.590 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid, 19.870 percent dimethylamine salt of 2-(2-methyl-4-chlorophenoxy) propionic acid, 2.636 percent dimethylamine salt of dicamba (3,6-dichloro-o-anisic acid).

Dow Chemical U.S.A., Midland, Mich., manufactures five turf herbicides. Esteron 6E can control such weeds as beggarticks, bitterweeds, Texas blueweed, broomweed, wild buckwheat, burdock, carpetweed, catnip, chamise, chicory, cocklebur, cornflower, coyotebrush, croton, dandelion, docks, dogsfennel, elderberry, fanweed, galinsoga, wild garlic, goatsbeard, halogeton, wild hemp, jewelweed, jimsonweed, kochia, lambsquarters, bigbend loco, Venice mallow, manzanita, marshelder, milkvetch, annual morning glory, mustards, nettles, wild onion, pennycress, field pepperweed, pigweed, plantains, poorhoe, rabbitbrush, wild radish, ragweed, wild rape, redstem, coastal sage, big sagebrush, sand sagebrush, salsify, sand shinnery oak, shepherd's purse, sicklepod, smartweed, bitter sneeze-weed, annual sowthistle, spanishneedles, sumac, sunflower, sweet clover, tansymustard, tansyragwort, bull thistle, musk thistle, Russian thistle, tumbleweed, velvetleaf, vervains, vetch, water plantain, willow, witchweed, wormwood, yellow rocket and yellow starthistle.

It is not designed for use on golf greens dichondra or other broadleaf herbaceous ground covers nor creeping grasses as bent and St. Augustine grass unless used for spot treating.

Its active ingredient is 94.4 percent 2,4-dichlorophenoxyacetic acid, isoactyl esters.

Esteron 99 is recommended for control of beggarticks, bitterweed, Texas blueweed, broomweed, buck-

brush, wild buckwheat, burdock, carpetweed, catnip, chamise, chicory, cocklebur, coffeeweed, cornflower, croton, dandelion, docks, dogsfennel, elderberry, fanweed, galinsoga, wild garlic, goatsbeard, halogeton, wild hemp, jewelweed, jimsonweed, kochia, lambsquarter, bigbend loco, Venice mallow, manzanita, marshelder, milkvetch, annual morning glory, mustards, nettles, wild onions, pennycress, field pepperweed, pigweed, plantains, poorjoe, rabbitbrush, wild radish, ragweed, wild rape, redstem, coastal sage, big sagebrush, sand sagebrush, salsify, sand shinnery oak, shepherd's purse, sicklepod, smartweed, bitter sneeze-weed, annual sowthistle, spanishneedles, sumac, sunflower, sweetclover, tansymustard, tansyragwort, bull thistle, musk thistle, Russian thistle, tumbleweed, velvetleaf, vetch, water plantain, willow, witchweed, wormwood, yellow rocket and yellow starthistle.

This product is not for use on golf greens, dichondra or other broadleaf herbaceous ground covers or creeping grasses or St. Augustine grass unless it is used for spot treating.

Chemically, its active ingredient, 41 percent, is 2,4-dichlorophenoxyacetic acid, propylene glycol butyl ether esters.

Formula 40 is designed to control bitterweed, broomweed, burdock, carpetweed, wild carrot, chicory, cocklebur, coffeeweed, croton, dandelion, dock, flixweed, galinsoga, wild hemp, jimsonweed, kochia, lambsquarters, bigbend loco, lupines, Venice mallow, marshelder, annual morning glory, mustards, pennycress, pennywort, pennwort, pepperweed, pigweed, plantains, poorjoe, Florida pusley, wild radish, common ragweed, wild rape, yellow rocket, shepherd's purse, sicklepod, smartweed, bitter sneeze-weed, annual sowthistle, spanishneedles, sunflower, sweetclover, tansymustard, bull thistle, musk thistle, Russian thistle, tumbleweed, velvetleaf, vetch, water plantain, witchweed and wormwood.

The herbicide should not be applied to dichondra or other her-

baceous ground covers or creeping grasses like bent except for spot treatments.

Its active ingredient is 59.7 percent alkanolamine salts of the ethanol and isopropanol series of 2,4-dichlorophenoxyacetic acid. Its 2,4-dichlorophenoxyacetic acid equivalent is 38.6 percent.

Kuron is a herbicide which can control bitterweed, black medic, broomweed, burdock, buttercup, croton, chickweed, dalmation toadflax, dandelion, dogsfennel, groundcherry, kochia, lupine, marshelder, plantain, ragweed and spurge.

It should not be applied to stoloniferous grasses such as bent, Bermuda, St. Augustine, carpet and centipede or dichondra.

Its active ingredient is 69.2 percent silvex, 2-(2,4,5-trichlorophenoxy) propionic acid, propylene glycol, and butyl ether esters.

Dowfume MC-2 can control quackgrass, nutgrass, johnsongrass, garlic and wild onion.

Its active ingredients are 98 percent methyl bromide, and 2 percent chloropicrin.

Ansul, Marinette, Wisc., has two turf herbicides on the market. Ansar 529 H.C. can selectively control such weeds as dallisgrass, sandbur, bahiagrass, nutsedge, crabgrass, chickweed and woodworel.

It is a high concentrate MSMA liquid plus surfactant.

Phytar 560 is non-selective and is used as a 'liquid edger' and for lawn renovation.

It is made of sodium cacodylate and cacodylic acid liquid plus surfactant.

Ortho of Chevron Chemical Company, San Francisco, Calif., markets Ortho Paraquat CL which can control annual broadleaved weeds and grasses like burclover, chickweed, filaree, groundsel, nettle, pigweed, plantain, puncturevine, purslane, red clover, shepherd's purse thistle, wild mustard, wild radish, wild oats, bluegrass, cheat grass, crabgrass and top kill and suppression of perennial weeds such as Bermudagrass, johnsongrass and morning glory.

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Its active ingredient is 29.1 percent paraquat dichloride (1,1-dimethyl 4,4-bipyridinium dichloride).

Elanco, Indianapolis, Ind., manufactures several turf herbicides. Balfin can control smooth and hairy crabgrass, annual bluegrass, goosegrass (silver crabgrass or crowsfoot), watergrass and yellow and green foxtail.

Balan granular can control *Poa annua* smooth and hair crabgrass, watergrass (barnyardgrass) and yellow and green foxtail. It works on established perennial bluegrasses, perennial bluegrasses, perennial ryegrass, centipedegrass, fescue, zoysiagrass, Bermudagrass, St. Augustine grass and bahiagrass.

Its active ingredient, 2.5 percent, is N-butyl-N-ethyl-aaa-

trifluoro-2, 6-dinitro-p-toluidine.

Surflan can control barnyardgrass, crabgrass, foxtails, goosegrass, johnsongrass (from seed), fall panicum, brachiaria (signalgrass), crowfootgrass, wild oat, common chickweed, common purslane, carpetweed, Florida purslane, lambsquarters and pigweed.

Its active ingredient is 75 percent oryzalin (3,5-dinitro-N4,N4-dipropylsulfanilamide).

Spike can control bedstraw, *Poa annua*, burclover, downy brome-grass, ripgut brome-grass, smooth brome-grass, smallflower buttercup, wild carrot, cheat, chickweed, red clover, cocklebur, Virginia creeper, crowfootgrass, curly dock, dog-fennel, fescue, rattail fescue, filaree, redstem filaree, annual fleabane, foxtail, goldenrod, gumweed, hen-bit, Japanese honeysuckle, horse-weed, knapweed, kochia, lambs-quarters, black medic, morning glory, common mullein, silverlead nightshade, wild oat, Texas pan-icum, Virginia pepperweed, pig-weed, buckhorn plantain, punc-turevine, giant ragweed, Italian rye-grass, annual sedge, shepherd's purse, annual sowthistle, spike-weed, spurge, spotted spurge, yellow starthistle, telegraphplant, Russian thistle, trumpetcreeper, velvetgrass, vetch, witchgrass, foxtail barley, carpetweed, chicory, common cin-quefoil, white sweet clover, poison ivy, field sandbur, swamp smart-weed, perennial sowthistle, pros-trate spurge, barnyardgrass, crab-grass, itchgrass, johnsongrass, (seeding), lovegrass, orchardgrass, poorjoe, common purslane, com-mon ragweed, Bermudagrass, cud-weed, dalligrass, Venus looking-glass and vasey grass.

Its active ingredient is 80 per-cent 1-(5-tert-butyl-1,3,4-thiadizol-2-yl)-1, 3-dimethylurea.

Amchem, Ambler, Pa., offers a wide range of turf herbicides, Amitrol can control muhlenbergia, bentgrass, Bermudagrass, tall fescue, quackgrass and orchard-grass.

Its active ingredient is 1 percent amitrole (3-amino-1, 2, 4-triazole).

Amitrol-T can control poison oak, poison ivy, quackgrass, tall

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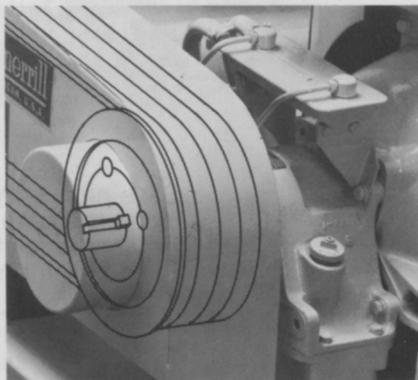


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fescue, Bermudagrass, Canada thistle, milkweed and horsetail rush.

Its active ingredient is 21 percent amitrole (3-amino-1, 2, 4-triazole).

Nu-Lawn weeder is designed to control mustards, pennycress, smartweed, henbit, knawel, lambsquarters, pepperweed, pigweed, ragweed, shepherd's purse, wild radish and yellow rocket. It will not control established perennial broadleaf weeds such as Canada thistle, bindweed or horsetail rush.

Chemically, its active ingredient is 8.4 percent bromoxynil (3,5-dibromo-4-hydroxybenzotrile) ester of octanoic acid.

Super D weedone works to con-

trol buckhorn plantain, bull thistle, burdock, buttercup, butter print, Canada thistle, chickweed, chicory, clovers, cinquefoil, cocklebur, dandelion, docks, Frenchweed, galinsoga, ground ivy, hawkweed, heal-all, henbit, jewel weed, jimson weed, knotweed, lambsquarters, mallow, morning glory, mustard, oxalis, pennywort, peppergrass, pigweed, plantain, poverty weed, purslane, ragweed, sheep sorrel, smartweed, sow thistle, speedwell, vervains, wild aster, wild carrot, wild garlic, wild lettuce, wild onion, wild radish, and yarrow.

Its active ingredients are 20.1 percent diethanol amine salt of 2,4-dichlorophenoxyacetic acid, and 1.9 percent diethanol amine salt of dicamba.

Super D Weedone contains banvel D and controls broadleaf plantain, cinquefoil, clovers, common chickweed, docks, dandelion, ground ivy, heal-all, henbit, knotweed, (young or mature), mouse-ear chickweed, mustards, narrow-leaved (buckhorn) plantain, oxalis, pennywort, purslane, ragweed, sheep sorrel, speedwell, spotted spurge, thistles, wild carrot, wild garlic, morning glory, wild onion and yarrow.

Active ingredients are 1.33 percent diethanolamine salt of 2, 4-dichlorophenoxyacetic acid and .44 percent diethanolamine salt of dicamba.

It is not designed for use on lippia, dichondra, St. Augustine, carpetgrass or bentgrass lawns unless damage can be tolerated.

Weedone preemergence crabgrass control is marketed to control

common chickweed, fall panicum, green foxtail, hairy (large) crabgrass, lambsquarters, purslane, smooth (small) crabgrass, witchgrass, yellow foxtail and goosegrass.

At 5.7 percent, its active ingredient is dimethylester of 2, 3, 5, 6-tetrachloroterephthalic acid.

Weedone 2, 4, 5 TP can control common chickweed, mouse-ear chickweed, henbit, ground ivy, prostrate (spotted) spurge, yarrow, clover and black medic.

It should not be used on St. Augustine, carpet and centipede lawns.

The active ingredient is 60.3 percent butoxyethanol ester of silvex.

Weedone LV-4 can control bindweed, thistle, smartweed, wild buckwheat, wild garlic, curled dock and wild onion.

It may injure wheat.

At 64 percent, its active ingredient is 2, 4-dichlorophenoxyacetic acid, butoxyethanol ester.

Emulsamine E-3 can control bull thistle, burdock, cocklebur, coffee-weed, Frenchweed, galinsoga, jimsonweed, kochia, lambsquarters, morning glory, wild mustard, peppergrass, pigweed, wild lettuce, wild radish, common ragweed, Russian thistle, common sowthistle, velvetleaf, alkali mallow, aster, bindweed, blue lettuce, blueweed, bur ragweed, Canada thistle, chicory, dandelion, docks, goldenrod, nettles, orange hawkweed, plantains, poverty weed, ragweed, sowthistle, stinging nettles, toad flax, wild garlic and wild onion.

Do not apply it to St. Augustine, bentgrasses, dichondra or clover.

Its chemically active ingredients are 50.7 percent dodecyl amine salts of 2,4-dichlorophenoxyacetic acid and 12.7 percent tetradecyl amine salts of 2,4-dichlorophenoxyacetic acid.

3-D Weedone can control chickweeds, cinquefoil, clovers, dandelions, ground ivy, hawkweed, heal-all, henbit, knotweed, morning glory (annual) oxalis, plantains (broad, narrow), pennywort, purslane, sheep sorrel, speedwell (annual), spotted spurge, wild garlic, wild

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onion, yarrow, bindweeds, buttercups, burdock, chicory, cocklebur, docks, galinsoga, jewelweed, jimsonweed, knawel, lambsquarter, mallow, peppergrass, pigweed, poverty weed, mint, mustard, ragweed, smartweed, thistles, vervains, vetch, wild aster, wild carrot, wild daisy, wild geranium, wild lettuce and wild radish.

It should not be used on lippia or dichondra lawns and may injure bentgrass, St. Augustine grass, centipede grass, carpetgrass and newly seeded lawns.

Active ingredients are 17.3 percent butoxyethanol ester of 2,4-dichlorophenoxyacetic acid, 8.2 percent butoxyethanol ester of 2,4,5-dichlorophenoxypropionic acid, and 1.5 percent dicamba (2-methoxy-3,6-dichlorobenzoic acid).

Weedone chickweed killer can control common and mouse-ear chickweed henbit, clover, yarrow and prostrate (spotted) spurge.

St. Augustine, centipede, carpetgrass and lawn grass substitutes such as dicandra and lippia are sensitive to this product and should be tested before application is made to an entire lawn.

Its active ingredient is 12.8 percent butoxyethanol ester of silvex.

Weedone crabgrass killer can control crabgrass. It should not be used on St. Augustine grass.

Chemically, its active ingredient is 10.3 percent calcium acid methanearsonate.

Weedone crabgrass killer granular can control crabgrass.

Its active ingredient is 2.5 percent disodium methlarsonate-hexahydrate.

Weedone granular lawn weed killer can control dandelion, plantain, chickweed, spotted spurge, and clover.

The chemically active ingredients are 2.67 percent 2,4-dichlorophenoxyacetic acid and 1.33 percent silvex (2-(2, 4, 5-trichlorophenoxy) propionic acid).

Velsicol, Chicago, Ill., manufactures several turf herbicides. Banvel 2,4-D can control dandelion, plantains, curly dock, chickweeds (common mouse-ear and perennial or stitchwort), dog fennel,

knotweed, sheep sorrel, clover, knawel, chicory, henbit, ragweed, pigweed, burdock, poison oak, poison ivy, ground ivy (creeping charlie), wild garlic, wild onion, English daisy, spurge, purslane, pepperweed, lawn burweed, hawkweed, spurry and carpetweed.

It is not designed for use on dichondra, St. Augustine grass or centipede grass or where desirable bent grasses or clover exist.

Its active ingredients are 18.4 percent dimethylamine salt of dicamba, 3.2 percent 3, 6-dichloro-o-anisic acid, 3.2 percent dimethylamine of related acids, and 36.8 percent, dimethylamine salt of 2,4-dichlorophenoxyacetic acid.

2,4-D amine can control bitter-wintercress, box elder, buckhorn, bull thistle, bullrush, burdock, bur ragweed, buttercup, Canada thistle, catnip, chickweed, chicory, cocklebur, coffee bean, creeping Jenny, curly indigo, elderberry, goldenrod, ground ivy, hemp, hoary cress, honeysuckle, indigo, ironweed, jimsonweed, lambsquarters, nutgrass, pennywort, pigweed, plantain, poison ivy, pokeweed, povertyweed, puncture vine, purslane, rush, Russian thistle, sagebrush, shepherd's purse, sow thistle, stinkweed, sumac, sunflower, Virginia creeper, wild garlic, wild lettuce, wild radish, willow, witchweed, arrowhead, artichoke, bindweed (hedge, field and European), locoweed, Mexican weed, morning glory and mustard.

Weedar 64 can control beggarticks, bull thistle, burdock, cockle, cocklebur, coffee weed, fleabane (daisy), Frenchweed, galinsoga, goatsbeard, jimsonweed, kochia, artichoke, aster, Austrian fieldcress, bindweed, blue lettuce, Canada thistle, catnip, chicory, dandelion, docks, dogbane, knotweed, lambsquarters, wild lettuce, mallow, marsh elder, morning glory, mustard, parsnip, peppergrass, pigweed, prickly lettuce, primrose, goldenrod, ground ivy, heal-all, hoary cress, horse tail, iron weed, loco weed, nettles, orange hawkweed, plantains, poverty weed, wild radish, common ragweed, Russian thistle, smartweed, common sow-

Continues on page 42

WTT Turf Herbicide Report

thistle, sunflower, tumble weed, ver-vains, vetch, wild carrot, ragweed, sowthistle, stinging nettles, wild strawberry, tan weed, toadflax, ver-vains, wild garlic, wild onion and wild sweet potato.

Its chemically active ingredient is 49.3 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid.

The chemically active ingredient is 49.5 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid.

Banvel 4-S can control curly dock, common chickweed, mouse-ear chickweed, stitchwort, dog fennel, knotwood, sheep sorrel, clover, knawel, chicory, henbit, English daisy, spurge, purslane, pepperweed, carpetweed, lawn bur-weed, hawkweed and spurry.

Its active ingredients are 49 percent dimethylamine salt of dicamba, and 7.9 percent dimethylamine salt of related acids.

Pennwalt Corp., Philadelphia, makes two turf herbicides. Endothol turf herbicides is used to control Veronica (speedwell), knot-

weed, bur clover, white clover, sweet clover, black medic, chickweed (in the South), cranesbill, filaree, dichondra (pony foot) goatshead, henbit, lespedeza, oxalis, vetch, little barley, fescue grass, cheat (and other annual bromes), ryegrass and *Poa annua*. When mixed with 2,4-D, it can control other broadleaved weeds.

Pennamine D7 can control thistle, wild morning glory, bitterweed, broomweed, croton weed, dandelion, dock, dogfennel, fanweed, kochia, lambsquarters, mallow, marshelder, mustards, peppergrass, pigweed, plantains, ragweed, shepherd's purse, tarweed, vetch, wild carrot, wild garlic, wild onion, wild ragweed, buckbrush, elderberry, hazel, coastal sage, sumac, willow, sand shinnery oak, field bindweed, leaf spurge, poison ivy, horse nettle, ironweed, cocklebur, milkweed, stinging nettle, black-eyed susan, and snow-on-the-mountain.

It is an aqueous solution of di-odium salt of endothol.

3M Company of St. Paul, Minne., is not currently marketing commercial products but does have an EPA temporary permit label for Embark plant growth/regulator/herbicide (formerly MBR 12325). It may be applied to bentgrass, Italian ryegrass, Kentucky bluegrass, fescue, Bermudagrass, red brome, rigput brome, St. Augustine grass, wild barley, wild oat and can control red stem filaree, fiddleneck, mustards, cheeseweed, sour clover and vetch.

Its active ingredient is 52 percent diethanolamine salt of N(2,4-dimethyl-5-trifluoromethyl sulfonyl amino phenyl) acetamide.

Thompson-Hayward Chemical Company, Kansas City, Kansas, manufactures Ded-Weed for controlling Canada thistle, perennial sow thistle, bindweed, white top (hoary cress), Russian knapweed, and other annual and perennial weeds in turf.

It may injure bentgrass, St.

Continues on page 44

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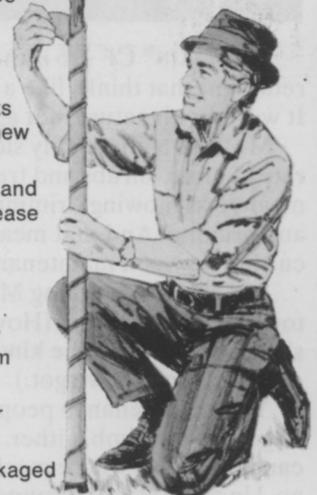
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Turf Herbicide Report

Augustine grass, dichondra, carpet-grass, or clover lawns.

Chemically, it is 49.4 percent dimethylamine salt of 2,4-dichlorophenoxyacetic acid.

Monsanto, St. Louis, Mo., manufactures Roundup herbicide which can control annual bluegrass, lambquarters, common ragweed, crabgrass, downy brome, panicum, field sandbur, fleabane, fox-tail, ragweed, kochia, Pennsylvania smartweed, prickly lettuce, redroot pigweed, Russian thistle, smooth pigweed, shattercane, velvetleaf, and volunteer wheat, Bermudagrass, Kentucky bluegrass, Canada thistle, common mullein, curly dock, dallisgrass, fescues, field bindweed, johnsongrass, hemp dogbane, milkweed, paragrass, quackgrass, swamp smartweed, and vaseygrass.

Its active ingredient is 41 percent isopropylamine salt of glyphosate.

SEED BURNING *from 14*

Oregon for reproduction. This market may dry up for the state now that Europe markets won't accept seeds not meeting certification. Without open field burning, Oregon

has a much more difficult time getting highest quality seed.

Since stringent laws hampered burning, only 5,339,000 pounds of seed were produced in 1975, 78 percent of the 1974 market and the lowest number since 1969.

Yet foreign producers aren't sitting easily, either. Japan still has serious problems with ergot, a dilemma Oregon controls through burning. Other countries, as Dr. Fred Grau of the Pennsylvania Turfgrass Council, Inc., notes, tend to market seed with such negative elements as "unidentifiable, undesirable varieties, too many weeds not seen before, new diseases and too much inert matter" due to their climates. "One bag of weedy, low quality seed, once planted, will take years to correct," he says.

The seed growers worked hard. They met with Oregon Governor Robert Straub although he withholds support for them until they show they are "making an all-out total effort to find an alternative solution." Under SB 311, he may suspend the bill in case of hardship or disease and similar catastrophes or may suspend burning entirely. But the Governor said he believes growers pursue open field burning as least resistance and economic opportunism, and have not researched alternatives properly. Oregon seed farmers heartily refuted this and refer to \$531,000 of \$954,826 of their budget spent for sanitizing research. Council member Scott Lamb points out they paid for a straw cubing plant and appointed a five man committee to study straw cubing and briquetting.

Some farmers pay to \$90,000 for their own straw machinery. They donate and haul straw to experimental plants for free but still face problems. The best one farmer could do was three acres an hour with very low moisture condition, significant emission and after burn from his \$35,000 investment. It required alterations to reach satisfactory smoke control and acreage production (he never reached both at the same time), and his neighbors asked he return to field burning since it circulated smoke higher into

the air than the low slung machine emissions. Willamette Valley pays \$1.4 million to burn and \$1.2 million on straw equipment for straw that costs \$12 to \$15 a ton. One acre produces two tons of straw.

Under SB 311, farmers must apply for permits to use pilot field sanitizers, show design plans and specifications, acreage and emission performance notes and rated capacities with their applications. They also must produce details regarding availability of repair service, replacement parts, operational instructions, a letter of approval from the Field Sanitation Committee and emission standards for approved field sanitizers.

The sanitizers must prove abilities of cleaning a harvested grass field or cereal grain stubble with an accumulation of straw and stubble fuel load of not less than one ton an acre, dry weight, with average moisture not less than 10 percent, at a rate of not less than 85 percent or rated maximum capacity of a period of 30 continuous minutes. It cannot exceed these emission standards; 20 percent average capacity out of main stack; leakage not to exceed 20 percent of the total emis-

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