



When your job depends on stopping gypsy moths and other pests, depend on ORTHENE.

ORTHENE® Tree & Ornamental Spray is the professional way to kill gypsy moth larvae... plus a wide range of other insects. It kills on contact, then keeps killing with an effective residual action.

Other insects on ORTHENE's list? It also works on aphids, bagworms, birch leaf-miner, tent caterpillar, Douglas fir tussock moth larvae, webworms, scales, California oakworm, spring and fall cankerworms, Nantucket pine tip moth larvae and adult root weevil.

See your ORTHO Distributor or send in the coupon for more information — make your job easier, with ORTHENE.

AVOID ACCIDENTS: For safety, read the entire label including precautionary statements. Use all chemicals only as directed.



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R. G. Gras,
Chevron Chemical
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575 Market Street,
San Francisco,
CA 94105

Please send me more information on ORTHENE.

Name _____

Company _____

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ORTHENE®

YOU CAN DEPEND ON IT.

Landscape

TABLE 2. Ground covers and flowers tolerant to pre-emergence herbicides

	BETASAN	DACTHAL	DEVIRINOL	ENIDE	EPTAM	ORNAMENTAL WEEDER	PRINCEP	RONSTAR	SURFLAN	TREFLAN
Ground covers										
Ajuga	X		X		X			X		
Boston Ivy		X								
Cotoneaster		X		X		X	X	X	X	X
English Ivy	X	X	X	X	X	X		X	X	
Euonymus		X		X		X		X	X	X
Honeysuckle		X		X						X
Juniper	X	X		X		X	X	X	X	X
Liriope			X						X	
Myrtle	X		X	X	X			X	X	
Pachistima		X								
Pachysandra	X		X		X			X		
Potentilla										X
Sedum	X				X			X		
Stonecrop									X	
St. John's Wort	X		X	X	X					
Flowers										
Achillea			---				---			X
Ageratum		X			X					X
Alyssum	X	X		X	X					
Amaranthus					X					
Aster	X	X		X	X					X
Baby's Breath		X		X						
Bachelor's Button	X									
Balsam					X					X
Begonia				X	X				X	
Bell Flower		X	---				---			
Bleeding-Heart		X	---				---			
Bugloss		X	---				---			
Calendula	X		---				---			X
California Poppy			---				---			X
Calliopsis			---				---			X
Campanula	X		---				---			
Candle Larkspur		X	---				---			
Candytuft	X	X	---				---			
Carnation			---				---			X
Celosia			---			X	---			
Centaurea			---				---			X
Chrysanthemum		X	---	X	X	X	---		X	X
Coleus		X	---				---			
Columbine		X	---				---			
Coral Bells	X	X	---				---			
Coreopsis		X	---				---			
Cosmos		X	---				---			X
Daffodil	X		---				---			
Dahlia	X	X	---	X	X	X	---			X
Daisy	X		---				---			
Daylily			---		X	X	---			
Delphinium		X	---	X			---			
Dianthus			---		X		---			X
Evening Primrose		X	---				---			
Fernleaf Yarrow		X	---				---			
Feverfew		X	---	X			---			
Forget-Me-Not		X	---				---			X
Four-O'Clock		X	---				---			X
Foxglove		X	---	X			---			
Gaillardia		X	---				---			X
Gazania	X		---				---		X	

continued

DACTHAL, DEVIRINOL, ENIDE, or SURFLAN.

RONSTAR (2 G), PRO GROW ORNAMENTAL HERBICIDE 1 (4 G) (Oxadiazon)—labelled for the control of many annual grasses and broadleaved weeds in trees, shrubs, vines and ground covers. This material is effective in controlling bittercress, common groundsel, galinsoga, Pennsylvania smartweed, yellow woodsorrel (oxalis) and barnyardgrass but not chickweed. Apply at 4.0 lbs. aia (100 lbs./A of the 4% G or 200 lbs./A of the 2% G formulation). Avoid application to wet foliage to prevent granules from attaching to the leaves and causing phytotoxicity.

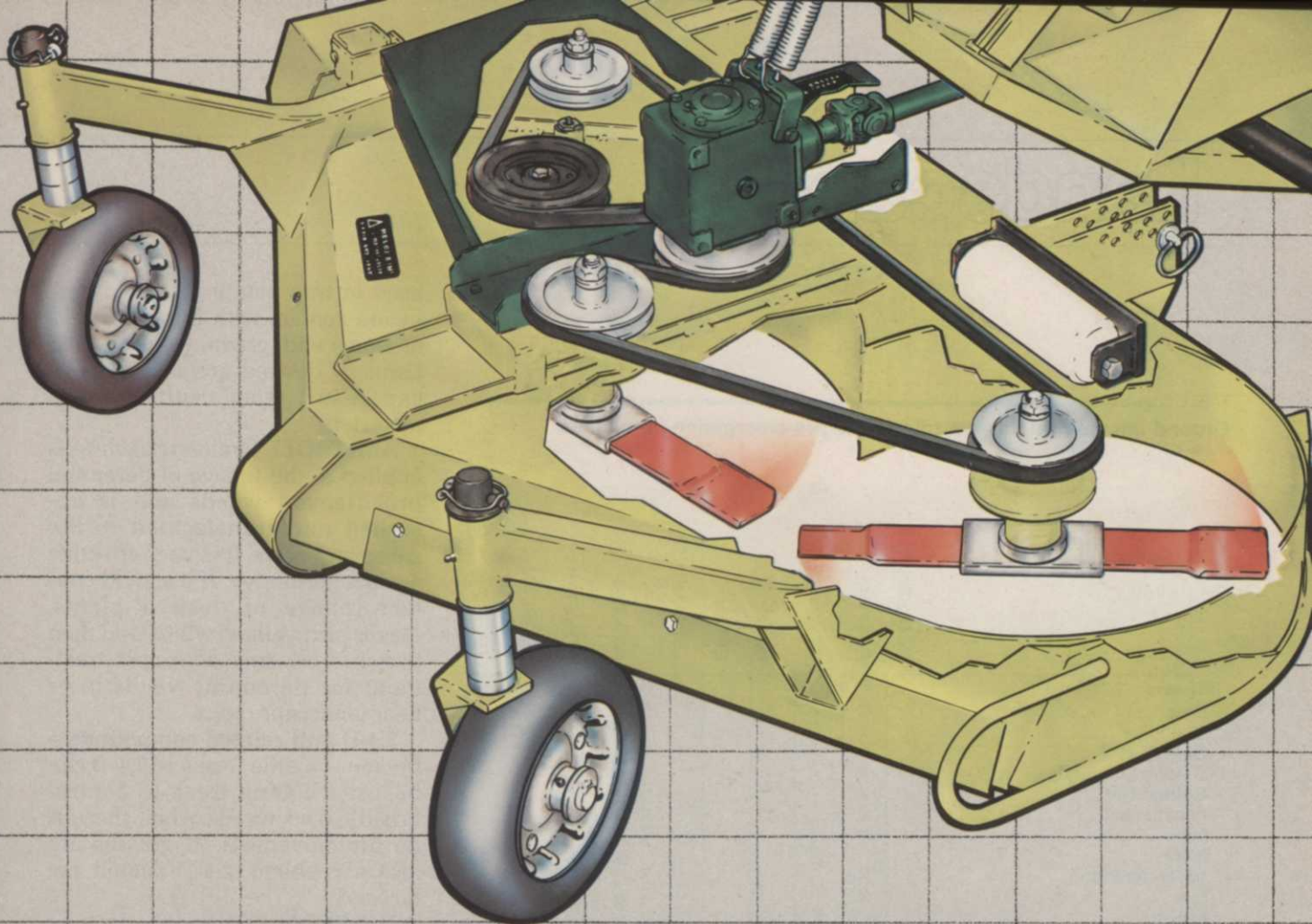
SURFLAN (Oryzalin)—for use in landscape plantings to control annual grasses, chickweed, purslane, lambsquarters and pigweed. Apply at the rate of 2.0-4.0 aia (2 2/3-5 1/3 lbs. of 75% WP in 20-40 gals. of water) on established plants. This herbicide is labeled for numerous shrubs, evergreens, ground covers, and flowers. SURFLAN is similar to TREFLAN but does not require incorporation and can be used in existing plantings of most ornamentals. One-half inch of water is necessary to activate the herbicide following application.

TREFLAN (Trifluralin)—is primarily used as a pre-plant treatment to control annual grasses and some broadleaf weeds. The 5% granular and 4 lbs. emulsifiable concentrate forms are used 1-4 lbs. aia (20-80 lbs. G-4, 1.4 qts. EC) and must be incorporated 2-3 inches into the soil. Effectiveness is increased if shallow (1/2-2") cultivation follows application by 2-3 weeks.

Post-emergence herbicides for landscape use

Post-emergence herbicides are used for general weed clean-up around buildings, waterways, fence rows, etc. Used with extreme caution, these materials may be

continued on page 64



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Just 3 years after it was introduced, the Front Line has been put to work on more parks, more campuses and more golf courses than all other mowers but one.

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You can choose from 60" or 72" decks. Side or rear discharge. Gas or diesel engines. And there's a full range of accessories for year 'round maintenance work.

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Once you see it in action, you'll want the Front Line cutting for you.

CUT 3-9074 R2



THE CUSHMAN FRONT LINE™ SECOND TO NONE.

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Landscape

TABLE 2. Ground covers and flowers tolerant to pre-emergence herbicides
Continued

	BETASAN	DACTHAL	DEVIRINOL	ENIDE	EPTAM	ORNAMENTAL WEEDER	PRINCEP	RONSTAR	SURFLAN	TREFLAN
Flowers										
Geranium		X	---	X			---		X	
Gladiolus	X	X	---				---			X
Gold Dust		X	---				---			
Golden Marguerite		X	---				---			
Golden Tuft		X	---				---			
Impatiens			---				---		X	
Iris		X	---			X	---			
Ixora			---				---			X
Lavendercotton		X	---				---			
Lily		X	---				---			
Lobelia			---	X			---			X
Lupine		X	---				---			X
Marigold	X	X	---	X	X	X	---		X	X
Morning Glory		X	---				---			
Mother-of-Thyme		X	---				---			
Nasturtium		X	---		X		---			X
Nicotiana			---				---			X
Pansy	X		---		X		---		X	
Peony		X	---	X		X	---			
Periwinkle			---				---			X
Petunia		X	---	X	X		---		X	X
Phlox			---	X			---		X	X
Pink Heath		X	---				---			
Pinks		X	---				---			
Poker Plant		X	---				---			
Portulaca			---				---			X
Primrose	X		---				---			
Purple Cone Flower		X	---				---			
Ranunculus	X		---				---			
Rudbeckia			---				---			X
Salvia		X	---	X			---			X
Scabiosa			---				---			X
Scarlet Sage		X	---				---			
Shasta Daisy			---	X			---			X
Snapdragon		X	---	X		X	---			X
Snow on the Mountain			---				---			X
Stock			---	X			---			X
Stone Crop		X	---				---			
Strawflower		X	---				---			
Sundrops		X	---				---			
Sunflower		X	---				---			X
Sweet Alyssum			---				---			X
Sweet Pea	X	X	---				---			X
Sweet William			---	X			---			X
Tulip	X		---				---			X
Verbena		X	---	X			---			
Violet		X	---				---			
Virginia Spiderwort		X	---				---			
Wall Flower	X		---				---			
Wormwood		X	---				---			
Zinnia	X	X	---	X	X	X	---	X		X

continued

used in tree plantings. Avoid herbicide contact with foliage, trunks or stems with green, yellow or red tissue of desired crops as damage can result from each of these materials.

AMITROLE (amino triazole)—is applied to the foliage of perennial broadleaved weeds and is absorbed and translocated to the stems and roots. It is very effective against poison ivy. If it should contact foliage of desired plants, leaves turn yellow, white, and then brown. Use only as a spot treatment for perennial weeds in or near landscape crops.

2,4-D and related compounds—the non-volatile forms of 2,4-D can be used among trees to control broadleaved weeds when there is no air movement. If grasses are also a problem, 2,4-D should not be used.

DOWPON (Dalapon)—in non crop areas, is recommended for control of quackgrass at the rate of 10-15 lbs. aia (13-19.5 lbs. of commercial product) and plowed down 10-14 days later. This treatment will also control common reed and cattails. DOWPON is available as an 85% wettable powder.

PARAQUAT—is used at the rate of .5 to 1.0 lb. aia or 1 to 2 qts. of the commercial formulation per sprayed acre for control of annual weeds and grasses and for top kill of perennial weeds and grasses around the base of trees. Avoid use on green barked trees including littleleaf linden. Repeat applications, as necessary, to control newly germinated seedlings and to control regrowth of perennials. A surfactant should be used. There is no soil residue. Use protective clothing and gloves while handling the concentrate to avoid contact with skin. PARAQUAT is a restricted use pesticide.

RAD-E-CAT 25 or PHYTAR 560 (Cacodylic Acid)—is used to control annual and perennial weeds around trees, for lawn renovation,

continued on page 66

Treats Up To 2 Acres

Demise™

Non-Volatile
Water Soluble
Turf & Lawn
Weed Killer Crystals

ACTIVE	% By Wt.
DIMP	99.0
2,4-D	8.0
INER	100.00
Con	1 equivalent
lent	

KEEP CHILDREN

See side panel for additional precautionary statements.

KALO

Manufactured by or for
Kalo Agricultural Chemicals, Inc.
Overland Park, Kansas 66211

Net Weight 1 lb. (454 grams)

There's something missing from new Demise™ turf herbicide: volatility and odor.

Introducing new Demise Weed Killer Crystals, the 2,4-D herbicide that's non-volatile and practically odorless. Demise emits no harmful vapors that might damage plants, has no offensive odor after application.

Demise attacks and destroys most annual and biennial broadleaf weeds—common chickweed, dandelions, knotweed, and plantains. It's both easy to use and fast acting. Crystals added to water dissolve on contact to form an effective spray solution that goes right to work. In just several hours you'll see weeds kink and curl.

There is no other turf herbicide quite like Demise, so different it's patented. It won't freeze because it's dry. It takes less storage

space because it's concentrated—the handy 1-lb. bag makes measuring easy and contains enough to treat up to two acres. Bags are airtight, waterproof, and no problem to dispose of.

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Agricultural Chemicals, Inc.

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Overland Park, Kansas 66211.
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In Kansas, Call Collect: (913) 649-5525



Landscape

TABLE 2. Ground covers and flowers tolerant to pre-emergence herbicides

Continued

	BETASAN	CASORON	DACTHAL	DEVIRINOL	ENIDE	EPTAM	FURLOE CHLORO IPC	ORNAMENTAL WEEDER	PRINCEP	RONSTAR	SURFLAN	TREFLAN
Deciduous Shrubs												
Abelia	X		X	X							X	
Azalea	X	X	X	X	X	X	X			X	X	X
Azalea, Mollis		X	X									
Barberry		X	X		X	X	X		X	X	X	X
Beautybush		X			X							
Cinquefoil												X
Cotoneaster		X	X		X		X	X	X	X	X	X
Currant			X		X							
Deutzia		X										X
Dogwood, Red Osier										X		
Euonymus, Winged		X	X	X	X	X				X	X	X
Flowering Almond		X										
Flowering Quince		X										
Forsythia		X	X		X		X			X	X	X
Hibiscus				X	X		X				X	
Honeysuckle		X	X		X		X	X	X	X	X	X
Hydrangea			X		X		X					
Hypericum				X	X							
Lilac		X	X		X	X	X			X	X	X
Mockorange		X	X		X		X				X	
Mockorange, Lemoine												X
Nandina		X		X				X				
Peashrub		X										
Photinia		X		X							X	
Privet	X	X	X	X	X		X			X	X	X
Rose		X	X	X	X		X	X	X	X	X	X
Spirea		X	X		X		X	X				
Spirea, Vanhoutte												X
Viburnum			X		X	X	X		X	X		X
Viburnum, Doublefile											X	
Weigela		X	X		X							

and general weed control in non-crop areas. A surfactant is not needed and it's inactivated upon contact with the soil. If regrowth occurs, re-apply as required. Apply at the rate of 3 gallons per acre.

ROUNDUP (Glyphosate)—controls annual and perennial weeds when used prior to planting and in established ornamentals. Registered as a directed spray toward the base of arborvitae, azalea, boxwood, crabapple, euonymus, fir, Douglas fir, holly, lilac, magnolia, maple, oak, privet, pine, spruce and yew. To control weeds apply to actively growing grasses and broadleaf weeds. Use 1 qt./A in 10-40 gallons of water if weeds are less than 6 in. tall. Apply 2-3 qts./A to control Canada thistle and 3-4 qts. for field bindweed control. Most effective control of perennial weeds is obtained when weeds are in the flower bud or bloom stage at treatment. There is no soil residue, however, a waiting period of 3-5 days, is necessary, following treatment and prior to tillage to obtain maximum weed control.

COMBINATION TREATMENTS—of post-emergence with pre-emergence herbicides are used to kill existing weeds and prevent emergence of others. The

continued on page 70

Lawn grass tolerance to herbicides in Georgia. (B.J. Johnson, Univ. of Georgia)

Turfgrasses	Herbicides									
	Benfenin	DCPA	Bensulide	Oxadiazon	Atrazine	DSMA MSMA	2,4-D ¹	Paraquat	Glyphosate	
Bermuda	T	T	T	T	S*	T	T	S*	S*	
Zoysia	T	T	T	T	S*	S-I	T	S	S	
Centipede	T	T	T	T	T	S	S*	S	S	
St. Augustine	T	T	T		T	S	S	S	S	
Tall fescue	T	T	T	T	S	T	T	S	S	
Bahia	T	T	T		S-I	S-I	T	S	S	

T = Tolerance; safe to use herbicide at recommended rates.

S = Sensitive; Do not use this herbicide.

S-I = Intermediately tolerant; use herbicide with care since grass may be injured.

*Tolerant to herbicides when turfgrass is dormant.

¹Includes mecoprop and/or dicamba.

Howard Kaerwer, Director of Turf Research at Northrup King's Research Center, stands in a laboratory. He is wearing a dark jacket over a light-colored turtleneck and glasses. Behind him is a large window or glass door that looks out onto a vast field of young, green grass clumps planted in neat rows. To his left is a laboratory bench with various equipment, including a microscope and bottles. A white lab coat is draped over a stool in front of him.

“Welcome to the South’s next great winter golf green.”

— Howard Kaerwer, Director of Turf Research at Northrup King’s Research Center

From one of these unlikely looking clumps of ryegrass will come the next improvement in Northrup King Medalist Brand® Over-seeding Mixtures. The South’s most successful blends for over a decade.

Howard Kaerwer and the Northrup King research team have devoted thirty years to developing new grasses and perfecting blends. The results are products such as Medalist 7 Brand, the rugged, dependable ryegrass blend that lets you control transition. And new grasses like Delray, with lower nitrogen requirements and better tillering than any other ryegrass on the market.

When Howard isn’t in the lab he’s on the links talking to superintendents, conducting field experiments and collecting new grass samples to bring back for testing.

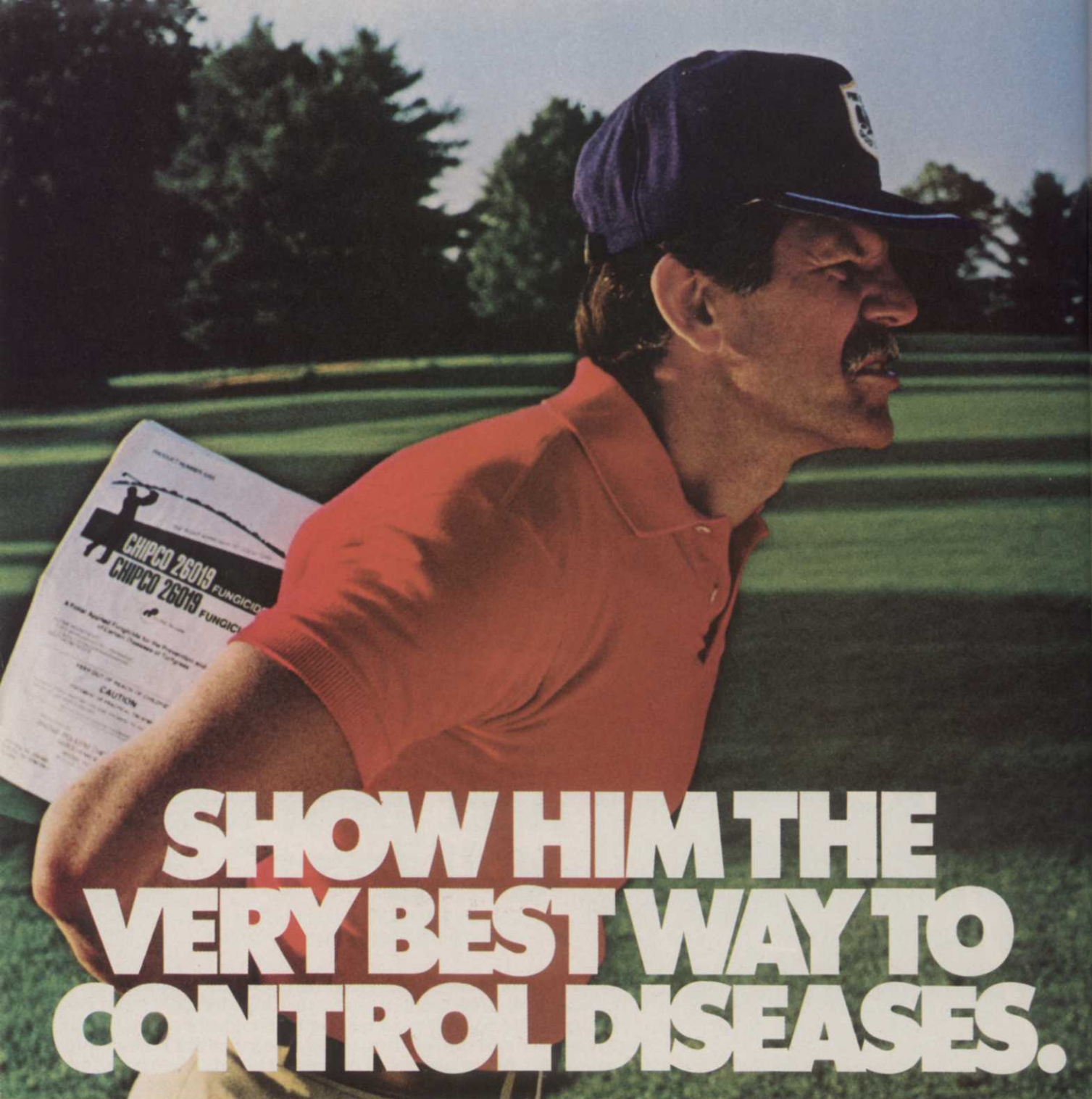
Has Howard’s hard work paid off? Ten years after the introduction of Medalist Brand, 90% of 250 original customers were still with Northrup King. And since then, the number has grown to over 400 golf courses throughout the South.

Ask your Northrup King distributor how to make your course even better with Medalist Brand, the South’s most successful winter over-seeding blends.

Or write: Medalist Turf Products, Northrup King Co., P.O. Box 370, Richardson, TX 75080 or P.O. Box 959, Minneapolis, MN 55440.

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**CHIPCO® 26019
IS STRONG MEDICINE.**

The most demanding turf managers rely on

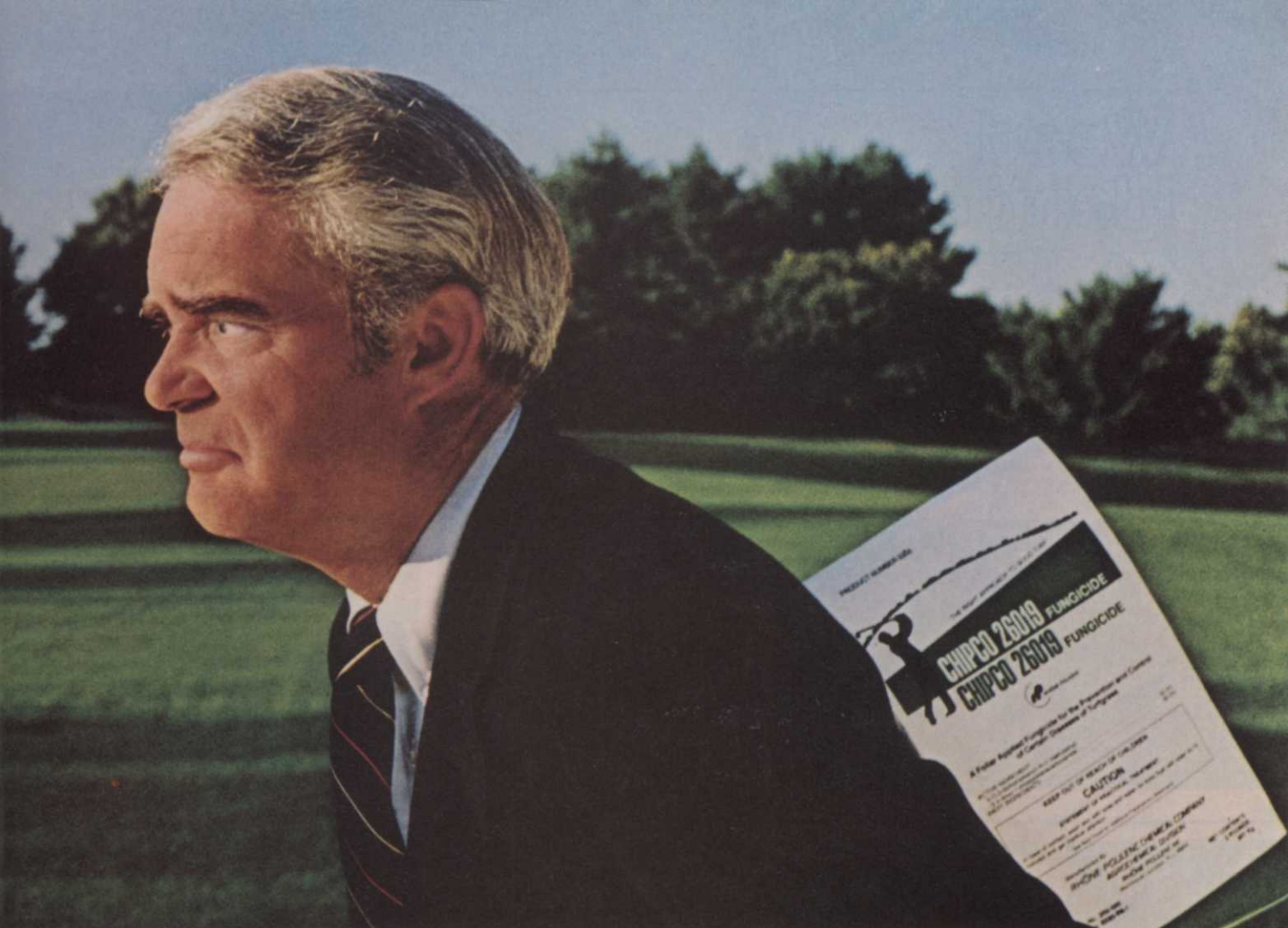
CHIPCO 26019. Because no other product is so effective against such a broad spectrum of diseases.

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LASTS LONGER...SO IT
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The disease control you get with CHIPCO 26019 lasts much longer...21 days on greens and tees



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It lets you cut your spray schedule back.

And for every treatment you eliminate, you save up to \$10 per acre in fuel and labor alone.

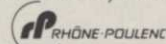
In short, CHIPCO 26019 is not just effective. It's cost-effective.

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Please read the label and use only as directed.



Weed Identification Quiz

Quiz yourself. Answers are on the next page.



A. _____



E. _____



F. _____



G. _____



J. _____



K. _____



L. _____



M. _____



Q. _____



R. _____



S. _____