



# ***THE SOUTH FLORIDA GREEN***

VOLUME 6

JULY, 1979

NO. 3






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## President's Message



One of the problems which every President faces, particularly around the time of annual elections is when to leave the presidency. When is the work finished? Listed below are a few guidelines for use in determining when one should go.

When for Christmas The Board presents you with a gift certificate to the local U-Haul Company.

When a selected committee papers the walls of your office with road maps.

When the GCSAA selects you to lead a tour of foreign golf courses . . . and you don't want to go.

When at the annual picnic during playtime you are invited to play the part of Custer.

When you walk into the annual meeting and the song being played is, "If We Never Meet Again."

When during the elections the song being played is, "I Feel Like Traveling On."

When you and your wife have a son and a member suggests that you name him Samsonite.

When a committee recommends that The Board set a mandatory retirement age for the president, and the membership votes it at 30.

These are some of the more subtle indications that it may be time for a president to move on. **HOWEVER**, your President did not receive any of the above guidelines and I would like to thank our members for their support and understanding this past year.

Now it is time to look over the new horizon ahead. As The Florida Golf Course Superintendents Association looks forward to a great year I pray that God will be with our leaders and that He will head us all in the right direction.

A handwritten signature in cursive script that reads "Sam Jones". The signature is written in black ink on a white background.

# The South Florida Green

The Official Bulletin of the South Florida Golf Course Superintendents Association

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18th Hole Gulf Stream Golf Club. Howell Anderson, Greens Committee Chairman; Robert Dixon, Past President; Stanley Carr, Supt., and Dave Bailey, visting Supt.

Cover photograph by Harry McCartha

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# OVERSEEDING IN SOUTH FLORIDA



Dave Bailey

Now is the time to plan your winter overseed program. With temperatures at ninety degrees daily the most current pressing problem is keeping pace with the healthy bermuda greens. Overseeding winter turf may be your last worry. Or is it? Today's superintendent must plan work programs months in advance. You need to place the order now to secure your seed selection.

Many subjects do not have a right or wrong answer. In golf course maintenance no single subject is more controversial in southern Florida than winter overseeding of putting greens. Each side is convinced their opinion is correct for their club, and there lies the key to the answer. The Club.

Just what does the club want and need? Is the seed money worth the benefit? Will the members tolerate the several weeks of putting surfaces in a transition period? Does an overseeded green give a better putting surface? Or does it just look nicer to the member here only in the winter. What speed do the players demand? How much play is the course receiving and what is the green size? The single biggest question is does your turf type need seed to stabilize the color. Most overseeding is decided on this question alone.

The area from Vero Beach to the Keys was studied along the Florida coastline twenty miles westward. Phil Gardner, regional manager of Lakeshore Equipment and Supply Company, compiled the following data. His survey covered 201 eighteen hole courses. Complexes were counted per course. The results showed 102 courses were overseeded on the putting green surfaces. The 102 total was broken down as follows:

9 Penncross Bent, 2 Emerald Bent, 2 Kentucky Bluegrass, and 89 used Rye or a Rye Blend. The rye breakdown was 31 used Pennfine, 7 Manhattan, and the remaining 51 courses used a rye blend. Medalist was the most used rye blend. Phil Gardner says, "the figures have changed from 1/3 the courses using seed to 1/2 in the last two years." He attributes this to, "The increased play of our courses, improved seed quality and the cold winters of 1977 and 1978."

Seed prices vary with the seed type but please understand the numbers game. The bent prices will range from \$6.00 to \$6.50 per pound. Four pounds per 1,000 square feet is recommended. Thus a cost of about \$25 per 1,000 square feet. The rye prices will be between 95¢ and \$1.25 per pound. With 25 pounds per 1,000 square feet recommended. The total price again comes out to about \$25 per 1,000 square feet. Remember that is the main cost. The total cost is from \$5,000 to \$10,000 per eighteen holes. Is it worth it?

Superintendents in favor get to answer first. Brad Kocher, Inverrary Country Club, says, "Overseeding is a good insurance policy to protect against potential damage to bermuda greens from the cold temperatures characteristic of the past three winters. It also protects against traffic stress during December and April." George Cavanaugh, President Country Club, overseeded one course and not the other. He says, "Old greens after seven years are harder to carry through the winter and should be overseeded. If I were rebuilding greens they would not be overseeded the first six years." Fred Dickson, Quail Ridge Golf and Tennis Club, overseeds because of club policy. He says, "After seed is applied they run the dragmat in five directions for uniform coverage. The greens mower height is raised to 5/16 for a month to let the seed become established." Dan Jones, County Club Aventura, says, "During the cold winter months overseeding gives our greens the day to day beauty and putting quality that our members demand. This cannot be achieved consistently with bermuda grass alone." Jack Cunningham, East Pointe Country Club, says, "If the club can afford the relatively small expense to overseed I think it is well worth it." Kevin Downing, Atlantis Golf Club, says, "Next year I will seed at two different times. The rye will be used first at 18 pounds per 1,000 square feet and a second seeding three weeks later with 10 pounds per 1,000 square feet but using no topdressing." Bill Cahill, Port Malabar Country Club, near Melbourne, said, "I need to overseed to

*continued on page 6*

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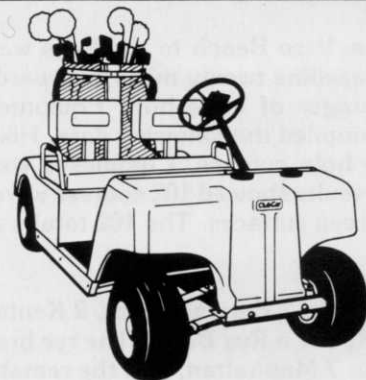
provide good color and good putting all winter season. Selective verticutting of overseeded greens can provide fast or slow greens that hold shots and putt true." Steve Basumel, Pompano Beach Golf Club, said, "Overseeding has been a life saver at our club. It provides an excellent putting surface and holds up under tremendous traffic. Medalist V Rye was used." Robert Hurst, Jupiter Island Club, says, "Overseeding to our course is a must in case of a severe winter. It gives us better color and insures a good putting surface." Paul Turcotte, Melreese Golf Course, says, "I plan to overseed in the latter part of December. This will give us a good strain of grass for the winter months of January, February, and March." Ben Auld, Vero Beach Country Club, said, "Overseeding is a must from Vero Beach northward. It is an option to the south. It's a necessary gamble with the weather, but only the superintendent that takes the pains to see that its done right will ever be successful." Carl Smith, Palm Beach Country Club, said, "I think with overseeding you will have a super quality turf of blue ribbon condition." Carl thinks every private club should overseed with bent grass and that public courses should use rye grass. Carl also points out an often overlooked simple rule. "You must have a sharp mower when cutting overseed." He uses a walk mower at all times. The first cutting will be at a 1/4 inch. The second week lowered to 3/16 inch. The fifth week 5/32 inch. And if possible be down to 1/8 inch on his Pencross bent greens. Scott Sincarbeau, Royal Palm Yacht and Country Club, summed it up best for those in favor of overseeding. He said, "Ninety percent of the golfers think the course is great if the greens are a pretty green color. Good overseeding will give them something to relate to."

Those in favor of not overseeding greens at their club are Stanley Carr, Gulf Stream Golf Club. He says, "located next to the ocean, with little play and Tifgreen 328 it is not necessary." Alan Weitzel, Dade County Golf Courses, says, "We cannot justify the expense." Paul Frank, Wilderness Country Club in Naples, summed it up best for those against overseeding. He said, "Members do not like the way overseeding disrupts the putting surface for several weeks coming in and also several weeks as it goes out. In the southern part of Florida south of a line between Fort Myers and Palm Beach the few days of extreme cold do not merit the expense and inconvenience to the golfer. Beef up with liquid fertilizer and a light touch of good dye during the few off color days." David Bailey, Atlantis Country Club, agrees with Paul Frank. Bailey says, "As a golfer I am 99% opposed to overseeding, as a turf man I am 75% opposed to overseeding, and as a photographer I am 99% in favor of overseeding." Billy Wright, Villa Delray, says, "I definitely believe overseeding is a good insurance. However if cost is a factor and the course will be played to maximum capacity overseeded or not the seed money deserves some consideration." Bill Kriegel, Lake Worth Municipal Golf Club says, "I feel that the greens properly maintained will be much better than overseeded greens. Being a municipal course with Everglades I & II greens I feel that overseeding will cause more problems than it will solve." Mike Berger, Biltmore and Granada Golf Courses, says, "We are not against overseeding but believe it does not suit our circumstances. The cost of overseeding is expensive and for us it does not warrant the short period gain. On an average our

greens will be off color between ten and fifteen days each winter from cold damage. Since the putting quality is only slightly impaired I am not in favor of overseeding." Bob Strait, Boca West Country Club, said, "We overseeded one course and not two. It is a pain to establish with extremely heavy play but contamination of foreign bermudas forces us to overseed. It may be a necessary evil." Bill Wagner, Tequesta Country Club, has not overseeded but is changing his opinion as his greens age. He said, "When you consider cost versus benefit I have seen no real need. After several cool winters and a total life of more than five years Tifdwarf must be overseeded to provide a good putting surface." Lou Oxnevad, Riviera Country Club, said, "I do not feel we need to overseed here. We did overseed our tees in November with a rye mixture."

As stated at the beginning of this article there is no correct answer for all clubs. Whichever way your club decided it takes the dedicated work of many individuals for the course to look good. And only you the golf course superintendent knows what is best for your club.

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# PREVENTIVE FUNGICIDES INSURE OVERSEEDING SUCCESS

By STAN FREDERIKSEN\*



Relatively safe from severe fungus disease onslaughts (though not always) are Florida's bermudagrasses. The fine-leaved hybrids (T-328, Tifdwarf, and the like), and the native "common" varieties, being normal to the Florida "turf scene", all have a degree of natural resistance to most fungus attacks.

In North Florida, bermuda's beige-grey winter dormancy brings automatic fall cool-season overseeding, to assure that green winter putting turf so attractive to winter-month tourists and half-year Florida residents. Many South Florida superintendents, on the other hand, have sought to "get by", through winter, by avoiding those frustrating fall and spring "transition" periods and trying to carry their fine bermudas through the cold months *without* benefit of overseeding.

No more! Sub-freezing temperatures and snowy blasts of the past several winters, even in the Miami - Ft. Lauderdale - Tampa - St. Petersburg sector, have convinced them that "it isn't worth the risk!" Grey putting greens are "out" — entirely unacceptable! Green putting turf is "in" — a real "must" — and all those greens likely will be overseeded annually, from now on.

Great! *But* — while healthy and well-managed bermudas are only rarely attacked by fungi (usually the easy-to-control types like brown patch, dollar spot, the leaf spots and others in the "mild" category), the cool-season overseedings (perennial ryegrass, seeded bentgrass, fine-leaved fescues, *Poa trivialis* and mixtures of these) bring with them a "whole new ball game", captained by the most devastating of all known turf diseases — Pythium blight! While Pythium has been known to "cross over" and attack the bermudas (this is fairly rare), it is literally "death" on

unprotected cool-season overseedings, particularly in the tender seedling stages. Strangely, Pythium *seems* (no hard statistics on this) to attack most viciously the highly-prized perennial rye grasses. Paradoxically, the new improved ryegrasses happen to be the most desirable of all overseeding grasses, and for a myriad of reasons. They are fine-leaved, beautifully emerald green colored, quick germinating (5 days or less), make the "transition" periods well, and form the absolute ultimate in turf "cushion" on bermuda putting greens, permitting continued play on green winter putting surfaces, with only minimal "wear" on the dormant bermudagrass beneath.

The "key", therefore, to effective overseeding, is *prevention of fungus diseases* on the overseeded grasses — prevention, especially, of deadly Pythium blight. Fortunately, Pythium prevention is now a well established procedure, and readily attainable by superintendents, including those South Florida turf managers who have just discovered, during the recent several years, that green putting surfaces on bermuda greens through winter can be assured only through well planned cool-season grass overseedings.

Timing will vary, of course, with latitude — earlier (September or October) in North Florida, and later (mid to late November) in extreme South Florida. Ideally, the program will be initiated as soon as the air and soil temperatures have cooled enough so that bermuda growth has diminished, and the wilting of tender emerging seedlings of the cool-season grasses does not occur.

With optimum timing established, here are two simple programs, either of which will produce excellent winter green putting surfaces, based on whether ryegrass or a different cool-season grass or mixture is selected: *continued on page 8*



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1. **PERENNIAL RYEGRASS OVERSEEDING** (*Annual* ryegrass, though cheaper per pound, is of inferior quality, requires heavier overseeding rates, and is now seldom used or recommended).

1.1 As the determined overseeding time approaches, maintain adequate disease prevention on the not-yet-dormant bermuda with weekly fungicide treatments, alternating between the contact fungicides (KROMAD, Daconil, etc.) and the systemics (FUNGO, 1991, etc.) to avoid infestations of brown patch, dollar spot, leaf spots and other diseases to which the bermudas are a natural host.

1.2 When the weather has cooled sufficiently to preclude sun burn-out of cool-season overseedings, aerify and verticut the greens, "dragging" the cores and debris sufficiently to expose enough soil to assure its good contact with the seeds to be planted.

1.3 Be sure that the soil is adequately fertilized to support ready germination and growth of the new overseeding.

1.4 Choose a good weed-free and *Poa annua*-free perennial ryegrass seed that has been *KOBAN-treated!* Northrup-King's Medalist II is excellent, as are *KOBAN-treated* perennial ryes from Loft, Bingham and other reputable seed companies. Make sure the seed bags are tagged "THIS SEED HAS BEEN TREATED WITH KOBAN BRAND "FUNGICIDE" (or other terrazole-containing fungicide.) **NOTE** — as of now, *KOBAN/Terrazole* is believed to be the only chemical labeled for grass seed treatment against *Pythium* disease, and it is limited by its registration *only to ryegrasses*.

1.5 Evenly and uniformly apply the treated ryegrass seed, at the rate of 20 to 25 pounds per 1000 square feet. If your seed is *not* treated, or as an extra precaution (though not normally essential when *treated* seed is used), apply a *KOBAN* spray to the area just seeded, following label recommendations.

1.6 Lightly topdress the area with *sterilized* topdressing (to further insure good contact of the seeds with the soil). Use a topdressing of the same physical and chemical consistency as the upper putting green soil, to help avoid undesirable "layering".

1.7 Irrigate frequently and lightly, making sure that the soil surface *never dries* prior to complete germination of the cool-season overseeding.

1.8 While the *KOBAN-treatment* of the seed will assure maximum (usually almost 100%) germination, rapid growth of the ryegrass will help to dissipate the residual *KOBAN*. *Therefore* — begin weekly

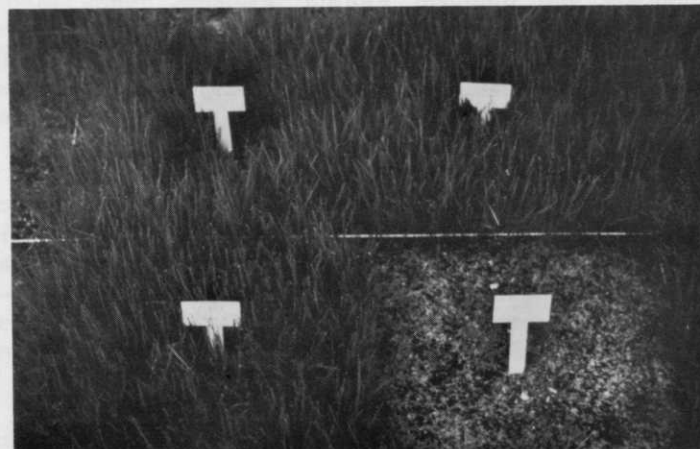


Figure 2. Four plots, all on *Pythium*-innoculated soil, and all ryegrass-seeded at same time. Lower left and upper right plots show full germination and development of healthy ryegrass in the two plots treated with *KOBAN* just after seeding. Compare with untreated check plot at lower right (with no grass at all), and with inferior fungicide-treated plot at upper left, where some grass is developing, but where *Pythium* is attacking the grass right around the plot identification tag.

(Photo from Dr. Edw. Freeman, of the University of Florida)

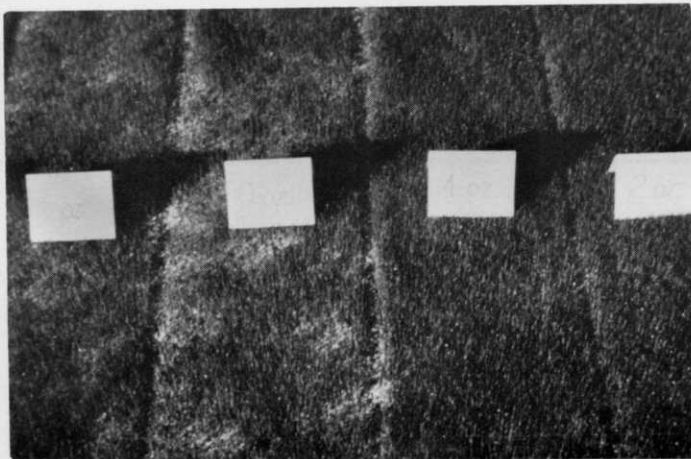


Figure 1. Shows excellence of *KOBAN-treated* Medalist II perennial ryegrass. Two plots on left are ravaged with *Pythium* because *non-treated* ryegrass couldn't develop in *Pythium*-infested soil. Compare with *KOBAN-treated* Medalist II ryegrass seeded two plots on right — *KOBAN* has prevented *Pythium* attack, and ryegrass is developing normally, even in the *Pythium*-infested soil.

(Photo courtesy of Northrup-King Seed Company)

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KOBAN sprays, at label rates, within one week after the new seedlings sprout, and continue until the weather cools and the Pythium threat has passed.

- 1.9 Continue the KROMAD, Daconil, FUNGO and 1991 alternate sprays routinely to prevent other turf diseases (brown patch, dollar spot, the leaf spots, etc.) from invading.
2. **OTHER COOL SEASON GRASS OVERSEEDINGS** (Seeded bentgrasses, fine-leaved fescues, *Poa trivialis*, or recommended mixtures of these)
  - 2.1 Preparatory to overseeding, follow precisely the same initial steps as set forth above in sub-sections 1.1, 1.2, and 1.3 under Section 1., "PERENNIAL RYEGRASS OVERSEEDING".
  - 2.2 Select the overseeding grass or mixture to provide the desired end results and characteristics, in terms of germination time, disease resistance, "turf cushion" (to protect the bermuda base), color, climate adaptability, etc. Regardless of variety, choose a *good* seed that is weed-free and *Poa annua*-free.
  - 2.3 Evenly and uniformly apply the seeds or mixture, at recommended rates.
  - 2.4 *KOBAN-spray the newly seeded area at once*, making sure to use the full recommended rates for this special preventative treatment. **REMEMBER** — unlike the KOBAN-treated perennial ryegrasses, these "other" overseeding varieties are *not* usually treated against Pythium disease, so that *this* particular KOBAN spray is *the* one that affords the protection already "built into" the treated perennial ryegrasses.
  - 2.5 Follow through the remainder of the program by adhering to the actions set forth above under sub-sections 1.6, 1.7, 1.8 and 1.9 in Section 1., "PERENNIAL RYEGRASS OVERSEEDING".

As an "aside", it should be pointed out that when circumstances may so dictate KOBAN and FUNGO may be tank-mixed for broader-spectrum disease control — including *Pythium* control.

Above all else remember that *GREEN* is "the name of the game" (the *golf* game, that is), especially as regards putting turf. Many Florida golf courses represent multi-million dollar investments — all to attain the objective of playing golf on *green* grass. Thus, it is sheer folly for any turf manager to try to "cut corners" and "save" (?) a few hundred dollars, either by avoiding and overseeding or by following a poorly devised overseeding program that doesn't include maximum protection against fungus diseases — especially *Pythium*. Let's face it, fellows — it just "ain't worth the risk!"

\*Stan Frederiksen, retired as Manager - Turf Products, at Mallinckrodt, Inc., in St. Louis, is currently a consultant in Turfgrass management.

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# SEED PRODUCTION

By RICHARD HURLEY  
Vice President - Agronomy & Research  
Lofts Pedigreed Seed, Inc.  
Bound Brook, NJ

How is turfgrass seed produced and where is the major area of production?

Let's take a look at the turfgrass seed industry to find out. The major production area in the United States is in the northwest states of Oregon, Washington and Idaho. A combination of factors make these states ideal for seed production. These areas have a climate with a distinct rainy season during the winter months while having predictable dry months of June, July and August where minimal rainfall is anticipated. As the harvest takes place during these months, there is less chance of crop loss due to heavy rains and severe thunderstorms. When seed is produced in other climates with less predictable weather patterns, heavy rainstorms can dislodge and shatter the seed from the delicate panicles. Once on the ground the seed is lost and can't be harvested.

Low humidity is also important during harvesting as the crop is normally swathed first, set in wind rows and allowed to dry in the fields. High humidity and/or dampness from rain for extended periods can cause rotting of the seed, lower the germination, and increase the incidence of disease which can destroy the entire crop.

How is seed grown?

It is not a complicated procedure in theory but in practice the demands are high due to potential weed contamination, insects, disease and other related problems. The seed utilized by the farmer when planting a field is provided by the breeder or more commonly by a seed company. Seed companies either develop their own \*proprietary varieties through company breeding programs, or acquire

\*Varieties for which one individual, group of people or company have sole control over production, marketing and sales.

marketing rights for varieties developed by breeding programs which do not have facilities with which to market and promote a variety. This is usually the case with breeding programs conducted at state universities. For example Lofts Pedigreed Seed, Inc., has the proprietary and/or co-marketing rights to the following varieties Baron, RAM I, Majestic, Touchdown Kentucky bluegrass, Yorktown, Yorktown II, and Diplomat Perennial ryegrasses, Jamestown Chewings fescue and Beaumont Meadow fescue. The company or its agent will contract directly with the farmers to grow a set number of acres at a certain contract price for a predetermined number of years. The seed which is provided to the farmer would be either breeders' seed or very often foundation seed. Breeders' seed is produced under supervision of the breeder of a particular variety. Very strict standards are set with respect to isolation, contamination, and weed control for both breeder and foundation seed.



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Breeders' seed is produced from plants or clones of the original seed source or plant. The purpose of the Breeder block is to have a basic source of seed which is genetically consistent and uniform according to the description of the variety. Foundation fields are planted from breeder's seed which will provide relatively large quantities of seed of desirable quality which is utilized to plant new or re-established plowed out acres. For example a breeder block of Kentucky bluegrass has 500 plants which will produce 10 pounds of seed. The ten pounds of breeder seed can plant five acres of foundation fields which will in turn produce 3,500 pounds of seed the following year. The 3,500 pounds of foundation seed could be utilized to plant 1,700 acres of production fields. From this 1,700 acres, a harvest of over 1,000,000 pounds of seed would be available for commercial sale. In a period of four to five years, a variety may be increased from a single plant or a few grams of seed to over a million pounds of seed to be sold commercially. The production fields are planted in spaced rows 12 to 18" wide using extremely low seeding rates per acre, 2-3 pounds per acre for Kentucky bluegrass, 5-7 pounds for Fine fescues, 1-2 pounds for Bentgrasses, 15-20 pounds for Tall fescues, and 5-7 pounds for fine leaf Perennial Ryegrasses. To insure genetic purity of a variety and minimize contamination, fields must be rotated every three to five years as every field planted has a seeding and plow out schedule. Fields planted to sexual grass species are isolated far enough from other varieties of the same species so that pollen from a nearby field will not fertilize the desired crop.

After the field is seeded to "Baron" Kentucky bluegrass, for example, the field agronomist, employed by or acting as a representative for a seed company, must take special precautions to see that off types and aberrants (plants which are not characteristic of the variety being grown are eliminated.) The agronomist advises and works with the farmer to see that field hands walk every foot of the field looking for plants that are larger, smaller, have different color, textures, etc., than the desired variety. These plants are eliminated by spot spraying with a contact total kill herbicide. The purpose of this procedure is to provide uniformity from plant to plant within a field. Weeds are selectively removed from the fields by using various herbicides. Fields which have extremely high weed infestations will be plowed up as directed by the field agronomist, thus resulting in a total loss with the crop in order to assure high seed quality.

There is one harvest per year. Harvest takes place between the months of late June thru August. Each species matures and is ready for harvest at different time periods. Kentucky bluegrasses, Tall fescues, and Fine leaf fescues mature first during late June and early July. Next are the Perennial Ryegrasses in mid-July followed by Bentgrasses in mid-August.

From seeding to harvest all fields are routinely visited by state seed inspectors whose responsibility is to verify records as to what variety and species was planted in a field. They also check for weed contamination, if any, and for off-types and aberrants, which may prevent a variety from being certified. The state inspectors, field agronomist and farmers do an excellent job in assuring the public a source of high quality turfgrass seed.

After harvest the seed is combined to separate the seed from the seed head while straw, dust and other inert debris are removed by cleaning machines. These cleaners utilize different size screens and air blowers to sift and separate the viable seed from weed seeds and undesirable elements. All seed is labeled by lot numbers designating the farmer and field in which the seed originated. All seed is tested by licensed laboratories for percent purity, germination, inert matter, and weeds. Seed not meeting strict quality standards as regulated by state and federal laws, can not be sold as certified seed.



After harvest, preparation has already begun for next year. One of the most critical field procedures conducted in an established field after harvest, is to burn the field stubble with fires set and controlled by the farmers. The field burning is necessary to rejuvenate the plants, encourage new plant growth, kill weed seeds, and temporarily kill surface soil pathogens. If not burned, the yield generally will decline in succeeding years.

The procedures described above have been generalized in some cases, and only the most important grass species utilized for fine and sports turf have been mentioned. However, I feel it is important for everyone interested in turfgrasses to have a basic understanding of seed production procedures.

## CORRECTION:

Our apology to U.S.S. Agri-Chemicals for omitting their name in our list of advertisers that appeared with The President's Message in the April 1979 issue of "The South Florida Green".

# ROUNDUP

Two major turf products — one an herbicide and one an improved turfgrass variety — have joined forces to provide professional turf managers with a new, effective program for renewing or renovating existing turf areas.

Roundup® herbicide by Monsanto and Pennfine Perennial Ryegrass have been teamed up in the "2-Step Turf Renewal Plan". Details of the plan are available in a new test kit that includes enough Roundup and Pennfine to renew approximately 200 sq. ft. of turf.

The one application of Roundup called for in the plan will destroy a variety of annual and perennial grasses and broadleaf weeds. Roundup is a foliant-applied herbicide that utilizes the biological process of "translocation" to spread its killing properties to all parts of treated plants. (Translocation is the means by which sugars and other materials are circulated throughout living plants.)

Roundup requires several days to be absorbed into the foliage and translocated throughout the entire plant and its network of below-ground roots and rhizomes. Because Roundup leaves no residual soil activity, Pennfine can be spread over the treated area in about seven days after the herbicide application.

Pennfine's agronomic characteristics make it the ideal variety for the turf renewal plan. Developed by Dr. Joe Duich at Pennsylvania State University, Pennfine germinates quickly and grows into a dense, full stand of grass. Pennfine has a proven wide area of adaptation, the ability to persist at moderate fertility levels, and it withstands drought conditions and soil compaction.

Pennfine's ability to take a clean, smooth cut is one of its most desirable characteristics. After mowing, Pennfine doesn't produce ragged, fibrous ends which quickly turn brown. In addition, it holds up well under heavy traffic conditions.

A free test kit containing usage instructions and enough Roundup and Pennfine to renew approximately 200 sq. ft. of turf is available to turf professionals by writing: Turf Renewal Plan, P.O., Box 923, Minneapolis, MN 55440.



# WHAT'S INSIDE IT A BET

If you're hardnosed about business decisions, you want to get the in-depth facts on a product before you buy. That's why we've put together this head-to-head comparison between the insides of an E-Z-GO and a Cushman. We took comparable top-of-the line models, E-Z-GO's GT-7 and the Cushman Turf Truckster. Here's what we found.

---

**Power Source:** 18 horsepower OMC engine, tightly compartmentalized. Ground speed 0 to 22 mph.

---

**Braking:** Hydraulic internal expanding.

---

**Payload:** 1000 pounds.

---

**Suspension System:** Torsion bars, leaf springs, front and rear shocks.

---

**Dump Construction:** Single wall.

---

**Headlights:** Single.

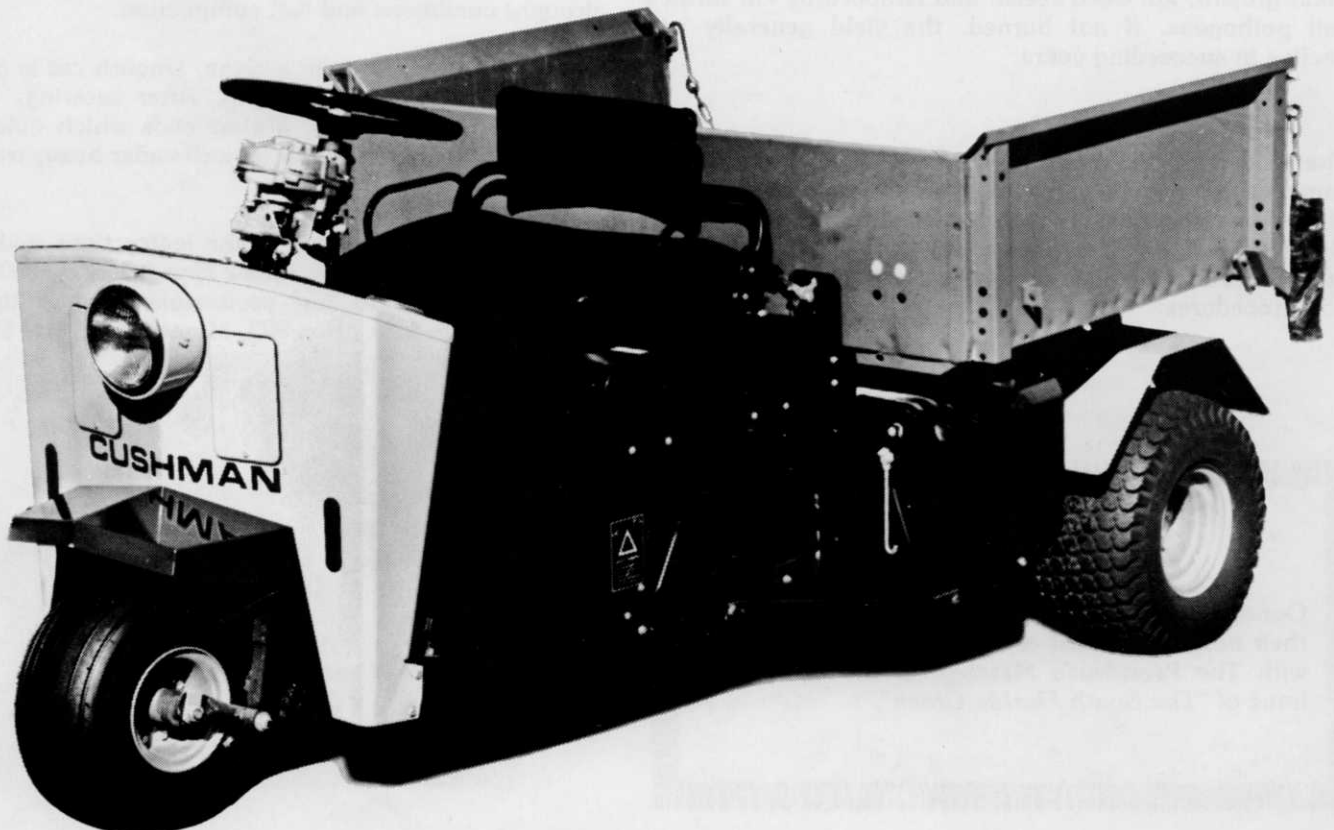
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**Seating:** Single seat for one passenger with back rest and hip restraint.

---

**Price:** Virtually the same.

---



# AN E-Z-GO MAKES TER BUY.

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**Power Source:** A rugged, reliable 18 horsepower Onan engine with the power to carry a full payload up to 24 mph. Substantially larger engine compartment for easier maintenance.

---

**Braking:** Improved hydraulic internal expanding.

---

**Payload:** 1500 pounds. A massive 50% greater carrying capacity than Cushman. More cubic space for greater material volume.

---

**Suspension System:** Heavy duty torsion bars, leaf springs, front and rear shock absorbers, designed to support the bigger payload.

---

**Dump Construction:** Heavy duty diamond plate steel with rugged rear bumper for heavier loads and longer life. Easily convertible to flat bed.

---

**Headlights:** Dual lights for greater night vision.

---

**Seating:** Dual seats for two passengers with individual back rests and hip restraints, constructed for larger men, greater comfort.

---

**Price:** Virtually the same.

---

**Summary:** E-Z-GO carries a greater payload, is easier to maintain, is larger, more durably built, and safer with a wider wheel base. E-Z-GO uses top quality components from companies such as Bendix, Borg Warner, Dana, Onan, and Rockwell International.

For the complete story on the E-Z-GO GT-7, a demonstration on your course, contact your E-Z-GO distributor. For his address check your Yellow Pages or call or write Mr. William Lanier, E-Z-GO, P.O. Box 388, Augusta, Georgia 30903, at (404) 798-4311.



**E-Z-GO TEXTRON**

Polaris E-Z-Go Division of Textron Inc.

# RESEARCH REPORT

# COOL SEASON GRASSES

By E.L. MC WHIRTER and J.V. KRANS  
Assistant Agronomists  
Mississippi Agricultural & Forestry Experiment Station

Hybrid bermudagrasses (*Cynodon Spp.*) are the most widely used turfgrasses for golfgreens in the Southeastern United States. The hybrid bermudagrasses ('Tifgreen' and 'Tifdwarf') become dormant and turn a brownish-gray color when frost occurs. Overseeding these bermudagrasses with a cool-season grass about three weeks before frost is desirable to provide a living green surface, to reduce traffic damage to the dormant bermudagrass, and to insure a more visible target for golfers.

A major problem with overseeding is the transition from bermudagrass to a cool season grass in the fall and back to bermudagrass in the spring. Obtaining a quick cover of overseeded grass in the fall is desirable. Also, gradual death of the cool-season grass the following spring is necessary to allow bermudagrass to develop a dense turf. Bermudagrass normally breaks down dormancy slowly and a mix of cool season grasses with bermudagrass during the early summer provides a semifirm putting surface during the transition period.

We overseeded bermudagrass greens with selected species, mixtures (two or more species mixed together) and blends (several varieties of same species mixed together) of cool-season grasses in the fall and evaluated quality of the turf in the following winter and spring.

A large block of 'Tifgreen' (Tifton 328) bermudagrass sod<sup>1</sup> was divided into plots for overseeding with several species, mixtures and blends of commercially-available and experimental cultivars of cool-season turfgrasses. Plots were 25 feet square and each entry was replicated 4 times. The bermudagrass was not dormant and we removed some thatch and competition before overseeding — by vertical mowing in two directions followed by mowing 1/16 inch below the normal cutting height.

Seed of each species, mixture and blend were preweighed, mixed with moist sand as a carrier, hand seeded on October 15, 1976, worked into the turf by brushing with a stiff-bristle broom and topdressed with about 1/8 inch of masonry sand. Water was applied by sprinkler irrigation 3 times daily until germination was complete and at weekly intervals thereafter. Mowing at a cutting height of 1/2 inch was started 10 days after overseeding and plots were mowed at a

height of 1/4 inch three times each week after the cool-season grasses were well established.

Plots were visually rated for quality at weekly intervals from time of establishment until transition the following spring. Quality was judged to be a function of texture, color, density of stand and uniformity. A quality rating scale of 1 to 10 was used, with 1 lowest, 5 acceptable and 10 highest.

## Results

'Gulf' annual ryegrass became established faster than the other grasses and turf quality was acceptable in October (Table 1). However, low soil and air temperatures resulted in unacceptable turf quality (color fading and stand thinning) in November and for the remainder of the growing season.

The perennial ryegrasses produced acceptable turf later than the annual ryegrass but quality remained acceptable until spring transition, when the quality of all overseeded plots declined. Low temperatures affected the quality of all perennial ryegrasses slightly but they did not exhibit the loss of green color observed in the annual ryegrass and fine-leaved fescues.

Quality of turf produced by the fine-leaved fescues generally was unacceptable. 'Dawson' was producing acceptable turf by mid-November. However, it went "off color" in January and did not recover. The extreme cold affected the other fine-leaved fescues similarly. All fine-leaved fescues faded out fast in the spring transition and brown areas were observed.

Quality of turf produced by all mixtures was acceptable by late November and remained acceptable until spring transition. Differences in quality of turf were negligible.

'Medalist 2,' 'Medalist 5' and 'CBS' blends produced acceptable turf in November. Turf quality was not reduced appreciably by extreme cold and continued acceptable until spring transition. Transition to bermudagrass was very good.

<sup>1</sup>A plot that had been maintained as a golf putting green on the MAFES Plant Science Farm at Mississippi State University.





**Hector**

**TURF & GARDEN, INC.**

and  
**TORO**<sup>®</sup>  
present...

# TORO HEAVY DUTY ROTARY MOWERS



Now there are four  
rugged Toro mowers  
specially engineered  
for commercial use.

# HEVI-DUTY 21-5 TORO MOWER

Model No. 23022 hand-propelled  
Model No. 23158 self-propelled

**The advantages:** hand propelled or self propelled Whirlwind® models; a simple, rugged, durable mower engineered for easy maintenance, dependable performance. Optional features include 5 qt. gas tank, spark arrester muffler and remote air cleaner kit. See specifications.



Optional Remote Air Cleaner P/N 28-0580



Throttle control

Meets ANSI specifications  
(see Toro specs)

2 quart gas tank  
(5 qt. optional)

Heavy duty 5 hp,  
4 cycle engine

Hinged rear  
deflector shield

8" x 1 3/4"  
semi-pneumatic tires

Deflector bar and  
steel deflector chute

10 gauge frame  
welded to housing

Stamped deck of  
12 gauge steel

1" to 4 1/8"  
height of cut

Steel wheels with  
greaseable ball bearings

Wind-Tunnel® housing

# HEVI-DUTY 25" WHIRLWIND® MOWER

Model No. 23267

**The advantages:** self propelled; high capacity with smooth, easy handling over rough terrain. Built for reliability and day in, day out service. Optional features include spark arrester muffler. See specifications.

Full width handle controls traction

Conveniently located throttle control

Convenient cutter blade control

Meets ANSI specifications (see Toro specs)

5 qt. gas tank standard

6 hp, 4 cycle engine

Three position handle height adjustment; storage position

Large 10¼" x 3½" semi-pneumatic rear tires on steel disc wheels

Deflector bar and steel deflector chute

One piece welded frame of 1" x 12-gauge square steel tube

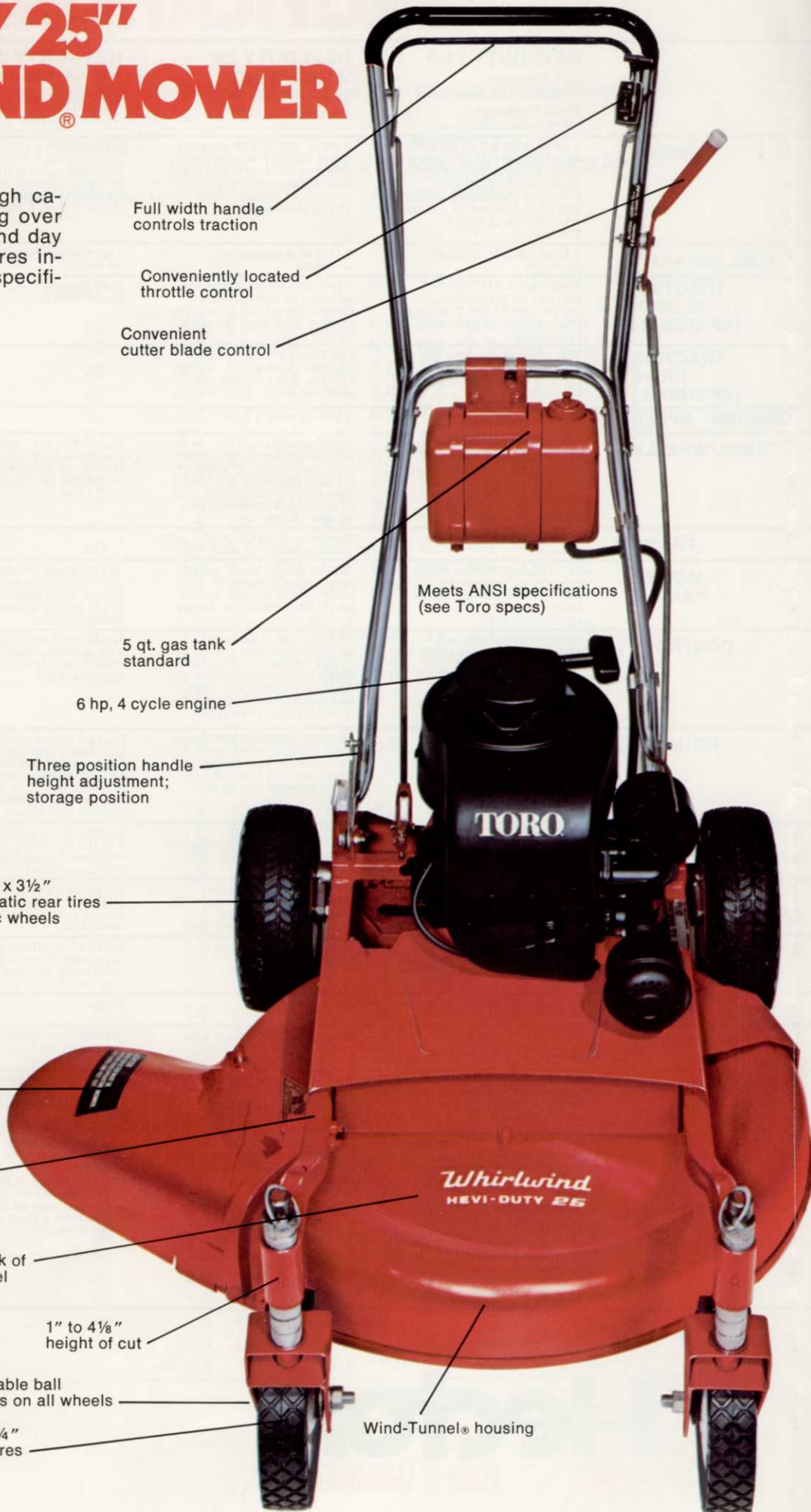
Stamped deck of 12 gauge steel

1" to 4½" height of cut

Greaseable ball bearings on all wheels

Caster-mounted 8" x 1¾" semi-pneumatic front tires on steel wheels

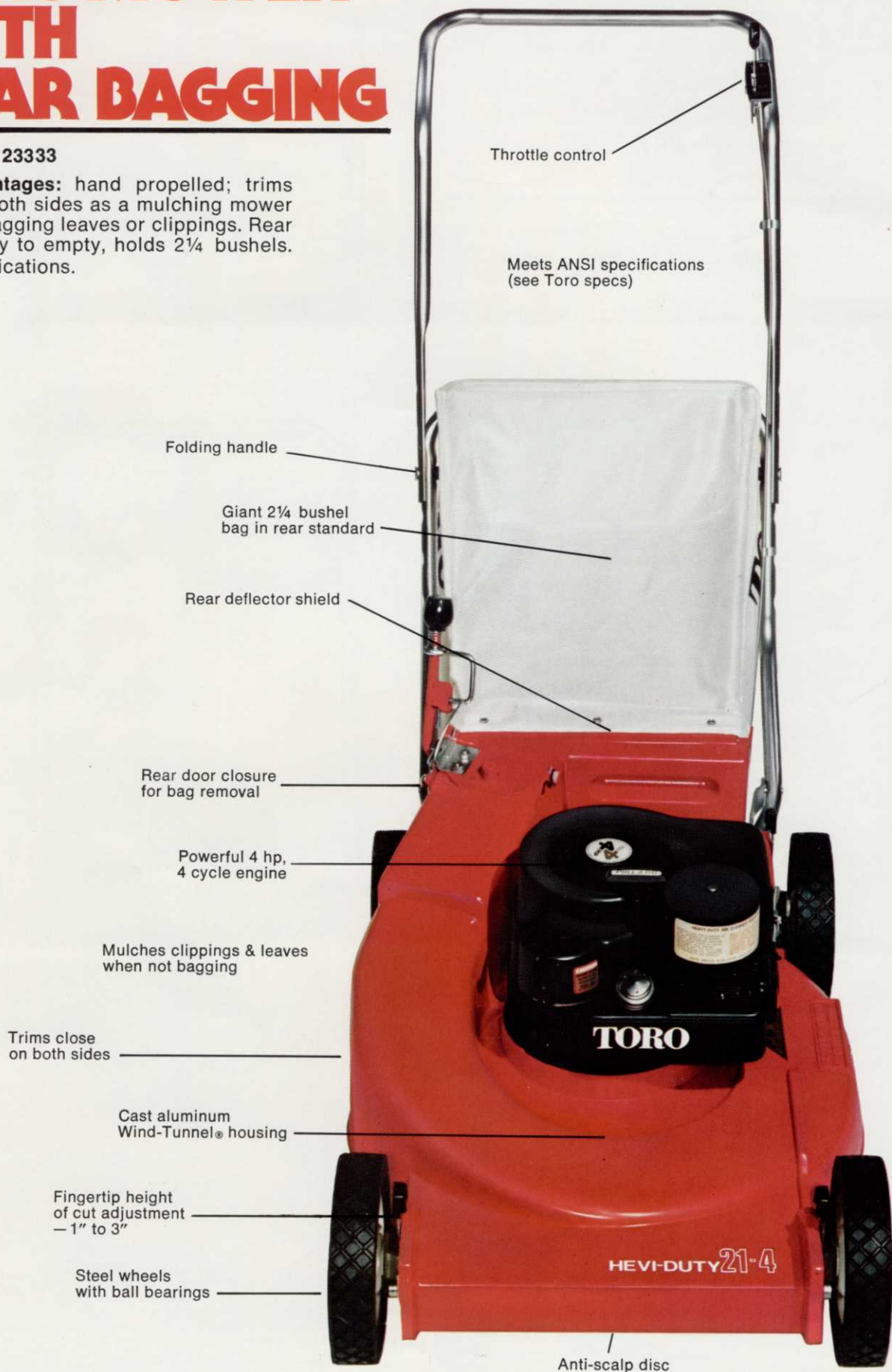
Wind-Tunnel® housing



# HEVI-DUTY 21-4 TORO MOWER WITH REAR BAGGING

Model No. 23333

**The advantages:** hand propelled; trims close on both sides as a mulching mower or when bagging leaves or clippings. Rear bag is easy to empty, holds 2¼ bushels. See specifications.

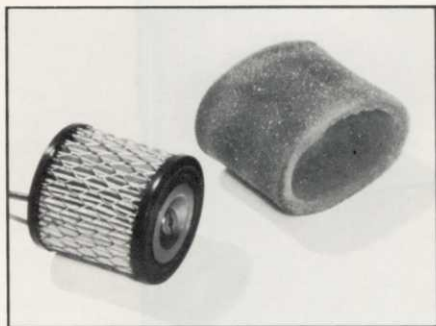


# HEVI-DUTY 21-4 TORO MOWER WITH OPTIONAL SIDE BAGGING

Model No. 23307

**The advantages:** hand propelled, specifically designed with safety improvements in mind—including rear shield, deflector bar, steel deflector chute and optional standard size or giant heavy knit bag with quick on-off attachment. See specifications.

## Two Stage Air Cleaner



Pleated paper element with poly-foam jacket standard on all 21" models.

Folding handle

Throttle control

Meets ANSI specifications  
(see Toro specs)

Rear deflector shield

Water clean-out port for deck

Fingertip height of cut adjustment  
— 1" to 3"

Powerful 4 hp,  
4 cycle engine

Optional bagging  
system on side

Deflector bar and  
steel deflector chute

Cast aluminum  
Wind-Tunnel® housing

Steel wheels  
with ball bearings

TORO

4  
HP  
11.39 CU. IN.

HEVI-DUTY 21-4

Anti-scalp disc

# SPECIFICATIONS

	<b>HEVI-DUTY 21-5</b> Self Propelled (Model No. 23158) Hand Propelled (Model No. 23022)	<b>HEVI-DUTY 25" WHIRLWIND®</b> Self Propelled (Model No. 23267)	<b>HEVI-DUTY 21-4 with rear bagging</b> Hand Propelled (Model No. 23333)	<b>HEVI-DUTY 21-4 with optional side bagging</b> Hand Propelled (Model No. 23307)
<b>ENGINE</b>	5 HP @ 3600 R.P.M. Governor Set at 3000 R.P.M., 4 cycle, 28 oz. oil capacity, 12.6 cu. in. displacement; Crankshaft extension 1" diameter x 1 1/8" long. Dual element air cleaner, recoil starter (Briggs & Stratton).	6 HP @ 3600 R.P.M. Governor Set at 3200 R.P.M., 4 cycle, 27 oz. oil capacity, 13.53 cubic inch displacement, dry element air cleaner, recoil starter (Tecumseh).	4 HP @ 3600 R.P.M. Governor Set at 2700 R.P.M., 4 cycle, 20 oz. oil capacity, 11.39 cubic inch displacement, dual element air cleaner, recoil starter (Briggs & Stratton).	4 HP @ 3600 R.P.M. Governor Set at 2700 R.P.M., 4 cycle, 20 oz. oil capacity, 11.39 cubic inch displacement, dual element air cleaner, recoil starter (Briggs & Stratton).
<b>FUEL CAPACITY</b>	2 quart gas tank mounted on engine.	5 qt. gas tank mounted on handle.	1 qt. gas tank mounted on engine.	1 qt. gas tank mounted on engine.
<b>TRACTION CLUTCH (SP MODEL)</b>	Tight Slack V-Belt. Clutch operated by control bail on handle. Control bail disengages traction drive when released by operator.	Tight Slack V-Belt. Clutch operated by control bail on handle. Control bail disengages traction drive when released by operator.	Hand propelled only (Model 23333).	Hand propelled only (Model No. 23307).
<b>TRACTION DRIVE (SP MODEL)</b>	Rear wheel drive with a one way over-running roller clutch between speed reducer and each rear wheel.	Rear wheel drive with a one way over-running roller clutch between speed reducer and each rear wheel.		
<b>GROUND SPEED</b>	3 MPH @ 3000 R.P.M.	3 MPH @ 2800 R.P.M.		
<b>TIRES/WHEELS</b>	Four — 8" x 1 3/4" semi-pneumatic tires mounted on stamped steel wheels. Greaseable ball bearings on each wheel.	10.25" diameter x 3.50" semi-pneumatic rear tires on steel disc wheels. 8" diameter x 1.75" semi-pneumatic front tires on steel disc wheels. Greaseable ball bearings on all four wheels.	Four — 8" x 1 3/4" semi-pneumatic tires mounted on stamped steel wheels. Greaseable ball bearings on each wheel.	Four — 8" x 1 3/4" semi-pneumatic tires mounted on stamped steel wheels. Greaseable ball bearings on each wheel.
<b>FRAME</b>	10 gauge supports welded to housing.	One piece welded 1" x 12 gauge square steel tube.		
<b>MOWER HANDLE</b>	7/8", 16 gauge chrome plated, steel tubing in separate halves. Three position handle height adjustment and storage position.	7/8", 16 gauge chrome plated, steel tubing in separate halves. Three position handle height adjustment and storage position.	7/8", 16 gauge chrome plated, steel tubing in separate halves. Three position handle height adjustment and folded storage position.	7/8", 16 gauge chrome plated, steel tubing in separate halves. Five position handle height adjustment; vertical and folded storage position.
<b>CONTROLS</b>	Throttle control wire and casing located on upper handle for choke and shut-off.	Throttle control wire and casing located on mower handle for choke and shut-off. Cutter blade control with adjustable control rod. Dead-man handle controls tight-slack V-belt traction drive clutch.	Full range throttle control with operating lever conveniently located on upper handle.	Full range throttle control with operating lever conveniently located on upper handle.
<b>HOUSING</b>	12 gauge stamped steel. Spiral grass chamber, right hand discharge, deflector bar and steel deflector chute. Also has rear deflector shield between rear wheels.	14 gauge stamped steel. Spiral grass chamber, right hand discharge. Steel deflector chute. Also has rear deflector shield between rear wheels.	Die cast aluminum alloy, spiral grass chamber, with provisions for rear bagging (2 1/4 bushel capacity) or mulching. Also has rear deflector shield between rear wheels.	Die cast aluminum alloy, spiral grass chamber, right hand discharge with integral baffled deflector and steel deflector chute. Also has rear deflector shield between rear wheels.
<b>CERTIFICATION</b>	Certified to meet ANSI B71.1b-1977 safety specifications which meet federal and state OSHA regulations.	Certified to meet ANSI B71.1b-1977 safety specifications which meet federal and state OSHA regulations.	Certified to meet ANSI B71.1b-1977 safety specifications which meet federal and state OSHA regulations.	Certified to meet ANSI B71.1b-1977 safety specifications which meet federal and state OSHA regulations.
<b>BLADE</b>	21" hardened high carbon steel, positive attachment with one fastener to engine crankshaft.	25" hardened, high carbon steel, positive attachment with one fastener to spindle with V-Belt drive from engine.	21" hardened high carbon steel, positive attachment with one fastener to engine crankshaft.	21" hardened high carbon steel, positive attachment with one fastener to engine crankshaft.
<b>HEIGHT OF CUT</b>	1" to 4 1/8" adjustable in 5/8" increments.	1" to 4 1/8" adjustable in 5/8" increments.	1/2" to 3" adjustable in 1/2" increments by moving wheels individually with leaf spring-type hand levers.	1/2" to 3" adjustable in 1/2" increments by moving wheels individually with leaf spring-type hand levers.
<b>WEIGHT</b>	SP Model 100 lbs. HP Model 87 lbs.	161 lbs.	72 lbs.	58 lbs.
<b>DIMENSIONS</b>	Width 26 1/2"; length 32 1/2", height 14 1/2" less handle with wheels set at 1" height of cut.	29" width, 19 1/2" height less handle (at 1" height of cut), 43" length.	22" width, 14" height less handle (at 1" height of cut), 34" length.	29" width, 13" height less handle (at 1" height of cut), 35" length.
<b>ACCESSORIES</b>	Optional: Spark Arrester Muffler — Briggs & Stratton Muffler Assembly 391313 and Outlet Exhaust Screen 392194. Exhaust system approved by United States Forest Service. Approval number 391913. Remote Air Cleaner Kit part no. 28-0580. Remote Fuel Tank Kit of 5 qt. size part no. 28-5590.	Optional Equipment: Spark Arrester Muffler — Toro part no. 23-8960 with 2811-6 Street Elbow and 3290-154 locknut — is a United States Department of Agriculture and United States Forest Service approved exhaust system. Approval number is 10291.	Optional Equipment: Spark Arrester Muffler — Briggs & Stratton muffler assembly 392188 which includes outlet screen 391911 — is a United States Department of Agriculture and United States Forest Service approved exhaust system. Approval number is 391435. Remote Air Cleaner, part no. 28-0580, mounts on upper handle and provides a clean intake of air for the engine.	Optional Equipment: Spark Arrester Muffler — Briggs & Stratton muffler assembly 392188 which includes outlet screen 391911 — is a United States Department of Agriculture and United States Forest Service approved exhaust system. Approval number is 391435. Remote Air Cleaner, part no. 28-0580, mounts on upper handle and provides a clean intake of air for the engine. Remote Fuel Tank, part no. 28-5590, mounts between lower handle. Its 5 quart capacity provides extra mowing time between fills.



worth more



**Table 1. Quality Ratings of Selected Species, Blends and Mixtures of Cool-Season Grasses Overseeded on Bermudagrass, Mississippi State University, Oct. 15, 1976.**

Cultivars	Seeding Rate lbs/1000 sq. ft.	Month									
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Ave.
<b>Annual Ryegrass</b>											
Gulf	50	6.0	4.6	4.8	4.8	5.2	4.8	3.8	1.9	3.9	3.9
<b>Perennial Ryegrass</b>											
Derby	40	2.5	5.3	6.3	6.2	6.4	8.0	6.5	3.9	2.3	6.1
Regal	40	1.8	4.5	5.4	5.4	5.9	8.0	7.1	4.8	2.8	5.6
Berdie	40	3.0	5.0	5.6	6.2	6.2	7.9	6.7	4.5	3.0	5.8
Citation	40	2.8	4.8	5.7	5.9	5.8	7.7	6.8	4.4	3.0	5.6
Omega	40	3.3	4.8	5.7	5.8	6.3	7.4	7.0	3.8	2.8	5.6
NK 200	40	2.3	4.7	6.1	5.5	5.3	6.4	6.4	3.4	2.5	5.1
Eton	40	2.5	4.7	5.9	5.2	5.4	7.0	6.6	3.7	2.5	5.3
Pennfine	40	3.8	4.2	6.8	7.2	6.6	8.2	6.9	3.9	2.5	6.1
K5-90	40	2.5	4.9	6.0	7.1	6.4	7.7	6.6	2.8	2.3	5.5
K5-92	40	3.5	4.9	6.1	6.6	6.4	7.9	5.9	3.2	2.3	5.6
Loretta	40	2.8	4.3	5.7	5.5	5.8	6.9	6.4	4.2	3.0	5.4
Caravette	40	2.0	4.8	5.9	6.3	5.1	5.9	6.4	3.6	1.8	5.3
Average		2.7	4.7	5.9	6.1	6.0	7.4	6.6	3.9	2.6	
<b>Fine Fescues</b>											
Syn W.	30	1.5	3.6	4.7	3.9	4.9	3.7	4.1	3.5	3.9	
Dawson	30	1.5	4.8	5.5	4.1	4.6	6.2	5.4	3.1	2.3	4.5
Kinnington	30	1.0	3.0	4.0	3.3	2.8	3.3	3.0	2.6	2.3	3.1
Average		1.3	3.8	4.7	3.8	3.7	4.8	4.0	3.3	2.7	
<b>Poa trivialis</b>											
Sabre	12	1.3	3.3	5.1	5.9	6.2	7.0	6.3	2.9	2.0	5.0
<b>Mixtures</b>											
Yorktown (50%), Diplomat (20%), Jamestown (30%)	35	1.5	4.2	5.6	6.1	6.0	7.3	6.6	3.7	2.3	5.3
Diplomat (60%), Jamestown (40%)	35	1.5	4.7	5.7	5.3	5.9	7.1	5.8	4.1	2.5	4.9
Yorktown (60%), Jamestown (40%)	40	1.3	4.2	5.4	5.8	5.8	7.1	6.3	3.3	2.3	5.1
Synd-1 (60%), Jamestown (40%)	35	1.3	4.4	5.7	5.3	6.1	7.2	6.4	4.0	2.5	5.3
Diplomat (35%), Synd-1 (35%), Jamestown (30%)	35	1.3	4.3	5.2	5.3	5.8	7.1	6.3	4.1	2.8	5.2
Dixie green (60%), Sabre (40%)	18	1.5	4.2	5.2	6.3	6.1	7.7	6.8	3.6	2.0	5.4
Derby (80%), Sabre (20%)	20	1.3	4.0	5.3	6.1	6.1	7.7	6.7	3.9	2.0	5.5
Diplomat (50%), Yorktown (20%), Jamestown (30%)	35	1.0	4.3	5.1	5.1	5.9	7.3	6.4	4.1	2.3	5.2
Dixie green	40	2.3	5.1	6.3	6.4	6.4	7.8	6.4	4.4	2.3	5.3
Winter Green I®	40	2.0	4.4	5.6	5.8	5.4	6.1	6.4	3.7	2.3	5.1
Medalist 400®	40	3.3	4.6	5.8	6.1	5.9	6.7	6.1	4.1	2.5	5.4
Medalist 200®	40	3.5	4.8	5.8	5.9	5.7	6.8	6.4	4.1	2.5	5.4
Average		1.8	4.4	5.6	5.8	5.9	7.2	6.4	3.9	2.4	
<b>Blends</b>											
OS 601®	40	2.3	4.8	5.9	6.5	5.5	6.9	6.6	4.0	1.8	5.1
OS 603®	40	1.8	4.4	5.4	5.9	5.7	6.9	6.4	3.5	1.8	5.1
CBS blend®	40	3.0	5.2	6.1	6.6	6.3	7.8	7.1	4.4	3.3	5.9
Medalist <sup>5</sup> ®	40	3.0	5.1	6.2	6.1	6.0	7.5	4.1	3.8	2.0	5.6
Medalist <sup>4</sup> ®	40	3.3	4.7	5.8	5.8	6.2	7.7	6.9	4.0	2.8	5.6
Medalist <sup>2</sup> ®	40	3.8	5.2	5.6	6.1	6.1	7.2	5.9	3.0	1.8	5.3
Diplomat (50%), Synd-1 (50%)	40	1.5	4.7	5.3	5.8	6.4	7.5	6.6	4.4	2.5	5.5
Yorktown (50%), Synd-1 (50%)	40	1.5	4.9	5.3	5.6	6.1	7.6	6.5	4.2	2.3	5.5
Yorktown (50%), Diplomat (50%)	40	1.3	4.2	5.4	5.8	5.7	7.1	6.3	4.1	2.3	5.1
Average		2.4	4.8	5.7	6.0	6.0	7.4	6.3	3.9	2.3	

On these three pages we show you some of the more than 85 members that attended our May 15th meeting at Seminole Golf Club.

Bill Whitiker was our superintendent host and Mr. Allen R. Ryan, President, welcomed our group.

*Golf Digest* rates Seminole in the top ten layouts in the world and our members found out why. A truly memorable event and we're grateful to the members of this fine course for allowing us to meet there.

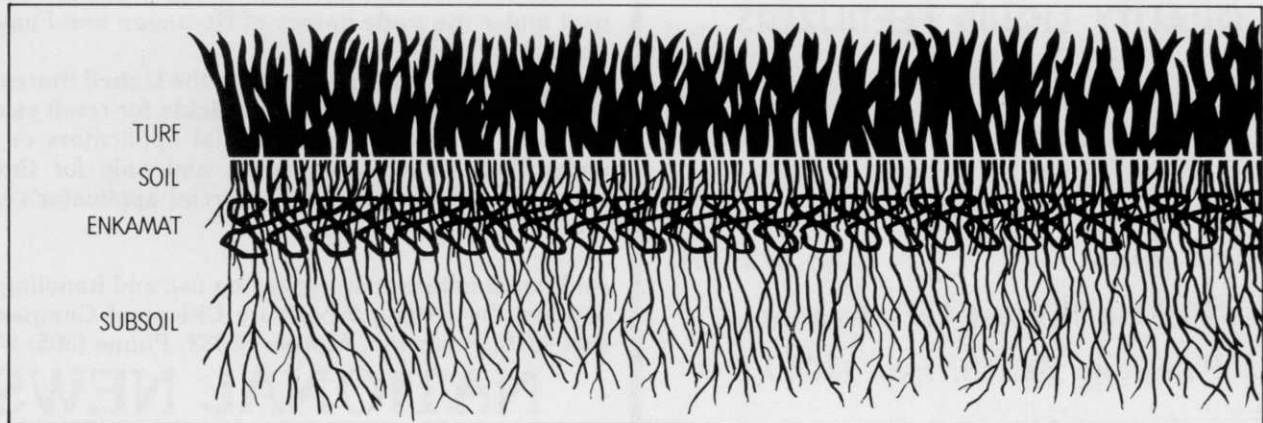
(Photograph report by Harry McCartha and Dave Bailey)

(Photographs continued on Page 28)



# PROBLEM: **MAINTAINING TURF ON INTENSIVE USE AREAS.**

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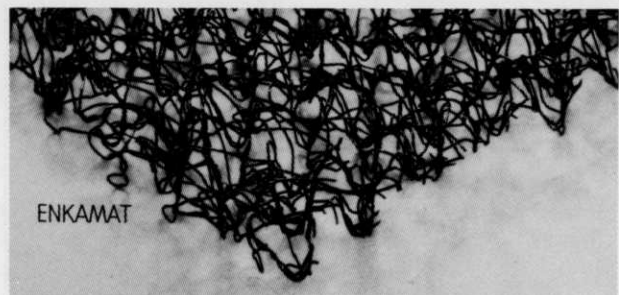
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low air, water and nutrients to move freely into the soil, minimizing maintenance costs.

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Woodbury Chemical Company is pleased to announce that a Special Local Need registration for the use of DBCP on established turfgrasses in Florida has been granted by the Florida Department of Agriculture and Consumer Services. Nematocide EM 15.1 when properly labeled can now be used in controlling plant parasitic nematodes by chisel injection or hydrojet injection. DBCP has been sold in the past under the trade names of Nemagon and Fumazone.

This product is being produced in the United States and will be sold as a Restricted Use Pesticide for retail sale to and use only by certified commercial applicators or persons under their direct supervision, and only for those uses covered by the certified commercial applicator's certification.

Additional information regarding use and handling may be obtained by writing Woodbury Chemical Company, P.O. Box 4319, Princeton, Florida 33032. Phone (305) 247-0524.

## NATIONAL NEWS

The G.C.S.A.A. recently created an organizational structure committee to study the feasibility of possibly dividing the association into districts.

The first and foremost advantage of this, for us, would be equal representation from *each* district on the G.C.S.A.A. Executive Committee — no more taxation without representation.

I have been appointed to this committee and have already presented to them a lengthy draft of a plan which includes many changes in the structure of the association — changes which effect national, state, and local levels. A committee meeting has been scheduled for Oct. 5, 6, and 7.

If anyone has a comment to make on this subject, I would appreciate hearing from you. If you care to contact G.C.S.A.A. headquarters or the Committee Chairman, feel free to do so. *But however, I do ask that you keep me abreast of your actions* as I would appreciate not being embarrassed at a committee meeting if discussion leads to comments from my area which I am ignorant of.

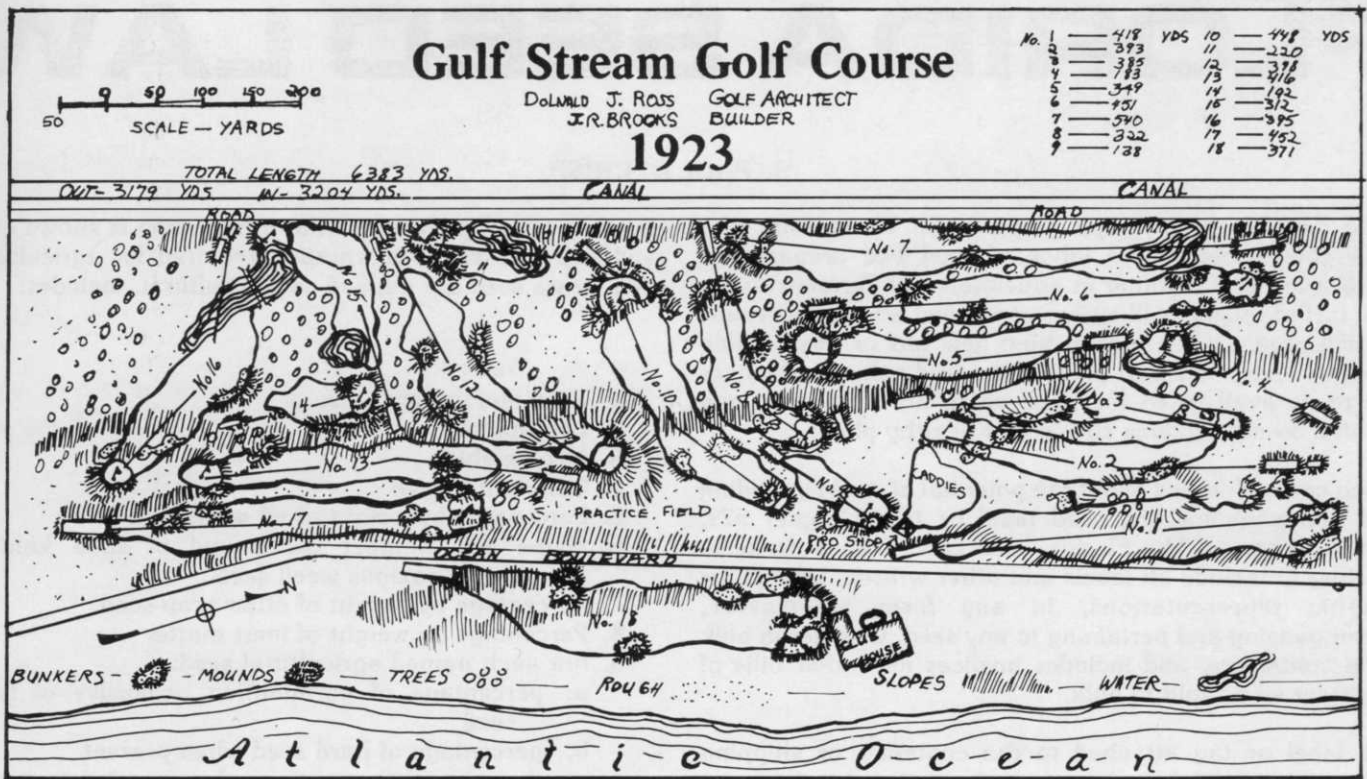
Thank you for your cooperation in this matter. I look forward to hearing from those who are interested and we all should be as this could be a progressive step for our profession.

I can be contacted at:

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Tequesta, Fla. 33458

**Phone:**  
office - (305) 746-4408  
home - (305) 746-3627

Bill Wagner,  
Golf Course Supt.  
Tequesta Country Club



Gulf Stream Golf Club has a proud tradition of golf excellence. Late in 1923 a group of close friends organized the Gulf Stream Realty Company and acquired extensive acreage from the Atlantic Ocean to the Intercoastal Waterway. The location, fifteen miles south of Palm Beach, was selected because of its informality. The club derived its name because of the proximity to the ocean gulfstream just one mile offshore.

Two of the most famous architects of the era were secured to make Gulf Stream a landmark. The clubhouse, located just west of the ocean front sand dunes, is the creation of Addison Mizner. The golf course was developed by Donald Ross. Gulf Stream has met numerous challenges over the years. In the formative years of 1926 and 1928 storms did extensive damage. The Great Depression slowed progress of all clubs. World War II forced the closing of the club facilities. The course was maintained in a "protective state" of condition and the Armed Forces used the facilities. Due to the foresight of one of the members, it was possible to play during the war as a substantial supply of golf balls had been acquired and were closely controlled and rationed. The late fifties saw architect Dick Wilson along with well-known amateur Chick Evans recontour many greens and replant new grasses. The course was shortened to the members desires. Bobby Cruichshank was the golf profes-

sional for thirty-six years until his retirement in 1973. Legend tells of his 1923 U.S. Open Championship playoff defeat to Bobby Jones.

The history of Gulf Stream is now being directed by Edward Warren, club president. Howell Anderson is the greens committee chairman. The current staff consists of Stanley Carr, golf course superintendent. Bob Adams is the golf professional and Jim Briggs the club manager.

Stanley Carr has been at the club eleven years, the last six at his current position. Chris Sova is the assistant superintendent. Glen Sova is the equipment mechanic. Stanley Carr rates him "the best in South Florida". The turf at Gulf Stream is a very interesting story. The greens are Tifton 328 bermuda, not overseeded in the winter. The fairways are Ormond and some common bermuda on twelve holes. The lower six holes next to the Intercoastal Waterway have Paspalum in the fairways. The fairway water level is so low that Paspalum is better adapted than bermuda grass on wet sites. The salt content in the soil is 5,000 parts per million. These fairways were not irrigated until the mid 1970's. Thus nature created a high salt tolerant turf. These fairways are irrigated only in the spring to lower the salt build up. The Paspalum is difficult to work because of its limited herbicide selection. Ormond bermuda has been sodded into the fairways and always dies while the Paspalum thrives.

# FLORIDA SEED LAW

By PAUL D. CRISP

Seed quality is of major importance to anyone who undergoes expense and labor of seed bed preparation, fertilization and planting in anticipation of certain results. The turf manager is likewise, concerned about the results he will obtain when establishing new turf or overseeding existing cover. The best preparation and cultural practices are to no avail when the seed which are purchased and planted do not produce strong and healthy plants.

Much can be learned about the potential of seed by reading and understanding the seed label or tag. Chapter 579, Florida Statutes, The Florida Seed Law, defines the term labeling to include all labels and other written, printed, or graphic representations, in any form whatsoever, accompanying and pertaining to any seed, whether in bulk or in containers, and includes invoices and other bills of shipment when sold in bulk.

The label or tag attached to the container or shipping document must show certain information in a format prescribed by Rule. "Tips on Interpreting a Ryegrass Seed Tag" by Dr. William Meyer, Turf Seed, Inc., *The South Florida Green*, Vol. 5, No. 4, October 1978, does an

excellent job of explaining what information is shown on a seed tag. The basic information required for agricultural seed, grass seed are classed as agricultural, includes:

1. Kind and variety
2. Lot number
3. Net weight
4. Origin, if known
5. Percentage by weight of all weed seed
6. Name and number per pound of each kind of restricted noxious weed seed.
7. Percentage by weight of other crop seed
8. Percentage by weight of inert matter
9. For each named agricultural seed:
  - a. percentage of germination, exclusive of hard seed
  - b. percentage of hard seed when present
  - c. the calendar month and year the test was completed to determine such percentages
10. Name and address of the person who labeled the seed or who sells the seed within the state

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The field personnel of the Department of Agriculture and Consumer Services, Bureau of Feed, Seed, Fertilizer and Pesticide Inspection are available on request to sample seed and review labeling for you. Our inspectors live in the area where they work and make frequent calls on golf courses to check products such as fertilizer, pesticide and seed which are purchased for used. If you have not met him, be on the look out for him in the next few weeks as he will be calling on you again. In the event you have an urgent request, you may call the Tallahassee office at (904) 488-6686, Monday thru Friday from 7:45 a.m. to 4:30 p.m.

Official samples of seed purchased for planting purposes may be collected and submitted by our inspectors to the State Seed Laboratory, located in Tallahassee. Purity and Germination tests are conducted and results are reported on official State Chemists Laboratory Reports. This generally takes three to four weeks, but may take somewhat longer if retests are necessary or the percentage of hard or firm seed is guaranteed on the label.

Purchasers who have experienced problems with seed quality should make available to the inspector records relating to the purchase and planting of the seed. An investigation report by an inspector should show the kind and variety of seed purchased, lot number, distributor's name and address, date of purchase, date of planting, method of planting, weather conditions at time of planting and similar pertinent information. Generally, purity and germination tests will reveal most problems related to seed quality.

The Golf Course Superintendent certainly must be assured that he is planting the proper kind and variety of weed free seed which has a minimum germination which meets or exceeds the standard of 60% for agricultural seed, and that the germination test date is within seven (7) months of the date of purchase and delivery. The rate of seeding may be adjusted according to the germination percentage, therefore, the higher the germination, the lower the seeding rate may be on a per acre or area basis.

Undesirable plants, weeds, may be introduced during overseeding which will result in unfavorable conditions of fairways and greens for years to come. Bunch grasses or some tall growing type grasses are undesirable. Annual Bluegrass (*Poa annua*) is such a grass. It is classed as a restricted noxious weed with a limit of 5,000 seed per pound. It has been proposed that this number be reduced to 1,000 per pound. This will be done through the administrative hearing process at sometime in the future.

Treatment of seed against soil borne disease is a help to agriculturals in obtaining better stands. Grass seed may be treated with any one of several products. Caution must be exercised here to make sure that birds in the area of seeding do not have the opportunity to pick up treated seed.

Seed treated with mercurial or similarly toxic substance, if any amount remains with the seed, shall be labeled to show a statement such as "Poison", "Poison Treated", "Treated with Poison." The word "Poison" must be printed in Red letters on contrasting background. *continued on page 27*



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# SEED TAG UPDATE

By SALLY McGOVERN  
O.M. Scott & Sons

A country/western song popular not too long ago vocalized the advice, "Let's get back to the basics of life." It's a good bit of advice.

In the turf business, as in the business of life, the basics are important. The basic ingredient necessary for fine turf is quality seed. Attempting to save a few dollars by purchasing something less than the best will most likely provide unsatisfactory results that mean extra work and added expense once the turf is established.

In other words, starting out with the best makes the job of turf maintenance much easier in the long run.

Buying quality grass seed sounds like a simple enough proposition. But it's not always as easy as it seems.

The problem is with the seed label. The terms, numbers and percentages printed there can be confusing and misleading. And without adequate knowledge of seed label terminology, it's easy to purchase inferior seed. To obtain quality grass seed, a turf manager needs a thorough knowledge of how to read and interpret the label information.

According to the Federal Seed Act, the following information must be printed on the label:

1. The name of the seller.
2. The lot number of the seed.
3. The date the seed was tested.
4. The seed variety.
5. The percent of seed purity.
6. The percent of germination for each variety.
7. The percent of crop seed present.
8. The percent of inert matter.
9. The percent of weed seed present.
10. The noxious weeds by name and number per pound.

Terms such as purity, germination, crop, weeds, noxious weeds and inert matter are very important facts of the seed label. They can reveal and conceal many important facts. Unfortunately, these are the same terms that are most often misunderstood.

**Purity.** Purity is the percent by weight of pure seed, crop, weeds and inert matter in the package. It should total 100% and, therefore, account for everything in the package.

Because purity is an indication of quantity, not quality, a bit of simple arithmetic is necessary to determine how much of the pure seed in the mix will actually germinate. This is accomplished by multiplying the percent purity by the percent germination.

Using the Scotts Proturf Winter Turf I label (printed Fig. 1) as an example, this would mean:

$$\begin{array}{r} 38.90\% \times 90\% = 35.01\% \\ 29.05\% \times 90\% = 26.15\% \\ 19.20\% \times 90\% = 17.28\% \\ 9.85\% \times 87\% = \underline{8.57\%} \\ 87.01\% \end{array}$$

Adding these figures shows that 87.01% of the ProTurf Winter Turf I is pure live seed.

**Germination.** Germination is the percent of pure seed that will grow in an ideal laboratory environment in a prescribed time. A standard laboratory germination test consists of 400 seeds (four replications of 100 seeds each) subjected to alternating temperatures of 60 to 80°F for 28 days at 95% humidity. The seeds are kept moist and illuminated under cool white fluorescent lights for eight hours each day.

**Crop.** Crop is the percent by weight of seeds grown as an agricultural crop. These seeds must be specified by name if they comprise more than 5% of the weight of the package. Examples of grasses grown as cash crops, but undesirable in a ryegrass/bluegrass overseeding mix such as ProTurf Winter Turf I are bentgrass, tall fescue, timothy, redtop and orchardgrass.

**Inert Matter.** Inert matter is the percent by weight of material in the package that will not grow. The more inert matter a package of seed contains, the less turf you are getting for your money. ProTurf Winter Turf I contains only 1.41% inert matter in a 50-pound bag.

## PROTURF WINTER TURF I GRASS SEED MIXTURE

Stock No. 8271

FINE TEXTURED GRASSES	GERM	ORIGIN
38.90% Manhattan Perennial Ryegrass	90%	ORE
9.85% Victa Kentucky Bluegrass	87%	ORE

COARSE KINDS	GERM	ORIGIN
29.05% Loretta Perennial Ryegrass	90%	ORE
19.20% Pennfine Perennial Ryegrass	90%	ORE

### OTHER INGREDIENTS

1.50% Crop	
1.41% Inert Matter	
0.09% Weeds	No Noxious Weeds
Net Weight 50 lbs	Seeds Tested:
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**Weeds.** Weeds are a major threat to all fine turf. The weed percentage listed on the seed label is the percent by weight of all seeds in the package which have not been included in pure seed or crop.

According to the federal seed labeling regulations, the label does not have to identify what or how many weeds are present (except noxious weeds). Consequently, because one harmless needlegrass seed weighs the same as 32 highly undesirable chickweed seeds, both would be listed as the same percentage on the seed label.

Noxious weeds are determined by each state individually and are those weeds that are difficult to control by chemical or cultural means. If grass seed contains any noxious weeds, they must be listed by the name and number of seeds per pound. Unfortunately, many of the weeds classified as noxious pertain more to farm fields than to turf.

For example, *Poa annua* is considered extremely undesirable in fine turf, but is considered a noxious weed in only a handful of states. Any many times, even when *Poa* is listed on the seed label, buyers fail to realize it because it is termed "annual bluegrass" instead of *Poa annua*.

As shown on the Winter Turf I label, the seed mixture contains no noxious weeds.

According to the Federal Seed Act, grass varieties must be listed on the seed label by weight under two broad classifications — fine textured and coarse textured grasses. Within these categories are many grasses which vary a great deal in number of seeds per pound.



Actually, a seed label would provide a much more accurate description of what's in the package if grass varieties, crop, weeds, etc. were listed by seed count rather than weight.

While a pound of ryegrass contains only 226,800 seeds, a pound of Penncross Bentgrass contains about 30 times that many seeds — 6,800,000. Because of these tremendous differences, the turf manager should always consider seed count when analyzing a seed label.

For example, consider a hypothetical seed mixture containing 65% Kentucky bluegrass, 22% fine fescue and 10% bentgrass. Calculating actual seed count, a pound of this mixture would contain 1,423,976 bluegrass seeds, 952,560 bentgrass seeds and 116,707 fine fescue seeds. In other words, although bentgrass appears insignificant on the label, it actually makes up well over one-third of the mixture!

Keeping all of these things in mind the next time you purchase grass seed should help make the purchase a wise one.

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**Seed Law (continued)**

Another point which I would like to make concerns the "Disclaimer clause" or "nonwarrant clause" frequently printed on seed labeling. The Florida Seed Law states that the use of such a clause does not relieve or exempt any person from any provisions of the Law.

Department inspectors are available to assist you by sampling seed, fertilizer and pesticides when you wish. Call on us to come by to make an inspection, collect samples or interpret labels.

*Editors Note: Paul Crisp is assistant chief, Feed, Seed, Fertilizer and Pesticide Bureau, Division of Inspection, Florida Department of Agriculture and Consumer Services.*

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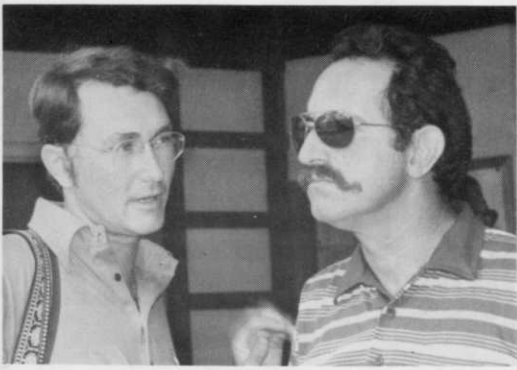
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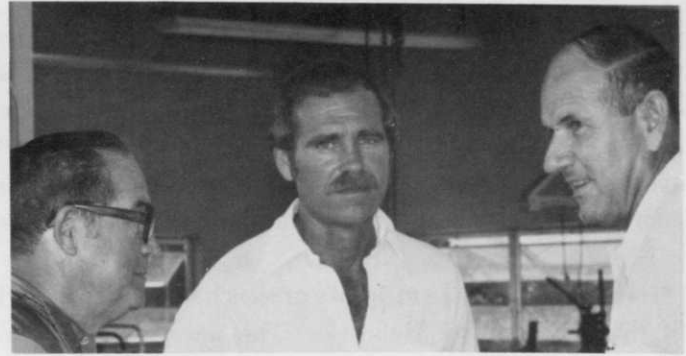
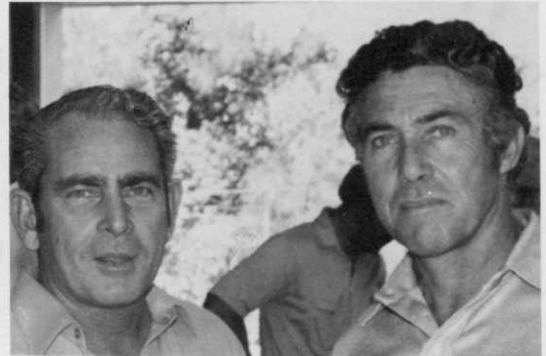
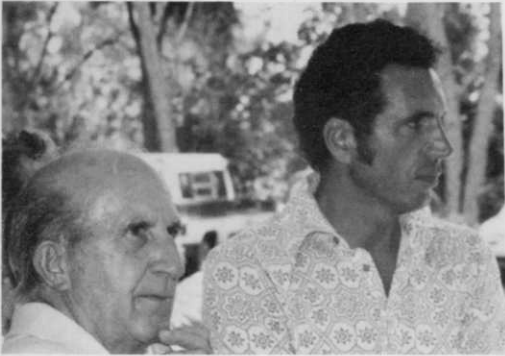
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Fred V. Grau

## Guest Editorial

By FRED V. GRAU  
President  
Musser International Turfgrass Foundation

The time-honored adage "in union there is strength" never has been more applicable than now when the Florida Golf Course Superintendents Association is working toward unification and greater strength. Those who are devoting time and energy to the full development of the FGCSA deserve high praise and warm thanks for the effort. The Open Letter by Tim Hier in the *The South Florida Green* for April 1979 tells the story well. The FGCSA deserves the full support of every golf course superintendent in the entire state. A unified VOICE is vastly superior to uncoordinated individual efforts which tend to be fragmented, weak and inconclusive.

Helping to organize turfgrass groups has been an absorbing passion of mine ever since my introduction to turf in 1927 at the University of Nebraska. The fates were kind in steering me to Maryland for my degrees and thence to Pennsylvania in February 1935. Then only two county agents took an active interest in turf — some sixty others couldn't have cared less. There were but two golf course superintendents (greenkeepers then) associations in the state. My extension travels permitted me to attend every meeting of the two organizations and obligated me to visit many golf courses in other sections of the state where organization was lacking. By 1945 when the USGA brought me to Beltsville as Director of the Green Section, there were six strong regional superintendents organizations in Pennsylvania and virtually every county agent was involved in turf. There was talk of a state association but Professor Musser (he of the Musser Foundation) and the leaders in the state developed the Pennsylvania Turfgrass Council in 1955. As PTC grew, each turfgrass organization in the state developed strength and stature. My role as executive director began when Professor Musser retired. He died in 1968. Changes were made in memberships and PTC thrived as did the members. The several regional golf course superintendent groups look to PTC as their statewide organization which is strengthened by the inclusion of *all* turfgrass interests. There was no lost identity in any group. On the contrary, each group definitely was strengthened by the association. Nearly all superintendent's groups have directors sitting on the Board and, in fact, the president of PTC, Jim MacLaren, is a golf course superintendent.

This example of coordinated turfgrass effort in Pennsylvania is not intended to discourage efforts to have a statewide GCSA in Florida. It simply illustrates what can be done when people with common interests unselfishly work together for the good of *all* turf. Also it further points out that any state-wide organization will have fewer problems and will be infinitely stronger if its component parts already will have developed strength and leadership on their own.



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All water insoluble nitrogen (W.I.N.) fertilizers are not alike. Some are activated by soil bacteria. Others by temperature. But IBDU<sup>®</sup> (31-0-0) and PAR EX fertilizer mixes with IBDU are activated very slowly by soil moisture. Nitrogen is released at a controlled, even rate that can't be hurried by high temperatures or excessive moisture.

It's important on high maintenance turfgrass to control the level of nitrogen feeding. Excessive bursts of nitrogen can be a greater problem than a nitrogen deficiency.

Custom formulated to exacting specifications of the professional turfgrass manager, IBDU and PAR EX fertilizer mixes

with IBDU provide a controlled level of nitrogen nutrition that stimulates root growth, shoot density, rich green color and improves overall plant hardiness.

Let water insoluble IBDU (31-0-0) and PAR EX fertilizer mixes with IBDU perform for your turf. After all, performance is the name of the game.

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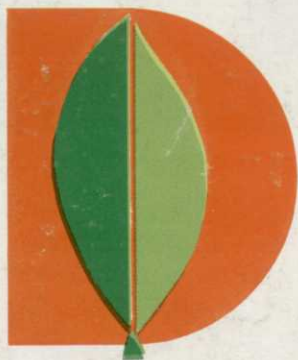
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