



ELANCO PRODUCTS COMPANY A division of Eli Lilly and Company Indianapolis, Ind. 46206, U.S.A.

WHAT'S BALAN GOT THAT OTHERS LACK? The unique quality of being waterproof. Many herbicides are highly water-soluble. But not Balan. It clings to soil particles in the weed-germinating area. Resists the leaching effect of heavy rains and repeated irrigations. Stays put for months, before breaking down gradually and naturally to avoid harmful residue build-up.

To begin phasing out Poa, apply Balan before the next crop sprouts.

By killing Poa annua seeds as they germinate, you will steadily reduce the stand while allowing desirable grasses to fill in. Balan won't affect your good turf. In fact, good turf will be stronger without Poa annua competition.

Balan is formulated to make a golf superintendent's life a lot easier. And priced to make his budget a lot easier to stay within. See your distributor now.



Balan™ Elanco  
(Balan™—benefin, Elanco)

Goes all out ...  
all over ... all season.



## “Nearly 9,600 pounds-- and not a mark on the turf!”

“I could hardly believe it when they tested a loaded Champion Doo-All Trailer on our No. 11 fairway,” said Steve Zappe, Greens Superintendent at the Springfield (Ohio) Country Club.

“We had about 12 inches of rain in three weeks. The morning before the test, the course was closed because of standing water.

“I let them run the trailer only in the rough at first, then down the edge of the fairway and, finally,

right down the middle. There was not a mark on the turf — you couldn't even tell where the Terra-Tires had passed. My shoe heels were actually doing more damage than the Doo-All loaded with two yards of sand.”

Could you use this gentle work-saver on your course? Models in  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$  and 2 cubic yard capacities, convertible to flatbeds, **and all with Terra-Tires.**

ORDER FROM CHAMPION OR YOUR EQUIPMENT JOBBER



**THE CHAMPION COMPANY**  
Springfield, Ohio 45501

**DOO-ALL TRAILERS—WHERE FINE TURF NEEDS EXTRA PROTECTION**





## Turfgrass research review

by Dr. James B. Beard

### Response of three bluegrasses to varied temperatures

Growth and carbohydrate storage of three *Poa Pratensis* L. strains as influenced by temperature.

V.B. Youngner and F.J. Nudge. 1968. *Crop Science*. 8:455-457. (from the Department of Agronomy, University of California at Riverside, Riverside, Calif. 92502).

In this study three Kentucky bluegrass cultivars were evaluated in relation to their response to varying temperatures. The responses evaluated were shoot growth, turfgrass density and total available carbohydrate accumulation. The varieties included in the test were 0217 Fyking, Merion and Newport. Various day-night temperature combinations ranging from 45° to 80° F. were utilized in the experiment.

A differential response in re-

*continued on page 24*

# The PGA will tee off on Windsor

This year's PGA championship at the National Cash Register Country Club (Dayton, Aug. 11-17) will be off to a good start—on Windsor. This is the improved variety of Kentucky bluegrass popular with golf people because it plays so well, thrives under close mowing and repairs itself so rapidly. For technical data write Scotts, Golf Course Div, Marysville, Ohio 43040.

For more information circle number 161 on card

Save time and money with...

## POWER SPIKE *the Original Self Propelled Spiker*



### • • • CHECK THESE ADVANTAGES

- ✓ STRONG, HAND CRAFTED CONSTRUCTION
- ✓ FEWER PARTS, LESS MAINTENANCE
- ✓ PROVEN DEPENDABILITY, THOUSANDS NOW IN USE

**POWER SPIKE**  
MANUFACTURING CO

WALTERS, OKLAHOMA

For more information circle number 213 on card

## Beard

continued from page 23

lation to the three turfgrass cultivars was observed. Merion and 0217 Fylking produced higher densities at higher temperatures whereas Newport produced the highest shoot density at lower temperatures. The density of 0217 Fylking was higher than either of the other two cultivars

included in the study. Carbohydrate accumulation in all three cultivars was greatest at the lower temperatures, with Newport not being able to accumulate as high a level of reserve carbohydrates as the other two cultivars. Shoot growth was the highest at the higher temperatures for all three cultivars.

*Comments:* It is evident from

these studies that Newport has a distinct adaptation to cooler temperatures as indicated by tillering and carbohydrate accumulation. In contrast, both Merion and 0217 Fylking had exhibited better adaptation to warmer temperatures. This more favorable adaptation to higher temperatures was evident in terms of tillering, rate of shoot growth and carbohydrate accumulation. These comparative responses of different cultivars of Kentucky bluegrass to high versus low temperature regimes should be considered in selecting the turfgrass variety or varieties to be used in a given climatic situation. □

finally  
a positive  
control

# NO MORE PYTHIUM!

# KOBAN™

BRAND  
TURF FUNGICIDE

prevents it  
and stops it dead!

Experiment station tests and actual golf course usage prove KOBAN 100% effective against pythium under even the most severe conditions. It's economical . . . one application will last up to a week or longer. KOBAN is not light sensitive. Apply it anytime . . . at your convenience. Order from your Mallinckrodt distributor today!

**Mallinckrodt**®

MALLINCKRODT CHEMICAL WORKS  
Turf Products  
St. Louis • New York • Los Angeles

For more information circle number 132 on card

### Other references of interest:

1. *Index to the Proceedings of the Florida Turfgrass Management Conference pp. 1-32. 1953-1967.* H. G. Meyers and G. C. Horn (from the Department of Ornamental Horticulture, University of Florida, Gainesville, Fla. 32603).

2. *The economics of turfgrass sprinkler irrigation.* W.W. Wood. California Turfgrass Culture. 17 (2):15-16. 1967. (from the Extension Service, University of California at Riverside, Riverside, Calif. 92502).

3. *Chemical control of Fusarium blight of turfgrasses.* G.A. Bean, R.N. Cook, and A.E. Rabbitt. Plant Disease Reporter. 51(10): 839-841. 1967. (from the Department of Botany, University of Maryland, College Park, Md.).

4. *Residue of Bensulide in turfgrass soil following annual treatments for crabgrass control.* S. W. Bingham and R. E. Schmidt. Agronomy Journal. 59(4):327-329. 1967. (from the Department of Agronomy, Virginia Polytechnic Institute, Blacksburg, Va. 24061).



# Up, up



# and away!

The new Cushman Big Bed Turf-Truckster has more carrying capacity than ever before. With a longer, wider 53" x 57" bed, the Big Bed can handle two mowers with ease, or 1000 pounds of anything else you care to put in it. And the optional slide-away ramp makes loading and unloading a snap!

Whatever the load, the Big Bed is designed to hump it or dump it. To hump it, this vehicle has a rugged 18-hp. engine and a six-speed dual-range transmission. So there's power enough to pull gang mowers. And a top speed of 22 mph.

To dump it, the Big Bed has a special ratchet mechanism that allows one man to dump the entire 1000 pound load. And there's even a special tailgate that opens from the top or the bottom (for metering out sand, gravel, or top dressing).

But the Big Bed isn't simply a humpty-dumpty machine. Equip it with optional side spot lights, and it's ready to go out on the darkest nights. Or add our special spray unit, and it's a compact self-contained rig for spraying trees, fairways, or greens.

Send the coupon today for a free Big Bed Turf-Truckster brochure. Or, better yet, call your Cushman Distributor. He'll give you a free demonstration on your own course.



## **CUSHMAN MOTORS**

927 N. 21 Street

Lincoln, Nebraska.

A Division of Outboard Marine Corp.

I'd like your complete Turf-Truckster file, please.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

For more information circle number 276 on card



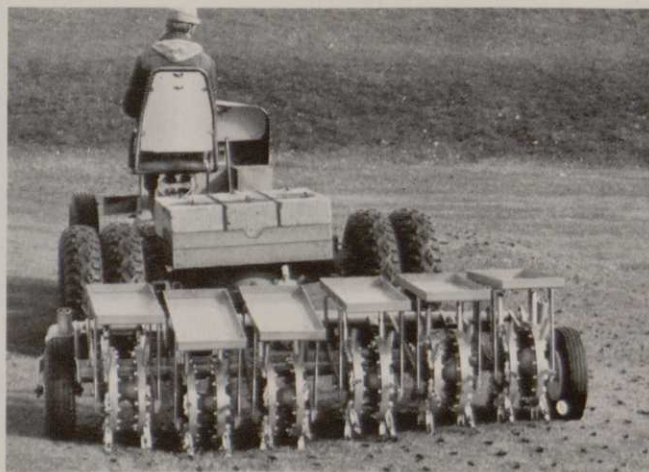
## Got a large turf area that's suffering from athletes' feet?

Caring for the turf on football fields, golf courses, parks, playgrounds and other large areas calls for rugged equipment. Ryan tractor-drawn aerators are designed to tackle coring, slicing and renovating jobs on these areas. They are hefty, fast and economical.

The Ryan Tracaire (see photo above) will core, slice and renovate large, level turf areas. By alternating three sets of changeable tines you can use the Tracaire year 'round. In early spring and fall the coring tines are used to aerate compacted turf, allowing air, water and fertilizer to penetrate. In the summer the slicing tines will gently keep the turf open and cushion-soft. The renovating tines are ideal for late fall conditioning of football fields and other "problem" turf areas. It does a thorough turf rebuilding job for seeding and fertilizing.

For coring, slicing and renovating hilly and undulating areas, use the Ryan Renovaire (see photo right). This "brother" to the Tracaire is designed for contour aerating. It also has changeable tines which are mounted in pairs and follow turf contours.

Both the Tracaire and the Renovaire cover a 6-ft. swath and travel up to 10 mph. The Tracaire is available in two models: 9-wheel and 12-wheel which attach to a standard 3-pt. tractor hitch. The Renovaire has 12 aerating wheels and attaches to a tractor drawbar. Tackle your big turf problems with a Ryan aerator.



For information about the entire line of Ryan turf-care products, write for the new Turf Equipment Catalog.



### TURF EQUIPMENT

2055 White Bear Avenue  
St. Paul, Minnesota 55109

SUBSIDIARY OF OUTBOARD MARINE CORP.  
For more information circle number 197 on card





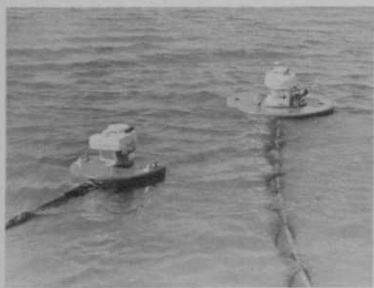
**GOOD AS GOLD—WHEN THE GREEN'S BY AGRICO**

You can count on AGRICO'S Custom Tailored Greens and Fairways for a lot of thrilling "birdies" and "eagles"—and delighted members!

Is it any wonder that two out of three professional turf men prefer AGRICO.

 **AGRICO<sup>®</sup> Country Club Fertilizers ...**  
at the roots of the best turf in America!

For more information circle number 204 on card



## "Floating Saucer" Water & Sludge Pump

Floating, self-powered pump delivers high volume at low pressure. No suction hose . . . no priming. Easily portable—one man can handle without difficulty. Choice gasoline, electric or air motors. 12-month factory warranty.

## Moves Water Easily & Inexpensively

200 GPM Unit—under \$300  
700 GPM Unit—under \$500

**DEALER AND USER  
INQUIRIES INVITED**

WRITE

# MIMCO

**ENGINEERED PRODUCTS  
DIVISION**

Box 95062 / Oklahoma City  
Oklahoma 73109

Utilized by golf courses to remove scum and waste from surface of ponds, lakes, etc.

### Surface Skimmer Attachment



For more information circle number 268 on card



## Answers to turf questions

by Fred V. Grau

### Do you know your superintendent?

One concept of the golf course superintendent conjures up the image of a man who usually can be found at the barn, who smells of gasoline and oil, who messes around with grubby things like topdressing and foul-smelling chemicals, who topdresses the greens the day before an important tournament and who insults members by enforcing club rules concerning carts. Is this accurate? Hardly!

Another, more modern, concept of the golf course superintendent brings to mind quite a different picture. He wears a white shirt, a tie and a jacket and drives a clean car to supervise operations. He has an office, a phone, filing cabinets and a secretary when needed. He knows members at sight at a distance and calls them by name when they play by.

Every plant, tree and flower on the golf course he knows by name and he can tell you when it was planted. He can tell you when the purple martins are due, when the wood ducks nest, when the quail are mating and why the bluebirds stay a few days and then move on! When the squirrels dig up the crocus bulbs and chew holes into the attic of the president's house, he calmly takes ap-

propriate action. He is busy every hour of every day but takes things in his stride.

His records show every detail of reseeding and plugging the fairways, of renovating the tees, fertilizing, what happened when the roughs were sprayed for weeds. Not a detail escapes him. He is concerned when differences of opinion arise among his employees, when he loses men to industry, when there isn't enough help to do the job. He practices public relations every hour, every day he is on the job.

When a mower is out of adjustment his practiced eye detects the flaws in the turf and corrective measures are taken at once. He knows when a green is slow or fast just by watching a player's ball from a distance. He is ever mindful of the comforts and the desires of the members. Some players, of course, cannot be pleased.

He is friendly with the golf professional; with the caddie master, with the club manager and consults frequently with the chairman of the green committee. He invites research people, fellow superintendents and friends from industry to have lunch with him—in the clubhouse—at the club's expense. He plays enough golf so that he knows how to manage the course to please the players. He takes time to visit surrounding

*continued on page 30*



# New tractor-rake replaces six men with hand rakes

Now—one man on a Cub Cadet Hydrostatic Drive tractor with an exclusive International sand-trap rake can keep all your traps in top condition—and cut your labor costs.

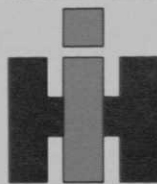
Fifty-four spikes on the front gang rake down to 3½ inches deep to break up rain crust and root out weeds. Rear gangs of serrated paddles do the final smoothing job. Entire 72-inch-wide rake hugs the slope of the trap, right up to the trap lip—rakes at uniformly constant depth all the way. A bare minimum of hand raking may be necessary at very steep or overhanging lips.

A smooth-finished trap, from center to outside, is possible because the compact Cub Cadet tractor turns in such a tight radius. And it floats over the sand on either

single- or dual-tire combinations, depending upon your sand conditions.

Want to mow? Just pull three pins to remove the rake from the tractor's 3-point hitch. Quick-attach the rotary mower for grass grooming around tees and greens.

Only your International dealer has this exclusive sand-trap rake. See him for rake, Cub Cadet tractor details—and a custom-tailored IHCC credit plan.



## INDUSTRIAL EQUIPMENT

Wheel and crawler tractors • loaders • backhoes  
dozers • forklifts • mowers • special duty tools

International and Cub Cadet are registered trademarks of International Harvester Company, Chicago 60611.

For more information circle number 208 on card

*International Cub Cadet Hydrostatic Drive tractor with sand-trap rake.*



**Worth more—  
when you buy, use, trade**



**SPLENDOR  
IN GRASS  
is 0217® brand  
Fylking  
Kentucky  
bluegrass**

Jewel among lawngrasses, Fylking has an entire complement of splendid features. Unusual density due to abundance of sideshoots creates a weed-free lawn. A ground-hugging carpet of green splendor, its outstanding color continues all season because it's so disease-resistant. Winter hardy and drought tolerant, Fylking grows thicker in summer. Doesn't produce ugly seed-heads, mixes well with other varieties, gradually dominating. Fine, thick texture can be cut as low as 1/2 inch for home putting greens, or 3/4 inch for beautiful home lawns. Specify 0217® Brand Fylking Kentucky bluegrass lawn seed—at your seed distributor.



**FYLKING  
KENTUCKY  
BLUEGRASS**

For more information circle number 171 on card

**Grau**

*continued from page 28*

experiment stations and other golf clubs. Conferences and field days are planned in advance and he takes the time and trouble to become involved in his local chapter and in the national association.

Our modern superintendent is a man of good standing in his community. His technical skills really are a small part of his total accomplishments. Neighbors can borrow his skills in creating better lawns and more attractive plantings. His influence extends far beyond the club's property lines. He is a very human person, a man of many skills, friendly and helpful, knowledgeable, well-read, and a pleasure to visit and converse with.

So, how well do you know your superintendent? Do you, the chairman or the president, encourage your superintendent to develop these many-sided skills and talents? Let us not forget that today's golf course superintendent is a mighty important person and, as he involves himself more and more, he becomes very nearly the indispensable employee.

*Q.—We have wondered about the apparent conflict between increased emphasis on irrigation of fairways and the possibility of developing improved grasses for non-irrigated fairways. Aren't we pulling in different directions? Isn't there a middle ground?*

*(Indiana)*

*A.—Because of the great pressure generated by the expansion of irrigation systems (no pun intended), research leans strongly toward solving the extra problems brought on by irrigation of turf not designed to utilize excess water. These problems are immediate and they have been brought on by demands of club members for green turf. Research had not pre-*

*continued on page 32*

**GOLF'S "MR. SPIKE"  
TODAY'S MOST TALKED ABOUT GOLFING  
GIFT — PRIZE — NOVELTY**



**"MR. SOREHEAD"**

Also available  
Mr. Cheater  
& Mr. Swinger

**"MR. PUTTER"**

\$14.95 each  
Cash with order  
prepaid

A real conversation piece—Thought provoking art piece—Serves no purpose except to amuse—A dramatic gift for most discriminating persons. Body is shaped like authentic railroad spike, formed of metal and painted black on walnut base. 12" height—Individually boxed—Available with engraving plate 50¢ additional—Engraving 5¢ per letter.

Write for free complete prize catalog of Trophies—Holloware—Jewelry, etc.

**EDWIN W. LANE CO.**

Dept GD

32 W. Randolph St.  
Chicago, Illinois 60601  
(312) 782-2371

For more information circle number 246 on card

**TROUBLE FREE  
RENTAL CART SERVICE**

We furnish you all you need on rental share basis. No investment for you! We deliver and service carts regularly and keep them in good repair—FREE. Carts rebuilt yearly. Clubs not held responsible for damages, theft or breakage.

**CADDY-ROLL  
RENTAL SERVICE**

Three Rivers, Michigan



For more information circle number 202 on card