


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cost, light treading Ford 2000 or the more powerful Ford 4000 LCG series. Ford LCG tractors are available with gasoline or diesel engines, 4- or 5-speed constant mesh transmissions, or exclusive Ford 10-speed, power shift Select-O-Speed. With Select-O-Speed, the operator can power shift, *non-stop*, to any forward gear without interrupting power flow to the drive wheels.

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FORD

Ford 2000 LCG tractor, above, equipped with 18.4-inch low-pressure, high-flotation tires. In addition to low turf pressure, the broad tread provides superior traction to minimize possibility of wheel spin when starting heavy loads on soft footing.



THREE TIRE OPTIONS

18.4 x 16A 6-ply low pressure tire. Dual 8.3 x 24, 4-ply tires. Single 8.3 x 24, 4-ply tire.

tering when disease has injured the turf. One thing sure, shallow rooted turf would like it that way. Unlike the camel and the cactus, it can't store enough to last for several days.

Buy Equipment Instead

Wayne Morgan, farm advisor in turf in Los Angeles County, deserves credit for his field work on golf irrigation practices. He has found that a simple 10 minute saving in sprinkling time per head can save enough to buy the fanciest tractor and fairway mowers in his arid country where water costs and use rate are both high. Morgan has done this the hard way by "can tests" to determine the actual delivery rates of sprinklers.

The form sheets on delivery rate put out by manufacturers sometimes fall short of accuracy in practice for many reasons. Unexpected loss of pressure, unfavorable wind movement, poor valve spacings, etc. are but a few reasons why. It would seem the only sure way to know what your sprinklers are doing is to string out cans or containers, let the system run for a set period of time, and then measure the results.

Most states have checked water use rates on agricultural crops and these can be used as a guide until more is known about various turf species. Dr. Bob Hagan, irrigation department, University of California in Davis, has estimated peak usage of 3 inches per week in the hot Imperial Valley of his state to a low of 1 inch per week in coastal areas. Dr. James Love at Wisconsin states the top day in his area on alfalfa is 0.27 inches. If this holds true on turf, one comes up with a maximum of 1½ inches per week in the upper Midwest with a seasonal average of 1 inch or less per week during the growing season.

Flexibility Is Desirable

Obviously, irrigation systems must be designed to supplement rainfall and to be capable of taking care of maximum use rates. Incidentally, there is no area in the world that doesn't need water on occasion to keep golf turf green, vigorous and uniform in playing quality. The secret with successful turf managers is their flexibility in applying it when and where needed.

Turf Conferences

OCT.

- 10—Rutgers Field Day, New Brunswick, N. J.
- 21-22—Equipment & Materials Exposition, Brookside Park, Pasadena, Calif.
- 21-23—Central Plains Conference, Kansas State University, Manhattan
- 25-27—Sprinkler Irrigation Assn. Convention, Scottsdale, Ariz.

NOV.

- 4-6—Oklahoma Turf Conference, Oklahoma State U., Stillwater
 - 16-20—American Society of Agronomy, Kansas City, Mo.
-

We have concentrated on water in this year's roundup because either too much or a lack of it was responsible for most turf troubles during the past year. In July, parts of Illinois and Southeastern Wisconsin received from 7 to 10 inches of deluge in the space of a few hours. Those that got only 3 to 4 inches at the same time came off relatively easy. Whether or not this proves the point is immaterial. The material point is that 70 per cent of good grass is water. We don't want more or less . . . just that amount.

This year pythium disease from the Northeast to the upper Midwest was a serious problem for the first time. Iowa was literally clobbered with leafspot on all grasses, and supts. fought hard to stop this pest. Beryl Taylor, reporting from Ames, told us that Zineb (sold as Parzate or Dithane) did the job for him. But, to make it really work he applied it heavily and repeated for two straight days before effecting control.

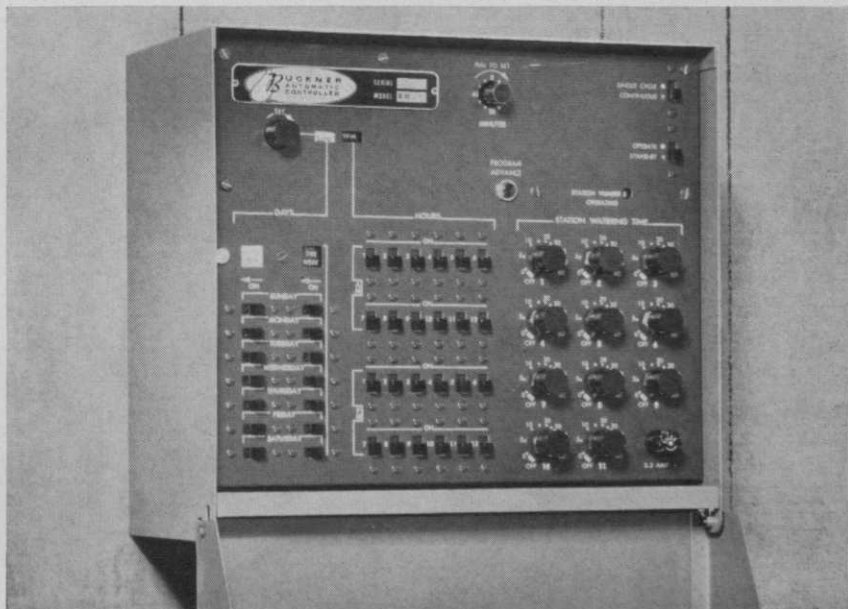
It Works . . . and It Doesn't

The pythium in the Midwest was even more discouraging. Familiar fungicides including Zineb failed, and Illinois pathologists discouraged the use of the only effective fungicide known for the disease. Dr. Homer Wells of the Tifton, Ga., station, reported some time ago on favorable results with Dexon in controlling pythium. Although it worked well there on ryegrass, and in Arkansas and Indiana on bent, the University of Illinois ran into turf injury and discouraged its use.

Fairway problems were of such magni-

(Continued on page 127)

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Spain's Soto Grande

*This new course, near the
Mediterranean, compares
favorably with any in U.S.*

By O. J. NOER

Spain seems to be on the threshold of launching a golf boom. There are approximately 25 courses in the country at the present time. One reason for the awakening is the increasing number of tourists who are flocking into Spain. Last year 13,000,000 visitors came to Spain. It is estimated that they spent over a billion dollars. Spain is popular because prices are reasonable and the people are friendly. The visitors come from all over Europe and America.

The coastal area of the Mediterranean, from Gibraltar east, is booming. It reminds me of Florida in the early days because of the building activity to house the visitors. There are direct flights from London, Madrid, and even Africa to Malaga. Jet flight time from London to Malaga is about 2½ hours.

There is an 18-hole course at Maibella,

(Above) Soto Grande clubhouse sets on a knoll above standard and short courses. Eventually, it will be surrounded by cottages that will house visiting golfers.

club de Gualdamina, a short drive from Malaga, on the road to Gibraltar. It was designed by a British architect who supervised the construction. Grass on the greens of this two-year old course is bent. The fairways and tees are a combination of bent, rye grass and fescue.

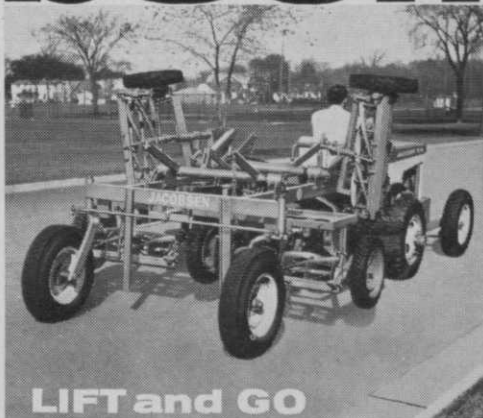
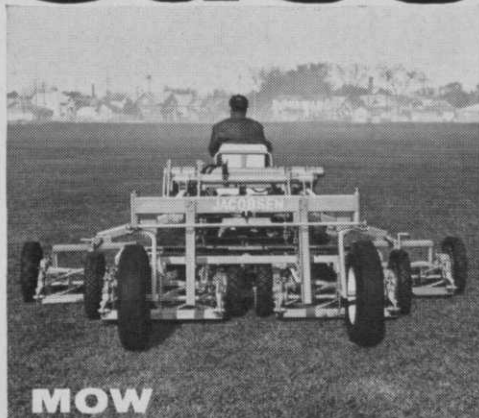
One of the Best

The new course at Soto Grande (translated, Grand Meadow) will be one of the very finest, as good as any in Britain or the United States. Soto Grande is located about 15 miles from Gibraltar, on the main road to that British colony. On a clear day golfers can see the rock of Gibraltar and the coast of Africa as they play the holes near the Sea.

There are an 18 hole championship and a short 9-hole course. They were designed by Robert Trent Jones who, with his staff, supervised construction. Both courses start and finish at the clubhouse, which is being built alongside the Mediterranean.

Greens on the 18-hole course average 8,000 square feet. Most of the fairways are quite wide, ranging from 60 to 80 yards. The tees have enough length so

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40 acres per day! The 5-gang Ram-Lift Rangers come equipped with either Worthington Blitzer mowers for high-speed rough grass mowing or Fairway Mowers for smooth turf mowing. Phone your Jacobsen Turf Equipment Distributor today for a proof-positive demonstration, or write us for details.



Jacobsen Manufacturing Co., Dept. G-10, Racine, Wisconsin



Greens, around 8,000 feet square, at Soto Grande have been planted to Penncross. Gibraltar can be seen from this spot on a clear day.

that every hole is a challenge when played from the back. But they are a fair test for the average golfer when the markers are placed up front.

The greens on the short course are smaller, averaging about 4,500 square feet. The tees are smaller, too, but adequate. Most holes are par three, but there are several par fours.

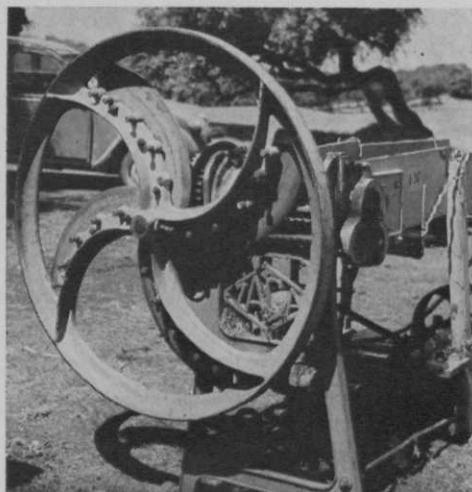
Tifton on Tees, Fairways

The tees and the fairways of both courses are Tifgreen (Tifton 328) mainly, but some Tifway (Tifton 419) has been used on a couple of fairways. A nursery was established on one fairway which provides sprigs for both courses. Planting stock for it came from the U.S.

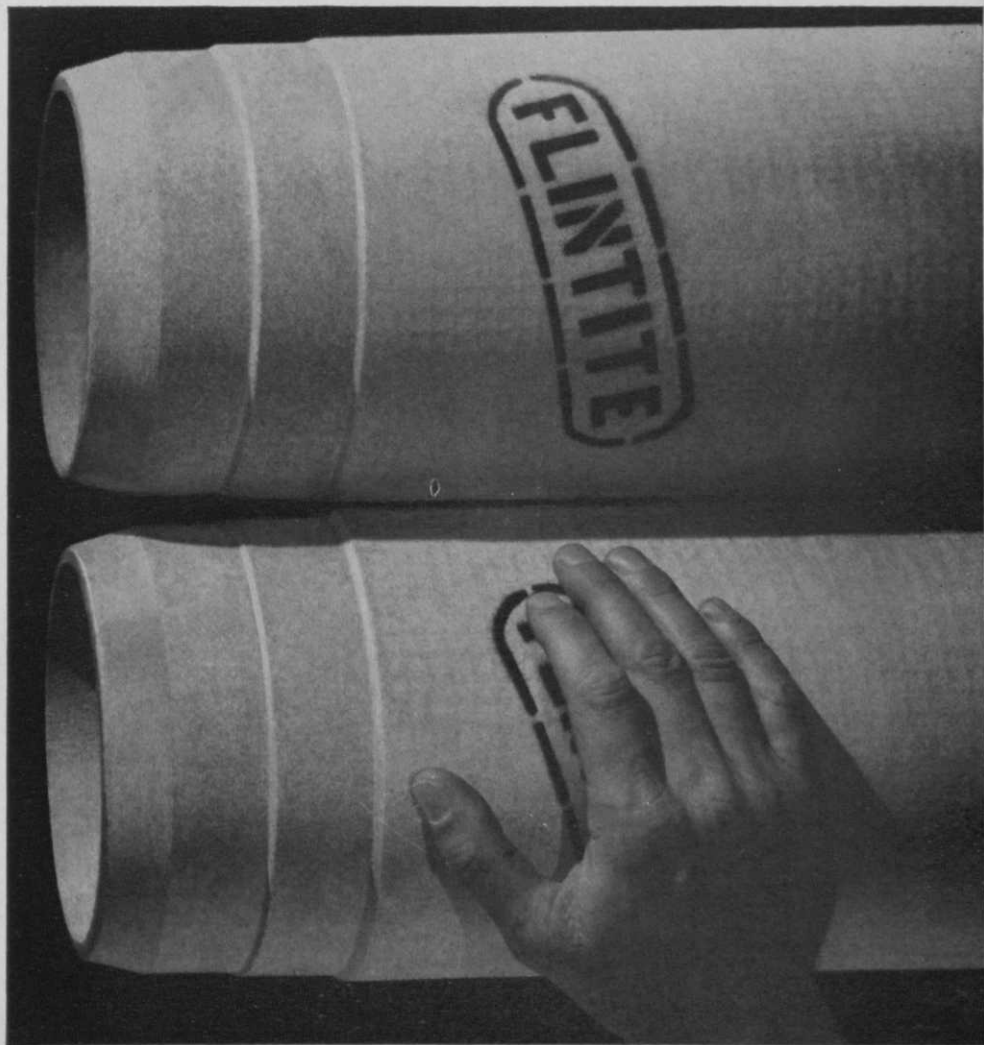
Soto Grande is a turf pioneer, being the first in Spain to use superior vegetative types of Bermuda grass. Both kinds of Bermuda, Tifway on the several fairways, Tifgreen on the other, on all tees and the short course greens are producing outstanding turf. There is nothing to compare with them in southern Spain. The grass is dense and tight. It will be the finest playing turf in Spain and other courses will switch to it.

The greens on the 18-hole course have been seeded to Penncross bent. Once,

Senor Romero, the supt., learns the secret of summertime maintenance, the greens will be comparable to the best ones in the United States. The weather is exactly like that of southern California. Temperatures rarely exceed 90 degrees F. Humidity is not bad. It is higher when the wind comes in from the ocean. There is no rain
(Continued on page 120)



Supt. at Soto Grande rigged up this machine for cutting stolons.



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GRAU'S Answers to Turf Questions

BY FRED V. GRAU

Roundup of Technical Developments in 1964

Technical achievements do not necessarily take place all of a sudden. The release of an improved grass may be the culmination of 15 years of painstaking research. A new tool may be the result of several years of planning, building, rebuilding and refining. So it is with chemicals, fertilizers and maintenance methods. We are going to evaluate some of the technical recent developments in turf, gleaned from publications and conversations with many turf workers across the United States.

Grasses: Merion Kentucky bluegrass continues to set the highest performance ratings among the bluegrasses. Other bluegrasses have been released and are on the market (Delta, Park, Newport, Windsor). All appear to be better than common; none surpasses Merion in total performance. New strains are in the making. Penn State's K-547 is in an advanced stage of testing. Five more strains are most promising at the pilot level.

Vegetative Bents Come Back

Vegetative bents are staging a strong revival after being overshadowed by Penn-cross seed. Now that the quality of turf developed from commercial Penn-cross seed seems to be deteriorating (production fields appear to be left down too long), turf men are looking to the old standard stolons as well as to some newer ones

(Evansville, Nimisila and Penn State's 4(42)3, not yet named but widely distributed for field testing.) The 4(42)3 strain continues to show great resistance to dollarspot, brownpatch, helminthosporium and snowmold. It will be cleared for greens and tees.

Modern hydro-mulching machines can plant stolons effectively, quickly and economically. There is an ever-present need for a dependable improved creeping bent that can be seeded. When commercial Penn-cross seed once more demonstrates quality equal to the true polycross, as produced at Penn State, it will be recommended widely.

No releases have been made of finer-blade tall fescues for turf (lawn, fairways, athletic fields, etc.) but current testing gives hope. There is real progress toward non-clumping, sod-forming turf types.

Midwest zoysia is on the market and in use at Purdue's stadium. It represents years of selection and testing.

Moves Farther South

Bermuda is moving farther south following disastrous losses in the twilight zone. A valuable guide is Agriculture Handbook No. 270 by Juska and Hanson, ARS, USDA, Beltsville, Maryland, on "Evaluation of Bermudagrass Varieties for General-Purpose Turf."

Bentgrasses for greens have moved south, for better or worse. The USGA Green Section Record, Sept. 1964, covers this subject fully.

A new dwarf vegetative Bermuda with



ALL OVER THE COURSE

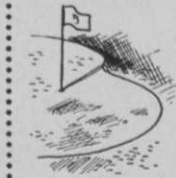
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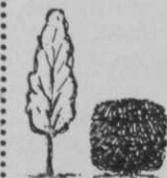
New dual-track design minimizes turf compaction, sprayer rides on "pillows of air." Ideal for use on fairways, tees, near greens. Pulls easily. And a Myers Sprayer can really take it. It's built for long-time service. See your Myers Sprayer Dealer for complete information.



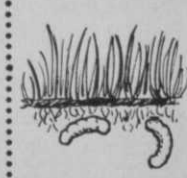
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small prostrate leaves that occurred as a bud mutation in Tifgreen is reported to be in an advanced stage of testing at Tifton, Ga. There has been no release of the grass nor specific data about it.

Penngift crownvetch, a legume, is cited by several as a major breakthrough in providing a dependable ground cover on steep slopes and poor soils over a wide geographical range. It, and other varieties (Chemung, Emerald), can be established from seed or crowns.

Weeds: Knotweed seems to be headed for extinction now that testing has given approval to MCPP currently manufactured by three U.S. firms. We are indebted to our Canadian friends for this technical advance. Some authorities approve it for chickweed and clover on greens. (Consult your Experiment Station). Dicamba gets limited approval for knotweed; some danger of root injury on ornamentals has been noted.

Can Be Checked

Poa annua apparently can be checked with well-timed applications of pre-emergence herbicides, but not all supts. want to get rid of poa.

Crowfoot (goosegrass, silver crab) may not survive the good pre-emergence herbicides (Azak, Zytron, Dacthal, Pre-San). New ones include Tupersan, Trifluralin and Velsicol experimental. This class of chemicals represents one of the significant developments in the turf field. Check with your Experiment Station for data on performance on various turfgrasses.

Fertilizers: All types of nitrogen continue in strong demand. Controlled-release nitrogen materials, exemplified by the urea-forms, now 10 years on the market, represent a breakthrough in turfgrass management. New coated fertilizers appear to fill the void between the solubles and the slow-release materials. Generally, turfgrass is receiving nitrogen more nearly in accordance with requirements.

Potash Gets More Attention

Potash receives more attention than ever before because of a strong, close correlation with reduction of disease, increase in winter hardiness, utilization of other nutrients, and resistance to wear and tear. Under high temperature stress, potash imparts stability to the turf. Sulfate

of potash is gaining favor because it contains sulfur, a necessary plant nutrient. Soluble K_2SO_4 is favored for spray applications.

Trace elements are due for more intensive investigation.

Equipment: Aerification and vertical mowing tools have lifted turfgrass management to a new plane. Thatch control has become a by-word in the industry. Another name is "sanitation". It is hard to grow new grass until you get rid of some of the old grass. Water, fertilizer, air and roots penetrate more easily and deeply when turf has been cultivated. Even more important, playing surfaces are improved in the process. "Thatch," says Davis of Ohio, "is a characteristic of good turf."

Plugging Machine

A plugging machine has been built and is in operation in the Kansas City area. Two-inch round plugs are machine-set every 8 inches. In St. Louis three football fields have been vegetatively planted with zoysia sprigs that were harvested and planted with a power-driven thatching machine.

Hydroseeding and hydro-mulching rapidly are becoming standard methods of planting turfgrass areas. Many use their regular power sprayers for fine seeds. Stolons and sprigs can be planted rapidly and economically with hydro-mulchers in a water-fertilizer-paper pulp slurry.

Seed: Pressure is growing on seed producers to market pure seed true to name without impurities and mixtures. "Certified" Merion may contain bent or trivialis, described as "other crop" on the tag. Sod growers are refused certification when other grasses exceed a certain level. Weeds in certain winter grasses overseeded on Bermuda virtually prohibit their use. Greater emphasis will be placed on seed that is clean, pure and true to name.

Need Immediate Revision

Certification procedures that fail to protect the buyer need immediate revision. We need turfgrass seeds that produce desirable turf regardless of yield-per-acre in
(Continued on page 104)