### Nitrogen Sources for Tifton

(Continued from page 42)

with the darkest color and the greatest density were given a rating of 1 and the poorest appearing treatments were recorded as 5. Intermediate treatments were given ratings of 2, 3 or 4. Each treatment was replicated five times, and the average monthly rating of these plots for each year is shown in tables 1 and 2.

Table 1 shows the influence of each of the nitrogen sources and frequency of application upon the greenness of the Bermuda during each of the years in study. It is apparent that there was little difference between the overall performance of urea-formaldehyde and the activated sewerage sludge for the five-year average of all treatments. Semi-annual applications of urea-formaldehyde resulted in a more desirable color than any other application frequency of any source. The five-year average performance of the activated sewerage sludge and ammonium nitrate showed essentially no difference between application frequencies. Of considerable economic importance is the fact that quarterly applications of urea gave results equal to the sewerage sludge. One lb. of nitrogen from sewerage sludge costs

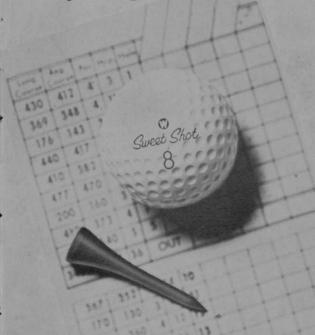
about four times as much as a lb. of nitrogen from urea, if phosphorus is not considered. The inorganic source, ammonium nitrate, was slightly inferior to the other sources, although in many instances the economy of this source would still justify its use.

The sod density ratings, table 2, showed essentially the same relationship to treatment as did greenness. Generally, a greater average density was obtained with activated sewerage sludge than any other source with only small differences between application frequencies. Semi-annual applications of urea-formaldehyde and quarterly applications of urea also resulted in excellent sod density. Ammonium nitrate was inferior to the other sources, but was considerably superior to the check treatment.

Had Burning Effect

Much of the "apparent" inferiority of the ammonium nitrate was observed to be due to its burning effect on the grass, even though care was exercised in watering it in immediately after application. This same effect, to a lesser extent, was observed on the urea treatments. This effect should be considered by those anticipating the use of these materials. Practically no burning was observed on

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the urea-formaldehyde or activated sewerage sludge treatments even following the infrequent very high application rates.

It was noted in 1959 that a general unthrifty appearance of the grass existed, seemingly unrelated to the fertilizer treatments. Since no disease or insects were apparent, it was felt that nematodes might be reponsible for this condition. Samples of soil were obtained from each plot in four replicates and counts of sting nematodes were made. One-half of each plot was then treated with a nematacide, DBCP, (nemagon EC-2 formulation used) at 12 gal. per acre of 50 per cent by volume emulsifiable concentrate. Counts were again made in 1960 along with samples of soil from which roots were separated and weighed. These data are presented in table 3.

It is apparent that the nematacide applied in 1959 was effective in reducing the sting nematode population on all treatments except those receiving activated sewerage sludge. These plots continued to have a relatively high population of nematodes in 1960. It was felt that the high population resulting from this source might be due to a possibly greater quantity of roots capable of supporting these parasites. For this reason root samples were taken. These data, however, show that no significant difference in root production existed between the nitrogen treatments. There were significant differences in nematode population in 1960, activated sewerage sludge treatments containing the greater number. An improvement in turf quality was observed where the nematacide was used, on all treatments except those receiving the sewerage sludge.

#### Battle with the Weeds

Richmond (Calif.) G & CC reports that for the last two seasons a fine leaf weed, Dog's Fennel, resembling the leaf of a carrot, was taking over its course. The origin of the weed can't be traced but it has been prevalent around Bay area courses. Ragged in growth, it made it impossible for the Richmond maintenance crew to mow fairways evenly, giving rise to many bad lies. The USGA green section recommended controls and after two sprayings of a suggested herbicide, growth of the weed was retarded. More recently a fertilizer, containing 47 per cent nitrogen, was applied and Richmond's fairways are starting to come back.

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### Grau: Take New Look at Lime

(Continued from page 48)

certain trace elements and a few limestones contain amounts sufficient for correction of deficiencies".

Beneficial Side Effects

The whole subject of trace elements rapidly is coming in for well-deserved attention where there is heavy crop removal. Putting greens qualify in this category. This new information on trace elements in limestone gives us a new concept of the beneficial side effects of lime.

Most of the samples studied came from the eastern half of the U.S. (Central Neb. through central Tex. eastward). Fla. rock averaged high in fluorine and phosphorus; Neb. material was high in zinc, vanadium and molybdenum; Kan. limestone averaged high in aluminum, cobalt, sodium and copper; Minn. material yielded potassium and iron; and sulfur was found in Ky. limestone.

Wide variation in analyses occurred, leading authorities to suggest that a knowledge of the composition of agricultural limestones could lead to a more advantageous selection of materials containing quantities of trace elements desired.

Space limits further discussion of the subject here. The topic well could be discussed further at local meetings where experiment station personnel are invited to participate. The research reported here further emphasizes the value of lime. Don't sell lime short.

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limestone which gives it a high neutralizing power of 108. In addition, the limestone also contains calcium and it is ground very fine in that it will pass 75 per cent through a 100 mesh screen.

Due to the high neutralizing power and fineness, our limestone does provide rapid neutralization of soil acid. We have quite a bit of information on the use of limestone in agriculture, but very little on its use on golf courses. We have sold some materials to courses in Ohio and would like to broaden our market. But we feel we should have some information as to whether or not limestone should be included in a course fertilization program.

Agronomists tell us that a pH level of 6.5 should be the goal for the farmer. While this is true for agricultural crops it might not be true for grass. Also, a supt. will use one type of grass on greens and possibly another on fair-

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ways. What is the reaction of the various types of grass to a sour or alkaline soil? Here is another question: What would the proper pH level be for various types of grass?

We know that there are different types of soils in various sections of the country and that a farmer or supt. would actually have to make a test of the soil to determine the pH level. This would be the basis for limestone application. We would only be interested in contacting golf courses in Ind., Ohio and Mich., as we feel this is our immediate marketing area. (Ohio)

A. Lime neutralizes acidity but more important it provides a rich source of calcium and magnesium, critical nutrients for bacteria and plants. Most turfgrasses would grow satisfactorily in an acid soil if they had a source of available Ca and Mg. Most acid soils render unavailable the basic elements by forming insoluble iron and aluminum compounds. practice of using dolomitic limestone is highly favored on most turf grass areas where soil acidity tends to develop.

Grass is an agricultural crop. The pH range of 6.5 to 7.0 is known to be most favorable to beneficial soil organisms and to most effective release of plant nutrients. This principle covers farms and turfgrass areas. Ranges above pH 7.0 are not necessarily detrimental to turf. Some of the best turf grows well at pH 8.0 to 8.5 in alkaline desert areas. Thus it can be seen that there is little danger of "over-liming" when dolomitic limestone is used.

Bentgrasses and fescues can tolerate acid

soils but they do better when the acidity level nears the neutral point (pH 7.0). Bluegrasses, Bermuda and zoysia perform better at or near the neutral point. A certain amount of acidity is very desirable for helping to dissolve minerals and to make them available to plants.

Periodic soil tests have been advocated for turfgrass areas as well as for farms. Several fertilizer companies that make soil tests for customers actually "sell" as much lime as fertilizer. It would be very helpful to have a lime company assist in the educational work in the testing of soil samples and in making sound agronomic recommendations. To the best of our knowledge, your company is the first lime outfit to come forward with this kind of positive thinking and planning.

#### Record Entry for Amateur

A record 2,019 players submitted entries in the 1961 National Amateur which will be played at Pebble Beach (Calif.) GC, Sept. 11-16. This exceeded the 1960 total by 282. The Pebble Beach field will consist of 200 players who have survived qualifying rounds or are exempt from qualifying. Deane R. Beman, Arlington, Va., is defending champion.

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#### **Neilson Produces Turf Tire**

Neilson Wheel Co., 1607 N. 27 st., Milwaukee 8, Wis., is producing a new turf-protecting tire for golf cars. A low pressure tire, with 8-in.



tread, it is said to glide smoothly over turf without bruising grass. Complete wheel and axle assemblies, including chrome hub caps, are available with the 2-ply turf-glide tires. Full information on specifications can be obtained by writing to the Neilson firm.

#### Player Gives Ralph Bond's C-52 Turf a Big Plug

When Gary Player and Arnold Palmer played a recent exhibition at Odana Hills, West Madison, Wis., Player, a gentleman farmer, declared that the greens at Odana compared favorably with the best he has seen at any municipal layout in the world. Since the putting surfaces at the Wisconsin course are planted to Old Orchard C-52, Ralph R. Bond, owner of the Old Orchard Turf Nurseries in Madison, stepped up and took a few bows, after hearing Gary's endorsement.

#### Cupit, Young Circuit Star, Signs with Etonic

Young Jack Cupit, who has made such a big splash in his first year on the circuit, has been named a member of Etonic's expanding pro advisory staff, according to Bob Eaton, vp of Charles A. Eaton Co., Brockton, Mass. Cupit, winner of this year's Canadian Open, had finished in the top 10 nine times in 19 PGA tournaments through early August. A onetime U. of Houston star, he won 39 tourneys as an amateur.

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### **Onox Available in Spray Bottles**

Onox, described as a skin-toughening solution for treatment and prevention of athlete's

foot, now is available in 6-oz. spray bottles. The manufacturer, Onox, Inc., Dept. 5-X, 121 Second St., San Francisco 5, suggests that in active cases of athlete's foot golfers may want to keep a bottle in their lockers as well as in their homes. Onox is shipped one doz. bottles to a case. Information on quantity discounts, available to



pros, plus medical opinions on the effectiveness of the product are available upon request.

The firm of Ellis, Arndt & Truesdell, with offices at 614 MacArthur Bldg., 114 W. Union st., Flint 2, Mich., has been formed to engage in the design of golf courses, park facilities and recreational buildings.

Al Robbins Enterprises, PO Box 887, Evanston, Ill. has added the new Dymo instant label maker to its line.

### Sod-Master Produces New Edger, Topdressing Power Spreader

Sod-Master, 3456 N. Washington ave., Minneapolis, has started delivery on two new pieces

of equipment. Edge-R-Rite represents, what is claimed, a new concept in an edging tool. It has a vertical, oscillating blade rather than the conventional circular, spinning blade, making the machine safer to operate. Edge-R-Rite cuts a continuous sod strip, easily gathered after cutting. All controls are mount-



ed on the handle bar and there is a single adjustment for depth and angle of cut.

The Mete-R-Matic is said to be the first powered equipment designed for spreading top-dressing on greens, etc. The material, placed in a hopper, is carried to a rotating brush by means of a treadmill. The brush drives the topdressing downward, imbedding it in the root system. A metering device regulates the amount of spread. Powered by a gas engine, the Mete-R-Matic moves on six pneumatic tires and is controlled by two levers located near the handle bar.



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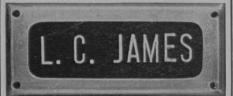
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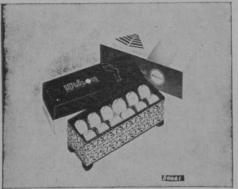
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Available to pro shops for Christmas gift business is the Wilson Staff ball gift pack. One doz. Staff balls are contained in a handsome black and goldtoned planter of unbreakable styrene, embossed with heavy gold colored foil. Balls and planter are packed in an attractive gift box with a special Christmas motif sleeve that may be removed after Christmas for sale of any remaining gift packs for birthday or anniversary gifts. Staff half-dozs. are similarly packed with a smaller size planter. Both dozens and half-dozens sell at regular prices with no extra charge for planter or gift box.

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#### Scott's Tractor Hitch Spreader Has Several Different Uses

Illustrated in a recent "Turf Program Products" bulletin of O. M. Scott & Sons, Marysville, O., is a No. 100-T Tractor Hitch spreader that is suggested for use on golf courses and other large areas. The spreader can be used for seeding, fertilizing and spreading weed, insect and fungus control products.

#### Distribute Spartan Golf Cars

J. Henry Chapman and C. L. (Bob) Bever are distributors for Spartan golf cars and gloves, manufactured by Golf, Inc. They are covering Utah, Nev. and Calif. Chapman is located at 3128 Maddux Dr., Palo Alto, and Bever's headquarters are 12000 Moorpark, North Hollywood, Calif.

#### Panek Is Dunlop's Ad Manager

Stanley J. Panek has been named manager of advertising services for the tire, foam rubber, duthane and sporting goods divisions of Dunlep Tire & Rubber Corp. For the last four years Panek had been assistant ad manager for Dunlop and prior to that he was ad director for Lake Erie Machinery Corp.

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### Bob Kay Becomes Member of U. S. Royal Pro Staff

U. S. Rubber Co. has reported the addition of Bob Kay, pro at Wampanoag CC, West Hart-



Joe Turnesa, Jr., New England sales rep for U. S. Royal, welcomes Bob Kay to the staff.

ford, Conn., to the Royal pro staff. This is the first time a major manufacturer has signed a Connecticut pro to its regular staff. One of the better known home pros in the U.S., Kay is the current Connecticut PGA champion.

#### **Summit Hall Continues Expansion**

Summit Hall Turf Farm, Gaithersburg, Md., has opened its River Farm, located on the

Potomac, 24 miles north of Washington, D. C. Summit Hall has constantly expanded since it started operations in 1948 and grows Meyer Z-52 Zoysia, Merion Blue and other quality turfs.

#### Richards, Spalding Rep, Named Starter for SGA

Don Richards, who travels four Southern states as an A. G. Spalding & Bros. rep, has been named official starter for the Southern Golf Assn. whose membership includes clubs in 14 Southern and Southwestern states. A Shreveport resident, Richards also has been appointed associate director of SGA by Charles H. Stewart, pres.

#### New American Mat Runner

American Kleen Sweep, a new all-purpose runner matting made of rubber compound reinforced with rayon and nylon fibers, is being produced by American Mat Corp., 1802 Adams st., Toledo, O. It is especially designed for installation where extra rough use and heavy traffic are encountered. The matting has a narrow rib running longitudinally. It is black in color, ¼ ins. thick, and comes in rolls 24 or 36 ins. wide. Literature can be obtained upon request.

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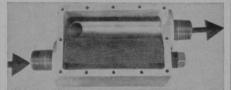


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### Robinson Joins Sales Staff of Rainy Sprinkler Division

Rainy Sprinkler Sales, a div. of L. R. Nelson Manufacturing Co., Inc., Peoria, Ill. has named

B. P. Robinson asst. sales mgr. of its Southwest dist. Robinson, an agronomist with a Ph.D from North Carolina State College, has served as a regional di-rector for the USGA green section and also did special turf research work at Tifton, Ga. for two golf assn., the University of Georgia and the USDA. Prior to joining the Rainy Sprinkler staff, Robinson



was part owner of Kilgore-Robinson Supply, Inc., handling turf and irrigation supply equipment in Birmingham, Ala. His headquarters now are in Gainesville, Ga.

### K & M Sales Appointments

George Kwachak, Carmichael, Calif., has joined Keasbey & Mattison Co., Ambler, Pa., as a sales rep in the San Francisco pipe dist. . . . Andrew J. Buford, St. Louis, has been named merchandising manager for agent sales in the asbestos-cement pipe sales div. in Ambler. He

previously was a K & M salesman in the St. Louis area . . . Robert W. Gundlach has been appointed merchandising manager for distributor sales in the pipe sales division in Ambler.

#### New Charger is Companion Piece of Exide Golfer-48 Battery

A fully automatic charger for batteries used in electric golf cars has been developed by

Exide Industrial div. of The Electric Storage Battery Co., Philadelphia. It is designed as the power mate for the new Exide Golfer-48 battery and can be used to get top performance from any other make of 24- or 36-volt leadacid battery used in



golf cars. It is said that the Exide charger can keep the 48 delivering from 9 to 30 per cent more electrical energy than any other battery used in golf cars over a predicted minimum life span of 48 months. The charger can be moved around and plugged into any 110-volt alternating current outlet. It performs automatically after being connected to a battery and power source and the switch is turned on.

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### Second Reward for Jerry

George Dawson (left) of A. G. Spalding & Bros. gave a special bonus check to Jerry Barber after the latter had defeated Don January in a playoff for the PGA Championship at Olympia Fields (III.) CC late in July. Barber was the second Spalding consultant to win the big one in 1961, following the example of Gene Littler, who won the USGA Open in June.

### Mallinckrodt's Green Questionnaire

Mallinckrodt's Chemical Works, Mallinckrodt's St., St. Louis 7, recently sent a questionnaire to supts. throughout the country asking them about the maintenance of the greens and inquiring as to the major turf disease problems in their areas. Offers of free literature to aid in the care of greens also was enclosed in the mailing.

### **Consolidated Pipe Installation Data**

Installation and spec data on rigid, unplasticized Polyvinyl Chloride (PVC) pipe and fittings is contained in an eight-page booklet just released by Consolidated Pipe Co., 1066 Home ave., Akron, O. The booklet has charts showing maximum working pressures at raised temps. for normal and high impact PVC pipe, recommended support spacings for installations and corrosion resistance information. The booklet can be obtained from Consolidated.

### **Award for Hotze Catalog**

Mead Papers, Inc., Dayton, O., recently presented an 'Award of Merit' to Henry Hotze and Sons Co., St. Louis, golf bag manufacturer, for its 1961 catalog. The catalog, said the award, was distinguished by "fine craftsmanship and outstanding skill in the graphic arts."

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