
Turfgrass Questions Answered by Grau

If you've got a question you want Dr. Fred V. Grau to help you answer in this department, please address it to Grau Q&A, Golfdom, 407 S. Dearborn, Chicago 5, Ill.

WHERE sound principles have been followed in the construction and planting of greens the job of maintaining the greens is made much easier. Still, certain basic principles of maintenance must be carried out in order to keep the greens as perfect as new.

Soil management to maintain physical and chemical fertility is essential. The productive soil must contain needed plant nutrients plus sufficient oxygen that plant roots can function to take up nutrients. Adequate fertilization is a principle that everyone should recognize by now. Clippings are removed from putting greens so all the plant food used for growth must be replaced by fertilizer. Nitrogen is the most vital element for grasses. Frequent, light applications throughout the growing season usually are preferred. Phosphorus and potash may be applied spring and fall.

Lime influences both chemical and physical soil conditions. It neutralizes soil acids, thereby raising the pH. In clay soils it has the physical effect of improving structure by aggregating small particles.

Use Aerating Tools

Physical soil condition is maintained by mechanical loosening of the soil to overcome compaction. Aerating tools, used regularly, keep soil porous and well-ventilated.

Proper use of water is another fundamental principle. Water deep but water seldom is the general rule to follow. Light sprinkling that wets only the soil surface restricts root growth to this shallow moist layer. Frequent watering that keeps soil saturated suffocates the roots, encourages disease and breaking down of soil structure. Water deep and then don't water again until the grass needs it. Water in the early morning, rather than at night, to reduce disease. Keep soil open to prevent wasteful runoff and assure deep penetration.

Control of disease is a basic principle. Disease can weaken or destroy large areas

of turf on putting greens. If good cultural practices are carried out the disease problem is less severe. Even so, it is wise to protect the turf with preventive chemicals when weather conditions are critical.

Control of insects is another fundamental. Insects weaken the turf and allow weeds to invade. Fortunately, we have excellent insecticides to give protection from insect pests.

Control of weeds is basic. Proper watering and the control of diseases and insects that weaken turf will go a long way in preventing weed invasion. Tight, vigorous turf is the best defense against weeds. If turf becomes thin enough to prevent weeds to come in, then chemical control may be necessary.

Grain and Thatch Control

Control of grain and thatch is a basic principle. Close, frequent mowing and the use of brushes and combs help to prevent grain and thatch. Regular use of vertical mowers is the surest way to prevent grain and thatch, and to ensure a true putting surface at all times. Vertical mowing to remove surface accumulation makes disease control easier and it helps to limit the spread of weeds, too.

Proper mowing is another fundamental. Proper mowing on putting greens means close cutting to keep a tight, smooth turf. It must be frequent so only a small amount of leaf length is removed at each mowing. The greens mower is a precision tool. Blades must be sharp enough to cut clean without bruising. Machines must be kept in perfect condition to provide a uniformly smooth cut.

Trained labor also is basic. The men who work on putting greens must be capable of careful workmanship. They must understand the importance of using the proper quantities of chemicals and the necessity for keeping machines in good operating condition. They must be trained to use sprayers and distributors properly so

NEW! TRI-TRAC

HERE IS THE
ALL-AROUND EVER READY

ANSWER TO
SHORTAGE OF
EQUIPMENT
DURING BUSY
MAINTENANCE
MONTHS

Attachments Available

60" Rotary Mower

(shown with tractor)

Cutter Bar Mower

3-Gang Lawn Mower

Large Hauling Cart

Bulldozer Blade

Dump Rake

Snow Plow

Power Sprayer

Fertilizer Spreader

Plus a Complete Line

of Farm Tools



Guaranteed to satisfy or money back

**TRACTOR ONLY
PRICE \$395**

F.O.B. Bradley, Ill.

*Write for complete
specifications*

DAVID BRADLEY MFG. WKS.

Bradley, Ill.

**VERSATILE
MANEUVERABLE
ECONOMICAL
STURDY**

there is no skipping or overlapping. They must be taught to handle machines skillfully, to make turns off the putting area, to adjust machines correctly for the existing conditions.

Even though we know the basic principles of maintaining turf, few people could maintain perfect putting greens simply by reading the rules. The alert care of an experienced superintendent is an important factor. The ability to recognize unusual conditions, to interpret and to treat them correctly is the quality that makes a good superintendent indispensable.

Q—We wish to improve our tees. Would you advise seeding them with Merion bluegrass or with Bermuda? (N. C.)

A—I would not recommend seeding either Merion Kentucky bluegrass or Bermuda. I am a firm believer in sodding tees with a good solid sod from a nursery. The areas are small enough so it is practical and the tees can be used within a week or ten days after sodding. Unless tees are heavily shaded, I doubt that Merion would be the best grass. One of the improved Bermudas which are grown from sprigs or stolons would be much better. Among these are

Tiffine, U-3, Uganda, Gene Tift. Once established, a sod nursery is a never-ending source of planting material.

Q—We wish to establish bentgrass greens. Which strain would you recommend for our area? (N. M.)

A—A bent that is giving good results in high temperature areas is Cohansey (C-7) bent. Heat resistance is one of its outstanding characteristics. Pennlu is another good strain of bent but it has not yet had its "baptism of fire" in the high-temperature areas.

Q—Pearlwort on putting greens is our problem. What do you advise? (Wisc.)

A—Research at Penn State has shown that the better strains of creeping bent are effective in crowding out pearlwort. The most aggressive we know of to date is Pennlu creeping bent. Congressional (C-19) is another good one for your area; also Toronto and Old Orchard.

I would recommend that you establish a sod nursery (maintained like a putting green) of bents from which you can take sod plugs to replace plugs of pearlwort that you remove.

**The Power Disc Spiker
You've Always Wanted**

Power Spike

POWER DRIVEN DISC SPIKER
Powered with 2½ HP 8R6 B&S Engine

One man can spike 5000 square feet in less than 15 minutes • Leaves no wheel tracks or friction burns on your greens • Each spiker equipped with power driven transport wheels • Easy to operate.

Write for your nearest distributor.

POWER SPIKE
Mfg. Co.

Walters, Oklahoma



Pearlwort seems to thrive on lots of moisture. Perhaps there could be some way of reducing the amount of water applied.

Vertical mowing helps to reduce pearlwort by thinning it. Arsenate of lead helps to discourage pearlwort. Apply 5 pounds to 1,000 sq. ft. at each application, repeat once a month until results show—then twice a year, spring and fall.

Q—What are the controls for goosegrass? (Mass.)

A—One of the controls that has been used with a fair degree of success, particularly in the southwest, has been a combination of phenyl mercury acetate and 2,4-D. This is a bit risky in the humid areas, but has been used successfully. Another control for goosegrass is di sodium methyl arsonate (sold under various brand names). Vertical mowing is a good mechanical control.

Q—We have used calcium cyanamid to sterilize topdressing at different times. Sometimes the results are very good indeed, but at other times it is not nearly so effective. Have you any idea why we cannot always obtain the same results? (Ky.)

A—Cyanamid requires warmth and moisture in order to work effectively. Soil material should be kept moist, though not

soaked. If the proper amount of cyanamid is used and the temperature and moisture factors are correct, then you should obtain consistent results.

Q—Do seeded or stolonized bents root more deeply? (Ia.)

A—I do not know of any comparative data on depth of rooting of seeded and stoloniferous bents. I rather think that other factors influence rooting depth. Improper watering, a surface thatch or buried layer would induce shallow rooting, regardless of the type of bent. On the other hand, good drainage and aeration, deep watering and feeding would promote deeper rooting of any grass.

Q—Soil in our greens is sandy and well-drained, which I understand is the ideal condition. However, we find that the greens dry out quickly and the grass is rather thin and of poor color. Do you think we have too much sand? (Mich.)

A—Not necessarily. Have you taken into consideration that grass growing on sandy soils usually demands more frequent fertilizing? The usual fertilizer recommendations, based on "average" conditions, must be varied to meet individual needs. In your

case, more frequent applications to compensate for leaching may be needed. The extra feeding helps the grass to put down deep roots, thus less frequent irrigation is required.

Q—What is a good fertilizer to use on bent greens to start them out in the spring? What rate would you use? Would you add arsenate of lead to control worms? (Wis.)

A—A well balanced fertilizer for early spring use is 10-10-10 (or similar) used at the rate of 10 lb. to 1,000 sq. ft., or, sufficient to supply one pound of nitrogen to 1,000, plus phosphorous and potash.

It is well to have part of the nitrogen quickly available—the remainder slowly available derived from natural or synthetic organics.

Applying the spring fertilizer immediately following thorough aeration will serve to get deeper penetration of the fertilizer more quickly to aid root growth.

I have seen countless good examples of the value of adding 5 lbs. arsenate of lead to the fertilizer. Not only does it check worms but also chickweed, poa annua, etc.

Don't forget that soil test to keep a check on your "soil bank."

Q—You recommended 10-10-10 fertilizer

for early spring use. Should this be applied "as is" or should it be mixed with black dirt or Milorganite to keep it from burning? Did we understand also that we could add 5 lbs. of arsenate of lead per 1,000 sq. ft. or was it 5 lbs. per green? (Wis.)

A—If you apply the mixed fertilizer (10-10-10) to the green immediately after you have aerified and before you break the plugs and drag them in, you will not need to mix it. It will be mixed sufficiently with the soil of the plugs to keep it from burning, particularly since you will water the green well when it has been finished. If you apply the fertilizer on the grass without aerating of any kind it will be a good idea to mix it with some non-burning material and water it in well. The rate for arsenate of lead is 5 pounds to 1,000 sq. ft.

Q—We have a watering system which we use to draw directly from the lake. The big question is, when is the best time to water; in the real early morning or at night? Please give us your opinion. (Wis.)

A—The best time to water is in the early morning. This washes the dew and the guttated water off the grass blades into
(Continued on page 114)

Finest Silver Crab Killer Available

NOTT'S® ARTOX "special"

If silver crab is still a problem on your greens, then you haven't heard the latest news. Because Nott, with many years experience in formulating crab grass and broadleaf weed killers, has now successfully combined "Di Sodium Monomethyl Arsonate" (SODAR*) with 2, 4-D... a specific for silver crab and ideal for chickweed, plantain, dandelion, smooth and hairy crab grass.

ARTOX "SPECIAL" comes in convenient, professional concentrate powder form. Mixes easily with water and can be applied with regular spray gun.

Try ARTOX "SPECIAL" at our expense. You and the Greens Committee will be amazed with the results.

For Free sample attach coupon below to your club letterhead and mail.

ARTOX and other NOTT Products available through your Horticultural Supply House.

*Trade Mark pending, permission granted by applicant

NOTT MANUFACTURING CO., INC.

Mount Vernon, N. Y.



NOTT'S ARTOX is also available—powder or liquid, in the "Standard" formulation, specific for smooth and hairy crab grass only.

FREE! Send me free sample and further information on Artox

Name _____

Club _____

Street & No. _____

City _____ Zone _____ State _____

CONTENTS

Swinging Around Golf	Herb Graffis	3
Alter Course for Members and Hogan	Dan Jenkins	37
Snowmold Control	J. R. Watson, Jr.	40
Service to Golfers Featured at Ft. Myers Shop	Herb Graffis	44
Record Snows Puzzle N.E. Superintendents	Homer Darling	48
Old Pro's Advice (Assistants' Dept)	Harry Pezullo	50
Chicago District Club Report		56
I'm Proud of This Sale	Tom Walsh	60
Pros Star as Schoolmasters in Michigan		64
Pro's Promotion Work Has New Course Busy	George Karger	68
Prepare Budget As Aid in Maintenance	Howard Baerwald	82
Turfgrass Questions Answered by Grau		84
Manufacturing News		97

Grau on Turfgrass

(Continued from page 87)

the soil. This reduces the chances for diseases to spread. The 'dew' contains dissolved nutrients which are helpful to disease. This recommendation of early morning watering was developed in the early 1930's by Monteith and Dahl on putting greens on the old Bannockburn course.

The exception to this recommendation is mid-afternoon "syringing" or "showering off" when grass starts to wilt during high temperatures, even when the soil is wet.

Q—What damages would you expect in the summertime if golfers use the tees and greens during the month of March when the ground is soggy and wet? (N. Y.)

A—Summertime damage resulting from March play could be severe or negligible depending upon the follow-up treatment in April and May. It is not always possible to close the course when the soil is wet. Some tees and greens are wetter than others, even when the course is open and on these the damage is likely to be more severe.

If the members insist on playing and if the chairman agrees and overrides your veto, be sure to explain in writing that there will be some very necessary interrup-

tions to play in April and May. At this time, in order to repair the damage done by a few players in March, you will have to temporarily close to play a green or a tee at a time while you thoroughly aerify, verti-cut, fertilize, topdress, plug, sod, seed, sprig — or whatever else is needed — to restore good playing surfaces for the summer.

Players, caddies, and carts leave dents and ruts in soft turf. Roots are shallow in early spring and turf may actually slide when walked upon. This disturbed sod may die if dry weather follows.

Some of the soggy wetness may be a good indication of the need for drainage — maybe you have seepage. The sooner it is located and corrected the better.

Q—What causes velvet bent greens to appear chlorotic until very late in the spring? (Conn.)

A—Several factors might be involved. Excessive amount of water might be the cause. A badly matted condition could do it. Cold, cloudy weather retards growth and color. Or, an excess of phosphorus, a deficiency of iron or some other factor might be involved. Regardless of cause, the best way to correct the condition is with regular applications of soluble iron. Iron sulfate often is used. Chelated iron is another recommended material.