NOVEMBER 1982

A PATCH of GREEN

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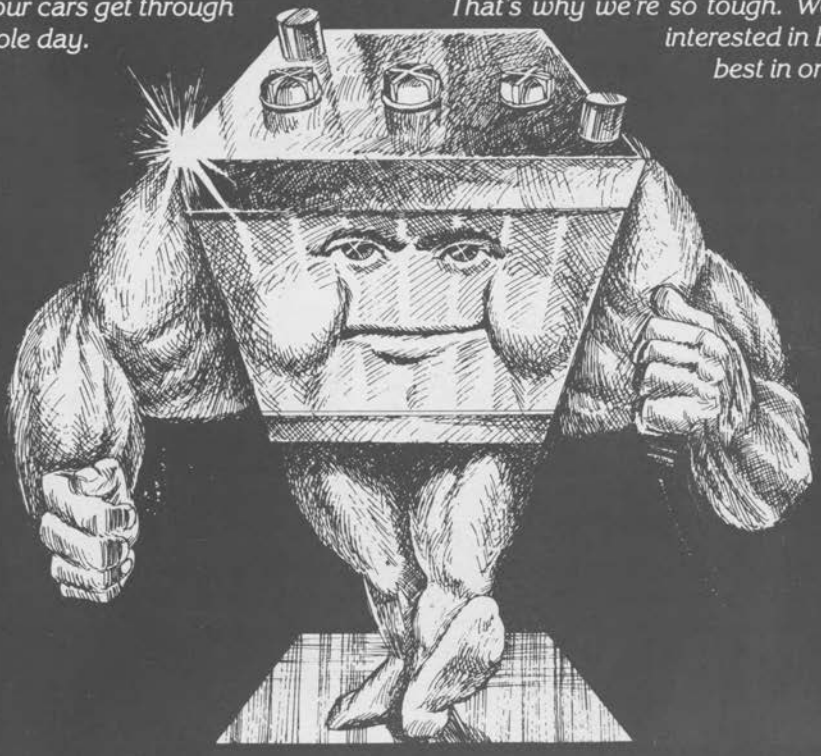

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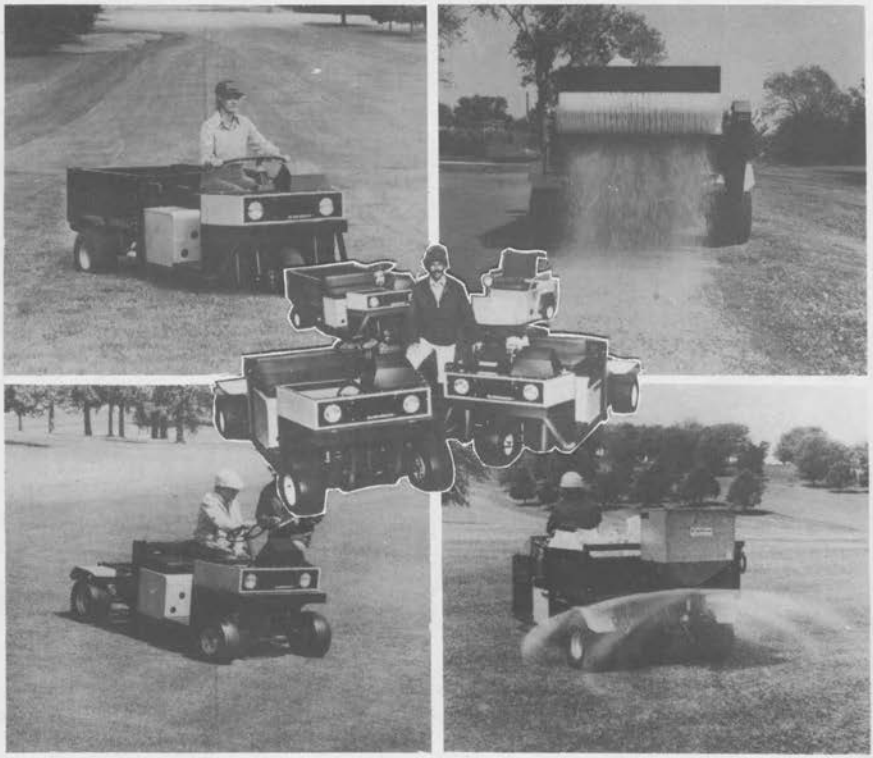

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"A PATCH OF GREEN"

Published monthly by the
MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

Circulation: 1,250

Ted Woehrle, CGCS, Oakland Hills C.C.
EDITOR

Printed At
BLAKEMAN PRINTING COMPANY
31823 Utica Road
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New Diseases to Look For

by M.C. Shurtleff

Yellow Patch is the new name for a disease we've recognized in Illinois for a number of years. It has appeared most serious in sodded bluegrass lawns a year or more old. The damage appears as yellow, tan, or straw-colored rings, up to about 3 feet across, often with fairly healthy grass in the center. The rings, once established, remain for several months without apparent change. The symptoms appear in cool-to-cold weather in the spring, fall and winter, and very closely resemble the "frogeyes" of Fusarium blight. All turfgrasses are apparently susceptible, especially bluegrasses and bentgrasses. The disease is caused by the fungus Rhizoctonia cerealis, a close relative of the brown patch fungus, Rhizoctonia solani. However, R. cerealis infects during cool (optimum about 60 F) moist weather, while R. solani attacks occur during warm-to-hot (73 to 95 F) moist weather. if you have access to a microscope, you may wish to check the following characteristics of these two fungi:

Rhizoctonia cerealis (yellow patch)

1. Mycelium - white to dark brown
2. Hyphae - right-angle branching, constricted at branch, septum produced near branch, prominent septal pore, binucleate cells
3. Sclerotia - usually produced; dark brown, less than 1 mm.

Rhizoctonia solani (brown patch)

1. Mycelim - pale to dark brown
2. Hyphae- right-angle branching constricted at branch, septum produced near branch origin, prominent septal pore, multinucleate
3. Sclerotia - produced (dark brown) 2 to 4 mm.

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AERATION

Aeraion is a mechanical process involving the cultivation of the soil or the removal of organic matter which has accumulated at the soil surface. As the amount of traffic continues to increase on recreational areas and high-level maintenance practices are pursued, aeration is becoming more of an essential part of many turf maintenance programs.

Turf Aeration:

Turf aeration is a mechanical process which improves the penetration of air, moisture, pesticides and nutrients into the sod layer. This is accomplished by raking, slicing or verti-cutting the turf or a combination of these mechanical operations.

This process is suggested to improve the performance of established turf when a heavy thatch build-up occurs. Thatch is an accumulation of living and dead stems, leaves, roots, stolons or any fragment of plant residues at the soil surface. It occurs when the production of plant material exceeds the rate of decay of this material. Turf aeration will help reduce a thatch condition, but will not eliminate it completely.

Heavy thatch accumulations create poor mowing conditions by causing the grass to be scalped and mowed unevenly. It also intercepts and retards the downward movement of nutrients, moisture and air into the root-zone area. This can result in erratic responses to watering and fertilizing. Thatch also provices an ideal habitat for destructive turf disease and insectp for destructive turf disease and insect organisms. The presence of thatch reduces the effectieness of pesticides,

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It's Not Always the Green's Fault!

Proper Care Is A Must, But Player Error Also Plays a Role In Missed Putts

By Richard L. Duble, Associate Editor
From Southern Golf

What factors affect the roll of the ball on greens? Golfers seem to be forever looking for excuses for missed putts. It couldn't be that they pulled the putt or just plain missed it. I know! I've been there, too. Golfers would much rather blame some imperfection in the green than accept the responsibility for missing the putt.

but, the truth is that the majority of putts missed inside 6-feet are the result of poor stroke on the part of the golfer. To demonstrate that point I used a mechanical putting machine that swings the putter like a pendulum. On a good golf green I holed over 90 percent of the putts from 6-feet. With a putter in hand, I made less than 50% of the putts from the same distance. From 20 feet the putting machine made over half of the putts; whereas, I made less than 20%. On a billiard-like surface, the putting machine made nearly every putt within 20 feet.

Who's Fault?

The experience of putting against a machine is intimidating. However, it will convince you that it is not always the green's fault that you miss putts. The major cause of missed putts is improper alignment of the putter face as it strikes the ball. If, on a level surface, the putter face is square to the hole and the arc of the putter is in line with the hole, the ball will roll in the direction of the hole. The putting machine does this very consistently; the golfer is much more likely to have one or both slightly out of alignment. Other causes of missed putts include hitting the ball slightly off the center of the putter head. Using the putting machine from a distance of 20-feet, putts were as much as 18-inches to the left or right of the hole depending on whether they were hit slightly on the left or right of the hole depending on

Continued Page 15


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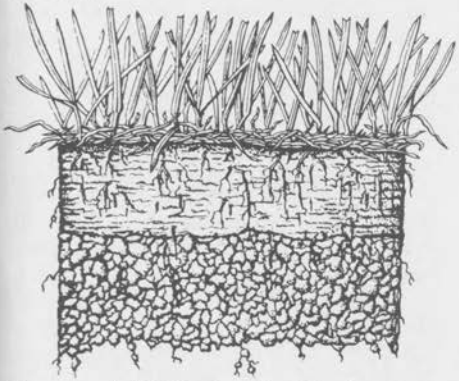
Aeration, Cont.

thus making pest control even more difficult. Winter-kill has also been associated with thatch build-up. Roots of such turf do not penetrate the soil deeply enough to withstand severe winters.



Once established, thatch becomes especially difficult to eliminate. The primary objectie should be to reduce it without causing severe damage. Thatching should be done during the spring and fall periods. This is usually the time of year when weather conditions are most favorable for regrowth and recovery of the turf. If Poa annua is a problem, apply a pre-emergence herbicide immediately after thatching. How often turf should be aerified depends on the rate of thatch accumulation and each specific management program.

Equipment especially designed with raking and slicing action will alleviate the accumulation of thatch. Scotts Proturf Aerator provides the dual function of using tines and knives to slice and rake simultaneously. The tines can be removed so the machine can be used for slicing only; whereas, the knives can be removed where conditions exist for raking. This quality machine has several low-cost maintenance features. Various types of verti-cutting equipment are also available to perform this task.

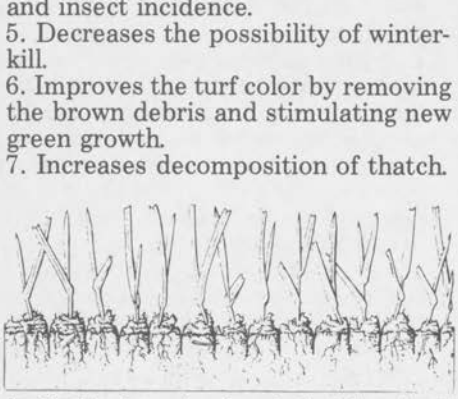
Benefits of Turf Aeration:

1. Increases the infiltration and efficiency of water, air, pesticides and nutrients into the sod layer.
2. Stimulates new growth by encouraging healthy root development and/or

Continued Next Page

Aeration, Cont.

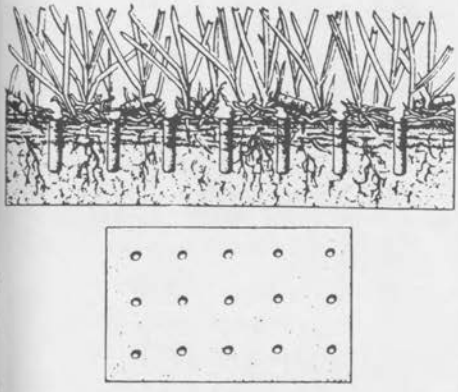
tiller and rhizome growth.
3. Creates better mowing conditions, thus improving the appearance of the turf.
4. Decreases the possibility of disease and insect incidence.
5. Decreases the possibility of winterkill.
6. Improves the turf color by removing the brown debris and stimulating new green growth.
7. Increases decomposition of thatch.



Aerified turf — note slices in thatch and soil.

Soil Aeration:
Soil aerations is a mechanical form of cultivation which loosens the soil and/or removes cores, leaving holes in soil. It is performed to improve turf performance when soil compaction becomes a problem. When this occurs, the appearance and performance of turf is greatly reduced.
Soil compaction occurs when the soil particles are pressed closer and closer together. This results in a reduction in the large pore spaces in the soil through which water, nutrients and air enter. All soils are subject to compaction, but heavy, clay soils are more of a problem than light, sandy soils. Moist soils compact more easily than dry soils.
There are many causes which contribute to compaction. Heavy traffic during all types of weather conditions and the use of maintenance equipment contribute the most to this condition. It is most troublesome on golf tees and greens, athletic fields, cart pathways and other turf areas where heavy traffic exists.
As an area becomes more compacted, the downward movement of nutrients, moisture, pesticides and air is restricted. Under these conditions, roots cannot penetrate into the compacted soil Root restriction produces shallow-rotted plants which lack vigor and are

more prone to injury during stress periods. The turf may wilt even in moist soils or show typical nutrient-deficiency symptoms even though nutrients are available. Compacted soils are also poorly drained. Aerification should be done any time soil compaction causes poor turf performance.



Soil aeration — lateral and top views.

Soil-aerating equipment reduces or eliminates the effects of soil compaction. Machines having coring tines or spade-like spoons penetrate into the rootzone area and remove cores of soil This increases surface entry and improves the penetration of oxygen, moisture and nutrients into the rootzone area. The beneficial effects of aerification can often be seen in the form of new root growth where cores have been removed from the soil.
Spiking and slicing equipment can also be used, however, the spikes or knives do not penetrate as deeply, nor do they remove cores of soil They are not as effective in producing the same degree of soil aerification.

Many ideas grow better when transplanted into another mind than the one where they sprang up.
Oliver Wendell Holmes

New Diseases, Cont.

What is strange is that the chemicals that easily control brown patch have little or no effect on yellow patch. A possible exception is Chipco 26019. Some superintendents have reported good control when this produce was used routinely on a protective basis. We would be interested in knowing whether you have seen this disease and what controls (if any) you have found to be effective.

Nigrospora Patch or Blight is a new disease that has been reported from Minnesota, Michigan, and New York. So far, it has NOT been identified in Illinois. The gross symptoms resemble those of Sclerotinia dollar spot. Nigrospora may superficially be confused with various cultural practices, insect damage (sod-webworm or billbugs), chemical injury, moles, dogs, or Fusarium blight. Sunken, yellow to straw-colored patches 4 to 6 inches in diameter are typical of Nigrospora patch or blight. The disease is most severe on perenial ryegrass and creeping red fescue and a few of the newer cultivars of Kentucky bluegrass. The disease is caused by a speciae of the fungus Nigrospora, a saprophyte or "weak" pathogen of corn, wheat, and other members of the grass family.

The leaf lesions closely resemble those of Sclerotinia dollar spot except that on Touchdown and Adelphi Kentucky bluegrass, the whitish-tan leaf lesions are sometimes bordered by a purple zone. Reddish-brown to black, irregularly shaped dead spots or streaks may also be present. With a microscope, the comparatively large, round, black Nigrospora spores can be seen on and protruding through the surface of the leaf. The presence of white, cobwebby mycelia in early morning on the grass blades is also similar to dollar spot.

Nigrospora blight or patch occurs during hot muggy weather in summer when the soil is droughty. The most severe damage in Michigan occurs on sodded lawns less than five years old that were laid on clay with little or no topsoil.

The disease has been controlled in new York with routine spray applications of chipco 26019, Acti-dione RZ, and Daconil 2787. The following fungicides

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were found to be ineffective: mancozeb (Fore) captan, and Koban.

Difficulties with controlling what appears to be dollar spot in the field in Minnesota, Michigan, and New York appear to be occasionally associated with misidentification of the problem rather than use of a fungicide that is ineffective against Nigrospora. The disease appears to be stress related so cultural practices that keep the grass growing steadily should be beneficial.

Not Always Green's Fault, Cont.

whether they were hit slightly on the heel or toe of the putter. For putts longer than 6-feet hitting ball slightly off the center of the putter head is responsible for many misses.

Ideal Putting Surface?

What constitutes an ideal putting surface? And, how can the golf course superintendent produce and maintain good putting greens? Even after 30 years of playing golf and examining greens, I do not think I have seen an ideal golf green. Qualities that I look for include: fine texture, dense cover, very closely cut surface, absence of grain, uniformity, consistency, ability to hold a golf shot, capacity to recover from injury and wear, and the ability to hold up under various environmental conditions. To date, we do not have a grass or an artificial fiber that meets all of those requirements without intensive maintenance on the part of the golf course superintendent.

Creeping bentgrass and hybrid bermudagrass provide the best surfaces for golf greens in the South. Creeping bentgrass is the first choice of golfers and can be used in the northern regions of the bermudagrass belt. In the warmer and more humid climates, the hybrid bermudagrasses, including Tifdwarf, Pee Dee and Tifgreen, provide the only alternatives for golf greens.

All of these grasses develop grain, become quite coarse, grow too tall, and thin out unless constantly manicured to maintain good putting quality. The distance the ball rolls and the path the ball takes depend on how well these grasses are manicured.

Proper 'Greens' Care'

Both bentgrass and bermudagrass

Continued Next Page

Not Always Green's Fault, Cont.

greens can be manicured to provide fast, true, and consistent putting surfaces. Daily mowing at low heights (⅛ to 3/16-inch), light and frequent topdressing, dry surface conditions, vertical mowing, and cross-mowing contribute to very fast putting surfaces. Using a USGA Stimpmeter to measure the distance a ball rolls, green speed can be increased from slow to fast (according to USGA standards for regular play) by slightly lowering the mowing height, lightly topdressing with medium to fine textured sand, cross mowing the greens for several days and maintaining dry surface conditions for several days. These practices canno be continued year round, but they can be used intermittently for tournament play or for special events. Increasing the speed of the greens for a few days adds to the interest and excitement of the game. I might say, it also adds strokes to golf scores.

Daily mowing with sharp, true reels will do more for developing fine putting greens than any other practice. Changing mowing patterns each day will also help keep grain out of the putting surface. Such a mowing schedule requires planning and coordination on the part of the golf course superintendent. Mowing equipment needs to be cleaned, sharpened and adjusted each day; schedules and mowing patterns must be organized and posted; and someone must check daily to see that greens are being mowed properly. At times, it may be advantageous to use a brush or comb ahead of the cutting unit to remove grain or increase the speed of the putting surface. A grooved roller may also be substituted for a smooth roller to get a closer cut. All of these attachments are available and can be quickly installed ahead of the cutting unit.

Vertical Mowing

Light and frequent vertical mowing is also required to maintain fast, true putting surfaces on hybrid bermudagrass greens. During summer months, bermudagrass greens become very grainy if if they are not regularly thinned with a vertical mower. Lightly verticutting bermudagrass greens in

Continued Next Column

two directions on a weekly basis will control grain and produce a true surface.

The combination of lightly vertical mowing and topdressing on a regular schedule will produce "fast" bermudagrass putting greens throughout the summer and fall. The best bermudagrass greens that I have played are those where such practices are used. With the quipment available today, it is not impractical to follow such a procedure.

Bentgrass greens require thinning or vertical mowing in the spring and fall to reduce grain and thatch. They also need light topdressing during these periods to develop fast, firm putting surfaces. These practices must be curtailed on bentgrass greens during the hot, humid summer months. Regular mowing and occasional brushing is adequate to maintain good bentgrass putting surfaces during summer months.

Topdressing

Topdressing with sand on a regular schedule requires effort and determination on the part of the golf course superintendent. It seems that there is never a convenient time to topdress greens and other needs always seem to have priority. Yet, next to mowing, topdressing will do more for producing fine greens than any other practice. A uniform grade of medium to fine textured sand (0.1 to 0.5 mm in diameter) should be applied to greens at a rate of about 1 cubic yard per 5,000 sq. ft. Bermudagrass greens can be topdressed at that rate at two-week intervals during the summer months. Obviously, the superintendent must have the necessary equipment to topdress greens that frequently. Large cyclonetype spreaders then can be loaded with an auger or a front-end loader are helpful.

After topdressing, the putting surface should be dragged with a heavy steel mat and mowed with a back-up mower to smooth the surface. Such a procedure repeated on a regular basis smoothes the surface, develops a firm and consistent putting surface, and increases the trueness and speed of greens.

Proper Fertilization

Continued Next Page

Not Always Green's Fault, Cont.

Overfertilization of bermudagrass and bentgrass greens also increases the problems associated with the maintenance of fast, smooth putting surfaces. Thatch, grain and excessive growth are all problems related to overfertilization. Finding the "right" level of fertilization for greens requires a compromise between appearance and putting quality. A high level of fertility produces the lush, dark green putting surfaces that golfers like to see. However, golf greens that appear starved for nitrogen often putt better than the lush looking greens.

To maintain good putting quality, the golf course superintendent must sacrifice some of the dark green color that he, too, likes to see. Bermudagrass greens will thrive on 2 pounds of nitrogen per 1,000 sq. ft. per month, but such high levels of nitrogen force growth and result in soft (spongy) and grainy putting greens. Whereas, applying ½ pound of nitrogen per 1,000 sq. ft. every two weeks will meet the requirements of the grass, keep growth to a minimum, and produce better putting surfaces. Phosphorus, potassium, sulfur, and iron should also be provided as needed to maintain healthy greens.

Bentgrass greens require only half as much nitrogen as bermudagrass greens. Bi-weekly applications of about ¼ pound of nitrogen per 1,000 sq. ft. during the fall, winter and spring will meet the needs of bentgrass greens. Applications should be reduced to monthly during the summer months. As with bermudagrass, other nutrients are also needed on bentgrass greens. Potassium and iron in particular can be very beneficial to maintaining healthy, attractive bentgrass greens.

"Finesse it, Harry. These greens don't hold."

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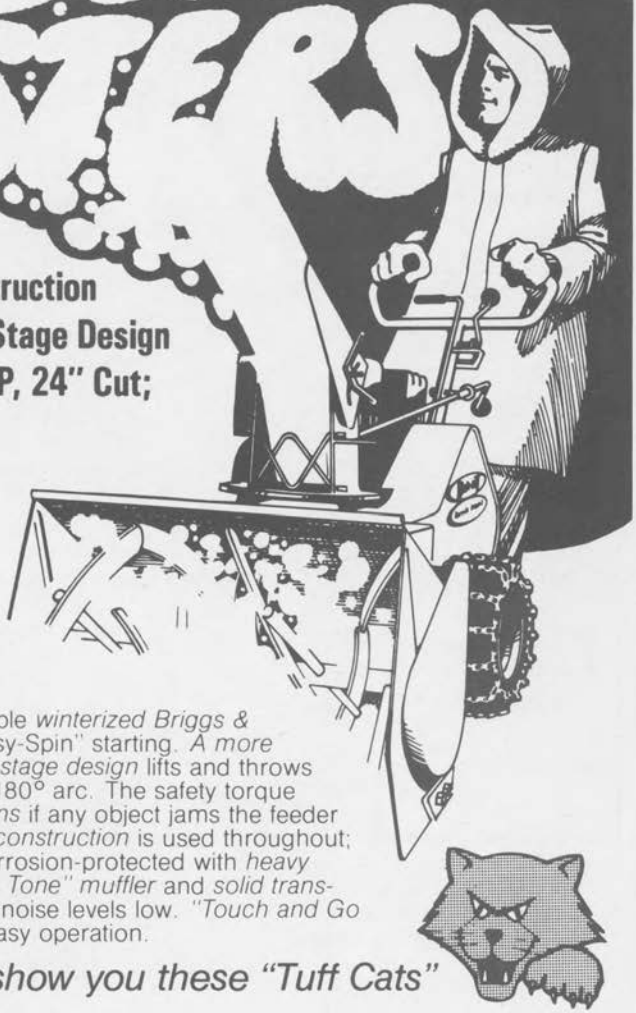

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