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The Bull Sheet

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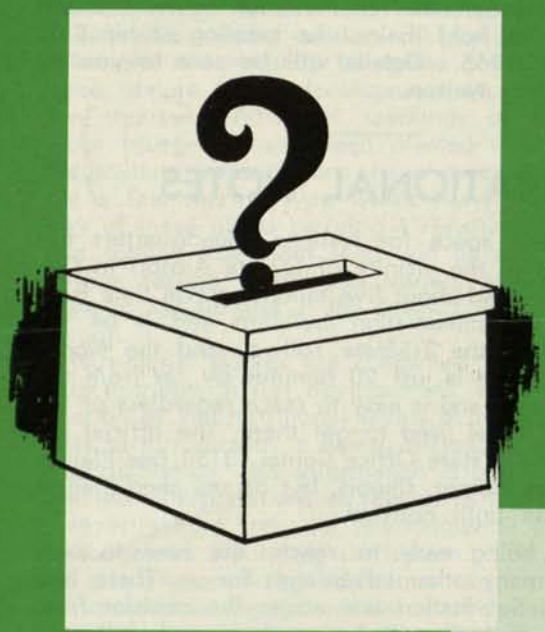
Midwest Association of Golf Course Superintendents



JUNE MEETING

DEER PARK COUNTRY CLUB

MONDAY, JUNE 7, 1965

GOLF — DINNER

BUSINESS MEETING

THE BULL SHEET, official publication of THE MIDWEST ASSOCIATION OF GOLF COURSE SUPERINTENDENTS.

TED WOEHRLE, Editor
8700 So. Western Ave.
Chicago 20, Illinois

The President's Message

I want to apologize for not attending our last meeting, May 4th, at Hickory Hills Golf Club. Sharon, daughter number two, was married on May 1st and was planning on leaving May 6th for San Francisco to live so thought it would be appropriate to have the bridal party together once more before her leaving.

I am happy that she married a fine young man from the west, a nice place to take a vacation sometime.

Am hoping that daughter number three will hold off another five or six years so dad can catch up on expenses.

It is very nice to have three fine daughters but to you younger fellows you had better raise a son now and then because daughters are very little help on a golf course.

On the more serious side I would like to see more fellow superintendents at our coming meetings to help support our arrangement committee on commitments to the fine clubs where our meetings are held.

I know that at our May meeting, everyone was in a pinch to get things done but for June let's all come out for a fine meeting.

Al Johnson, President

LAST MEETING

The May meeting of the Midwest Association of Golf Course Superintendents was held at the Hickory Hills Country Club on May 4, 1965. Our host for the day was Director, Ed Braunsky, Superintendent of Grounds and Mr. Marty Walsh, owner. The entire day was beautiful as well as the condition of the course. Ed has made many changes on the course since he took charge of maintenance some seven years ago. One can readily appreciate it after not seeing the course for several years.

The dinner was superb. Many thanks for such fine hospitality. The hot horsdoeuvres were delicious. Indidently, Mr. Walsh donated them. Thanks again for such a fine outing.

Over sixty members participated in the golf, dinner and meeting. Winners of the first golf event were announced by Ed Braunsky who also distributed prizes. The winners were:

Bob Goodman, Dudley Smith, Russ Reed, Adolph Bertucci, Tom Burrows, Bob Block, Clarence Mitchell, Bill Saielli.

Bill Stupple and Roy Nelson celebrated their birthdays at the meeting. They both claim to be 39.

The big item on the agenda was the Educational Program on Weed Eradication on Fairways led by Dr. Jack Butler of the University of Illinois. One question that we must consider is, "What kind of cover will we have if we kill all the weeds"? If we are going to be on the thin side we should inform the members of the problem and discuss the proper timing. You must know the weed control and its limits.

The biggest weed problem that was evident in the discussion was the control of the Knotweeds and Clovers. Varying results were obtained last year but it seemed to be tied to the time of application. Those that sprayed in the spring and early summer not only had good results last year but are still seeing good results this spring. Those that sprayed last fall, after the plants (knotweed) had seeded, had good results last fall but new seedlings were appearing this spring.

Adolph Bertucci was acting President in the absence of President, Al Johnson. Al's daughter Sharon was married on May 1, to Mr. Stephen O'Connor, and Al felt that he should spend one more day with her before they moved to California.

Joe Canale extended an invitation to the Midwest Association to hold their June meeting at his Club on June 7, 1965. Details will be sent to you by Secretary, Roy Nelson.

NATIONAL NOTES

New office space for National Headquarters has been found in the vicinity of O'Hare Airport in Chicago. It is located about five minutes travel time from the Airport administration building and is at the intersection of the Tri-State Tollway and the Northwest Tollway. It is just 20 minutes by car from the downtown area and is easy to reach regardless of the method of travel used to get there. The official address will be O'Hare Office Center, 3158 Des Plaines Avenue, Des Plaines, Illinois, but do not send mail to that address until notified.

Besides being easy to reach, the new location will have many other advantages for us. There is a Post Office Sub-Station just across the corridor from our office so mail will be received and delivered several times a day. There will be ample room for our people to work in the 2200 square feet alloted us and we can expect more from them along the line of membership promotion and service. A large conference room will be available for board meetings and for greeting superintendents or green chairman should they care to visit the office. The executive director has been instructed to give the VIP treatmen to member superintendents who drop in for a visit.

Bill Stupple and Roy Nelson congratulating each other on their 39th birthday.

TURFGRASS ACTIVITIES AT THE UNIVERSITY OF ILLINOIS

A cooperative program in turf research is carried on between Horticulture, Plant Pathology, Agronomy, the Natural History Survey and Southern Illinois University. Work done cooperatively with people from these areas include varietal selection and testing, nutritional studies, ecology of diseases, cultural and chemical weed control, lawn insects, etc.

Extensive testing of several named and recent selections of creeping bentgrass for disease resistance, texture, thatch development, etc., is in progress. Ten thousand individual seedlings of Merion Kentucky bluegrass have been planted into field plots. Preliminary investigations have revealed that there are a few Merion type which have rust resistance. Any of these plants carrying a resistance to leaf spot and coming true from seed will be put out for extensive testing. Additional variety testing is being done at DeKalb and at the Dixon Springs Experiment Station.

Nutritional studies are concerned with the role of micronutrients in turf development. Work on the correlation of soil nutritional levels as measured by soil tests to turf growth is being carried on at the Dixon Springs Station. This information is badly needed for soil test interpretations as related to turfgrass.

Investigations into the environmental effects upon turf diseases are being carried on. It is hoped that an accurate prediction technique can be formulated to be used in disease control. Nutritional effects on disease susceptibility are being studied using solution culture methods.

Both chemical and cultural methods of weed control are being investigated. Several chemical and mechanical developments in recent years have greatly facilitated weed control. Successful spring seeded turf can now be assured by using recent developments and findings.

Also, with sod webworm great strides have been made on investigations of the life cycle and control methods. Time of major infestations can be and are now determined and reported each year so that necessary control measures can be taken.

Other investigations have been and will be undertaken as problems arise.

UNIVERSITY OF ILLINOIS TURFGRASS PERSONNEL

Birkeland, Charles — Head, Department of Horticulture
Britton, Michael — Associate Professor of Plant Pathology, teaching and research
Boving, Peter — Assistant Professor of Agriculture Engineering, extension
Butler, Jackie — Instructor in Horticulture, teaching and extension
Fisher, James — Graduate student, research
Gartner, John — Head, Division of Floriculture and Ornamental Horticulture
Hall, Jack — Graduate student, research
Healy, Michael — Graduate student, research
Hodges, Clinton — Graduate student, research
Hodges, Thomas — Assistant Professor, research on turfgrass physiology
Moore, Stevenson — Associate Professor of Agriculture Entomology, extension and research
Nelson, William — Assistant Professor, landscape architecture
Petty, Howard — Professr of Agriculture Entomology, extension and research
Prahl, Edward — Technician in Horticulture
Shurtleff, Malcolm — Professor of Plant Pathology, extension
Slife, Fred — Professor of Crop Science, research
Taylor, Donald — Assistant Professor of Nematology, research

PRESS RELEASE

For release after May 20, 1965.

CHICAGO, ILLINOIS — A group of Chicago area club accountants have organized a national educational non-profit association to be headquartered in Chicago.

The association, The Club Accountants Association of America, was organized by: B. H. Bouey, Indian Hill Club; A. F. Evans, Park Ridge Country Club; D. W. Zienty, Merchants & Manufacturers Club; Eugene Foster, South Shore Country Club; William F. Kelly, Midlothian Country Club; A. C. Rosso, Beverly Country Club and R. C. Wallace, Medinah Country Club.

"EXCITING 18"

Here is a list of the most "exciting 18" holes in the Chicago Area as listed by the Chicago Daily News in a series of articles written by various Players.

Player	Hole	Yards	Par
1. Chick Evans	No. 1 Edgewater	358	4
2. Red McCarthy	No. 2 Chicago Golf	443	4
3. Sandra Fullmer	No. 9 Itasca	509	5
4. Fritz Franz	No. 14 Big Foot	352	4
5. Harry Pezzullo	No. 17 Beverly	205	3
6. Joe McDermott	No. 3 Palos	426	4
7. Chuck Eckstein	No. 15 Olympia Fields (north)	545	5
8. Tommy King	No. 17 Medinah #3	205	3
9. Jim O'Keefe	No. 9 Bob O'Link	419	4
FRONT NINE TOTALS		3,462	36
10. Stacy Osgood	No. 17 Flossmoor	465	4
11. Bob Harris	No. 7 Sunset Ridge	548	5
12. Dick Hart	No. 3 Skokie	215	3
13. Bud Gunn	No. 14 Olympia Fields (north)	425	4
14. Norando Nannini	No. 18 Tam O'Shanter	385	4
15. Tony Holguin	No. 2 Midlothian	203	3
16. Ace Ellis	No. 7 Medinah #3	598	5
17. Tom Milligan	No. 16 Point O'Woods	402	4
18. James McAlvin	No. 18 Knollwood	430	4
BACK NINE TOTALS		3671	36

TOTALS 7,133; 36-36—72

FROM NELS JOHNSON — TREE EXPERT

BIDRIN — A SYSTEMIC — PRESENT STATUS

Dutch elm disease, (Ceratocystis ulmi), was first diagnosed in Holland. During the late forties and early fifties the Hollanders attempted to control Dutch elm disease through injections of chemicals into the elms and through soil applications.

Although a few of the *"systemics" appeared to retard D.e.d.; because of injuries to the elms and unsatisfactory controls, the experiments were discontinued. Hydroxyquinoline Benzoate, one chemical used in Holland was later distributed in the U.S., for soil applications to control D.e.d. The results however proved nonconclusive and unsatisfactory.

During the last few years some twenty - thirty "cures" for D.e.d., have been promoted and sold to the American public. Because of an apparent public naive belief in miracles, the "fast buck" vendors always find buyers for their "cures".

Turpentine, salt, colomel, kerosene, sulphur, iodine and fancy soil mixtures, have in due time been debunked as D.e.d. cures. Unfortunately many tree owners have been "taken" by the enterprising tree quack doctors.

Fortunately, of late some new systemics, developed and backed by recognized, powerful chemical companies, show real evidence of controlling the bark beetles, carriers of D.e.d., and certain other insect pests. The Shell Chemical Company recently introduced a systemic, Bidrin; an organo phosphate (Dimethyl Phosphate of 3—Hydroxy N N—of the elms, not only destroying the carrier of D.e.d., but Bidrin also, through residual action, controls a number of defoliating and sucking pests.

Bidrin is now being marketed to persons certified by the Shell Chemical Company.

Today, an intensive search is going on for better methods of pest and disease control. Among the systemics, Birdin one of the first, appears to fill many of the necessary requirements.

The Shell Chemical Company however, through Dr. Hugh Thompson of Kansas University cautions against indiscriminate, careless usage of Bidrin.

Among the advantages of systemics and Bidrin over conventional spraying, Dr. Thompson offers the following:

(1) No area contamination or dispersal of pesticides where they are not wanted.
(2) Better distribution of the pesticide throughout the tree.
(3) Freedom from weather hazards. Injections can be made even during inclement weather.
(4) Elimination of heavy, expensive equipment.
(5) To the above I would add also that systemics can be applied to elms located in areas inaccessible to heavy spray equipment.

A true scientist, Dr. Thompson also notes a few disadvantages of Bidrin and cautions against wrecking a promising systemic D.e.d. control program just at its beginning.

Among the early disadvantages of Bidrin he enumerates the following:

(1) Short residual effect; about thirty days against bark beetles that carry D.e.d. Considering that the bark beetles begin to emerge about May 20, the recommended time in this area for treating elms with Bidrin is from April 25, to May 20. It should be noted however, that Bidrin is a new product that certainly will be improved for greater residual pesticidal actions.
(2) Narrow margin of safety between protecing the elms and causing injury.

(3) Bidrin is toxic to vegetation and animals, — including humans.
(4) Bidrin should not be applied to elms having D.b.h, (diameter, breast height) of less than eight inches or Moline elms of any size. Presently this precludes the use of Bidrin in young elm plantings and areas extensively planted with Moline elms.
(5) Considering that unquestionably most laymen and many "tree experts" "do not know a Moline elm when they see one" it can safely be assumed that elms will die at the hands of the "experts".
(6) For each individual elm the dosage of Bidrin must also be carefully computed or scorching, leaf fall and death can ensue.
(7) Because a crew of three workers can only inject some eighty elms per day, the treating of thousands of elms in any one community becomes a laborious task; particularly when treatments must be applied from about April 25 to May 20; — not quite one month. With improved residual effect however, this problem of labor will be dissolved.

Considering the past records of "systemics" and also their present limitations and advantages, Bidrin represents a definite "break through" that may completely change future methods of pest control.

In this area cankerworms, heavy defoliators, will soon apear. American elm, linden, fruit trees are favored food sources. Unless properly protected many trees may be partly or completely defoliated by "measuring" worms.

*Systemic—chemical that, if injected, translocates through the entire tree.

NITROGEN FERTILIZER

by
Eliot C. Roberts
Professor of Agronomy and Horticulture
Iowa State University
Ames, Iowa

The comment is made often that in using nitrogen fertilizers it is best to base rate and frequency of application on experience with the specific grass involved and not strictly on manufacturers directions. Because of the wide variation in plant response that can result from the use of nitrogen fertilizer it is important to know what to expect when various materials are used.

Facts of Life About Nitrogen

There are several key facts about nitrogen that must be understood before it can be effectively used in turfgrass fertilization.

First, nitrogen is the most important element in turfgrass production. Turf responds more to the presence or absence of nitrogen than to any other element. Too much nitrogen can be as detrimental to the turf as too little. Also, the nitrogen level within the plant often determines what effect other climatic factors will have on turf production.

Second, there are three different types of nitrogen fertilizers; i.e., inorganic, natural organic, and synthetic organic, but only two categories as far as use is concerned; i.e., fast acting soluble materials and slow acting insoluble materials. In general the fast acting soluble inorganics and certain synthetic organics must be applied in small amounts at frequent intervals. The slow acting insoluble natural organics and certain synthetic organics may be applied in large amounts at less frequent intervals.

Third, in soil, nitrogen is changed from the form in which it was applied to the nitrate form. Turfgrass may absorb some nitrogen in other forms, however, for the most part nitrogen nutrition involves nitrate nitrogen.

Fourth, turfgrass gets only the nitrogen that is left over after soil microorganisms get theirs. Usually a soil which is not microbiologically active does not produce high quality turf. It is important to recognize the value of soil born organisms and to realize that they utilize minerals from the soil and to this extent compete with the grass for some plant food.

Fifth, nitrogen response of turf is controlled by the type of nitrogen used and by how it is used. There are 17 different turfgrass growth responses that have been studied in research projects at Iowa State University during the past five years. Results of these investigations provide a rather complete picture of nitrogen effects on turf. They should help to make clear what can be expected from the use of a nitrogen fertilizer.

Nitrogen and Chemical Injuries

Fast acting soluble nitrogen fertilizers whether applied as liquids or as solids may severely burn foliage of turf if applied at rates in excess of 1 pound of nitrogen per 1000 sq. ft. These materials should be applied to dry foliage and watered in following treatment. Care should be taken to obtain even distribution of fertilizer. Avoid overlaps and adjust spreaders so that material is deflected and scattered before it hits the ground. The whirlwind type spreader scatters the fertilizer so that it is uniformly distributed.

Use of this type spreader eliminates the possibility of streams of material running out in rows on the turf and permits the safe application of fast acting nitrogen sources which are otherwise difficult to spread. It is often desirable to drag fertilized areas which cannot be watered so that materials lodged between leaves and on the foliage will be brushed to the soil surface. Where particles remain on foliage overnight they may dissolve in a heavy dew and cause foliar burn.

Nitrogen and Growth Stimulation

When temperatures are cool, light intensity is adequate, and moisture is readily available, nitrogen stimulates foliar production. Some minor differences in response are noted from time to time between varying nitrogen sources. For the most part these differences are due to the fast or slow acting properties of the fertilizer.

Nitrogen and Wilt

Nitrogen has a pronounced effect on both the rate of foliar growth and on total production of leaf tissue. Where grass receives excess nitrogen and where soil moisture and temperature are favorable for plant growth, the foliage that develops may become soft and succulent (filled with too much water for the amount of dry matter produced). Such foliage is susceptible to wilt any time the rate of water loss from the leaves is greater than water uptake from the roots. Soft succulent foliage wilts quickly and injury to the turf can be severe. Poa annua is particularly susceptible to wilt under these conditions. In order to avoid an increase in wilt from use of nitrogen fertilizers keep track of the total nitrogen being applied to greens throughout the season and avoid the accumulation of large amounts of slowly available synthetic nitrogen sources during warm weather. These nitrogen sources have been noted to breakdown and release nitrogen faster than desired during periods of hot humid weather. In general less nitrogen should be applied during the summer months than during spring and fall.

Nitrogen and Thatch

Grasses vary in their tendencies to form thatch. Those that are most likely to become thatched are especially vigorous growers and usually are very responsive to nitrogen fertilization. To keep thatch from developing at a faster rate than it can be removed fertilization must be carefully regulated. Growth rates should be stimulated by nitrogen only to the point where the turf has sufficient vigor to heal in quickly following injury and sufficient capacity to produce new foliage for proper play. Other elements such as

iron can be used to provide improved color if this is all that's lacking.

Once thatch has formed nitrogen is required by the microorganisms to decompose it. Topdressing thatched greens with soil to which fast acting nitrogen has been added should help to decompose these organic thatch deposits. Turf should be opened up by use of a verticle mower so that the topdressing can filter down into the thatch.

Nitrogen and High Temperature Effects

It has been noted that when temperatures are cool (65 to 80° F) nitrogen fertilizer stimulates growth of foliage; however, when it is hot (80 to 95° F), nitrogen reduces growth of foliage and weakens turfgrass stands. During hot weather high phosphorus added to high nitrogen further reduces the vigor of fine turf, but high levels of potassium help to harden off the tissue and thus increase turf vigor. Because of these relationships between nitrogen and high temperature, it is important not to use too much nitrogen during warm weather.

Nitrogen and Nutrient Balance in Turfgrass

Nitrogen is absorbed by grasses in larger amounts than any of the other mineral nutrients. Once nitrogen is absorbed and is inside the grass plant it must be assimilated or used in order to have a beneficial effect on plant growth. The use of nitrogen within the grass plant depends on the presence of other nutrients in the proper proportion one to the other and on several other physiological or growth factors.

When nitrogen is deficient for a period of time while other nutrients are readily available, the plant becomes unbalanced with respect to its mineral nutrition. It absorbs more of some nutrients than can be used because of the lack of others. If adequate nitrogen is applied to a turf which has become unbalanced because of lack of nitrogen, the grass will quickly absorb the added nitrogen. This nitrogen accumulates in the tissue and is slow to be used because the unbalanced nutrient condition is slow to adjust. Our studies at Iowa State University have shown that bluegrass turf can be produced with 4.5 to 5% nitrogen in the foliage and with other essential elements applied in adequate quantities to prevent the formation of deficiency symptoms, but not applied in proper balance. The result has been the development of yellow chlorotic foliage because although ample nitrogen was available to the plant, it could not be utilized. Nutrient unbalance prevented this nitrogen utilization.

Nitrogen Effects on Root Development

Turfggrass which is clipped high; i.e., above 1½

inches produces increased root systems under low nitrogen. In this instance the lower nitrogen level reduces the rate of foliar growth so that organic energy sources within the plant can be diverted to increased root development. As the clipping height is lowered and leaf surfaces available for photosynthetic processes are reduced, the amount of organic energy sources becomes less. Nitrogen is needed under these conditions to stimulate foliar growth so that the amount af these energy sources may be increased for root growth. In general, any time nitrogen increases foliar growth past the point needed to supply a base level of organic energy sources for foliar and root growth, the turf will produce excess foliage at the expense of the root system.

Nitrogen and Moisture Stress Effects on Foliage

Turfgrass grown under conditions of moisture deficiency is generally susceptible to extremes of other growth factors in the environment. For example, growth of turfgrass foliage is reduced by lack of available moisture when grown under medium levels of nitrogen; however, growth is further reduced when nitrogen levels are either low or high. Since fairways and trees may often suffer from a lack of moisture it is important to keep these turf areas well fertilized, but not over fertilized. Since greens are more likely to be over watered than under watered this growth response is not believed to be important in these areas.

Nitrogen and Moisture Stress Effects on Roots

Nitrogen fertilization also effects root growth under moisture stress. Where medium to high rates of nitrogen are used root growth remain unchanged as moisture becomes less available. Where nitrogen is kept low root growth increases as moisture levels become lower. Apparently a lack of available moisture in some way stimulates root development as long as nitrogen is not readily available to stimulate foliar growth processes. In the fall foliar growth rates are relatively slow and under these conditions the level of nitrogen appears to be less critical.

Nitrogen and Winter Desication

Cold dry winds blowing over the surface of a green that is not protected by a cover of snow often cause severe drying out or desication of the turf. Use of nitrogen fertilizer in the fall helps to produce deeper grass roots that can draw water from a larger volume of soil. Where greens are fertilized with slow acting nitrogen sources growth continues as long as soils remain warm enough for microbiological breakdown of the nitrogen carrier. Since days are shorter at this time of year than in the spring and since light intensity is usually less the turf has a better chance to utilize the added plant food in root production rather than in foliar growth. The development of a sturdy root system not only helps protect against winter desication, but also permits the grass to make a faster start in the spring.

Nitrogen and Rust Disease on Merion Bluegrass

Rust caused by the fungus Puccinia spp. can be serious on Merion bluegrass. Field studies have shown that when Merion bluegrass is watered well and fertilized with plenty of nitrogen, rust infection is substantially reduced. It has been theorized that the increased growth rate resulting from use of adequate water and nitrogen permits the turf to replace diseased tissue faster than the disease can spread. Close observation of Merion bluegrass turf has shown that some plant parts do not make rapid growth

even though the turf is watered and fertilized. These parts do not become as heavily infected with rust as similar plant parts on under watered and fertilized turf. This suggests that the level of moisture and nitrogen effect internal growth processes which help to render the turf more resistant to disease.

Nitrogen and Leaf Spot Disease on Bluegrass

Leaf spot caused by the fungus Helminthosporium spp. is the most damaging disease which attacks bluegrass. Both field and greenhouse studies have shown that where moisture levels are high and where nitrogen supply is plentiful bluegrass is more susceptible to leaf spot. Under these conditions not only are there more lesions per leaf, but the average size of the lesions is greater. During the period in late spring and early summer when climatic conditions are favorable for the development of this disease, nitrogen levels should be reduced and water applications made with care.

Nitrogen and Disease Complexes on Bluegrass

Often the disease causing fungi attack turfgrass as a group. Resulting disease complexes are usually quite lethal. Helminthosporium, Curvularia, and Alternaria have been noted to infect bluegrass turf during periods of hot humid weather in late summer. The disease develops in saucer shaped patches that result in near 100% kill of the grass. Nitrogen fertilizer studies have been conducted in areas where this disease complex has been common. Results indicate that under high nitrogen treatments diseased patches were reduced by 80% in comparison with low nitrogen treatments. In addition the diseased grass found under high nitrogen treatments was not completely killed and recovered quickly during favorable fall growth conditions. Diseased grass in the low nitrogen treated plots was completely killed and spots were slow to fill in. All disease complexes do not respond to nitrogen fertilization in this way; however, this response is typical of the pronounced effect that nitrogen has on resistance of turfgrass to infection by disease complexes.

Nitrogen and Dollar Spot Disease on Bentgrass

Dollar spot disease is caused by the fungus Scolerotinia homoeocarpa. This disease is much more pronounced under low levels of nitrogen than under high nitrogen fertilization. Differences in nitrogen source have also been noted. Where 10 lbs. of nitrogen was applied per 1000 sq. ft. per season all nitrogen sources resulted in three or more dollar spot scars per square foot except the natural organic fertilizer Milorganite which had only one scar per square foot. At a 5 lb. rate of nitrogen per 100 sq. ft. the number of scars varied from about 5 to 11 per square foot. Where turf was not fertilized with nitrogen 17 cars were noted per square foot. More research information is needed to determine why these differences occur. It is asumed at this point that the nitrogen level within the plant in some way affects the infective nature of the fungus.

Nitrogen Brown Patch Disease on Bentgrass

Brown patch disease on putting greens is caused by fungus Rhizoctonia solani. This disease is often more serious where greens are heavily fertilized than where they receive only moderate levels of nitrogen. In this instance the nitrogen disease relationship is not clear cut. Our studies at Iowa State University have not shown disease incidence to be increased under high nitrogen treatments.

(Conclusion and Summary next month)