SEPTEMBER, 1967
VOL. 20. NO. 15

The Bull Sheet

Official Bulletin
Midwest Association of Golf Course Superintendents

NEXT MEETING

KNOLLWOOD COUNTRY CLUB

LAKE FOREST, ILLINOIS

Host: Butch Bernardino

FRIDAY, SEPTEMBER 8, 1967

IN THIS ISSUE

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

TOM BURROWS, Editor
1648 Prairie
Northbrook, Illinois 60062

GOLF REPORT

by Oscar Miles

Did you miss playing at Prestwick Country Club in our August golf outing? If you did, you missed playing on one of the finest conditioned, modern golf courses, with bluegrass fairways, in Chicago.

Mr. Dick Trevarthan, our superintendent host of Prestwick Country Club, had every conceivable area of his golf course in excellent condition. The big Penncross greens and Merion tees were the talk of all members.

With the playing conditions perfect as a result of Mr. Trevarthan and his crew's hard work, Mr. Bill Hargrave, superintendent of Kankakee Country Club, played a fine round, this beautiful day, and shot 77, 5 over par.

The following members or guests won prizes:

Mr. William Hargrave, Kankakee C. C., Low Gross 77
Mr. Dick Trevarthan, Prestwick C. C., Best Ball Team — 72
Mr. Roy Nelson, Ravisloe C. C., Best Ball Team — 72
Mr. Mike Bavier, Calumet C. C., Best Ball Team — 72
Mr. Jim Reid, Prestwick C. C., Best Ball Team — 72
Mr. George Druzisky, Thorngate C. C., 1st Low Net
Mr. Dan Fearis, 2nd Low Net
Mr. Andy Voykin, Idlewild C. C., 3rd Low Net
Mr. Walter H. Fuchs, Glen Eagles C. C., 4th Low Net
Mr. Carl Habenicht, H & E Sod Nursery, 5th Low Net
Mr. Tom Burrows, Glencoe C. C., 6th Low Net
Mr. Ray Didier, Didier Inc., 7th Low Net
Mr. Jim Larson, 8th Low Net
Mr. Vern Roscher, Roseman Mower Co., Longest Drive

ILLINOIS TURFGRASS FOUNDATION

1. FIELD DAYS at University of Illinois, Urbana, September 11, 1967.
2. ILLINOIS TURFGRASS CONFERENCE at University of Illinois, December 8 & 8, 1967.

Dudley Smith, 1967 President

NEW MEMBERS

The name of prospective member and his two sponsors will appear in the Bull Sheet prior to his acceptance as a member by the Executive Committee. Any objection by our members of the prospective member's qualifications may be voiced in a signed letter to the President within ten days after receiving the Bull Sheet. Any objections received will be heard by the Executive Committee prior to the candidate's acceptance.

Dudley Smith

New Members

1. Raymond Schmitz
   1134 S. Nashville
   Worth, Ill.
2. George Haddna
   169 Nanti St.
   Park Forest, Ill.
   Swift Co.
3. James Reid
   R. R. 1
   Caledonia, Ill.
4. Dave Fearis
   Prestwick C. C.
   Frankfort, Ill.
5. Mike Redmond
   14 N. Broadway
   Watertown, S. D.
   (Ravisloe C. C.)

PURDUE FIELD DAYS

October 2, 1967

Lafayette, Indiana

"Your Telephone Personality"

WHEN RECEIVING A CALL
ANSWER PROMPTLY

When your telephone rings get the conversation off on the right track by answering promptly . . . at the first ring if possible. Otherwise your caller may hang up and take his business elsewhere.

Prompt answering helps build a reputation of efficiency for you and your company.

IDENTIFY YOURSELF

For example, say, "This is Jones," "Order Department—Miss Johnson"—or "Dunlop & Grant, Mr. Grant."

Avoid the time wasting, out-of-date "hello."

REMEMBER TO SPEAK DISTINCTLY

You can't do it with gum, candy or pencil in your mouth! And it's not necessary to shout. A loud voice sounds gruff and unpleasant over the telephone. It is equally unpleasant to listen to someone who whispers or mumbles.

AND BE FRIENDLY

Make the caller glad he called **your** company rather than another. Give him your undivided attention. Take advantage of opportunities for being helpful and informative.

It's friendly, too—to say, "Will you wait—or shall I call you back" when you must leave the line to get information. It gives the caller a choice of waiting on the line—or having you call back with that information. He'll like that!

KEEP YOUR PROMISES

A broken promise may mean a canceled order . . . a lost customer . . . and many months of trying to regain his good will. If you make any promises to call back with more information, or about delivery or stock—do everything you can to follow through. If you are careful about this you will build a reputation for being reliable and trustworthy.

LET THE CALLER HANG UP FIRST

It's courteous to wait for the caller's good-bye. And if you're not too hasty, it may be profitable in last-minute orders or special instructions.

GOING OUT?

Don't forget to leave word. Tell the person who'll answer your telephone where you can be reached and the time you'll be back. That way, you will get all your messages.

Left to right — Jim Johnston, Walter Fuchs, Sr.

Left to right — Marv Gruening, Ed Stewart, Chas. Schultz, Tony Meyer.

Left to right — Oliver Miles, Roger LaRochelle, David Fearis.

HOLMES CORNER

By James L. Holmes
USGA Green Section
Mid-Western Agronomist

I spent the first two weeks in July making visits in southern Indiana and Kentucky. The problems these men have maintaining adequate turf and playing conditions are manyfold. I have repeatedly heard, and it is true, that in this transition area there simply is not a grass suitable, especially for use on fairways. As well, it is extremely difficult to maintain what would be considered top putting conditions during July and August every year. The question asked most frequently is, "just what can we do in order to develop suitable fairways?" To the best of my knowledge and observation, there simply is no answer to this dilemma.

Up until about 5 years ago, the thought was that Bermudagrass, primarily U-3, was the solution; that is, if the club had sufficient funds to establish this turf. During the past 5 or 6 years, the malady referred to as spring dead spot, as well as winter-kill itself, has greatly reduced Bermudagrass strands in this transition area. A few have made sincere and expensive attempts to establish and maintain bentgrass. To date, results have not been particularly encouraging, even though some superintendents think they can do it.

Gordon Duguid, golf course superintendent at Big Springs Country Club in Louisville, inherited eighteen U-3 Bermudagrass fairways. He was aware that gradual to extensive winter-kill was expected. As a precaution, Gordon developed a large Meyer Zoysia nursery. Sure enough, the expected winter-kill was real and for the past 3 or 4 years, Gordon has been plugging, stripping and sodding-in Bermuda dead spots with sod from the Zoysia nursery. If this operation continues as planned, Big Springs Country Club will have Meyer Zoysia fairways for all intents and purposes within the next ten years. To date, no specific winter-kill problems have developed on Meyer Zoysia. The development of a thick mat and thatch continues to be a problem. But, machines are becoming available which can cope with this mat situation. Regardless, we must be patient a little longer to determine if diseases will "catch up" with Zoysia as they have with Bermuda.

Another method initiated by a few men in Kentucky is to overseed fairways heavily with common Bermudagrass in spring. A number of different types of Bermuda develop from overseeding, and a few of these at present seem to be quite winter-hearty and may gradually present a usable turf. Nonetheless, we have pretty well come to the conclusion that even if a certain Bermudagrass is selected, diseases will gradually catch up, or problems will develop.

While there, I got into a discussion with a few of the boys regarding pros and cons of removing "dew" from putting greens, or any turf for that matter. Upon returning to the office, I checked into this a little more closely and the following was submitted to Tom Sams, superintendent at Audubon Country Club, and editor of KENTUCKIANA KLIPPINGS, for use in their publication. I thought perhaps it might be of interest to readers of the BULLSHEET.

There seem to be three good reasons why benefits are obtained if "dew" is removed from grass in early morning, and no reason except labor why it shouldn't be done.

1) Golf course superintendents report that a better job of mowing can be done if moisture is removed.
2) On days when greens are not to be mowed, the early morning golfer benefits from a better putting surface and drier feet.
3) But without doubt, the most important reason and the one least understood, is that of guttated water. I have been familiar with this for a number of years, but in order to freshen my memory and to pick up anything new, I placed a long distance telephone call to my professor and advisor at the University of Rhode Island, Dr. Frank L. Howard, Head, Department of Plant Pathology and Entomology. As a result of our discussion, the following seems to be the crux of the situation.

   It has been proven that plant juices are extruded from cut ends of leaf blades through hydathodes or more specifically from ruptured veins. This extruded material contains glutamine as well as numerous salts in solution. Actually, these materials can give a salt burn later in the day when water of solution has evaporated. However, Dr. Howard said this is not of particular significance.

   But, a number of fungi find subsistence in extruded (guttated) water when such subsistence is found, filaments or hyphae of the fungus can enter leaf tissues, probably through vein endings. It would be difficult to conceive of a better prepared or more appropriate site of infection for parasitic fungi.

   Most of the water or moisture present on putting green grass, or any rapidly growing plant for that matter, is not a result of dew formation, but rather develops as discussed above from extruded water and solutes. Specifically when dew forms, a relatively thin film of water covers entire surfaces such as a plank, a rock or for that matter the flat surface of growing plants, and droplets are not formed. Any droplets noticeable or which have formed in effect must result from guttated moisture

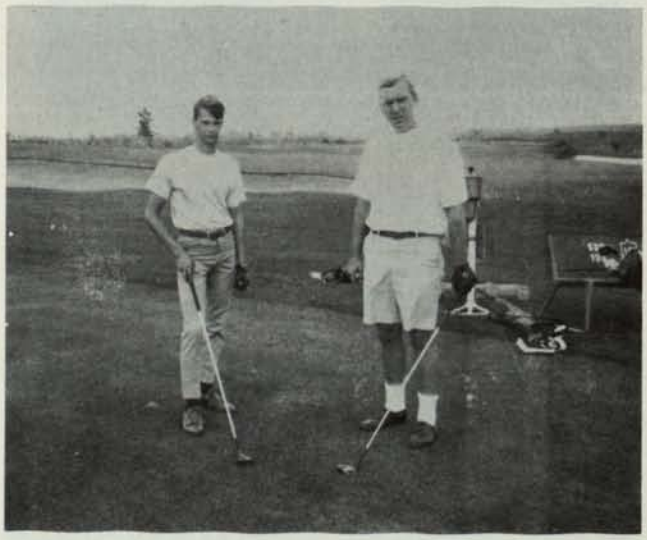
HOLMES CORNER — Continued

which contains nutrition for fungi. It would seem as a result of numerous observations that the vast majority of surface moisture on putting greens results from this guttated water phenomenon and not dew formation. Most moisture is extruded during cool nights following hot days.

Even though a number of fungi can subsist and get started in guttated water, Dr. Howard said the most active or damaging fungus in this regard is the one which causes dollar spot or **Sclerotinia homoeocarpa.** This is quite interesting as at the time of my visit in Kentucky, dollar spot was definitely a problem and had been for some time.

There seems to be little or no doubt whatever that removal of guttated water whenever it forms, but specifically in early morning hours, gives a significant assist in retarding disease conditions and especially the disease condition brought about by dollar spot fungus. This might be of interest to Gordon Leishman, pro-superintendent at Idle Hour in Lexington, and also the superintendent at Louisville Country Club, as these two men are attempting to grow bentgrass fairways. This grass is especially susceptible to dollar spot. The removal of guttated water from fairway areas, especially when dollar spot is a visible and known problem, is likely to be of highly significant importance to them. In early morning hours when dew, dew drops or guttated wate are visibly apparent on bentgrass fairway turf (or greens for that matter), inspect cut end tips closely and you will note that hyphae of dollar spot fungus is bridging from one guttated water drop to the next.

Even though I referred to removal of dew or guttated water by poling, there are a number of methods which can be followed. All such methods seem to be successful. As well as poling, many golf course superintendents remove dew when greens are mowed in the morning with the mower itself. Others use such things as hoses, dragging them over greens, or watering greens lightly. For removal of morning moisture from fairway turf, a hose drug between tractors seems to be the most accepted method and one of greatest celerity. As far as that's concerned, any method for removing guttated water from grass would be o.k.



Left to right — Mike Redmond, Art Hall

WHY INSIST THE ENGINEERS SEAL PLANS

The Illinois Professional Engineering Act requires all plans, drawings and specifications prepared by a Professional Engineer, or prepared under his supervision, to bear his seal which shows his name and registration number.

The following are some of the reasons for the above requirement:

An engineer's seal on plans —

1. is a symbol of competency, for to use such a seal a man must be qualified through examination and registration.
2. pinpoints responsibility and tells the client who actually was responsible for the design.
3. gives stability, quality and authority to plans and drawings.
4. seeks to protect public health, safety and welfare.
5. provides legal record, long after the project is completed one can look back at original plans and determine the person responsible.
6. makes it difficult for unregistered persons to falsely claim engineering ability.
7. establishes a criteria, for persons without seals have probably not passed their registration examinations.
8. lends dignity to the engineering profession.

C. E. Stewart

Debunk Myths About Weather

By Ronald Kotulak

Reprinted from Chicago Tribune, July 6, 1967

What's causing Chicago's bad weather?

After suffering through record snows and tornadoes, heavy rains and the coldest July 4 in history, many Chicagoans are wondering if man is changing the climate by tinkering with his environment.

Yesterday's low temperature was 50 degrees at Midway airport, breaking the previous record for a July 5 of 52 degrees set in 1872. Tuesday's mean temperature of 59 degrees was the coldest July 4 on record.

Atom Bomb Theory

According to the skeptical weather bureau, the most popular public theory that supports the reason for the weather changes is the explosion of nuclear bombs.

Coming up fast in second place is the air pollution theory. Advocates of this theory hold that increasing amounts of air pollution are playing havoc with our normal weather.

The space age, with rockets going in and out of the earth's mantle of air, and high flying jets that leave vapor trails are also becoming prime suspects as weather changers.

But the weather bureau discounts all of these theories.

"We have always had unusual weather and people have always looked for an unusual explanation for it," said Joe R. Fulks, chief of the weather bureau's Chicago area office.

Chicago's recent cold temperature was due to a complex combination of clouds, snow, oceans, mountains, forests, winds, and other factors that pushed a mass of chilly air down into the midwest from Canada, Fulks said.

The atom bomb theory looks good to many people because it releases a lot of force and produces fallout, he said. But a small thunderstorm will produce more power than many atomic bombs, Fulks said.

The eruption of a large volcano, on the other hand, can affect the weather because it sends up huge amounts of fine particles into the atmosphere where they can interfere with the radiation or possibly form clouds.

Air pollution may have a small local effect on the temperature but it can't be blamed for causing the massive weather changes that have plagued the Chicago area for the last six months, Fulks added.

Keeps Heat Near Earth

What does have meteorologists and other scientists concerned, however, is the increasing amount of carbon dioxide that our exhaust pipes and smoke stacks are pumping into the atmosphere.

Some scientists suspect that the carbon dioxide may trap heat that ordinarily escapes from the earth, thereby raising the temperature slightly.

"People will grab at any straw," Fulks said. "In the 1920s some people used to think that because radio was relatively new that it was the radio waves that were causing the unusual weather then."

Man's Efforts Puny

Fulks said that there is a tendency to associate a man-made cause to weather changes. Chicago's cold weather over the Fourth of July holiday period gave a boost in some circles to the atomic bomb weather theory because it came shortly after the Red Chinese exploded a hydrogen bomb, he said.

"Man's handiwork in whatever form is too small to affect the enormous natural forces that are involved in our daily weather conditions," he said.

"The weather is still natural, still variable, and still ususual." However, the effect of man's creations on the long-range weather pattern is another matter and it is now being studied, he said.

Main Factors Known

While weathermen do not know all the factors that affect the weather they do know the main ones. The radiation and warmth from the sun is the over-all controling factor of our weather.

The way of heat is distributed around the world affects the climate. Cloud coverings are important because they block off the heat from the sun, causing the temperature to fall below them.

Other important factors are the temperatures of the oceans, and the geology of the land. Winds are generated when there is a difference in temperatures.

Turfgrass Improvement Through Breeding and Selection

The program is being worked on with the co-operation of Joint Highway Research in the School of Civil Engineering. The work being done here at Purdue has a **two-fold purpose. One,** we are looking for a vigorous, medium-growing selection for roadsides. The **second purpose** is to find a low-growing, semi-dense, disease-resistant selection for turf areas such as golf courses and home lawns.

Certain basic rules for breeding and selection have been followed to make the bluegrass program more efficient. First, a large amount of diverse germ plasm has been obtained in several different ways. Local and golf club; Nugget, cold tolerant from Alaska; and foreign field collections are being used: 16-B, Chicago Northport, from Europe. Selections from other institutions were obtained, and well-known and widely-used varieties such as Merion bluegrass are included. Other sources of diverse germ plasm would be the artificial mutigens such as radiation and chemicals which are known to increase variability.

A second basic principle would be the need to understand and know the plant so that large numbers of perennial plants can be maintained and evaluated efficiently. The cytological differences (chromosome number and embryogenisis) must be studied and also whether the plant is apomitic or cross-fertile. This better allows a breeding program to be established. Another example of increased knowledge would be in the greenhouse where early selection allows the research time to be used on the better plants.

Another rule would be that there must be a selection pressure or a survival of the fittest plants. This will lead to an increase in the frequency of superior genotypes in the plant series, and thus, provide better material for plant selection. The following is a list of selection differentials which we are using here at Purdue: differences in mowing heights, insect and disease infestations, shade, nutrient level, and seed production capabilities.

A fourth and final rule is that we must have time to do the research. Dr. Daniel has stated that it will be at least 1970 before the current selections of Anheuser Dwarf, 16BB56, RI-10, and AQ6 will be released in limited quantities. It will probably be 1975 before my work is ready to be used. This is because of the volume of testing, the small quantity of seed, and also the time required for acceptance by the public.

This work at Purdue has been carried on since 1945. At that time a few apomitic selections were studied, but it soon was realized that variation was the real key to success. Dr. Daniel has kept the program flexible, and thus, the program has the needed diversification to allow selection of different type bluegrasses for different uses.

Including this year's space planting, over 10,000 plants have been selected for testing in the past three years. This last fall work was started with increased plot plantings. This includes two hundred fifty plots from selections obtained from plots sizes three by five feet, and three by ten feet from some of our present best material.

After one month seedlings were selected out of plot material for individual transplant into four inch pots for greenhouse increase over winter. This will be the material for the present 1967 space planting. This coming spring and summer observations will be continued on space plants, sprig plants, and plots. Vegetative and seed increases of outstanding individuals will also be made.

At the present time bluegrasses are being selected using I.B.M. cards and a card sorter (I.B.M. machine number eighty-three). This allows the seventy-two thousand bits of data to be analyzed at six hundred pieces per minute. Besides being faster, it is also more convenient to remember data by use of an I.B.M. card.

Hopefully, this I.B.M. process will better allow selection of that new bluegrass or bluegrasses. At the present time three thousand, seven hundred of the original three thousand, nine hundred plants have been discarded. This leave five per cent of the total population to be used for further work in the selection of that new variety of the future.

Terrance P. Riordan, age 24; Zion, Illinois.
Ateended Bradley University 1961-63.
Presently working toward M.S. at Purdue.
Received B.S. from Purdue University 1965.
Worked at Bob-O-Link Golf Club summer 1964.
Former Golf Course Superintendents' Scholarship Recipient.
Avid golfer.

Will to Win

The late Knute Rockne, famous coach of Notre Dame University teams, in talking on "Athletics and Leadership", said: "Some of you may say that this will to win is a bad thing. In what way is it a bad thing? Education is supposed to prepare a young man for life. Life is competition. Success in life goes only to the man who competes successfully. A successful doctor is a man who goes out and wins — saves lives and restores men to health. A successful lawyer is the man who goes out and wins — wins law cases. A successful sales manager is a man who goes out and wins — sells the goods. The successful executive is a man who can make money and stay out of the bankruptcy court. There is no reward for the loser."

ARMOUR

"For professional turf"

To keep your course in championship condition, look to Armour for a complete line of golf course fertilizers and Turf Protection Products. "For Professional Turf" is the real reason for the rapid success of the Armour Turf Program. Vertagreen Tee-Green, Tournament, Vertanite, and Vertagard Turf Protection Products—every product recommended as part of this new program is made ESPECIALLY for professional golf turf. The new Armour Turf Program is the answer to keeping your course in professional shape. And, every product is backed by reliable Armour Research and the services of experienced Armour representatives. One of them will be by to tell you more, but if you are as anxious as the rest of the "pros", just drop a line to:

ARMOUR TURF PROGRAM

P. O. BOX 1685 • ATLANTA, GEORGIA 30301

It's easy . . . with Darling's complete line of top quality turf and garden foods. Now, you can select the proper product "balanced" for every turf feeding.
Darling's soil builders are pelleted for better, more even distribution. They won't burn when used according to directions . . . and they're formulated specially for the job to be done.

DARLING'S

Darling & Company / Lawn & Garden Division
4201 S. Ashland Avenue • Chicago, Illinois 60609

Darling's keeps fairways, greens, trees and shrubs in top condition . . . looking beautiful all through the growing season. Look to Darling's for the complete line of balanced, pelleted, turf and garden foods . . . and you'll be "growing our way".
Darling & Company is centrally located . . . no delivery problems . . . no more missed schedules . . . fewer lost days.

TORNADO INFORMATION...

WHERE TORNADOES CAN OCCUR:
Any place in the United States at any time of the year. They happen most frequently in the midwestern, southern, and central States from March through September.

HOW OFTEN DO THEY OCCUR:
The average number of days with tornadoes per year, based on records of recent years, ranged from 41 in Texas to less than 1 per year in States of the Northeast and Far West.

HOW TO RECOGNIZE A TORNADO:
Usually a funnel-shaped cloud, spinning rapidly, and extending toward the earth from the base of a thundercloud. When close by, it sounds like the roar of hundreds of airplanes.

TORNADO "WEATHER":
Hot, sticky days with southerly winds and a threatening, ominous sky. However, many such days occur without tornadoes.

CLOUDS:
Familiar thunderstorm clouds are present. An hour or two before a tornado, topsy-turvy clouds appear sometimes bulging down instead of up. The clouds often have a greenish-black color.

PRECIPITATION:
Rain, frequently hail, preceding the tornado, with a heavy downpour after it has passed.

TIME OF DAY:
Mostly between 3 and 7 p.m. but tornadoes have occured at all hours.

DIRECTION OF TRAVEL:
In most cases they move from a westerly direction, usually from the southwest.

LENGTH OF PATH:
Usually 10 to 40 miles (the average length is 13 miles), but they may move forward for 300 miles.

WIDTH OF PATH:
The average width is about 250 yards, but they have cut swaths over a mile in width.

SPEED OF TRAVEL:
25 to 40 miles per hour average, but they have varied from stationary to 68 miles per hour.

WIND SPEED:
Estimated more than 300 miles per hour within the tornado.

CAUSES OF DESTRUCTION:
(1) Violent winds which uproot trees, destroy buildings, and which create a serious hazard from objects blown through the air.
(2) Differences in air pressure which can lift people and automobiles and can cause buildings to collapse.

LEAFHOPPERS

by Stan Rachesky
Extension Entomologist, University of Illinois

Leafhoppers occur on almost all types of plants including forest, shade, and orchard trees, shrubs, grasses, flowers and many field and garden crops. They principally are on the leaves of their food plant. The food of most species is quite specific. Therefore, a specialist in this group of insects can determine the insect, food, or country of the specimen.

Most leafhoppers have a single generation a year. However, there are a few with 2-3 generations per year. The winter is passed either in the adult or egg stage depending upon the species.

There are many economically important pest species in this group and they cause 5 major types of injury to plants:

1) Some species on apple trees remove great amounts of sap and reduce the chlorophyll in the leaves; the leaves then become covered with very minute white or yellowish spots, and with excessive feeding the leaves turn yellowish or brownish.

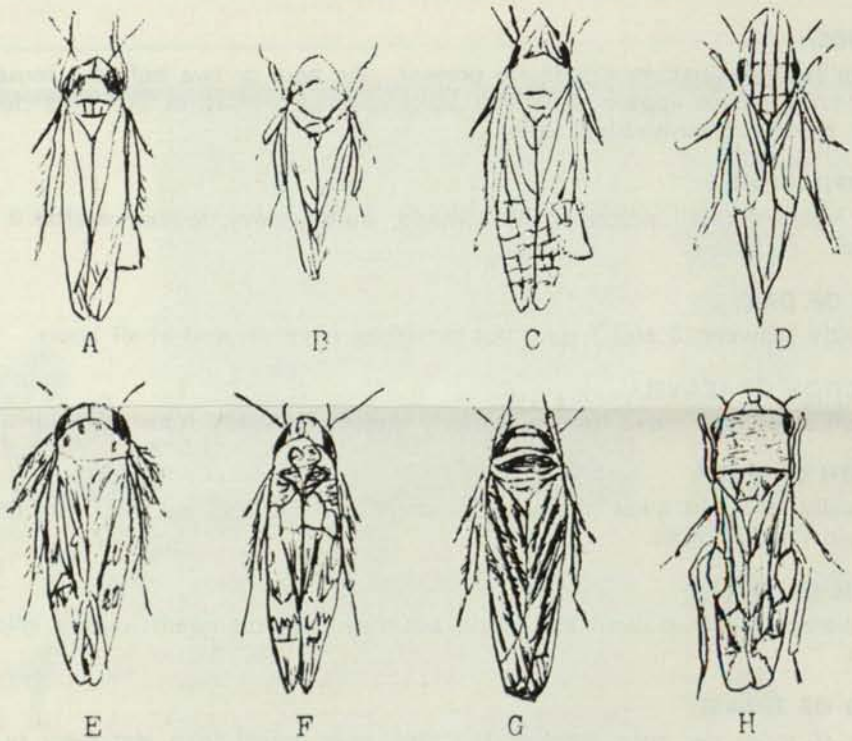
2) The potato leafhopper can interfere with the normal physiology of the plant, mechanically plugging the phloem and xylem vessels in the leaves resulting in impaired transportation of food materials. Browning of the outer edges of the leaves and eventually the entire leaf is the result.

3) Some species oviposit in green twigs resulting in damage.

4) Many species of leafhoppers are vectors of disease organisms that cause plant diseases. Examples: yellow dwarf, phony peach, disease of grape, corn stunt, aster yellows, phloem necrosis in elm, curly top in sugar beets, etc.

5) Some species cause stunting due to the inhibition of growth on the under surface of the leaves where leafhoppers feed.

For control of leafhoppers on flowers and shrubs use carbaryl (sevin) 50% wettable powder or DDT 25% emulsifiable concentrate. Spray foliage thoroughly. Repeat treatments if necessary. For control of leafhoppers on turf use carbaryl (sevin) 50% wettable powder, 8 oz./10,000 square feet or methoxychlor 25% emulsifiable concentrate, 4 oz./10,000 square feet.



LEAFHOPPERS: A, the potato leafhopper, Empoasca fabae (Harris); B, Xerophloea major Baker; C, Draeculacephala mollipes (Say); D, Hecalus lineatus (Uhler), female; E, Circulifer tenellus (Baker); F, Erythroneura vitis (Harris); G, Tylozygus bifidus (Say); H, Oncometopia undata (Fabricius). (Courtesy of the Illinois Natural History Survey.)

Future of Golf Course Grass

I have been asked to look into the future of golf course grass and do some guessing as to what changes we might see in the next twenty years.

It seems inevitable that many new strains of grass will come and go in the next two decades. There is considerably more breeding and selection underway in Blue grass, Fescues and Rye grass than there has been in the past and although the 1930's saw more selection being done with the Creeping Bents there are numerous strains of this grass in test plots around the country.

From this activity there will be numerous strains to pick from and both from the selection work of the originator and practical experience, grass should be available for very specific use areas. Such conditions as shaded locations, heavy traffic areas, droughty hillsides, low moist areas, and possibly much better defined geographical and climatic areas of adaption.

New material is being produced and distributed for testing, but it is in the testing of new strains that I believe the greatest change will be seen.

Procedures for testing are varied today. New varieties showing promise developed by public experiment stations are distributed to other such stations for additional evaluation. This work is done on relative small plots in areas generally of limited traffic. Commercial breeders are confining most of their testing to plots under their control and supervision. The link that is missing is wide spread testing under practical conditions and use.

The pie greens established in the late 30's at many golf courses for the purpose of evaluating creeping bents collected by the Greens Section of the USGA was a very useful method of screening. It would seem that a similar program could be organized in the years to come, for who is better equipped to maintain such plots and capable of practical evaluation than a Golf Course Superintendent.

A program such as this would have numerous aspects, needing careful thought and planning. Two that immediately present themselves are: Who bears the cost of such a project and, How are the proprietary interests of the developers or breeders protected? Two recently formed National Associations, The Commercial Plant Breeders and The Sod Producers could be a factor in working out details.

Fairways should see the most dramatic change in the coming years. There are several blue grasses under test today that are demonstrating the ability to perform well at mowing heights under one inch. The unanswered problem with these grasses today is how to selectively control creeping bent. None of the blue grasses are good competitors against bent, especially under the conditions, adequate moisture and short mowing, of a modern fairway. We must look to the chemist for this answer, but because of the extreme differences in these grasses it seems very probable that it will be forthcoming, and the next twenty years will see fairways that match the excellence of our modern greens.

Some of these new blue grasses selections will undoubtedly find their way to tees and do a better job than the grasses available today, but although there is promise in some grasses of being able to stand the foot traffic on a tee, there is little to encourage one to think we may someday have a grass capable of resisting the onslaught of a husky man armed with an iron club. The answer probably lies in larger tees and grasses capable of rapid recovery from injury.

Finally the coming years should see gradual improvement in the year round density and disease resistance of the grasses used on sports areas. This should be accompanied by a gradual reduction of our reliance on chemicals for weed and disease control. Combine progress in this area, with a better understanding of growing media to avoid compaction, relief from thatching through varietal improvement as well as equipment inovations such as removal of clippings and dead grass leaves simultaneously with the mowing, we should see a trend in the coming years of progress being measured in terms of simplification rather than reverse tenet that complexity equals progress.

Warrens Turfs Nursery
By Ben Warren

RUTGERS UNIVERSITY

New Brunswick, New Jersey

Rutger's four-year undergraduate program leads to a B.S. from the College of Agriculture and Environmental Science. Students follow the plant science curriculum and take their electives in turf management subjects. The program is directed by the Office of Resident Instruction, with Dr. Ralph Engel, Professor of Turf Management, as principal teacher and student advisor.

A short course, consisting of one ten-week program a year for two years, is also offered for professional turfmen, landscapers, and others. This program began in 1960 with other, shorter courses initiated in 1928. A certificate is awarded those completing the ten-week technical program, which is already underway for 1967. Plans for 1968 call for an early January starting date.

Four-year turf study at Rutgers began some 30 years ago. Current enrollment is eight, with college entrance examinnation and favorable high school standing required for admission. Yearly tuition is $400 ($200 per semester). Rutgers also offers graduate programs in turf management leading to M.S. and Ph.D. degrees.

Undergraduate course of study includes such subjects as soils and their management, land planning and utilization, lawn management and fine turf production, plant breeding, principles of weed control, etc. Numerous staff experts cooperate in teaching turfgrass management students.

Requests for information and admissions can be directed to the Office of Resident Instruction, Rutgers University.