



NEXT MEETING ELMHURST COUNTRY CLUB Elmhurst, Illinois HOST: FRED OPPERMAN

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

TOM BURROWS, Editor 1648 Prairie Northbrook, Illinois 60062

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The President's Message

I certainly hope you read Mrs. Beryl Dearie's article in the Bull Sheet. She and some of the other superintendent's wives have formed a sorority. I soon realized the largest advantage of being a National member. Not the magazine subscription, or the insurance policy, but the comradeship. We belong to a fraternity, second to none.

Superintendent "Woody" Woodrum out in Las Vegas met me at the airport, and had my housing, golf dates, and entertainment all scheduled. An unusual host? Not at all. I've enjoyed spaghetti in Delaware, and Christmas houseparties in New York at the home of the superintendent. How many lunches have I enjoyed at country clubs across the nation, simply because I am a fellow superintendent.

Recently, I had the good fortune to visit Canada with fellow Midwest members Walter Fuchs and Raymond Murphy. We attended the 18th Royal Canadian Golf Association Turgrass Conference at Toronto. The program was excellent, old time Penn Stafer's Burt Musser and Fred Grau read exceptional papers. Walter Fuchs and I were introduced as officers of the Midwest Association (I believe we were the only American superintendents in attendance.) Canadian hospitality is unbelievable. If each invitation to "come and see my club" had been accepted, we would still be in Ontario.

Next year's Canadian meeting in Montreal will have a bilingual program, English and French. That ought to be a ball. If you visit Expo 67 this summer, please stop and meet some of the wonderful Montreal superintendents.

When we thanked our hosts at the Toronto airport they said, "Come back soon you rotten boogers" (a term of endearment.) I hope!

Wear the National pin proudly in your lapel, it's guite a fraternity.

Sincerely, Dudley Smith, President



1967 Midwest President, Dudley Smith.

MAY 8, 1967

ELMHURST COUNTRY CLUB

Elmhurst, Illinois

HOST: FRED OPPERMAN

MAY EDUCATION PROGRAM

Our May program will feature Miss Joan Carey, from the Illinois Bell Telephone Co. Her presentation will be titled "Winning Friends by Phone".

Your voice is an asset or a liability. Our speaker presents some vivid contrasts in 'good' and 'bad' telephone tecniques. She'll also give you tips about how to make the best use of your telephone. After this show, members of the audience are invited to hear their voices in an informal recording session.

NON-GCSAA MEMBER

A membership brochure is available at our National Headquarters on, "Why should you join the National Association".

ROBERTS RULES OF ORDER

Roberts rules of order, "Rapid Reference Chart", is available through our National Association Headguarters. Price \$.40.



PALOS PARK, ILLINOIS



PAUL POPP APRIL, 1967 – HOST INDIAN LAKES GOLF CLUB

INDIAN LAKE GOLF CLUB

Only 11 golfers tested the fine Iroquois Trail 18 hole course at the April 10, 1967 meeting. This is a very fine golf club with two championship 18 golf courses. The Iroquois Trail, and the Souix Trail are the excellent golf courses under the supervision of Mr. Paul Popp, executive supervisor. Mr. Popp can be justly proud of his position. We are only sorry more members of our association could not have played. Two very distinct points of interest of the Iroquois Trail was, one—the large number of traps (67) for a semi-private course and the tremendous size of the tees which were 150 feet long and 36 feet wide.

Let's hope we may get another invitation to return to this facility under better weather conditions. Oscar Miles

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CHARLES BARLETT

The Midwest Association of Golf Course Superintendents this month honors Charles Barlett, golf writer for the Chicago Tribune. It is about time we turned the tables on our old friend and wrote something about him.

Charles Barlett has been with the Tribune fortythree years. He started his journalistic career on August 18, 1924. During those forty-three years he was writing about his favorite sport "GOLF". He has been the National Secretary for the Golf Writers Association of America for twenty-two years. He has won many awards, some of them National for his incisive and creative writing on golf.

his incisive and creative writing on golf. His popular column "The Lockerroom" which he has been writing since 1940 is famous throughout Chicagoland. Though Charlie has written about all the golf greats in North America, we in the Chicago area know him as a true friend of the golf course superintendent. The game of golf has doubled since the 2nd World War and it keeps Charlie flying across the country covering golf tournaments, but he is never too far away or too busy to write about and plug the golf course superintendents and their problems with Mother Nature. Whether it be winter kill, snowmold, summer heat, pythium or drought, Charlie Barlett is always right there explaining to our golfers what it's all about. When an aged superintendent is sick or when a young one makes a step forward in our profession, Charlie writes and gives them a boost far greater than any sedative a drug store carries. Tom Burrows, our new "Bull Sheet" editor, asked me to write about Mr. Barlett, and I am honored to do so. However, it will take a pen far greater than mine to thank Charlie Barlett for all the things he has done for golf and the support he has given our profession. For it is men like him who have helped the golf course superintendent rise in his profession and men like him that have made us proud that we are superintendents.

There will be many more great golf matches to be played. There will be many more great battles to be fought with Mother Nature and all her idiosyncrasies on the golf course. And in this great arena of sweat, guts and ability, Charles Barlett will be right there writing about it.

Paul Voykin

NEW SEASON - NEW ATTITUDES

Honestly, winter is going to end . . . and soon. We'd like to suggest several ways in which you can make this a more successful and happier season.

First, set some realistic goals and put them all together in a working pattern. Next, sell your goals to everybody you meet-talk about them constantly. You will find that this helps to clarify your thinking about how they are to be accomplished. Lastly, examine every decision and every move that you make in relation to these goals you have set-will it help you move toward your target?

We would suggest that you use the Action-Reaction rule with almost everybody you see. Work on being sincerely interested in other people-their thoughts, their problems, their desires. Express this interest and pretty quick you will find that you have a lot of people who are interested in you. Whatever it is that you are seeking-give of it first.

One of the best ways to do this is to learn to ask the flattering question:

I was planning to . . . WHAT DO YOU THINK?

We are thinking of . . . WHAT IS YOUR OPIN-ION?

I'd like your viewpoint on . . .

Nobody does this much anymore so this is bound to be refreshing.

And, finally, please remember that enthusiasm is catching and is a lot more pleasurable than negativism. So get sincerely all wound up in Golf, The Weather, The Public, Your Course and Your Job.

You'll find that you don't need a new mouthwash to become the hit of the group-you'll have more fun and so will everybody else.



J. J. Cocalis Speaker at the January, 1967 Midwest Meeting.

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HELICOPTER

The following clubs have sprayed their American Elms with helicopter: Bob O'Link, Butterfield, Elmhurst, Medinah, Riverside, and River Forest. There are an additional 10 clubs who have received bids and will probably have the Clark Outdoor Spraying Company spray their elms.

Four country clubs are contemplating spraying their fairways with fungicides this coming season by the use of the helicopter on an experimental basis.

Southern Wisconsin and certain areas in and around Milwaukee have been using a helicopter for spraying elm trees for the past three years. An experiment conducted by the Wisconsin Department of Agriculture showed that elm losses were less by the use of a helicopter in spraying.

Data from the Clark Spraying Company: 7 gallons of 12% solution is used per tree top acre. The cost runs from \$1.15 to \$1.30 per tree. Time: 11/2 to 2 hours for spraying the average size golf course, and or, approximately 200 tree per hour.



Helicopter coming in for a refill of DDT alongside Bob O'Link's #2 fairway.



Helicopter spraying a grove of American Elms using a 300-foot spray boom.



Jerry Dinelli uses a C-B radio from his auto in testing communications between the Superintendent and helicopter pilot during the actual tree spraying.



New Member Applicants: Richard T. Buchen, 912 Huber Lane, Glenview, III. 60025. Employed by Tom Burrows — Class "D".

Bob O'Link Golf Club installing cyclone fence, part of a three year program.

FOR SALE: John Bean Sprayer, year 1957, 200 gal., 7 G.P.M. Contact: George Druzisky, Wi 5-0568.



Bill Stupple

PENSION PLAN

Those interested in joining the GCSAA Pension plan may contact: Lubin Associates, Inc., 327 So. La Salle Street, Chicago, Illinois 60604. Phone: HA 7-1323.









PLOW IT UNDER

After struggling some 40 odd years with water and peat problems Biltmore Country Club has initiated an improvement program to help alleviate drought and flood.

The \$150,000.00 program was started in late Sept., 1966. First on the agenda was the installation of 17,000 ft. of drain tile. Sizes from 4" to 18". Surface drains and manholes were also provided. As it was impossible to rid the course of water fast enough by gravity a lift station was built. Capacity 12,000 G.P.M. with a reserve of 6,000 G.P.M. if needed.

Along with the lift station about 1600 ft. of creek bed was dredged, which necessitated the installing of 5 new bridges for carts, foot traffic and course equipment. These bridges are made of pre-cast stressed concrete in lengths up to 48 ft.

A new irrigating system is also being put in. Sorry to say it is not automatic. However the tees and greens have pop-up heads controlled by a manual selector knob, which is easy to use. The fairway sprinklers are snap on, center line from tee to green. New pumps are being installed, for a total of three, capacity 725 G.P.M. A large vat is being installed near the pump house which will receive individual foot valves, this is being done to insure a clean water supply to the pumps. Removable screen plate and top cover for the vat will facilitate cleaning when necessary.

We have a lot of uneven peat ground on our course and in ate November we began to plow approximately 20 acres of fairways and roughs in preparation for spring seeding. In the offing we also plan one new green and two new tees. Other than these projects we are not doing much.

Oh Ya, I forgot to mention the greens committee came up with a 10 year improvement program last week which will cover everything we missed this year.

So . . . if you are trying to figure a way to beat snow mold, just plow the turf under, the results are great, no snow mold staring you in the face come spring.

John Ebel

MEXICO

My recent trip to Mexico was a real asset in cementing relationships with our Mexican Labor. I feel that it is very important to understand the background of these people for proper management. The main advantages you have by going down there are: You can hand pick them yourself. You have a wider selection of men to pick from. All the problems they have concerning Withholding tax, compensation, proper passport papers and any other questions can be straightened out more efficiently and faster right there. You can make sure you don't hire all the men from the same family or clan. (This is very important if you have to let one of them go during the season.) They are sure you have a job for them and they don't plan to go job hunting.

This is the sixth year we have hired Mexican labor for our staff. This is the second year in a row that I have made the trip to Mexico. Judging from past experience I think it is a worthwhile and smart investment. The total cost of one trip was \$350.00.

Jerry Dinelli



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missed schedules . . . fewer lost days.



HOLMES CORNER

I have been asked by Tom Burrows, new editor of the **Bull Sheet**, to submit a relatively short, newsy column for monthly use. This is an honor and I will make every effort to include interesting and timely material. I asked Tom if he believed the majority of **Bull Sheet** readers, especially those in the Chicago area, would be interested in news items from the outlands. Tom was sure readers would be interested, so I will occasionally include tidbits of information from and about your contemporaries.

Since November, I have participated in 12 turfgrass conferences. It is interesting to compare various subjects discussed at these conferences and then summarize information currently receiving the greatest amount of interest. For example, there was one talk on pesticide compatibility. It was reported that chemicals should not be mixed and applied at the same time; rather, application should be made separately. Nonetheless, no one seems to be doing this; rather a hodge-podge is mixed and applied at the same time.

There were 8 talks on weed control. Definitely, the greatest interest at the present time is on pre-emergent reacting products. Recently, I heard about some test work being done to kill **Poa annua** seeds with a flamethrower. Four or five years ago, Bert Rost at Butterfield, was successful in eradicating young chickweed and knotweed with a butane flame. Interest is sufficiently high in Pennsylvania so that one manufacturer plans to develop a multi-burner flame-thrower for general use. Even though this is an old principle, I will be interested in developments.

Site selection for a golf course was discussed twice. The general conclusion was a soil high in sand content is superior to other types of soils for growing turf if adequate plant nutrients and water can be made available.

Considerable interest has developed regarding selection and use of various types or strains of Kentucky bluegrass and talks were heard on 6 different occasions. Even though new strains are being tested, none appear to be superior to Merion bluegrass in this part of the country at the present time. Interest here is centered around a type to be used as a satisfactory fairway turf; short cut! Insect control was discussed 3 times. Organic phosphates are making inroads in this field and will claim an increasing share of the market. I hear that the chinch bug is getting further north.

Winter injury was discussed on 3 occasions. Of prime interest was injury resulting from a continued ice cover. An excellent symposium was held by the Wisconsin Golf Course Superintendents on this subject. Continuing research is being done at Michigan State. However, we still haven't learned or decided just what to do about the winter golfer.

Design was discussed on 2 occasions. Some intelligent ideas are finally developing in this area. Need for adequate surface drainage is finally getting across to some designers.

Turf diseases are always of interest to golf course superintendents and as expected, received their share of attention, 6 times. No new or novel advances have been made recently. It would appear, until chemicals which behave in a systemic-chemotherapeutic fashion are developed, no great variation from current practices is expected.

Sod production and types of sod to produce in given areas was discussed thrice.

Soil mixtures for green building as well as various artificial amendments were talked about 8 times. The method of putting green construction as developed by the USGA Green Section is receiving considerable discussion-pro and con.

Public, personnel relations and job definition, which includes such items as social security and retirement, were discussed on 12 occasions. There continues to be a great deal of interest here.

A report for preparing the golf course for tournament play was heard 3 times. Always, there are some interesting comment and anecdotes in these talks. It seems that if you have any grass at all, especially on fairways, many of the players complain it's too long and the ball "nestles". But, if you lose any or have deadened spots-watch out.

Specifically, the fairway problem as such was discussed only once. Nonetheless, fairway problems and what we propose to do about them were woven throughout many talks, even though the particular talk may not have been designed specifically for this purpose. As far as I can see, this continues to be our prime unsolved problem in the north midwest.

New and novel ideas for maintenance building construction were discussed on two occasions. Some great buildings are being erected incorporating new and novel concepts.

Fertilizers, the same as weed, insect and disease control, are always of interest to the golf course superintendent. Specifically, 7 papers were given on fertilizers. It seems the grass plant is still using the same old ones.

Three tree talks, which include selection, placement, trimming and maintenance, were made.

Five proper selection of turf talks were heard. This goes back somewhat to the tremendous interest in bluegrass (fairways) as most of these talks were about **Poa** sp.

Soil warming or specifically reports on the work done at Purdue University was heard one time.

Mechanization, "getting all golf course workers on wheels", for instance, was heard on 4 different occasions. Sounds like a good idea if you have the money.

(Continued)



No. 1 10-8-6

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Use of artificial-turf ground cover including such items as material used in the Astrodome, was specifically discussed on 1 occasion only. However, it is my firm opinion that we will hear a great deal more about this in the immediate future.

Only 1 talk was heard on lime. This presentation was at the University of Massachusetts and, as you know, soil acidity is of greatest importance in this area.

Talks on **Poa annua**, or specifically "is **Poa annua** friend or foe" were heard on 6 occasions. As a result, I would judge that most people consider **Poa annua** a foe and are taking more of an interest in just exactly how we can effectively and safely control this weed, especially in fairways. As soon as someone figures it out, will you please let me know.

Thatch control was discussed twice. The upshot is that you've got to keep it down, $\frac{1}{2}$ inch or less.

In New York, the Green Section devoted their entire program to golf course renovation. Certainly, there continues to be a great deal of interest in this subject as many of the older courses are either undergoing or preparing to undergo a renovation program. Let's only hope the play of the course actually improved after completion.

The talk heard the greatest number of times had to do with golf course irrigation. As a matter of fact, this subject was discussed on 16 different occasions. By far the greatest interest at the present time lies in complete "automatic irrigation". The trend definitely is in this direction. The prime reason seems to be labor, or perhaps I should say lack of competent and conscientious irrigation people necessary to operate a manual system. In any event, it appears that automation is here to stay and improvements are on the drawing board.

This year the biggest problem in golf course turf, especially in the north midwest, seems to be just exactly what we are going to do in order to develop or maintain a more acceptable and lasting fairway turf-that is if we can get the labor to do it!

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

"THE EXPRESSWAY"

Troy Meness, former assistant at Edgewood Valley C. C. is the new Superintendent at Cress Creek C. C. . . Buffalo Grove G. C. in Buffalo Grove, Illinois is near completion—Rod Voykin is Superintendent, Killian & Nugent are Architects, Milburn Company is the contractor, Koelper Excavating is sub-contractor for finish grading and seeding, A. J. Miller Company is installing the irrigation . . Frank Dinelli at Northmoor C. C. removed 60 diseased elms in February . .

... Oscar Miles tells us that Olympia Fields C. C. will host the 1968 "Western Open" ... A question was asked at our last meeting-"Why haven't we had a Pro-Supt. joint meeting"?-Good question...

Medinah C. C. is trying out purchasing and sorting bulk fertilizer in a bin-a report from Gerald should be in order about next November . . . Ron Rossett at Skokie C. C. will install several cart paths this spring-Skokie C. C.'s new clubhouse addition is a real thing of beauty . . . Don Gricus, former Pro-Supt. at the Valley Lo Sportsman Club in Glenview is now the Superintendent at the Fort Sheridan G. C. . . . Former Superintendent of Fort Sheridan G. C. and Midwest member Chuck Crater, is now attending language school in Texas and will go to Viet Nam in 8 months.

During January '67 Silver Lake C. C. constructed a 145 ft. concrete bridge on their South course-This spring Superintendent Dudley Smith will sod six newly constructed tees with Penncross . . . George Druzisky at Thorngate C. C. will reconstruct his #2 tee, install 4 new cart paths, and construct a new bridge . . . Jerry Cheeseman is investigating "Monday Golf Policies" at several Chicago Area Clubs and will have a report for the Bull Sheet in the near future . . . Harold Fredrickson's new assistant, Phil Bersin, comes from Olympia Fields C. C. after 1 year training there-Phil is a Penn State U. graduate and comes from Quincy, III. . . . Adolph Bertucci and Paul Voykin were interviewed on WEEF radio, Saturday, March 25th. The topic was golf courses and turf in general. . .

Ron Rossett at Skokie C. C. has installed C. B. radios on his equipment . . . Much thanks to Paul Popp and the Indian Lake G. C., hosts of our April meeting . . . Bill Stupple turned up at our April meeting—he really looks good after losing 25 pounds and is now down to 210 pounds. He soaked up 2 weeks of Florida sun and for the remainder of the winter he baby-sat with his grandchildren.





Jerry Marlott - left, Frank Dinelli - center, and Jerry Dinelli - right. Northmoor Country Club.

RECENT BLIZZARDS EFFECT CLUB MANAGERS

Just as the Golf Course Superintendent will remember the "blizzards of '67" for many months to come; so too will the Manager remember it for a long, long time.

The lucky Manager was the one who had planned on closing his club during February for vacations, and who went to the 40th Annual Conference in Los Angeles. However some had already been closed in January, or were scheduled to close in March; and to them it was a month of low sales and high labor costs. With many of the members unable to get into their own driveways, they could hardly be expected to patronize the Club dining room and bar during this period. Most Managers were already on "winter" or skeleton crews and could reduce them no lower, and sales were practically nil during this period. Many of the returning Managers found that the work assigned to the employees he left behind remained undone due to absenteeism, lack of deliveries by suppliers, and the fact that most of them had been kept busy just keeping the driveways open and the furnace going.

Many, too, found that the cost of heating during this period far exceeded their expectations and that salt and snow melting chemicals had hit a new high in usage.

However, most of us can learn something from catastrophies such as this, and if you read the newspapers well, there was an item which stated that "for the past five years, winter in Chicago has been getting more and more severe." If that be the case, what do we have in store for 1968? Perhaps, if you have a chance to change your closing dates you will check the temperatures and snowfall at the library and find out if January, February, or March can cause a natural decline in business for you. It might pay to also chart a graph of how much business you did do in these months during the past ten years and close the one which is the least productive. Closing in February has its benefits also in that the returning employee on March first is also on hand in case we get a break in the weather and golfers are with us by March 20th or April 1st. So too, some of the outdoor work may possibly be done if the weather turns nice, and you will not have all of it to do in April and May.

But the greatest area of effect that the storm had on the Manager was that it caused him to "Be Prepared" in case it happens again. Many of us on the north side went through the four days of "no electricity" a few years ago, so the "big storm" was not as bad as it may have been to the unprepared. My club went to gas heat right after the "big storm" of '65 as we were long overdue to change over from oil. Small tanks and bad deliveries could leave one in bad shape during a big blizzard. Curtailment of service for two days a week has also helped to concentrate our business on weekends and get a better production from our employees, as Tuesday and Wednesdays are usually bad in winter regardlass of the weather. Freezers now contain a few loaves of bread, some "brown and serve rolls" and more meat than normal, due to what we have gone through during these periods. We have also had some of our office help have some little jobs which they can take home with them, on weekends, just in case they cannot make it back on Tuesday morning. Emergency supplies of candles and a portable lighting plant are now in our storeroom. Yes, it was a "winter to remember" for the entire club staff.

Jerry Marlott

PURDUE UNIVERSITY, LAFAYETTE, INDIANA

From: WEEDS, TREES AND TURF

Dr. W. H. Daniel: It is reported that Purdue's graduating turf majors have the highest initial pay of any undergraduate group.

Dr. William H. Daniel, Professor in Agronomy, directs turf training at Purdue University, where undergraduate work has been an outgrowth of research and graduate study that dates back to 1943-45. Fouryear undergraduates work toward a B.S. in Agriculture with a major in turfgrass management. This program was initiated in 1952 and has graduated more than 50 students.

Purdue's courses are designed to prepare students for positions as turf superintendents, sod nurserymen, agricultural salesmen, grounds supervisors, and related lines of work. Undergraduate enrollment currently stands at 20; there were five graduates in last year's class. Turf teaching is done by Dr. Daniel. Graduate enrollment usually numbers four students.

Entrance requirements of the University must be met by students in the turf program. Tuition for Indiana residents is \$165 per semester; details are outlined in the catalog, which can be obtained from the Registrar, Purdue University. Early application for enrollment is advised, with Aug. 1 the practical deadline.

Students in turf management at Purdue are encouraged to gain experience in turf research and practical field work prior to graduation. Work during at least one school year in the research program and one or two summers spent in some management and maintenance activity are expected of undergraduates.

Contact Dr. W. H. Daniel, Turf Specialist, Department of Agronomy, for more information one Purdue's turf program.



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ATTENDANCE

March — River Forest Country Club: Class A & B — 61; Class D — 3; Honorary — 3; Class E — 19. April — Indian Lakes Golf Club: Class A & B — 69; Class D — 5; Class E — 4.

INSECTS:

WHITE GRUBS:

Description—The **true white grub** has a U-shaped body, brown head, and three pairs of legs. The body of the grub is white with the tip of the abdomen shiny and transparent, the body contents showing through the skin.

Adults of the true white grub, the **June beetle**, are dark brown to black, have long, slender spiny legs and cumbersome bodies about one inch long.

June beetles deposit small, pearl-white, spherical eggs preferably n grass sods. These eggs are laid individually, not in clusters.

Life Cycle-True white grubs may have a life cycle of 2-4 years, but a three-year cycle is most common. Therefore, the adult insect, or June beetle, is most prevalent in approximately one year out of every three. They usually deposit their eggs in grass sods. The tiny grubs that hatch from these eggs feed near the surface until the first cold spell in late September or early October, when they tunnel downward, overwintering about 18 inches below the ground surface. In May they return to the surface and feed voraciously on plant roots until the following October, when they again overwinter deep in the soil. The following May they return to the surface, feed heavily for about three weeks, and in early June pupate in an earthen cell. Within four weeks they change to adults, but remain in the earthen cell until late May and early June of the following year, when they emerge to feed and lay eggs.



Description—The **annual white grub**, also known as the false June beetle or masked chafer, is almost identical in appearance to the true white grub (June beetle). However, there are a few minor differences. The Adult is tan, with fairly long, spiny legs, but the body is only about $\frac{1}{2}$ to $\frac{3}{4}$ inch long. The eggs resemble those of the June beetle.

Life Cycle—The annual white grub, as the name indicates, has a one-year life cycle. The adults, which are abundant in late June and early July, deposit eggs in the soil. The tiny grubs that hatch from these eggs grow rapidly, becoming nearly full grown by late October. They burrow deep into the soil for the winter. In May they return to the surface, feed for about three weeks, and pupate in an earthen cell about six inches below the soil surface. In approximately a month they emerge as beetle. **Damage**—The adults of both the annual and the true white grub feed on the foliage of shrubs and trees. If the infestation is severe, the leaves on trees, particularly oak, may show extensive damage.

The grubs feed on the roots of many plants. They often kill large patches of sod in lawns, golf greens, cemeteries, and parks. When the sod is rolled back, dozens of these pests can be seen.

Damage is usually not uniform throughout the turf, but occurs in patches. Small areas may be entirely destroyed, while others are apparently not affected. This variation reflects the egg-laying preference of the beetles, as they appear to prefer certain soil conditions to others for oviposition. Even slight variations in soil texture can apparently affect egg-laying. When damage is severe, patches of turf can easily be rolled back as if being cut by a sod cutter. Examination of the roots will show severe root pruning, and one can easily find many grubs by digging up a little soil.

Chemical Control -

Insecticide Dosage/10,00 sq. ft. *Chlordane 1 lb. 4 oz.

Suggestions

For new sod, application of chlordane will provide a five year protection plan. In established sod, apply as granules or spray to small areas and then water in very thoroughly before treating another small area.

*1 gallon of 45% E.C. contains 4 lbs. actual chlordane per/10,000 sq. ft. ($1/_4$ acre) is in terms of active ingredient. Do not allow people on turf until spray has dried. Chlordane can be applied at any time.





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