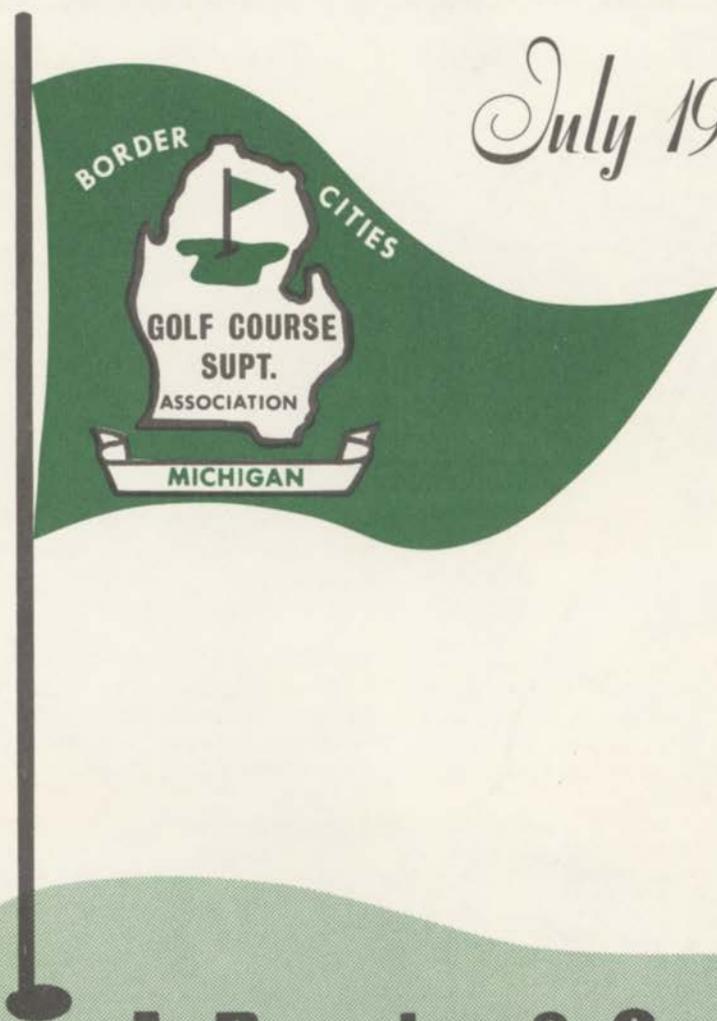


July 1972



A Patch of Green



Official Publication of the
Michigan & Border Cities Golf Course Superintendents Association

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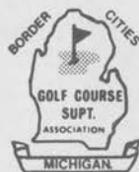
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PRESIDENT'S MESSAGE

As of this writing the Michigan and Border Cities Golf Course Superintendents Association has experienced a healthy and rewarding year.



Membership has increased with 30 new members. Meetings have continued to improve in attendance because of the tremendous educational programs and the fine arrangements at top clubs.

Our Public Relations efforts have

been most rewarding. Our participation in the Garden Section of the *Detroit News* was a huge success.

There are several events remaining on our schedule this year which, if successful, will make this our greatest year ever. Our Annual Picnic, the Annual Golf Day, and the MSU Field Day all need your continued support.

Attend and participate. Thanks for your interest and support.

Your President,
Ted Woehrle, CGCS

VERDICT ON DDT

When DDT first appeared in the U.S. in 1942, it seemed almost like a miracle drug. Cheap and efficient, it destroyed pests, reduced such insect-borne diseases as malaria, and brought bumper harvests. But over the years scientists found disturbing evidence, first publicized in Rachel Carson's *Silent Spring*, that DDT was harmful to animals too, and might threaten man as well.

After 17 months of weighing the evidence pro and con, Environmental Protection Administrator William D. Ruckelshaus announced his verdict last week: "DDT is an uncontrollable, durable chemical that persists in the aquatic and terrestrial environments." Because it lasts so long, it can build up in fish and animals until it "may have a serious effect" on human beings.

With that, he imposed an almost total ban on the pesticide (exceptions: in cases of sudden epidemic, when DDT is the most effective means of combatting disease-carrying insects; shipment to countries where malaria

is a problem; and use on onions, green peppers and sweet potatoes in certain areas that are particularly vulnerable to pests). The ban will not go into effect until the end of the year, allowing time to train farmers in using DDT's chief substitute, methyl parathion, which is highly toxic but breaks down soon after being used.

The ban was immediately challenged in suits filed by the manufacturer and processors of DDT. Another challenge came from the Environmental Defense Fund, which has been chiefly responsible for forcing the issue. It filed a court petition asking that the ban go into effect immediately and that it forbid all domestic applications of the one-time miracle.

ARTHUR HILLS

Golf Course Architect

Tony Jacklin, Design Associate

7351 West Bancroft, Toledo, Ohio 43617

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Box 4086, Fort Myers Beach, Fla. 33931

JUNE MEETING

On Tuesday, June 13, we held our monthly meeting at Chemung Hills Country Club. Our host was Ron Abbott a new member of the Association. It was a first for most of us. Most of us are used to the Urban surroundings of our golf courses and the pleasant quiet surroundings were soothing to the nerves. The hills on the course were larger and steeper than most of us are used to. Ron had the course in excellent condition. I guess I'm still a country boy at heart because I enjoyed the day completely.

Our dinner consisted of Char-Broiled steak made outdoors with all the trimmings.

The speaker of the evening was presented to us through Terminal Sales. Charlie Wilson of the Milwaukee Sewerage Commission spoke to us about the past winter and all of its related problems. His slide presentation is one of the finest in the world.

Subjects covered were on: Poor drainage, plant breeding, grass mutations caused by Gamma Radiation in the Laboratory. Some of the results from these programs have produced smog proof Bermudagrass and salt tolerant highway grasses.

Charlie mentioned that one of the most ignored elements is Sulfur.

Sulfur deficiency often looks like Potash deficiency. Soil tests should be taken if in doubt.

Grass clippings make excellent fertilizer - Don't waste them. Start a compost pile. The use of a tensiometer in measuring soil moisture is a great tool in turf management and we should consider buying one.

A new weed and algae control on ponds has been quite successful in Florida and is now available. The product is called "Aqua Shade" sold through Terminal Sales. It works as a coolant in the water and kills plant life through obstructing sun light. It doesn't harm irrigation ponds. Sounds great. One gallon treats one acre five feet deep.

Another tip involved weed control in traps. Line traps with asphalt. Of course, you have to provide drainage.

One of the last pictures showed a green that was basically dull brown except for a wide green stripe resulted when a newly sharpened mower was used. The remaining dull brown green resulted from a dull mower.

A point worth remembering. Keep those mowers sharp!

A caddy is a guy who stands behind a golfer and who didn't see where it went either.

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GCSAA FACT SHEET

Membership

The Golf Course Superintendents Association of America is an international organization with over 3,000 members in the United States, Canada and other countries.

GCSAA NEWS

If you have applied for reclassification of membership status in GCSAA Headquarters you may receive your 1973 membership card with the old membership classification listed on it. You will receive a new card to replace the old card as soon as your new reclassification has been approved.

Please notify GCSAA Headquarters promptly of any change of address in order that you may continue to receive your mail from Headquarters regularly.

It is now the responsibility of each Chapter of the GCSAA to submit the names of qualified candidates for the offices of President, Vice President and for three Directorships, to the Nominating Committee Chairman, Edward Roberts, Jr., 334 Shunpike Road, Chatham, New Jersey 07928.

The names of prospective candidates must be submitted to Mr. Roberts by September 1, 1972 to enable the Nominating Committee to screen the candidates, ascertain their willingness to serve if elected, obtain the necessary biographical material - all prior to the physical meeting of the Nominating Committee to be held after September 1.

The election of candidates for national GCSAA office is a serious responsibility, shared by all members of GCSAA. The effort that you put into the consideration of candidates for nomination will be reflected in the future growth and direction of your Association.

Local Chapters

Total of 89: 59 affiliated, 5 associated and 25 unclassified.

History

Organized on September 13, 1926, as the National Association of Greenskeepers of America; name changed to The Greenskeeping Superintendents Association in 1938; became the Golf Course Superintendents Association of America in 1951.

Objectives

Dedicated to better turf and better golf, specifically:

1. To promote research and the interchange of scientific and practical knowledge relating to the care of golf courses and turfgrass operations.
2. To emphasize more efficient and economical golf course operations and increase prestige for GCSAA and its individual members as well as the profession of golf course superintendency, which encompasses the production, maintenance and improvement of turfgrass.
3. To encourage cooperation with other associations and organizations whose interests parallel or complement those of GCSAA and to stress justice, benevolence and education to and for its members.

Activities

• *INTERNATIONAL TURFGRASS CONFERENCE AND SHOW* sponsored annually by the GCSAA; recognized as the most important and outstanding annual forum of the turfgrass industry. Special emphasis placed on golf turf development and its allied fields. The Equipment Show, a show within a show, enables manufacturers and suppliers to exhibit the latest products designed for golf course maintenance. First meeting held in Chicago in March 1927.

Continued on Page 9

HOWARD Foursome



One, two, three, four necessary operations are accomplished in a one pass with the all new Howard Turf-Quaker . . . (one) it provides complete relief of compaction; (two) opens the turf to water and nutrients; (three) permits easier movement of oxygen and carbon dioxide; (four) removes excess thatch. The result . . . **total** turf aeration for healthier turf in all seasons. This total aeration is accomplished by the unique auger-like blade pattern exclusive with the Howard Turf-Quaker. Unlike conventional slicing equipment its blades not only slice the turf . . . they also shake it vigorously from side to side right down to its roots, aerating it and leaving it open to receive all the water and nutrients it needs. Turf-Quakers are available in 60" tractor mounted models for fairways and large acreage work and 23" self-powered hand controlled models for greens or lawns.

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Many small details for such a large tournament are well planned and organized months in advance.

The first projects include any new construction or rebuilding done at least a year in advance. This would include tree removal and planting.

Installation of utilities is next on the list. This includes some 30,000 feet of telephone lines and 10,000 feet of electrical cables all of which must be placed underground.

Scoreboards, leader boards, tents, snow fence, TV camera towers and miles of roping and thousands of stakes used to hold the gallery roping are installed early.

Decisions of toilet locations, trash pick up and mowing schedules come last.

Regular turf maintenance continues through all of this.

Add to this the fact that record galleries are expected and the cars are to be parked on your other golf

course. Pray for good weather. Look me up at the tournament.

Ted Woehle, Superintendent
Oakland Hills Country Club



A sod knife blade cut in half. Used to cut shallow furrow to place telephone wires underground.



Slit made by sod cutter with wires placed in furrow and covered by sod. This is best done in damp soil for quick healing.



Sod replaced over wire. Out of danger from golf spikes and a tripping hazard removed from the gallery.

GCSAA Fact Sheet Cont.

• **SCHOLARSHIP AND RESEARCH FUND** separately incorporated in 1956 to fulfill a recognized obligation to the future of golf through financial assistance to qualified and deserving students seeking careers in golf turf. Research grants are directed toward original research and to further expand knowledge of turf and turf management practices. Over \$200,000 has been distributed to worthy students and original research since the fund's inception. In 1971-72 a total of \$27,000

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Education - BS Degree in Agronomy from Purdue University 1971. 10 credits toward MS in Agronomy from Ohio State.

Previous Experience - Full time research assistant at Ohio State. During this time supervised maintenance and management of OSU turf plots, 2/71 - 1/72.

Maintenance man at Philadelphia C.C. under Warren Bidwell, 6/70 - 9/70.

Maintenance man at Elk's C.C. under Tom Miller, three summers, 1967-68-69.

Paul F. Greagan
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Marion, Indiana 46952
Telephone: 317-662-6194

was awarded to 65 scholarship recipients and six research grants were made totaling \$6,750.

• **THE GOLF COURSE SUPERINTENDENT**, GCSAA's official magazine (published ten times annually) is specifically written and edited for the superintendent.

• **CERTIFICATION** provides a yardstick by which the capabilities and qualifications of superintendents can be measured and establishes defined levels at which he is expected to perform.

The Golf Course Superintendent's Job

Primary objective: to promote efficient, economical and up-to-date maintenance on golf courses. Duties: keeping tees, fairways, greens and landscaping in tip top shape; purchase, storage and inventory of equipment and supplies; hiring, training and directing personnel; keeping records on expenditures, weather and material application; preparation and administration of annual budget for his department; making reports on planning and progress to green committee; working with other committees and department heads; and progressive education by participating in GCSAA chapter activities, reading turf and golf publications, and attending Turf Conferences.

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THE RIGHT AMOUNT OF WATER-ROOT HAIR VIEWPOINT

by PAUL E. RIEKE, Department of Crop & Soil Science, MSU

Healthy, vigorous turfgrass leaves are about 80% water unless the plant is under moisture stress. At 60% it is badly wilted. The succulence of turf is due to the water content. This water is provided to the leaves by the root system, and most of the water is taken up by the tiny root hairs near the active growing tip of the roots.

Sufficient water must be provided by the root system to satisfy transpiration needs. When transpiration exceeds the rate that roots can supply water, the turf wilts. The amount of water used by the turf is a function of climate, water holding capacity of the soil, moisture level in the soil, and the management applied to the turf (1,2,3).

In Michigan, Indiana, and Illinois the greatest difference between potential water needs (evapotranspiration) and precipitation occurs in July. Using average figures, about 4" of water will be the minimum needed during July in southern Michigan and northern Indiana. Unfortunately "average weather" seldom occurs while the unusually wet or dry conditions are more typical. The summer of 1971 was unusually dry in central Michigan. For example, resulting in at least 6" of irrigated water as a minimum requirement in July.

The water holding capacity of the soil is dependent on soil texture and rooting depth. Sands, of course, hold much less available water than soils higher in silt and clay. Rooting depth is also significant in that the plant can only obtain water from the soil to the effective rooting depth. Shallow rooting of greens in mid-summer necessitates careful and frequent irrigation since the available water is rapidly removed from the surface 2 to 3" of soil.

As water is removed, the remaining water is held with greater tension making it more difficult for the plant to obtain sufficient water rapidly enough. Wilting usually begins in mid-afternoon when the water use rate is the highest and the soil is becoming drier.

Water use rates are also affected by several management practices, such as mowing, wetting agents, cultivation, compaction, and by disease or insect attacks.

Shallow rooting limits soil contact by the roots reducing the amount of water which can be taken up. For example, assume a bentgrass or *Poa annua* green has an effective rooting depth of 3" in July, and the soil is a fine sand which would hold 1.2" of available water per foot of soil. This would mean the turf can extract about 0.3" of water from the soil to that rooting depth. If the water use rate on a hot windy day is 0.25" per day, this shows the necessity of irrigating daily. On the other hand, if the water use rate is 0.1" per day, irrigation frequency could be reduced.

Factors which tend to cause short root systems on turf are heavy nitrogen fertilization, heavy irrigation, poor drainage, compaction, short mowing height, acid soil conditions, root injury due to pests or chemicals, or environmental conditions, which may tend to reduce root growth, such as high temperatures (1,2).

Too much water due to over-irrigation, or poor drainage, results in increased leaching of nutrients, increased *Poa annua* invasion, increased water susceptibility, and generally reduced turf vigor and quality (1).

A deficiency of water results in wilting, but ultimately leads to reduced

Continued on Page 13

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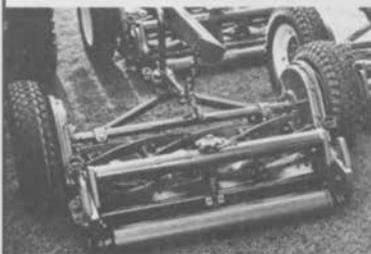
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Water-Root Hair Cont.

vigor, color, density, recovery from injury, and quality of turf as well. The question then can be asked - How can the moisture content of the soil be determined in order to maintain optimum moisture in the soil? It would be well if we could "Ask the plant." In a sense this is done with some of the techniques practiced. For example, footprinting - when the grass will not spring back to its original position after walking on the turf - is an indication that the leaf is quite flaccid and wilt is imminent.

One can also look for those tell-tale spots which show the typical bluish-green color before wilt occurs. Such spots may be due to sandy soil or organism activity, or they may be areas which receive less irrigation. One must know his turf, soil, and irrigation system well if he is to depend on this approach.

An alternative to "Asking the plant" is to "Ask the soil." Visually examining a sample of the soil obtained with a soil probe is one means of doing this. The ease with which a metal rod can be pushed into the soil, or some of the simple, inexpensive soil moisture sensors which can be pushed into the soil have been also used to estimate soil moisture. These are not particularly accurate, but with experience they may be helpful. The user must know the soil and turf conditions extremely well to use these techniques effectively.

More sophisticated and expensive approaches utilize moisture blocks of tensiometers. Moisture blocks buried in the soil have wires to the surface which can be attached to a meter above the ground to make moisture measurements. The moisture blocks operate most effectively in moisture ranges somewhat drier than the levels generally desired for putting green turf.

A tensiometer may be defined as a water tension meter. A porous ceramic tip is attached to a plastic tube and buried in the rootzone of the turf. A gauge is connected to the top of the tube which is sensitive to the tension

(or suction) on the water in the tube. Water moves freely through the ceramic tip, making this instrument sensitive to changes in water levels in the soil. As the soil becomes dry, some of the water moves out of the tube through the ceramic tip, causing a slight vacuum in the tube, raising the reading on the gauge.

The tensiometer is probably the best measure of soil moisture tension from a root hair point of view. As soil becomes drier, the root hair cannot as easily obtain water from the soil, and this is readily reflected in higher readings on the tensiometer. The 15 to 25 centibar moisture tension reading is generally considered the best range for turf (3).

The tensiometer is not presently used extensively by superintendents for determining moisture needs for turf, but it has proven a valuable research tool. This is illustrated in data obtained at the University of California (4).

<u>Irrigation Program Applied</u>	<u>Water used during year - inches</u>
1. Same as nearby golf course	43
2. Based on evap. from large open pan	39
3. When tensiometer reading reached 15 centibars (this is still moist soil)	38
4. When tensiometer reading reached 40 centibars (this is quite dry soil)	31
5. When tensiometer reading reached 55 centibars (this is quite dry soil)	27

There were no differences in the Bermudagrass turf due to irrigation, resulting in a significant reduction in water requirements compared to standard irrigation practices. These data support the thesis that much turf is over-irrigated, especially on the higher quality turf found on many golf courses.

A few turf managers are using tensiometers as a guide for irrigation in southern California, but there are some limitations in their use; location of the tensiometer with respect to

Next Page

variability in the soil or turf in a given turf area, depth of rooting, cost, problem with vandalism. The fact that the tensiometers must be removed from the soil each winter in the Midwest are important factors.

Although there are limitations in the use of tensiometers under turfgrass conditions they are a valuable research tool. This research need not be restricted to experiment stations, however. The inquisitive superintendent can use the tensiometer to learn more about the effectiveness of his own irrigation program. But, one must understand the capabilities and limitations of the tensiometer before using the results to change the irrigation program.

Finally, as root hairs absorb water, small localized drier areas occur. At reduced water tension, capillary water movement may equalize (say over night) but at medium and drier soil the water around root tips may be readily depleted. Thus, leaf wilt indicates root tip need.

In response, two things normally occur - we repeatedly water to avoid possible stress. And we apply much more than just replacement water.

The active root tip and its root hairs are the water crew for the entire plant. Keeping them supplied with (internal) energy, outside air (oxygen), plus available water, is the challenge.

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ENGINEERED RAIN

NEWS FROM CHICAGO

Some of you probably know by now that Jim Bertoni has been in Chicago for a year now and has become very active in the Chicagoland Golf Course Superintendents Associations. He is Co-editor of their magazine called the "Verdure". In the May issue he and fellow editor Ken Quandt carried a story about a mathematical way to change cups on your greens so that one will know exactly where the cup will be on a given day. I read it with great interest and am passing it on to you.

- Ted Woehrlé

MATHEMATICAL CUP PLACEMENT

Recently I was proudly showing a friend of mine who happens to be a high school mathematics teacher the system that I had devised for cup and tee placements. In my system I had the cup and tee locations all written down on a set of score cards and one of these cards would be used each day to dictate where the cups should go on any given hole.

I remarked to my calculating friend that my system worked pretty well but, that in order to determine whether the cups were being placed in the right spots I had to carry around a duplicate set of cards. And, as I explained further, I seldomly remembered to take my set of cards with me and therefore had no way of checking on my employees cup changing procedures short of stopping at each green and carefully inspecting it to determine where the cup had been the day before.

This problem intrigued my friend so much that he went home and worked into the wee hours of the morning devising the following plan that I found taped to my front door the following morning.

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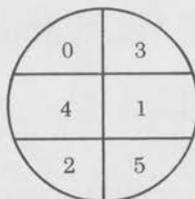
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First take each green and divide it into six segments numbered zero through five.



Next find the remainder upon dividing the following sum by six (6):

(the month) (the date) (the hole number)

When dividing 0,1,2,3,4, or 5 by 6 use the idea that 6 goes into them zero times with a remainder of 0,1,2,3,4, or 5 (i.e. the number itself). Then place the cup in the region with that number.

For example on June 6th the cup on the 14th green would be placed in position #2 because 6 (June is the 6th month) plus 6 (the 6th day) plus 14 (the number of the hole) equals 26 and 26 divided by 6 equals four with a remainder of 2. Therefore, the cup goes into the position labeled #2.

This would cause your pin placements to jump two positions when changing from a 30 day month to the next month. When changing from a 31 day month the cycle would continue undisturbed.

Example 1. (using the 7th hole)

June 30th $(6+30+7) \div 6$ position #1

July 1 $(7+1+7) \div 6$ position #3

Example 2. (using the 7th hole)

July 31 $(7+31+7) \div 6$ position #3

August 1 $(8+1+7) \div 6$ position #4

When I first read through this method I thought my friend had blown a fuse in his master computer but, the more I think about it, the better it sounds. After all, when you are accosted by an irate golfer who wants to know if you are aware of where the %#\$#%\$ cup is placed on one of your greens wouldn't it be nice to be able to make some quick calculations and tell him exactly where it's at? And wouldn't it also be nice to be able to glance at a green and be able to tell immediately if your cup changer has put the cup in the right location?

BUDGETARY PLANNING

Find out where you are going before you start. In other words, have a plan and follow it. Without a plan you cannot have a budget and follow it. You must keep records of past events as a guide for future plans and budget.

Principles of Organization

1. Define the Club Organization
Chain of command
2. Determine the Mission
What does the club want?
What are your duties in accomplishing this mission?
3. Evaluate and Analyze
When a problem arises, ask yourself "why?" and then attempt to answer it.
4. Plan Ahead
Have an organized work chart.
5. Put Plans into Effect
A set of plans are of no value unless they are put into effect.

6. Exercise Controls

7. Communicate

Keep your superiors informed to create harmony and understanding.

Plan the work and work the plan.

We need coordinated, harmonious, efficient mannerisms

GCSAA CERTIFICATION

The Certification program continues to expand. There are currently 62 Certified Superintendents in America and another 105 awaiting clearance before taking the exam. Clarence Wolfrom, Superintendent of Maple Lane Golf Club was the latest Superintendent from Michigan to become Certified. Congratulations Clarence.

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PEST OF THE WEEK

Leafhoppers on Honey Locust

Selections of Honey Locust (Moraine, Shademaster, Sunburst, etc.) are being severely damaged by leafhoppers at this time. Almost all trees are showing leafhopper feeding. Severe cases resemble mite damage with mottled and speckled leaves. On many trees new growth is severely damaged. Shaking of branches on small trees will detect the presence of these sucking insects. Several instars, from small pale green to the adult which is green with black wing covers, are on the trees now.

CONTROL: Spray with 2T/gal. 50% w.p. Sevin. Thorough coverage of leaves and twigs is essential for good control. Don't spray when temperature will be likely to rise above 80 degrees for 2 hours after application. Malathion or Diazinon also will control these insects.

Cooley Spruce Gall Aphid

This small insect causes conelike galls on the tips of the branches of Colorado Blue and Engelmann spruce. The young are present at this time on the needles of both spruce and Douglas fir and are susceptible to insecticides. **CONTROL:** Galls may be picked from spruce and burned, later, while they are still green. Spraying is effective at this time against the young feeding on the needles on both blue spruce and Douglas fir. Spray with 2 t./gal. of either 25% Diazinon emulsion or 50% Malathion emulsion. Meta-Systox-R may also be used, following label directions for aphids.

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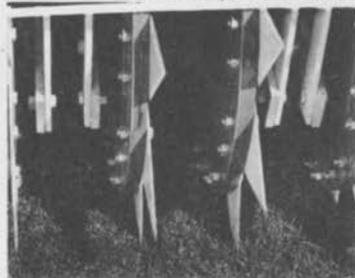
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AERATING WIDTH: 7 ft.
OVERALL WIDTH: 8 ft.
AERATING PATTERN: 7" on center
OPERATING SPEED: 0-10 m.p.h.
HITCH: Three-point or Universal
TRANSPORT SPEED: Safe road speed
AERATING WHEELS: 12" at 7" intervals
TINES: 9 per wheel
Choice of coring, slicing, spiking or cultivating
FRAME: All welded steel
CRATED WEIGHT: 1,600 lbs.

MODEL 595 AERATOR

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OPTIONAL EQUIPMENT

TRANSPORT WHEELS: 4.20 x 4.00-8 and 2 Hydraulic Cylinders (590-595)
WEIGHT TRAYS: Individual (4 on 595, 6 on 590) or Single, Full Length w/brackets (590 & 595)

ROLLERS W/SCRAPERS: Spring Loaded for Contour Units (590 & 595)
HYDRAULIC SYSTEMS (3): To Customize 590 & 595

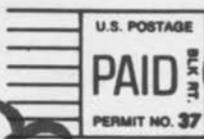
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2. Remote ram hose
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