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Flowers to beautify the landscape,
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The familiar FORE from the golfer,
All over the course will ring.
How easy to forget about Winter,
When all you can think of, is Spring.

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Donald J. Maske has been promoted to North Central
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Owen B. Lewis, Manager, Agricultural Chemical
Marketing, and is responsible for sales and marketing
activities in all North Central District territories.

Maske graduated from Lewis College, Lockport,
Illinois, in 1963 with a B.S. Degree in Chemistry. He
also completed the two-year Turf Management course
at Pennsylvania State University, University Park,
Pennsylvania, in 1965.

A native of Joliet, Illinois, Maske and his wife, Sue,
reside in Lockport.

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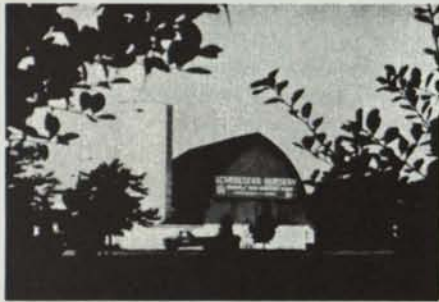
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SNOW COVER A MIXED BLESSING

The tremendous amount of snow we have had this year is both beneficial and possibly injurious, depending on the plant material involved. According to James A. Fizzell, University of Illinois Horticulturist in Cook County, it is fortunate that most of the snow that has fallen in the Northern part of the state has been light and has not weighed branches of evergreens and shrubs down. The snow has sifted through the branches and built up around the plants. In this case, the plants are well supported, covered completely in many cases, and well-insulated from the cold.

Fizzell says the insulating value of snow is very beneficial to many plants. If root systems are exposed to the severe temperatures we have had recently, they can be injured or even killed outright. This happened two years ago when we had little snow cover and extreme temperatures. The snow also prevents frost penetration and, in many places, there is no frost in the ground. Without the snow, frost could penetrate deeply enough to freeze water and sewer lines.

Where heavy snow or freezing rain has fallen, shrubs and trees weighed down may suffer broken branches.

Particularly damaging to foundation plantings is snow sliding from overlaid roofs. The weight of this snow will break down shrubs and evergreens and should be removed. Dripping from the roof as snow melts will result in an accumulation of ice on the shrubs below. According to Fizzell, a structure of saw horses and planks to deflect the ice has been used successfully in some cases. If you are thinking about a new planting or redoing an old one, keep in mind the snow slide problem and locate plants accordingly.

Fizzell thinks when the snow begins to melt, we may find very little damage to plants which have spent the winter under cover. In lawns, where snow is slow to melt or drainage is poor, there may be some snow mold. Be on the lookout for it and treat accordingly.

James A. Fizzell
Senior Extensive Adviser, Horticulture
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Several years ago this editor read an article published in a book "Taking Nitrogen from the Air". It has been condensed to read as the following. I wonder if a project such as this is still in use.

TAKING NITROGEN FROM THE AIR FOR FERTILIZER PURPOSE

One of the greatest discoveries is the fixation of nitrogen from the air for fertilizer purposes. As most of us know, the most important plant food is nitrogen.

While the earth is literally bathed in nitrogen this element is found to only a very slight degree in the soil. That is to say the air which we breathe and in which we move is four-fifths nitrogen. Yet in the richest soil there is seldom more than one-tenth or two-tenths of one percent of nitrogen.

For years some of the greatest scientists ambition was to discover how to make the supplies of nitrogen in the air available to plants as food. The only way this could be done in nature was through the bacteria working on the roots of certain plants such as clover, but this was entirely too slow for practical purposes.

Later a discovery was made that a compound of calcium and carbon heated to a high temperature would absorb nitrogen and retain it in a form that could be applied to the soil and serve as a food for plants.

Besides air this process required as raw materials, limestone and coke. The limestone must be burned to quicklime and the quicklime and coke must be fused together to form calcium carbide. Only the most powerful electric furnaces are capable of performing this work. In these furnaces the lime is heated so powerfully that it actually melts to a liquid and in this condition it dissolves the coke with which it is mixed, and the compound resulting is calcium carbide which can be run off from the interior of the furnace in liquid form.

At one of these cyanamid plants there are seven of these great carbide furnaces each about fifteen feet long and half as wide and one-third as deep. In these furnaces the heat is so terrific that when the fused lime and coke come out in the form of molten carbide the brightness is so dazzling that one can not look at it with the naked eye without injury.

Then there is the problem of producing pure nitrogen gas, that is, separating the eighty percent of nitrogen in the air from the twenty percent of oxygen. The latter is the element which we breathe and which passes into the body.

If the nitrogen and the oxygen were both allowed to act upon calcium carbide the oxygen would burn up the carbide before the nitrogen could be fixed in it. So these elements must be separated and all other impurities removed so that only chemically pure nitrogen is brought to the calcium carbide for fixation. The separation is accomplished by means of liquid air machines. This industry therefore not only utilizes the greatest heat obtainable on a practical scale, but it also utilizes the greatest cold. While the electric furnace produce a temperature of over 4000°F., or about twice as hot as molten cast iron, the liquid air machines work at a temperature of 372°F. below zero. The air must first be purified and dried. It is then compressed cooled while under pressure and then expanded. The expansion lowers its temperature considerably whenever this 372°F. below zero is reached the air liquifies.

When the liquid air is allowed to warm up a little the nitrogen gas evaporates while the oxygen remains behind in the liquid. The pure nitrogen then can be pumped into the fixation ovens.

To fix the nitrogen in the carbide it is necessary to cool the latter after it comes from the electric furnaces and grind it to a very fine powder. This powder is then placed in furnaces that look like steel barrels but are three or four times larger than the ordinary barrel. The oven filled with calcium carbide is then electrically heated with a carbon rod running through the center. When the temperature is about as hot as that of molten iron the pure nitrogen gas from the liquid air plant is pumped in and allowed to act on the calcium carbide for about a day and a half. When the carbide has absorbed all it will absorb the crude cyanamid formed is removed from the oven as a single large cake which is run through pulverizing drums and then put through an elaborate process of refinement and finally bagged for shipment.

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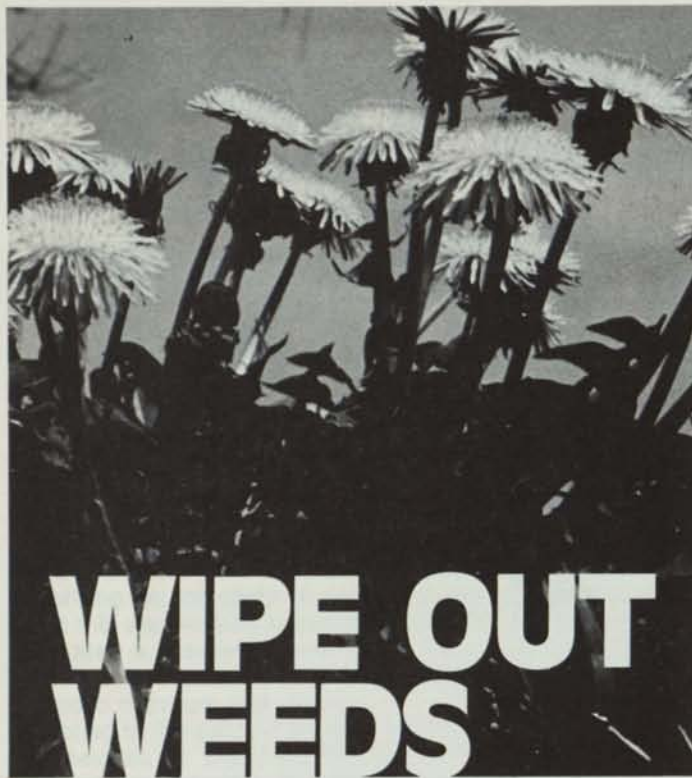
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GCSAA ACTIVITIES AT A GLANCE

The Association's 50th Conference and Show was the largest to date. This conference was fortunate enough to not only have had the largest turf equipment show but also an attendance of 6501, which is a record for now but may be broken again next year. More and more people, even from other industries, are realizing we have a good educational program (plus seminars and golf course tours) that are of benefit to them. Of course, the equipment show is second to none and needs no fanfare—just watch the reaction of a first time attendee to realize the magnitude of this display.

Those pre-conference goers that stopped at the Cloister at Sea Island were greeted by some of the finest southern hospitality imaginable. The weather did not cooperate the first day of the tournament, as the "snowbirds" could be heard muttering, "What next?!" The last day was very nice and a good send-off to Atlanta. Many thanks to the numerous golfers that supported this event. A very sad note—the golf professional at Sea Island, Eddie Thompson, had a massive heart attack the week after the tournament and passed away. A real loss to the golf world.

Despite the great week in Atlanta, the cost of staying there was expensive, to say the least. Unfortunately, this is a sign of the times. Many of us raise our budgets 10% or so every year but do not always adjust our conference expenses accordingly. This budget expense may need a second glance. We need to continue our educational growth, and the GCSAA conference and show offers a good opportunity to do this.

The most talked about issue was the new name of the GCSAA official publication, **Golf Course Management**. A brief history and review of the changes might be in order.

The Organizational Study Committee, Industrial Advisory Committee (Why them? Because they pay for the ads), and the Executive Committee, along with prompting from some members, felt a change was in order. After a lengthy period of review, many adjustments were made in the magazine layout. Then came the name change from **Golf Course Superintendent** to **Golf Course Management** (not "Manager"). Does not golf course **management** better describe what we do as a superintendent? The new name also opens more horizons and stimulates interest for other readers besides superintendents. This was another goal set by the various committees. For those that feel we are changing our title, this is not the case. The Association must continue growing—this should be a positive move forward.

Your support of my election to the GCSAA board was very heartwarming. The Midwest delegates led by Paul Voykin with able assistance from Carl Hopphan and Len Berg were most persuasive considering what they had to work with. After running many years and receiving only a small percentage of the votes, it was nice for a change to receive over half the number of votes cast. I have and always will work for the betterment of GCSAA. Your continued support is very much needed. Thanks to all.

Mike R. Bavier, CGCS

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GREENBUG APHID ON BLUEGRASS TO BE STUDIED IN OHIO

Wooster, Ohio--Stepped up efforts are planned for 1979 to learn more about a tiny insect that's been causing increasing levels of damage to turfgrasses in Ohio and other states. Studies will focus on gathering data on the biology, ecology and control of the greenbug, an aphid with the scientific name *Schizaphis graminum* (Rondani). Dr. L. R. Nault, nationally known aphid specialist at the Ohio Agricultural Research and Development Center, will be co-investigator in the study.

The goal of the study is to learn more about the greenbug and to develop effective and economical methods of controlling damage. Information on the insecticides tested in the study could lead to the granting of a state or national label for the use of materials not presently registered for greenbug control. Funds to help support the project are invited from the turfgrass industry.

The greenbug is not a new insect pest. It's been a problem in a number of grassy crops including barley, wheat, oats, and sorghum. Perennial bluegrass is also a host, but in the past the aphid has rarely caused serious damage in turfgrass. The recent losses may indicate a new association between the greenbug and turfgrasses.

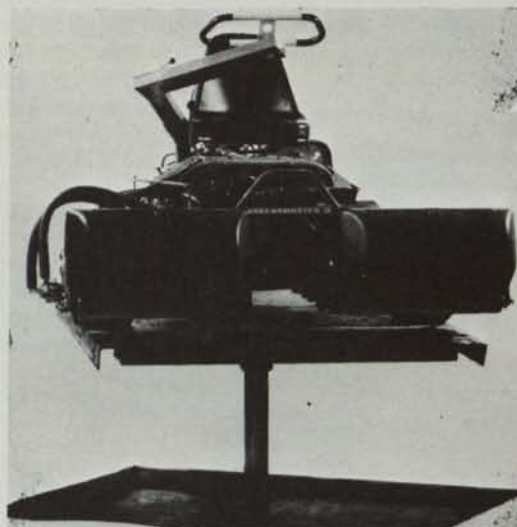
Various "biotypes" of the greenbug have developed which attack specific grass hosts. Speculation is that a new bluegrass adapted biotype of the greenbug has evolved in Ohio and other midwestern and eastern states.

The greenbug damages grasses in several ways. With piercing-sucking mouth-parts it feeds on phloem sap. Large numbers of the insects seriously weaken plants. In addition, the greenbug secretes a salivary phytotoxin which is injected into the plant, resulting in yellow and orange spots on the foliage. There is the possibility the toxin may also move within the plant and weaken the root system.

The possible involvement of the greenbug in the transmission of virus diseases will be studied. The aphid is known to be a vector (carrier) of three isolates of the barley yellow dwarf virus. There may be implications for bluegrass in the virus vector picture.

Greenbug damage first appears in late June and continues through September. In some cases, sections

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of lawns have been damaged so severely that turf had to be replaced. Some degree of control has been achieved with liquid sprays of some organophosphates but as many as three or four followup applications were needed to keep damage under control.

The new research effort will attempt to establish whether or not there actually has developed a bluegrass-specific greenbug biotype and if so, determine whether or not it overwinters in bluegrass and if certain management practices affect overall populations.

Varieties of bluegrass will be screened to see if any exist with resistance or tolerance to the greenbug.

Infested turfgrasses will be indexed for barley yellow dwarf virus and other possible greenbug transmitted viruses to determine the possible involvement of virus diseases and their impact on bluegrass.

Greenbug populations will be carefully screened to determine whether or not the insect has developed resistance to various organo-phosphate insecticides, a problem already occurring with this pest in certain other crops.

Finally, various insecticides will be tested to determine their effectiveness in controlling the greenbug. Optimum rates, times of application, and volume of carrier will be determined. Tests will be conducted on home lawns where greenbug populations have reached damaging levels.

Dr. Harry D. Niemczyk
Professor of Turfgrass Entomology
Ohio Agricultural Research and Dev. Center
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As his golf ball rolled toward the cup, the dentist murmured, "Open wider, please."



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