

continued . . .

while higher branches on the same tree were brown. The type of highway had an effect too. As traffic volume and speed increased, so did plant damage. Unlike typical winterkill, injury became obvious on evergreens in late February and March.

Injured by salt

In some of our earlier work we found that the needles of white cedar and white pine trees growing near the road had high levels of sodium and chloride and were more severely injured than those of trees growing well back from the road. In fact there was a direct relationship between injury and salt content. As the salt content of the foliage increased so did the injury. These findings lead us to the conclusion that de-icing salt whipped up by traffic was carried by the wind and deposited on the trees. In a later study we found that trees and shrubs which were severely damaged along the road generally had a higher content of salt in their twigs and needles. An exception was beech (*fagus grandifolia*) which was severely injured but had low levels of salt in its twigs.

As a result of numerous roadside evaluations we prepared a list rating plants for their susceptibility to injury. This is presented in Table 1 and was first published in an Ontario Ministry of Agriculture and Food Factsheet No. 71-114.

Apple trees sprayed

We found that by spraying apple trees with de-icing salt we could induce injury similar to that observed on trees along the highway. Here again the higher the salt content the greater the injury. Another interesting find was that as we applied more salt sprays to the apple twigs, the number of flowers opening in the spring was less. We were able to determine that injury occurred when apple twigs contained more than one half percent chloride.

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Weather influences

Recently we found that for the twigs and needles of most of the 12 species studied there was a gradual increase in salt content during January and early February, a more rapid increase reaching a peak in March and early April followed by a decline. This pattern of salt accumulation and loss is due to the frequency of salt application to the highway and also the weather conditions. Warm spells seem to increase salt uptake while rainfall helps to wash the salt out.

Symptoms

Here are some things to look for:

1. Needle browning of conifers beginning at the tip.
2. Dieback and tufting of deciduous plants.
3. Injury more severe on the side facing the road.
4. More damage on the downwind side of the road.
5. Injury decreases further back from the road.
6. Less injury below the snow line.
7. Flower buds not opening on the side facing the road.

Protection

Trees which have resinous or sunken buds appear to be more tolerant of salt spray. Wax or bloom on conifer needles seems to add protection. For example, the bluer the spruce the less injury it has.

A word of caution

Let me hasten to point out that all injury evident or presumed on trees and shrubs growing near the roadside is not due to salt. Only after thoroughly evaluating the injury symptoms and considering all the environmental conditions at a particular site can de-icing salt be singled out as the most probable cause of plant damage. Roadside plants are affected by many factors associated with highway construction practices, road use, roadside soil quality and most importantly, excessive exposure to air and soil pollutants. De-icing salt is only one of these factors.

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November 1978 Business Meeting

The Wisconsin Golf Course Superintendents Association held its final 1978 meeting at Nakoma Golf Club on November 14, in Madison. Superintendent Randy Smith and the Nakoma staff provided our organization with an excellent meeting site and a great dinner. Many thanks, Randy.

1979 WGCSA Committees Announced

President Woody Voight has announced the following WGCSA committee assignments for 1979.

ARRANGEMENTS and GOLF	Bill Douglas Bob Welch
By-Laws	Dave Murgatroyd Bill Sell Allan Kress
Education	Jim Belfield Dan Quast Jim Latham
Historian	Dennis Willms Randall Smith
Membership	Jeff Bottensek Deke DeCramer Martin Mikulski
Nominating	Ron Grunewald Al Vrana Bill Sell
Publicity	Bill Roberts
Scholarship and Research	Tom Harrison Wayne Otto Bob Boltz Ralph Christopherson Larry Munsemaier
Social	Jeff Bottensek Bruce Worzella
Audit	Irv Johnson Allan Kress Jerry Kershasky
Parliamentarian	Bob Musbach Bill Sell

It should be noted that the first name listed under each heading is the committee chairman. WGCSA members are encouraged to direct any pertinent comments, complaints or suggestions to these committees.

The agenda of the meeting dealt, primarily with the election of 1979 WGCSA officers. Additionally, three WGCSA members were honored for 25 year membership in the association. The three included Joe Kniece, City of Appleton Park Department, Reid Golf Course, Appleton; Bob Musbach, North Hills Country Club, Menomonee Falls; and Walt Stepanik, Wausau Country Club, Wausau.

The following officers were elected for 1979:

President - Elwood Voight, Ozaukee Co. Park Commission, Port Washington

Vice President - Jim Belfield, Tripoli Country Club, Milwaukee.

Secretary - Treasurer - Jeff Bottensek, Waupaca Country Club, Waupaca.

Directors - Ron Grunewald, Lake Windsor C.C., Windsor; Tom Harrison, Maple Club C.C., Madison; Dave Murgatroyd, Ridges C.C., Wisconsin Rapids; Wayne Otto, Ozaukee C.C., Mequon; Bill Roberts, Stevens Point C.C., Stevens Point.

It was also decided at the Board of Directors meeting, preceding the regular gathering that WGCSA would join the Illinois Turf Foundation and that we would donate \$100.00 to the Golf Course Superintendents Association of America Scholarship and Research Fund.



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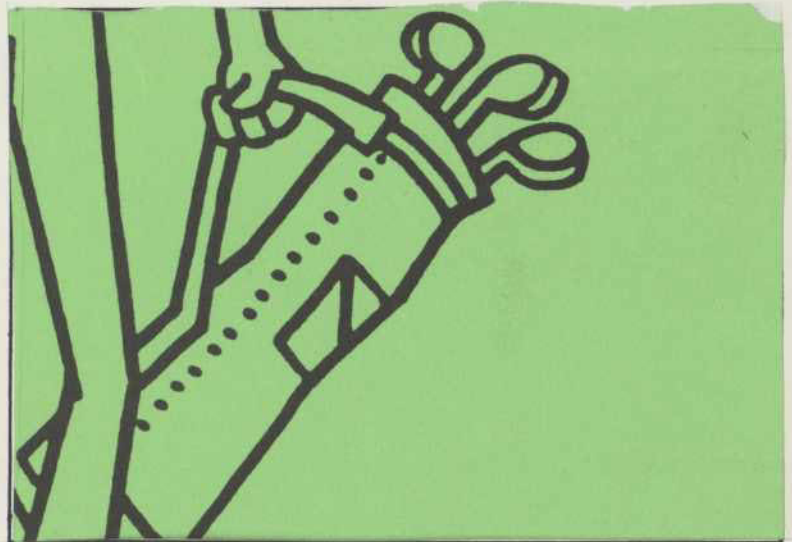
Position Information Service

Once again, the **Wisconsin Golf Course Superintendents Association** is offering Position Information Service registration to all dues paying members.

It will be necessary for all interested members to fill out the attached card and return it to the Secretary-Treasurer in order to receive the information. Persons, registering will then be eligible to receive the details of position openings as they are processed by the Secretary-Treasurer's office.

All replies should be mailed directly to:

Jeff Bottensek, CGCS
Secretary-Treasurer WGCSA
1330 Ware Street, P.O. Box 274
Waupaca, WI 54981



Please register me as a participant in the Position Information Service.

NAME _____ CLASS _____

Position _____

Business Address _____

_____ Bus. Phone _____

Home Address _____

_____ Home Phone _____

Please address all correspondence to:

Business _____ Home _____

Financial Statement: WGCSEA

Listed below is the financial statement for The Wisconsin Golf Course Superintendents Association for the period of January 4, 1978 through January 1, 1979.

EDITOR

INCOME

Balance from check book 1977	\$ 613.76
Dues from members	2840.00
Ads from Grass Roots	4396.40
Symposium tickets	<u>3794.00</u>
	TOTAL \$11,644.16

EXPENDITURES

<u>Postage</u>	
Grass Roots	\$ 574.66
Certificates	30.72
Directory	115.24
Postage and cards	<u>380.55</u>
	TOTAL \$1101.17

Location	Jim Belrieu
	Dan Quast
	Jim Latham
Historian	Dennis Willms
	Randall Smith
Membership	Jeff Bottensek
	Deke DeCramer
	Martin Mikulski
Nominating	Ron Grunewald
	Al Vrana
	Bill Sell
Publicity	Bill Roberts
Scholarship and Research	Tom Harrison
	Wayne Otto
	Bob Boltz
	Ralph Christopherson
	Larry Munsemaier

Misc. Expenditures

S and R Fund	\$ 100.00
Ad Golf Super	176.18
Dues Midwest	30.00
O.J. Nore	545.66
Editors compensation	200.00
Secretarys compensation	200.00
Speakers expenses	345.50
Board Meeting	54.86
Trophy and plaques	208.57
Golf Prizes	120.95
Addresses and Stationary	108.85
Flowers	70.12
Fire Works	18.34
Dinner dance	64.00
Typewriter repair	30.37
Checks	<u>13.24</u>

TOTAL \$2286.63

Symposium Expenditures

Programs	\$ 241.00
Pfister	3037.06
Screen	19.34
Sewage Comm.	<u>52.81</u>

TOTAL \$3350.21

Total Expenditures	<u>\$10,001.89</u>
Total expenditures	\$10,001.89
Total income	11,644.16
Total credits after expenses	1,642.27
Check book balance	1,642.27
Profit from symposium	443.79
Profit from Grass Roots	1,050.04

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Wisconsin Golf Course Superintendents Association

We, the members of the Wisconsin Golf Course Superintendents Association, depend upon the unity, as well as the professionalism of our membership, to cultivate and maintain superior golf turf as well as golf atmosphere.

The knowledge that is gained through continued education and experience in turfgrass maintenance should be openly shared with mutual trust and comradarie among fellow members. To strive for further and continued knowledge and excellence in all phases of golf course maintenance is our ambition. The Proud legacy of our profession depends upon the pride and integrity which each individual takes within himself.

