



USGA PRESIDENT
Trey Holland

**GREEN SECTION
COMMITTEE CHAIRMAN**
John D. O'Neill
49 Homans Avenue
Quogue, NY 11978

EXECUTIVE DIRECTOR
David B. Fay

EDITOR
James T. Snow

ASSOCIATE EDITOR
Kimberly S. Erusha, Ph.D.

DIRECTOR OF COMMUNICATIONS
Marty Parkes

©2001 by United States Golf Association®

Subscriptions \$18 a year, Canada/Mexico \$21 a year, and international \$33 a year (air mail).

Subscriptions, articles, photographs, and correspondence relevant to published material should be addressed to: United States Golf Association Green Section, Golf House, P.O. Box 708, Far Hills, NJ 07931.

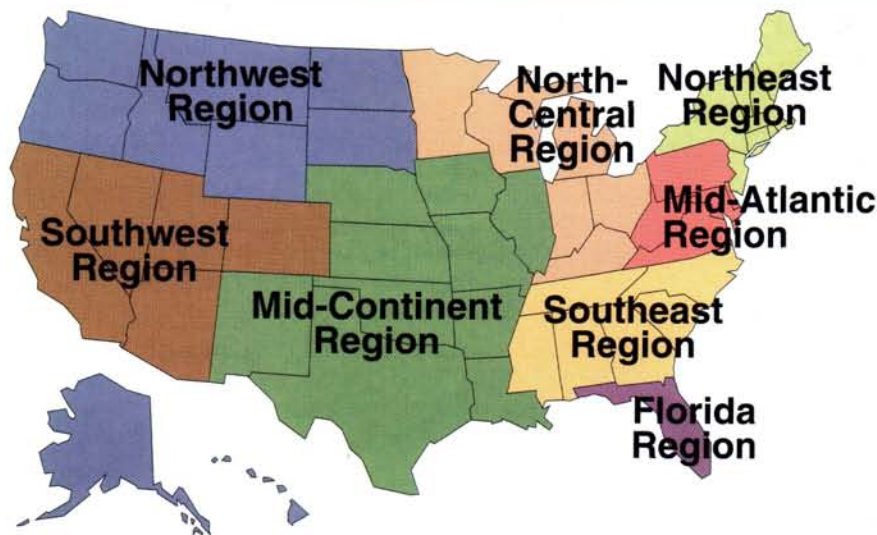
Permission to reproduce articles or material in the USGA GREEN SECTION RECORD is granted to newspapers, periodicals, and educational institutions (unless specifically noted otherwise). Credit must be given to the author, the article's title, USGA GREEN SECTION RECORD, and the issue's date. Copyright protection must be afforded. To reprint material in other media, written permission must be obtained from the USGA. In any case, neither articles nor other material may be copied or used for any advertising, promotion, or commercial purposes.

GREEN SECTION RECORD (ISSN 0041-5502) is published six times a year in January, March, May, July, September, and November by the UNITED STATES GOLF ASSOCIATION®, Golf House, Far Hills, NJ 07931. Postmaster: Address service requested - USGA Green Section Record, P.O. Box 708, Golf House, Far Hills, NJ 07931-0708.

Periodicals postage paid at Far Hills, NJ, and other locations. Office of Publication, Golf House, Far Hills, NJ 07931.

Visit the USGA's Internet site on the World Wide Web. The address is:
<http://www.usga.org>

Turfgrass Information File (TGIF):
<http://www.lib.msu.edu/tgif>
(517) 353-7209



GREEN SECTION NATIONAL OFFICES:

United States Golf Association, Golf House
P.O. Box 708, Far Hills, NJ 07931 • (908) 234-2300 • Fax (908) 781-1736
James T. Snow, *National Director*, jsnow@usga.org
Kimberly S. Erusha, Ph.D., *Director of Education*, kerusha@usga.org

Research: P.O. Box 2227, Stillwater, OK 74076 • (405) 743-3900 • Fax (405) 743-3910
Michael P. Kenna, Ph.D., *Director, Green Section Research*, mkenna@usga.org
904 Highland Drive, Lawrence, KS 66044 • 785-832-2300
Jeff Nus, Ph.D., *Manager, Green Section Research*, [jnu@usga.org](mailto:jnus@usga.org)

Construction Education Program:

720 Wooded Crest, Waco, TX 76712 • (254) 776-0765 • Fax (254) 776-0227
James F. Moore, *Director*, jmoore@usga.org

REGIONAL OFFICES:

Northeast Region: P.O. Box 4717, Easton, PA 18043 • (610) 515-1660 • Fax (610) 515-1663
David A. Oatis, *Director*, doatis@usga.org • Jim Baird, Ph.D., *Agronomist*, jbaird@usga.org
Kathy Antaya, *Agronomist*, kantaya@usga.org
1500 N. Main Street, Palmer, MA 01069 • (413) 283-2237 • Fax (413) 283-7741
James E. Skorulski, *Agronomist*, j Skorulski@usga.org

Mid-Atlantic Region: P.O. Box 2105, West Chester, PA 19380-0086 • (610) 696-4747 • Fax (610) 696-4810
Stanley J. Zontek, *Director*, szontek@usga.org • Darin S. Bevard, *Agronomist*, dbevard@usga.org
Manor Oak One, Suite 410, 1910 Cochran Rd., Pittsburgh, PA 15220 • (412) 341-5922 • Fax (412) 341-5954
Keith A. Happ, *Agronomist*, khapp@usga.org

Southeast Region: P.O. Box 95, Griffin, GA 30224-0095 • (770) 229-8125 • Fax (770) 229-5974
Patrick M. O'Brien, *Director*, patobrien@usga.org
1097 Highlands Drive, Birmingham, AL 35244 • (205) 444-5079 • Fax (205) 444-9561
Christopher E. Hartwiger, *Agronomist*, chartwiger@usga.org

Florida Region: P.O. Box 1087, Hobe Sound, FL 33475-1087 • (561) 546-2620 • Fax (561) 546-4653
John H. Foy, *Director*, jfoy@usga.org • Todd Lowe, *Agronomist*, tlowe@usga.org

Mid-Continent Region: P.O. Box 1130, Mahomet, IL 61853 • (217) 586-2490 • Fax (217) 586-2169
Paul H. Vermeulen, *Director*, pvermeulen@usga.org
4232 Arbor Lane, Carrollton, TX 75010 • (972) 492-3663 • Fax (972) 492-1350
Brian M. Maloy, *Agronomist*, bmalo@usga.org

North-Central Region: P.O. Box 15249, Covington, KY 41015-0249 • (859) 356-3272 • Fax (859) 356-1847
Robert A. Brame, *Director*, robbrame@usga.org
P.O. Box 5069, Elm Grove, WI 53122 • (262) 797-8743 • Fax (262) 797-8838
Robert C. Vavrek, Jr., *Agronomist*, rvavrek@usga.org

Northwest Region: 5610 Old Stump Drive N.W., Gig Harbor, WA 98332 • (253) 858-2266 • Fax (253) 857-6698
Larry W. Gilhuly, *Director*, lgilhuly@usga.org
P.O. Box 5844, Twin Falls, ID 83303 • (208) 732-0280 • Fax (208) 732-0282
Matthew C. Nelson, *Agronomist*, mnelson@usga.org

Southwest Region:

505 North Tustin Avenue, Suite 121, Santa Ana, CA 92705 • (714) 542-5766 • Fax (714) 542-5777
Patrick J. Gross, *Director*, pgross@usga.org • Michael T. Huck, *Agronomist*, mhuck@usga.org