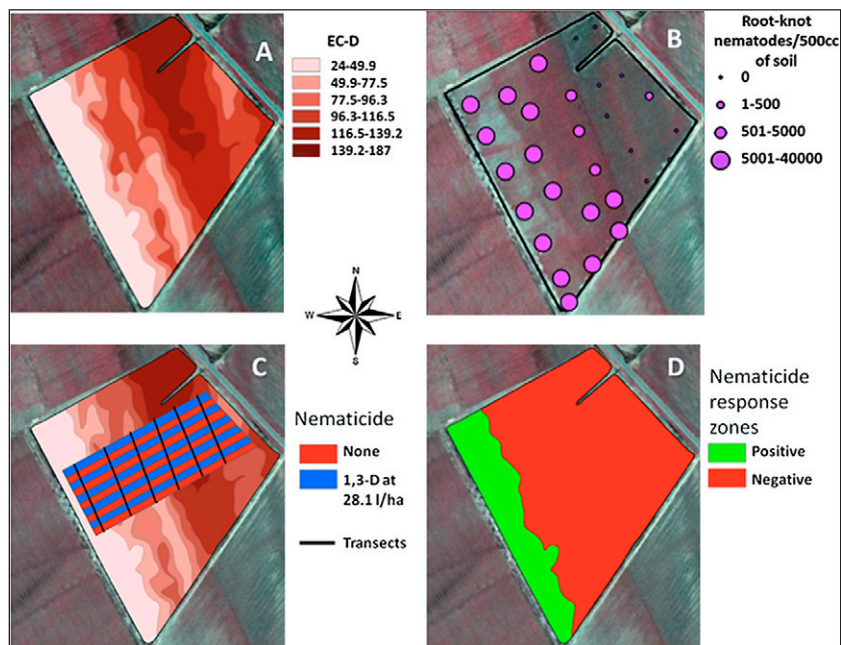


# JOURNAL of NEMATOTOLOGY

The Official Journal of The Society of Nematologists

Volume 46, Number 4, December 2014



Site specific nematode management in cotton

Journal of Nematology 46(4):309–384 (2014)  
Hanover, Pennsylvania

ISSN 0022-300X

# JOURNAL OF NEMATOLOGY

THE OFFICIAL JOURNAL OF THE SOCIETY OF NEMATOLOGISTS

## EDITORIAL BOARD

### Editor-in-Chief

Nancy Kokalis-Burelle, 2014. USDA-ARS, Ft. Pierce, FL

### Editors

Andreas Westphal, 2014. Julius Kühn-Institut, Münster, Germany

Zafar Handoo, 2014. USDA-ARS, Beltsville, MD

James LaMondia, 2014. The Connecticut Agricultural Experiment Station, Windsor, CT

David Shapiro-Ilan, 2014. USDA-ARS, Byron, GA

Inga Zasada, 2014. USDA-ARS, Corvallis, OR

William Crow, 2015. University of Florida, Gainesville, FL

Abigail Walter, 2015. Swedish University of Agricultural Sciences

Salliana Stetina, 2015. USDA-ARS, Stoneville, MS

Sergei Subbotin, 2015. California Department of Food and Agriculture, Sacramento, CA

Erik J. Ragsdale, 2016. Max Planck Institute, Tübingen, Germany

Axel Elling, 2016. Bayer CropScience, Morrisville, NC

Richard F. Davis, 2016. USDA-ARS, Tifton, GA

Andrea M. Skantar, 2017. USDA-ARS, Beltsville, MD

Christine Griffin, 2017. National University of Ireland, Maynooth, Co. Kildare, Ireland

---

## Published by the Society of Nematologists

President: Stephen Thomas  
President Elect: Byron Adams  
Vice-President: Patricia Timper  
Secretary: Andrea Skantar  
Treasurer: Senyu Chen

Editor-in-Chief: Nancy Kokalis-Burelle  
Executive Member: Nathan Schroeder  
Executive Member: Horacio Lopez Nicora  
Executive Member: Paulo Vieira  
Webpage/Newsletter Editor: Roxana Myers

---

Journal of Nematology (ISSN 0022-300X) is published quarterly by The Society of Nematologists. For other information, visit: <http://www.nematologists.org>

Mention of a pesticide, cultivar, or commercial or proprietary product does not constitute a recommendation or an endorsement of its use by editors, author(s), their institutions, or The Society of Nematologists. Authors are responsible for statements made in the Journal, whether of fact or opinion.

Printed by The Sheridan Press, 450 Fame Ave., Hanover, PA 17331.

Cover—The Tensas 1 field, Tensas Parish, LA with (A) population densities of *Meloidogyne incognita* during the fall of 2003 based on 0.4 ha grid sampling, (B) six soil zones based on EC-D (ECa-deep) values, (C) twelve row strips of 1,3-dichloropropene at 28.1 liter/ha applied preplant or untreated in the spring across soil zones and transects, and (D) zones in the field which showed a significant yield response to the application of the fumigant during 2004-2006. Yield data from each plot was collected along a 27.4 m area centered on each transect. See article by Overstreet *et al.*

---

Sustaining Associates of  
THE SOCIETY OF NEMATOLOGISTS

**A&L Southern Agricultural Laboratories**

David Sui (ddsui@al-southern.com)  
Pompano Beach, FL

**Ajay North America, LLC**

Mark Leafgreen (lefgrenm@bellsouth.net)  
Powder Springs, GA

**Arvesta**

Charles T. Schiller (cschiller@arvesta.com)  
Cary, NC

**BASF Plant Science LLC**

Volker Mittendorf  
(volker.mittendorf@basf.com)  
Research Triangle Park, NC

**Bayer Crop Science**

Lee S. Hall (lee.hall@bayercropscience.com)  
Research Triangle Park, NC

**Divergence, Inc.**

James P. McCarter  
(mccarter@divergence.com)  
St. Louis, MO

**Dow Agro Sciences**

James P. Mueller  
(jpmueller@dow.com)  
Brentwood, CA

**DuPont Crop Protection**

Michel A. Rivera  
(michel.a.rivera@usa.dupont.com)  
Newark, DE

**Pasteuria BioSciences, LLC**

Kelly Smith  
(ksmith@pasteuriabio.com)  
Alachua, FL

**Pest Pros, Inc.**

Randy Van Haren  
(pestpros@uniontel.net)  
Plainfield, WI

**Syngenta Crop Protection, Inc.**

David Long  
(david.long@syngenta.com)  
Greensboro, NC

Sustaining associate members help support The Society of Nematologists (SON) through their financial assistance, knowledge, expertise, and professional involvement in the science of nematology. For information about these companies or if you would like to become a sustaining associate member, contact a member of the Executive Board, or the SON Business Office (societyofnematologist@gmail.com).

Annual membership in the Society of Nematologists is \$60 US for regular members, \$30 for students, and \$500 for Sustaining Associates. Payment must be with a check in US currency drawn on a US bank or by Visa or MasterCard. A fee of \$9.95 will be added to all transactions. The Nematology Newsletter is included in the membership dues for regular and student members. Institutional Subscription rates are \$140/yr in the United States and \$160 outside the US. This and other information can be found at the Society's website: <http://www.nematologists.org>.

BACK ISSUES OF JOURNAL OF NEMATOLOGY

Vols. 21–34 (1989–2002). Price per issue includes postage and handling. Members: \$10.00; Non-members: \$40.00. Please indicate volumes desired and send check, money order, or credit card (VISA or MasterCard) account number and expiration date to the Society of Nematologists, Inc., 108 West Burwell Avenue, Loundonville, OH 44842

**CONTENTS**  
**JOURNAL OF NEMATOLOGY**

**Vol. 46, No. 4**

**December 2014**

**Contributed Papers**

**Management**

- Site Specific Nematode Management—Development and Success in Cotton Production in the United States.  
C. OVERSTREET, E. C. MCGAWLEY, A. KHALILIAN, T. L. KIRKPATRICK, W. S. MONFORT, W. HENDERSON,  
AND J. D. MUELLER ----- 309
- Spatial Distribution of Plant-Parasitic Nematodes in Semi-Arid *Vitis vinifera* Vineyards in Washington.  
AMANDA D. HOWLAND, R. PAUL SCHREINER, AND INGA A. ZASADA ----- 321

**Biological Control**

- Effects of a Commercial Formulation of *Bacillus firmus* I-1582 on Golf Course Bermudagrass Infested  
with *Belonolaimus longicaudatus*. WILLIAM T. CROW ----- 331

**Entomopathogenic Nematodes**

- Characterization of Biocontrol Traits in *Heterorhabditis floridensis*: A Species with Broad Temperature Tolerance.  
DAVID I. SHAPIRO-ILAN, DANA BLACKBURN, LARRY DUNCAN, FAHIEM E. EL-BORAI, HEATHER KOPPENHÖFER,  
PATRICK TAILLIEZ, AND BYRON J. ADAMS ----- 336

**Resistance**

- Response of Resistant and Susceptible Bell Pepper (*Capsicum annuum*) to a Southern California  
*Meloidogyne incognita* Population from a Commercial Bell Pepper Field. JOSE LUIS AGUIAR, OLI BACHIE,  
AND ANTOON PLOEG ----- 346
- Physiological Effects of *Meloidogyne incognita* Infection on Cotton Genotypes with Differing Levels of  
Resistance in the Greenhouse. PING LU, RICHARD F. DAVIS, ROBERT C. KEMERAIT, MARC W. VAN IERSEL,  
AND HARALD SCHERM ----- 352
- Expression of Phenylalanine Ammonia Lyase Genes in Maize Lines Differing in Susceptibility to *Meloidogyne*  
*incognita*. J. L. STARR, W. YANG, Y. YAN, F. CRUTCHER, AND M. KOLOMIETS ----- 360
- Nematicides Enhance Growth and Yield of *Rotylenchulus Reniformis* Resistant Cotton Genotypes.  
DREW W. SCHRIMSHER, KATHY S. LAWRENCE, ROELOF B. SIKKENS, AND DAVID B. WEAVER ----- 365

**Ecology**

- Occurrence of *Ditylenchus weischeri* and Not *D. dipsaci* in Field Pea Harvest Samples and *Cirsium*  
*arvense* in the Canadian Prairies. MARIO TENUTA, MEHRDAD MADANI, SHABEG BRIAR, OSCAR MOLINA,  
ROBERT GULDEN, AND SERGEI A. SUBBOTIN ----- 376
- INDEX to Key Words, Authors, Volume 46 ----- ii