

Joseph Crowell Neal
Department of Horticultural Science
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<https://weeds.ces.ncsu.edu/>

Education

Ph.D., 1984 North Carolina State University, Raleigh, NC, Horticultural Science,
M.S., 1981 Clemson University, Clemson, SC, Horticulture
B.S., 1978 University of Georgia, Athens, GA, Horticulture

Professional Experience

11/84 to 9/96: Assistant and Associate Professor of Weed Science, Department of Floriculture
and Ornamental Horticulture, Cornell University
9/96 to present: Professor and Extension Specialist – Weed Science,
Department Extension Leader (2015-2019)
Department of Horticultural Science, North Carolina State University

Current Professional Responsibilities:

Responsibilities include: research and extension education for weed management systems in nursery crops, urban landscapes and Christmas trees. Research interests include integrated weed management, biological control of weeds, biology and management of invasive weeds. Outreach education programs emphasize curriculum-based educational programs. As Department Extension Leader I also facilitate Extension program planning in Horticultural Science.

Scholarly and Professional Honors

1990 Tools in Teaching award from Epsilon Sigma Phi, Lambda Chapter - The Cooperative Extension Honorary Society.
1993 Northeastern Weed Science Society Award for "Outstanding Applied Research"
1997 Outstanding Extension Publication Award from Epsilon Sigma Phi, Lambda Chapter
1998 Educational Materials Award –American Society for Horticultural Science
2004 Fellow – Northeastern Weed Science Society
2006 Distinguished Service Award – Amer. Soc. for Horticultural Sci, Nursery Working Group
2006 Outstanding Extension Publication Award – Amer. Soc. for Hort Sci, Extension Division
2008 Porter Henegar Award -- Southern Nursery Association
2009 Outstanding Researcher Award -- Northeastern Weed Science Society
2009 Educational Materials Award -- American Society for Horticultural Science
2013 Kim Powell Award for service to the industry – NC Nursery and Landscape Assoc.
2014 Friends of Southern IPM Bright Idea Award – Southern IPM Center (awarded to the Southern Nursery IPM Working Group)
2015 SR-ASHS Blue Ribbon Communication Award (awarded to the SNIPM Working Group)
2017 ASHS Education publication award: outstanding paper on horticulture education (with SNIPM working group members)

Professional Society Memberships & Service:

- American Society for Horticultural Science
- International Bioherbicide Group (IBG)-- IBG Workshop organizing committee chair 2009 and 2013, and committee member 2018.
- Northeastern Weed Science Society
Graduate student presentation judging committee, 1998-2004; Nominating committee, 1989, 1991, 1992 (chair); Chair, resolutions committee, 1990; Executive committee, 1993-1998;

- Editor, 1993 – 1994; Vice President and program chair, 1995; President-Elect, 1996; President, 1997; Awards committee, 1998-2003; Chair, biological control section, 2000
- North Carolina Exotic Pest Plant Council
 - Organizing committee 2000-2001; Nominating committee 2001; Vice-President 2004
- Southern Nurserymen’s Association Research Conference
 - Student presentation judge, 1998-1999 (chair); Chair weed control section, 2003-2004
- Weed Science Society of America
 - Board of Directors 2006-2010; Chair, turf and ornamentals section, 1990; Chair, biocontrol section, 2000; Chair, symposium committee 2009: Fate of Herbicides Applied to Turf and Ornamentals, 1992; Awards committee 2003-2006;; Chair Biocontrol committee 2006-2008; Symposium organizing committee 2009, 2013, 2015.
- NC Nursery and Landscape Association; Board of Directors education advisor 2017 – 2019.

Recent Grants

- Controlling Nostoc (cyanobacteria) in container nurseries. Horticulture Research Institute. \$36,000 (2017 – 2018)
- Evaluations of FeHEDTA for control of broadleaf weeds in ornamentals – USDA-IR-4 Biopesticide program \$30,000 (2017-2018)
- Alternatives for herbicide resistant weed control in NC Fraser fir production \$30,000 (2018-2020) USDA-IR-4 and BASF Corp.
- Assessing the presence and management of weed seeds in irrigation water in container production nurseries. \$111,000 (2019 – 2020) (with A. Lebude)
- Mechanized Weed Control in Container Nurseries. \$80,000 (2019 – 2020) NCDA SCBG (with G. Roberson)
- Management options for herbicide resistant weeds in Christmas tree production. \$41,600 (2019-2020). National Christmas Tree promotion board (with J. Owens)

Publications Summary

Publication type	number, career (and past 5 years)
Refereed journal articles	55 (3)
Peer reviewed book chapters and manuals	9 (4)
Abstracts of presentations at professional meetings	193 (21)
Peer reviewed Extension bulletins and fact sheets	9 (4)
Non-peer reviewed extension bulletins and fact sheets	75 (46)
popular / industry press articles	36 (1)
Outreach / Extension videos	3 (3)

Graduate Students: Career(current): Chaired: 4 Ph.D., 12(2) M.S.; Advisory Committee: 8(2) Ph.D.; 13 (3)M.S.

Summary of Publications in the past 5 years:

Peer reviewed journal publications:

LeBude, A., A. Fulcher, J. Dubois, S. K. Braman, M. Chappell, J.H. Chong, J. Derr, N. Gauthier, F. Hale, W. Klingeman, G. Knox, **J. Neal**, and A. Windham 2017. Experiential Nursery Integrated Pest Management Workshop Series to Enhance Grower Practice Adoption. HortTechnology 27:772-781; doi:10.21273/HORTTECH03765-17

Wolfe, J.C., **J.C. Neal**, and C. Harlow. 2016. Selective broadleaf weed control in turf with the bioherbicides *Phoma macrostoma* and Thaxtomin A Weed Technology 30(3):688-700

Neal, J. C., J. C. Wolfe and C. Harlow. 2015. Auxinic herbicide phytotoxicity to container-grown *Muhlenbergia capillaris* and *Miscanthus sinensis*. J. Environ. Hort. 33(1):1–6

Peer reviewed books, book chapters:

Chong, J.H, J. Williams-Woodward, **J. Neal** and M.T Springs Eds. 2017. Southeastern U. S. Pest Control Guide for Nursery Crops and Landscape Plantings. 203 pages.

<https://content.ces.ncsu.edu/southeastern-us-pest-control-guide-for-nursery-crops-and-landscape-plantings>

Neal, J. C., J. F. Derr and S. C. Marble. 2017. Weed management in shrub production. In: Chappel, M. ed. IPM for Shrubs in Southeastern US Nursery Production. Vol II.

(https://wiki.bugwood.org/IPM_Shrub_Book_II)

Fulcher, A., W. Klingeman, **J. Neal**, A. Windham and G. Weaver. 2016. Hydrangea - *Hydrangea* spp. IN M. Chappell, G.W. Knox and G. Fernandez, (eds.) IPM for Shrubs in Southeastern US Nursery Production: Volume II. Athens, GA: Southern Nursery IPM Working Group. Print ISBN: 978-0-9854998-4-6. (https://wiki.bugwood.org/IPM_Shrub_Book_II)

Neal, J. C. and J. F. Derr. 2014. Weed management in shrub production. In: White, S. ed. IPM for Shrubs in Southeastern US Nursery Production: Vol I. Chapter 6. pp 161-175.

http://wiki.bugwood.org/IPM_Shrub_Book

Peer reviewed Extension fact sheets (AG series)

Barker, A. and **J. C. Neal**. 2017. Calibrating Hand-Held Granular Spreaders for Nursery Weed Control. NC Cooperative Extension publication AG-828. <https://content.ces.ncsu.edu/calibrating-hand-held-granular-spreaders-for-nursery-weed-control>

Fu, Wenyan, J. T. Sherk, and **J. C. Neal**. 2017. Plant Selection for Extensive Green Roofs in the Research Triangle Area of North Carolina. NC Cooperative Extension publication AG-829.

<https://content.ces.ncsu.edu/plant-selection-for-extensive-green-roofs-in-the-research-triangle-area-of-north-carolina>

Barker, A. and **J. C. Neal**. 2016. Using a Hand-Cranked, Hand-Held Spreader to Apply Herbicides in Container Nurseries NC Cooperative Extension publication AG-826.

<https://content.ces.ncsu.edu/using-a-hand-cranked-hand-held-spreader-to-apply-herbicides-in-container-nurseries>

Neal, J. C. 2016. Weed Control in Woody Plant Propagation and Containerized Liner Production. NC Cooperative Extension publication AG-827 <https://content.ces.ncsu.edu/weed-control-in-woody-plant-propagation>

Other significant extension publications (not reviewed)

Neal, J. C. 2014 – 2018. Herbicide information fact sheet series. Updated or created fact sheets for **30** of the most common preemergence and postemergence herbicides labeled for use in nursery crops and landscape plantings. <https://content.ces.ncsu.edu/catalog/series/92/>

Neal, J.C. and A. F. Senesac. 2018. Are there alternatives to glyphosate (for weed control in landscape plantings). NC Extension on-line fact sheet. <https://content.ces.ncsu.edu/are-there-alternatives-to-glyphosate-for-weed-control-in-landscapes>

Barker, A. and J. C. Neal. 2016. Frequent hand weeding saves money. On-line fact sheet, <https://content.ces.ncsu.edu/frequent-hand-weeding-saves-money> (Part of the Weed Management in Container Nurseries series)

Neal, J. C. and T. Gannon. 2016 (updated 2018). Herbicide Information Factsheets – Glyphosate <https://content.ces.ncsu.edu/glyphosate-1> (includes updated toxicology reviews).

Videos (all 2018), part of the new agent training project:

How to send a weed sample for identification and control recommendations.

<https://youtu.be/sW6lTgrqxMs>

Navigating the Weed Management Portal <https://youtu.be/22vr42xdbnI>

Introduction (Neal) <https://youtu.be/TC0Sv7FVzrA>