

Agronomic Division — 2016 Annual Report

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Service

The Agronomic Division serves North Carolina residents by providing soil testing, plant tissue analysis, waste analysis, solution analysis, soilless media analysis, nematode assay and expert advice regarding plant nutrient management. This year, the division made several changes that have improved the quality and scope of these services. Some notable milestones for 2016 include

- 1) Hiring of two new regional agronomists, Joshua Mays for Region 9 and Carla Pugh for Region 1.
- 2) Purchase of two Spectro Arcos Inductively Coupled Plasma (ICP) Optical Emission Spectrometers (OES), one for the Soil Testing Laboratory and one for the Plant/Waste/Solution/Media Laboratory.
- 3) Purchase of a second humic matter robot for the Soil Testing Laboratory
- 4) Installation of a new down draft table in the Soil Testing Laboratory to reduce the potential for employees to inhale dust produced during the grinding of samples and to lessen the likelihood for cross contamination of samples
- 5) Addition of extra surveillance cameras around the Eaddy Building to increase the security of our facility
- 6) Establishment of an Agronomic IT Advisory Group to help provide feedback to the Agronomic Division on what LIMS/PALS enhancements would facilitate the transfer of data and prevent incompatibility problems with external ag software packages.
- 7) Participation in the NC Star Public Sector Safety Program for the seventh year

As a Public Sector Star site, the Agronomic Division conducted monthly building inspections; issued a quarterly safety newsletter; presented benchtop trainings on relevant safety topics; and sent representatives to attend NCDOL's annual Carolina STAR safety conference. All in-house employees met regularly and served on one of seven safety teams: Safety Inspection & Compliance; Safety Program & Policy; Safety Information & Communication; Job Safety Analysis; Housekeeping and Wellness; Ergonomics and Field Services.

The soil testing and waste analysis laboratories continued to operate under the N.C. Department of Environmental Quality (DEQ) Division of Water Resources' laboratory certification program and are qualified to provide critical testing for animal waste permits

and nutrient management compliance. The soil testing and plant analysis laboratories continue to meet the requirements of the North American Proficiency Testing (NAPT) program. The waste analysis lab participated in the national Manure Analysis Proficiency (MAP) Program and earned certification in manure testing for all parameters attempted. The Soil Testing Laboratory participated in the Agricultural Laboratory Proficiency Program for the second year; this new program allows the lab to critically examine its within laboratory performance for self-auditing purposes and to compare its results to those produced by other participating laboratories.

The **Soil Testing Section**, under the direction of David H. Hardy, Ph.D., analyzed 273,314 soil samples in FY2016: 253,678 predictive; 12,732 expedited; 2,263 diagnostic; 2,885 research; 475 from witchweed-infested areas; 730 from internal and 551 heavy metals. Reports issued with fertilizer/lime recommendations totaled 37,437.

The **Plant/Waste/Solution/Media (PWSM) Section**, under the direction of Kristin Hicks, Ph.D., analyzed 10995 plant tissue samples; 15,913 waste samples; 3798 solution samples; and 750 soilless media samples in FY2016. Of these, 7,066 were research samples. PWSM issued a total of 11,993 reports.

The **Nematode Assay Section**, under the direction of Weimin Ye, Ph.D., processed 36,520 samples and issued 5,232 reports in FY2016, including 1,214 research samples, 178 diagnostic samples, 33 out-of-state samples (excluding pinewood), 58 samples from the NCSU Plant Disease and Insect Clinic and 44 regulatory samples from the NCDA&CS Plant Industry Division. In addition, 3,607 samples (387 reports) were specifically tested for the presence of pinewood nematode so shipments of lumber and wood products could be cleared for export from the United States. Pine wood nematode was detected in 42 samples, but this was only 1.16% of the total pine wood samples assayed. From April through September, samples were processed in about 5 business days. During the busy season of October through March, turn-around time about 15 to 30 days.

Field Services Section personnel, under the direction of Michelle McGinnis, Ph.D., made about 9,000 grower consults in FY2016, primarily to help diagnose nutrient and/or nematode problems. Regional agronomists handled more than 400 inquiries regarding environmental issues in FY2016— primarily waste management plan clarifications, regulatory updates and river basin oversight reviews — and participated in county Soil & Water local advisory committees.

- Georgia Love served as Chairman on the Robeson County Extension Field Crops Advisory Committee
- Georgia Love served on the Robeson County Crop Promotion Association Board
- Josh Mays served on the Green Fields Sandhills Board
- Michelle McGinnis served on the NC Certified Crop Advisors Board
- Steve Dillon served as an advisor to the NC Raspberry and Blackberry Growers Association Board
- Chris Jernigan served as an advisor to the Greene County Farm Bureau Board
- Chris Leek served as an ex-officio member to the North Carolina Tomato Growers Association Board

- Josh Mays served as an advisor to the Lee County Extension Field Crops Advisory Committee
- Don Nicholson served as an advisor to the Corn Growers Association of North Carolina Board
- Mike Wilder served an advisor to the NC Strawberry Growers Association Board

Education & Outreach (calendar year summary)

Agronomic Division staff, especially the **Field Services Section**, reach thousands of growers, homeowners and agricultural professionals through a wide range of educational activities. Honeywell provides funding for the distribution of a limited number of vouchers to cover the cost of plant tissue analysis as a means to introduce growers to this service. Regional agronomists play a key role in spreading the word about tissue testing and offering the free vouchers to interested growers.

In-house staff conducted at least 30 laboratory tours for farmers, master gardeners, agribusiness groups, scientists and students, with more than 500 participants (Appendix A.). Information on agronomic services was disseminated through more than 18 educational exhibits displayed at farm shows, field days, training events and professional meetings (Appendix B).

Outreach also included eight news releases and several interviews and/or tweets (Appendix C). Many presentations on agronomic services were made to master gardeners, growers, commodity associations, conservation groups, and county and state organizations as well as to regional, national and international meetings (Appendix D).

Research (calendar year summary)

Division staff routinely engage in cooperative studies with university personnel, farmers and industry specialists. In FY2016, cooperative research included the processing of 2,885 soil samples; 7,066 plant/waste/solution/media samples; and 1,214 nematode samples.

The **Soil Testing Section** cooperated in the following research projects during 2016:

- 1) Evaluation of NCDA boron sufficiency ranges for flue cured tobacco in cooperation with N.C. State Crop Science Department, Year 2 – Dr. David Hardy.
- 2) Corn pH study evaluating calcitic lime as compared to dolomitic lime in cooperation with Drs. Carl Crozier and Jot Symth (N.C. State Soil Science Department), Year 2 – Dr. David Hardy.
- 3) Validation of Soil Test Potassium Recommendations and Plant Tissue Analysis to Optimize Soybean Yield in North Carolina Cropping Systems, Year 1 – Dr. David Hardy.

The **Plant/Waste Solution/Media Section** cooperated in the following research projects during 2016:

- 1) Evaluation of NCDA boron sufficiency ranges for flue cured tobacco in cooperation with N.C. State Crop Science Department, Year 2 – Dr. Kristin Hicks.

- 2) Nitrogen Rate Management for Malting Quality Barley in North Carolina in cooperation with N.C. State Small Grains Cooperative Extension, Pilot study – Dr. Kristin Hicks (NCDA&CS); Scott Tilley (NCSU); Kyle Crump (NCDA&CS)
- 3) Establishing an Aluminum Tissue Sampling Criteria for Ensuring Blue Color in Hydrangeas in cooperation with N.C. State Horticulture Department, Year 1 –Hunter Landis (NCDA&CS); Dr. Kristin Hicks (NCDA&CS); Dr. Brian Whipker (NCSU)
- 4) Validation of Soil Test Potassium Recommendations and Plant Tissue Analysis to Optimize Soybean Yield in North Carolina Cropping Systems, Year 1 – Dr. Kristin Hicks and Hunter Landis

Dr. Weimin Ye and the **Nematode Assay Section** participated in the following research projects (2016):

- 1) Crop yield and population of plant parasitic nematodes in soil following various combinations of cropping sequence and tillage in cooperation with N.C. State – Dr. Weimin Ye
- 2) On-farm assessment of nematode populations before, during, and after a grain sorghum crop. in cooperation with NC Biotechnology Center – Dr. Weimin Ye.
- 3) Morphological and molecular characterization of a new entomopathogenic nematode (*Oscheius* sp.) from Wisconsin in cooperation with Univ. Wisconsin – Dr. Weimin Ye.
- 4) Lab assay for soybean cyst race survey by Dr. Michelle McGinnis and Chris Jernigan – Dr. Weimin Ye
- 5) New nematicides for sting nematode control on turfgrass for industry – Dr. Weimin Ye
- 6) Turfgrass nematode identification and management in North Carolina, USA. in cooperation with N.C. State – Dr. Weimin Ye
- 7) Molecular characterization and diagnosis of root-knot nematodes (*Meloidogyne* spp.) from North Carolina, USA – Dr. Weimin Ye
- 8) Molecular diagnosis of plant-parasitic nematodes for various customers – Dr. Weimin Ye

The **Field Services Section** conducted or participated in at least six research and demonstration projects in 2016. These projects were designed primarily to optimize crop-fertilization and nematode-management efforts.

- 1) Evaluation of NCDA boron sufficiency ranges for flue cured tobacco, Year 2 – Dr. Michelle McGinnis, Chris Jernigan, Mike Wilder, Don Nicholson, Jacob Searcy, Josh Mays, and Georgia Love.
- 2) Validation of Soil Test Potassium Recommendations and Plant Tissue Analysis to Optimize Soybean Yield in North Carolina Cropping, Year 1– Chris Jernigan, Daniel Overcash, Chris Leek, and Jacob Searcy
- 3) Effect of soilless media type on Fraser fir seedling production – Dr. Michelle McGinnis and Dwayne Tate
- 4) Observation of plant tissue nutrients in corn and soybeans over the course of a growing season – Chris Leek

- 5) Barley Nitrogen Recommendations Study – Robin Watson
- 6) Soybean cyst race survey – Dr. Michelle McGinnis and Chris Jernigan

Personnel Changes for Calendar Year 2016 (permanent staff)

Regional Agronomist, Region 1 (#60011818)

October 2015 – Adam Lassiter resigned

October 2016 – Carla Pugh hired

Chemistry Technician III (#60011789)

December 2015 – Ron Boisvert retired

February 2016 – Rohan Mohammed hired/promoted from 60011790

Chemistry Technician I (#60011787)

December 2015- Michael Jennette resigned/promoted to #60011792

March 2016 – Joseph B. Wilson hired

Research Technician (#65005715)

January 2016 – Jason Pleasant resigned

May 2016 – Matthew Mason hired

Chemistry Technician II (#60011790)

February 2016 - Rohan Mohammed – resigned/transferred to #60011789

May 2016 - Joshua C Peavey – hired/transferred from #60011791

Business & Technology Analyst (#60011778)

March 2016 - Roger King retired

December 2016 – Position remains vacant

Regional Agronomist, Region 9 (#60011822)

March 2016 – Colby Lambert resigned

August 2016 – Joshua Mays hired

Chemistry Technician I (#60011791)

May 2016 – Joshua Peavey resigned/promoted to #60011790

August 2016 – Jensen McLamb resigned/promoted to #60011791

Processing Assistant III (#60011772)

June 2016 – Jennifer Johnson resigned

June 2016 – Jennifer Johnson re-instated

Chemistry Technician II (#60011784)

August 2016 – Yogesh Bhatt resigned

November 2016 – Joseph B. Wilson resigned/transferred from #60011787

Research Technician (#60011805)

September 2016 – Jensen McLamb hired/promoted from #60011791

December 2016 – Position remains vacant

Chemistry Technician I (#60011785)

December 2016 – Carolyn Pernell retiring effective 12/31/2016

December 2016 – Position remains vacant

Chemistry Technician II (#60011787)

November 2016 – Joseph B. Wilson resigned/promoted to #60011784

December 2016 – Position remains vacant

APPENDICES

Appendix A. Laboratory Tours for Calendar Year 2016

1.	Tobacco Short Course Attendees (39)	February 4, 2016
2.	NCSU CCS 111 (17)	February 9, 2016
3.	NCSU CCS 111 (23)	February 9, 2016
4.	NCSU CCS 213 (14)	February 10, 2016
5.	NCSU HS 422 (15)	February 22, 2016
6.	NCSU SSC 201 (20)	March 22, 2016
7.	NCSU SSC 201 (19)	March 23, 2016
8.	NCSU SSC 201 (20)	March 24, 2016
9.	Onslow County Master Gardeners (20)	March 30, 2016
10	Lenoir County Master Gardeners (7)	April 6, 2016
11.	Wayne Community College Soil Science Class (35)	April 6, 2016
12.	Beaufort County Master Gardeners (15)	April 18, 2016
13.	Carteret County Master Gardeners (15)	May 5, 2016
14.	Chatham County Master Gardeners (15)	May 18, 2016
15.	New Hanover County Master Gardeners (15)	May 24, 2016
16.	Lenoir Community College Soils and Pest Management Class (5)	June 27, 2016
17.	Brunswick County Master Gardeners (15)	September 8, 2016
18.	Hoke County Extension Staff (5)	September 30, 2016
19.	NCSU CS111 (21)	October 4, 2016
20.	NCSU CS111 (16)	October 11, 2016
21..	NCSU CS111 (21)	October 13, 2016
22.	Catawba Valley Community College Hort. and Turf Class (12)	October 20, 2016
23.	NCSU SSC 201 (19)	November 1, 2016
24.	NCSU SSC 201 22)	November 3, 2016
25..	NCSU SSC 201 20)	November 3, 2016 (am)
26.	NCSU SSC 201 (18)	November 3, 2016 (pm)
27.	NCSU PP502 (10)	November 7, 2016
28.	Central Carolina Community College Soil Science Class (10)	November 28, 2016
29.	Wayne County Community College Soil Science Class (20)	December 1, 2016
30.	NCDA Plant Industry Plant Pest Specialists Central Region (6)	December 16, 2016

Appendix B. Educational Exhibits for Calendar Year 2016

1.	NC Blueberry Council Trade Show & Open House (Clinton)	Jan 12-13, 2016
2.	Joint Conference (RTP)	Jan 13-15, 2016
3.	Green & Growin' Show (Greensboro)	Jan 14-15, 2016
4.	Winter Vegetable/Tomato Conference (Asheville)	Feb 10-11, 2016
5.	Southern Farm Show (Raleigh)	Feb 3-5, 2016
6.	NC Christmas Tree Association Winter Meeting (Boone)	Feb 18-19, 2016
7.	NC Commercial Blackberry & Raspberry Growers (Shelby)	Feb 19, 2016
8.	Organic Commodities & Livestock Conference (Rocky Mount)	Mar 7, 2016
9.	Surface Irrigation System Operators Field Day (Raleigh)	Mar 16, 2016
10.	Land Application of Residuals Operators Training School (Raleigh)	Apr 12-14, 2016
11.	NC Ag Expo (Gates)	Jul 28, 2016
12.	Tomato Field Day (Mills River)	Aug 16, 2016
13.	Caldwell County Nurseryman's Association (Collettsville)	Sept 23, 2016
14.	NC Christmas Tree Association Summer Meeting (Varies)	Aug 26-27, 2016
15.	NC Greenhouse Vegetable Growers Association (Raleigh)	Oct 25-26, 2016
16.	SE Strawberry Expo (Raleigh)	Nov 7-9, 2016

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| 17. SE Vegetable & Fruit Expo (Myrtle Beach) | Nov 29-30, 2016 |
| 18. Cherokee County Farmer Expo (Cherokee) | Dec 6, 2016 |

Appendix C. News Releases and Interviews for Calendar Year 2016

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| 1. Now is the time for tobacco transplant producers to test float bed water, Dr. Kristin Hicks | Feb. 5, 2016 |
| 2. Time to submit wheat tissue samples for spring nitrogen needs, Dr. Kristin Hicks | Feb. 16, 2016 |
| 3. Benefits of soil sampling (TV interview, Jacob Searcy on WNCT) | Feb 17, 2016 |
| 4. Wheat, tomatoes, strawberries (radio interview, Don Nicholson on SFN) | Feb 23, 2016 |
| 5. Drought effects on crops (TV interview, Don Nicholson on WNCN) | Mar 2, 2016 |
| 6. Topsoil and soil fertility tips for spring, Dr. David Hardy | March 3, 2016 |
| 7. Manage strawberry fertilization with plant tissue testing, Dr. Kristin Hicks | March 17, 2016 |
| 9. Crop conditions (radio interview, Don Nicholson on SFN) | Mar 28, 2016 |
| 10. Strawberries and frost protection (radio interview, Don Nicholson on SFN) | April 5, 2016 |
| 11. Effects of frost event on strawberries (radio interview, Don Nicholson on SFN) | Apr 12, 2016 |
| 12. Effects of hail and rain on strawberries and tobacco (radio interview, Don Nicholson on SFN) | May 10, 2016 |
| 13. Corn, strawberries, tobacco (radio interview, Don Nicholson on SFN) | Jun 3, 2016 |
| 14. Farmers need to watch for potassium issues in flue-cured tobacco, Dr. David Hardy | June 24, 2016 |
| 15. Storm effects on crops (interview, Don Nicholson, N&O) | Oct 11, 2016 |
| 16. Storm effects on crops (radio interview, Don Nicholson on SFN) | |
| 17. Hurricane Matthew impacts on crops (interview, Chris Jernigan on SFP) | Oct 14, 2016 |
| 18. Harvesting (radio interview, Don Nicholson on SFP) | Nov 4, 2016 |
| 19. Momeyer farmer improves organic tobacco crop with agronomic advice (Ag Review) | Nov 2016 |
| 20. Mays named NCDA&CS regional agronomist for seven central N.C. counties | Nov 4, 2016 |
| 21. Pugh named regional agronomist serving eight northeastern N.C. counties | Nov 4, 2016 |
| 22. NCDA&CS offers agronomic tests to help growers make informed management decisions after flood, Drs. David Hardy and Kristin Hicks | Nov 17, 2016 |

Appendix D. Presentations for Calendar Year 2016

- Tobacco Workers' Conference (Nashville, TN; Jan 11, 2016)
 - Presentation: *Evaluation of NCDA&CS Boron Sufficiency Ranges*, C. Jernigan
- Raleigh Waste Water Treatment Plant Farmer Appreciation Day (Clayton; Jan 19, 2016)
 - Presentation: *NCDA Agronomic Lab Services*, D. Nicholson
- Pasquotank Cooperative Extension Winter Grower Meeting (Elizabeth City, NC, January 21, 2016)
 - Presentation: *Understanding the Soil Test in NC- Part 1*, D. Hardy
- Animal Waste Certification Class (Elizabethtown, NC; Jan 22, 2016)
 - Presentation: *Tools for the Plan: Waste, Soil, and Plant Analysis*, G. Love
- Pasquotank Cooperative Extension Winter Grower Meeting (Elizabeth City, NC, January 27, 2016)
 - Presentation: *Understanding the Soil Test in NC- Part 2*, D. Hardy
- NC Cooperative Extension eastern regional pesticide applicant training (Pasquotank County, Jan. 28, 2016)
 - Presentation: *Nematode problems in North Carolina*, Weimin Ye
- NC Cooperative Extension eastern regional pesticide applicant training (Pasquotank County, Jan. 28, 2016)

- Presentation: Nematode problems in North Carolina, Weimin Ye
- Lenoir County Greenhouse Tobacco Meeting (Kinston; Feb 9, 2016)
 - Presentation: *Tobacco Transplant Production*, C. Jernigan
- The NC Tomato Growers Association 2016 Annual Meeting (Asheville, Feb. 11, 2016)
 - Presentation: Nematode Management in Tomatoes (and Vegetable Crops in general), Weimin Ye
- Pioneer Small Grains Production Meeting at JP Davenport & Sons (Pactolus; Feb 18, 2016)
 - Presentation: *Late Season Small Grains Management*, C. Jernigan
- Allegheny County Christmas Tree Growers (Sparta; Feb 22, 2016)
 - Presentation: *NCDA Plant Tissue Sufficiency Ranges for Phosphorus and Potassium*, D. Tate
- Helena Chemical Tobacco Production Meeting (Fremont; Feb 24, 2016)
 - Presentation: *Panel Discussion with Q&A*, C. Jernigan
- Ashe County Christmas Tree Growers (Jefferson; Feb 25, 2016)
 - Presentation: *NCDA Plant Tissue Sufficiency Ranges for Phosphorus and Potassium*, D. Tate
- Animal Waste Management Refresher (Clinton; Feb 25, 2016)
 - Presentation: *Tools for the Plan: Waste, Soil, and Plant Analysis*, T. Hall
- Fraser Fir Greenhouse Seedling Workshop (Jefferson; Mar 1, 2016)
 - Presentation: *Understanding EC Readings and ppm Calculations*, D. Tate
- The 4th National Plant Diagnostic Network meeting (Washington, DC, Mar. 8-12, 2016.
 - Presentation: *How to get Your Lab Involved in Testing for Export or Import*, Weimin Ye
- Beaufort Master Gardener Training - Soil, Soil Fertility, and Soil Testing (Washington; Mar 14, 2016)
 - Presentation: *Soils and Fertilizer*, J. Searcy
- Surface Irrigation System Operators Training School Field Day (Raleigh; Mar 16, 2016)
 - Field demonstration: *NCDA Agronomic Lab Services*, D. Nicholson
- Jackson County Christmas Tree Growers (Sparta; Mar 21, 2016)
 - Presentation: *NCDA Plant Tissue Sufficiency Ranges for Phosphorus and Potassium*, D. Tate
- Avery County Christmas Tree Growers (Newland; Mar 29, 2016)
 - Presentation: *NCDA Plant Tissue Sufficiency Ranges for Phosphorus and Potassium*, D. Tate
- Bladen County Livestock Association (Elizabethtown; Apr 7, 2016)
 - Presentation: *Nutrient Management for Hay Production*, G. Love
- Soil - Crop Management System-SSC 462 (Raleigh, NC, April 7, 2016)
 - Presentation: *Problem Solving Using Agronomic Services*, D. Hardy
- Land Application Training School (Raleigh; Apr 12, 2016)
 - Presentation: *Agronomic Services for Land Application*, M. McGinnis
- Land Application Training School (Raleigh; Apr 13, 2016)
 - Presentation: *Agronomic Considerations*, D. Nicholson
- Edgecombe, Pitt, Wilson Master Gardener Training (Wilson; Apr 27, 2016)
 - Presentation: *Soils and Fertilizer*, M. Wilder and C. Jernigan
- Mountain Research Station Field Day (Waynesville; Jun 30, 2016)
 - Presentation: *Crop Impact and Management Strategies During Drought Condition*, D. Tate
- Minority Farmers and Landowners Conference (Fayetteville, NC; Jun 21, 2016)
 - Presentation: *Agronomic Division Field Services*, G. Love
- NC Tobacco Tour (Lenior, Oxford; Jul 26-27, 2016)
 - Presentation: *Boron Sufficiency Ranges in Flue-Cured Tobacco*, C. Jernigan
- Junior Cattlemen (Statesville; Jun 27, 2016)
 - Presentation: *Soil Testing and Interpretation*, D. Overcash
- 2016 Society of Nematologists and Organization of Nematologists of Tropical America Joint Meeting (Montreal, Canada, July 17-21, 2016)
 - Presentation: *Molecular Characterisation For Advancing Root-Knot Nematode Systematics*, Weimin Ye
- Soil - Crop Management System-SSC 462 (Raleigh, NC, April 7, 2016)
 - Presentation: *Problem Solving Using Agronomic Services*, D. Hardy
- Corn Variety Field Day (Lumberton; Aug 5, 2016)
 - Presentation: *Corn Tissue Sampling*, G. Love
- Tobacco Associates Tour (Lenior; Aug 28, 2016)

- Presentation: *NC Tobacco Research Projects*, C. Jernigan
- Sampson OIC Waste Training (Clinton; Sep 9, 2016)
 - Presentation: *Managing Bermudagrass Sprayfields*, T. Hall
- Pender Livestock Association (Burgaw; Oct 4, 2016)
 - Presentation: *Agronomic Topics for Sprayfields*, T. Hall
- Eastern Christmas Tree Growers Association (Albemarle; Sep 10, 2016)
 - Presentation: *Soil Testing and Interpretations for Christmas Trees*, D. Overcash
- Harvey's Fertilizer Field Day (Kinston; Sep 1, 2016)
 - Presentation: *Panel Discussion with Q&A*, C. Jernigan
- Sampson AgVentures Grant Workshop (Clinton; Nov 1, 2016)
 - Presentation: *GH Tomato Crop Management*, T. Hall
- Onslow OIC Waste Training (Jacksonville; Oct Nov 9, 2016)
 - Presentation: *Agronomic Topics for Sprayfields*, T. Hall
- National Dalia Society (Asheville; Sep 17, 2016)
 - Presentation: *Soil Sampling and Proper Compost Application*, C. Leek
- Hoke Livestock Association (Raeford; Oct 11, 2016)
 - Presentation: *Bermudagrass Fertility*, G. Love
- Soil & Water District Meeting (Asheville; Oct 11, 2016)
 - Presentation: *Agronomic Services*, M. McGinnis
- Brunswick County Voluntary Ag District Meeting (Bolivia; Oct 20, 2016)
 - Presentation: *Soil Lab Update*, G. Love
- Union Elementary Kindergarten (Vale; Oct 27, 2016)
 - Presentation: *I Love Pumpkins!*, S. Dillon
- Southeast Strawberry Expo - New Grower Plasticulture Workshop (Raleigh; Nov 8, 2016)
 - Presentation: *Frost Protection, IPM, Fertility Management*, M. Wilder
- 2016 NC Cooperative Extension State Conference (Raleigh, Nov. 15, 2016)
 - Presentation: Using NCDA&CS Nematode Assay Services in Crop Production, Weimin Ye
 - Presentation: Improving Electronic Delivery of Laboratory Results and Recommendations, Colleen Hudak-Wise
 - Presentation: Soil Testing, David Hardy
 - Presentation: Understanding the Analysis and Avoiding the Problems with Plant and Solution Sampling, Kristin Hicks
 - Presentation: Agronomic Division Overview, Field Services Section, Michelle McGinnis
- Pork Council Meeting (Goldsboro; Nov 22, 2016)
 - Presentation: *Managing Saturated Sprayfields*, D. Nicholson
- Animal Waste Certification Class (Goldsboro; Dec 5, 2016)
 - Presentation: *Managing Saturated Sprayfields*, D. Nicholson
- General Fertilizer and Equipment Growers Meeting (Pleasant Gardens; Dec 7-8, 2016)
 - Presentation: Understanding Applying Soil Test, Plant Analysis, & Nematode Assay Reports, R. Watson
- Animal Waste Certification Class (Raeford; Dec 8, 2016)
 - Presentation: *Tools for the Plan: Waste, Soil, and Plant Analysis*, G. Love

Professional Publications (external) for Calendar Year 2016

1. Kerrie A. Davies; Ye, Weimin; Barbara Center; Natsumi Kanzaki; Faerlie Bartholomaeus; E. Allen Herre; Alejandro Esquivel and Robin M. Giblin-Davis. 2017. Two new species and three morphospecies of *Ficophagus* Davies & Bartholomaeus, 2015 (Nematoda: Aphelenchoididae) from *Ficus* subgenus *Pharmacosycea* (Moraceae) in Central America. *Nematology* 19: 10.1163/15685411-00003055
2. Esmaeili, M., Heydari, R. & Ye, Weimin. 2017. Molecular and morphological characterisation of *Paurodontella persica* n. sp. (Nematoda: Sphaerulariidae) found in soil from Iran. *Nematology* 19 (1): 57-68.

3. Qing Yu, Ye, Weimin and Tom Powers. 2016. Morphological and molecular characterization of *Gracilacus wuae* n. sp. (Nematoda: Criconematoidea) associated with cow parsnip (*Heracleum maximum*) in Ontario, Canada. *Journal of Nematology* 48 (3):203–213.
4. Kerrie A. Davies; Ye, Weimin; Gary S. Taylor; Sonja Scheffer and Robin M. Giblin-Davis. 2016. Gallling problems – the *Fergusobia* nematode/*Fergusonina* fly mutualism on myrtaceous hosts. *Nematology* 18 (6) 629-649.
5. Esmaeili, M., Heydari, R. & Ye, Weimin. 2016. *Paurodontella parapitica* n. sp. (Nematoda: Hexatyliina, Sphaerularioidea) from Kermanshah Province, Western Iran. *Journal of Nematology* 48 (2): 109–115.
6. Qiao, Y., Yu, Q., Badiss, A., Zaidi, M.A., Ponomareva, E, Hu, Y. & Ye, Weimin. Paraphyletic genus *Ditylenchus* Filipjev (Nematoda, Tylenchida), corresponding to the *D. triformis*-group and the *D. dipsaci*-group scheme. *ZooKeys* 568: 1-12.
7. Kanzaki, N., Giblin-Davis, R.M., Ye, Weimin, Herre, E.A. & Center, B.J. 2016. Recharacterisation of three *Parasitodiplogaster* species based on morphological and molecular profiles. *Nematology* 18 (4): 417-437.
8. Zeng, Y., Ye, Weimin, Zhang, Z., Sun, H., Yang, L., Huang, Y., Zhao, K., Liang, H., James Kerns. 2016. Morphological and molecular characterization of *Xiphinema* spp. populations from Shenzhen, China. *Helminthologia* 53, 1: 62-75. DOI 10.1515/helmin-2015-0068
9. Yu, Q., Badiss, A., Zaidi, M.A., Ponomareva, E., Hu, Y. & Ye, Weimin. 2016. Paraphyletic genus *Ditylenchus* Filipjev (Nematoda, Tylenchida), corresponding to the *D. triformis*-group and the *D. dipsaci*-group scheme. *ZooKeys* 568: 1–12 (2016). doi: 10.3897/zookeys.568.5965) associated with *Ficus macrophylla* in New Zealand. *Nematology* 17 (1): 53-66.

