# Andrew Wyenandt

# **Title and Address:**

Extension Specialist in Vegetable Pathology Department of Plant Biology School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey Rutgers Agricultural Research & Extension Center (RAREC), Bridgeton, NJ 08302

# Contact Information: Tel: 732-932-4000 ext 4144 Fax: 856-455-3133 wyenandt@rutgers.edu

# Education

## **Highest Earned Degree**

Ph.D., Department of Plant Pathology, The Ohio State University, June 2004.

# Dissertation

Fusarium fruit rot (*Fusarium* spp.) of pumpkin (*Cucurbita pepo*) and its control with cover crop mulches. 2004. The Ohio State University. Advisor: Richard M. Riedel

## **Other Earned Degrees**

M.Sc., Plant Pathology, The Ohio State University, March 1999 Thesis title: "Assessing an integrated disease management strategy for processing tomatoes in Ohio."

B.Sc., Plant Science, Cornell University, January 1996

A.A.S., Greenhouse Production & Management, The Ohio State University/Agricultural Technical Institute, Wooster, Ohio 1993

A.A.S., Nursery Management, The Ohio State University/Agricultural Technical Institute, Wooster, Ohio 1993

# **Honors and Awards**

## **Professional Awards and Honors**

Distinguished Service to Agriculture - 2017. Award presented by the New Jersey State Board of Agriculture.

The Early Career Award - 2010. Presented by the Northeast Division of the American Phytopathological Society (NED-APS) for significant, early career contributions to the field of plant pathology.

The Merle V. Adams Award - 2009. Awarded by Extension Specialists to junior faculty for Outstanding Achievement.

Extension Specialist of the Year - 2007. Awarded by Department of Agricultural and Resource Management Agents for excellence in Extension Outreach.

# **Employment History**

# **Positions Held**

2011-ongoing Extension Specialist In Vegetable Pathology, Associate Professor, Department of Plant Biology and Pathology, School of Environmental and Biological Sciences (SEBS), Rutgers University CY (30% Research, 70% Extension) 2005-2011 Extension Specialist in Vegetable Pathology, Assistant Professor, Department of Plant Biology and Pathology, School of Environmental and Biological Sciences (SEBS), Rutgers University CY (30% Research, 70% Extension)

04/2004-12/2004 Post-Doc, Rutgers University

# Publications

#### **Works in Progress**

Kline, W.L., **Wyenandt, C.A.**, and D.L. Ward. 2017. Evaluation of slicing cucumber varieties for marketable yield, fruit quality, and downy mildew resistance in southern New Jersey (HortTechnology)

#### Books

McGrath, M.T., **Wyenandt, C.A.**, and Stevenson, K. (eds.). Fungicide Resistance in North America - 2nd Edition. APS Press, American Phytopathology Society (APS), APS Press, Minneapolis, MN. (expected publication in 2018)

#### **Chapters in Books or Monographs**

**Wyenandt, C.A.**, McGrath, M.T., and K. Stevenson. Occurrence of Fungicide Resistance in Pathogens of Non-Solanaceous Vegetable Crops. Fungicide Resistance in North America 2nd Edition. American Phytopathology Society, APS Press, Minneapolis, MN (expected publication in 2018)

#### **Electronic Publications, Refereed**

Pyne, R., Honig, J., Vaiciunas, J., Koroch, A., **Wyenandt, C.,** Bonos, S., and Simon, J. 2017. A first linkage map and downy mildew QTL discovery for sweet basil (*Ocimum basilicum*) facilitated by double digestion restriction site associated DNA sequencing (ddRADseq). Plos One. (accepted for publication)

**Wyenandt, C.A.**, McGrath, M.T., Everts, K.E., Rideout, S.L., Gugino, B.K., and Kleczewski, N. 2017. Fungicide resistance management guidelines for cucurbit downy and powdery mildew in the mid-Atlantic and Northeast regions of the United States in 2017. Plant Heath Progress (accepted for publication).

Wyenandt, C.A., Kline, W.L., and Ward, D.L. 2017. Effect of fungicide program on the development of downy mildew in three cucurbit crops in New Jersey. Plant Health Progress. (accepted 8/15/17) <doi.org/10.1094/PHP-04-17-0026.PHM.>

McGrath, M.T. and **Wyenandt**, C.A. 2017. First detection of boscalid resistance in *Podosphaera xanthii* in the United States associated with failure to control cucurbit powdery mildew in New York and New Jersey in 2009. Plant Health Progress. <doi.org.10.1094/HP-03-17-0026-BR>

Torlon, J.L., Heckman, J.R., Simon, J.E., and **C.A. Wyenandt.** 2016. Silicon soil amendments for suppressing powdery mildew on pumpkin. Sustainability 8:293 pp. 8. doi:10.3390/su8040293

Ojiambo, P.S., G. J. Holmes, M.L. Adams, M. Babadoost, S.C. Bost, R. Boyles, M. Brooks, W. Britton, J. Damicone, D.S. Egel, K.L. Everts, D.M. Ferrin, A.J. Givens, B.K. Gugino, M.K. Hausbeck, D.M. Ingram, T. Isakeit, A.P. Keinath, T. Keever, D. Langston, M.T. McGrath, S.A. Miller, R. Mulrooney, S. Rideout, E. Roddy, K.W. Seebold, E. J. Sikora, A. Thornton, R.L. Wick, and **C. A. Wyenandt**. 2011. Cucurbit Downy Mildew ipmPIPE: A Next Generation Web-based Interactive Tool for Disease Management and Extension Outreach. Plant Health Progress. Online. Plant Health Progress doi:1094/PHP-2011-0411-01-RV.

**Wyenandt, A.** and N.L. Maxwell. 2011. Evaluating vegetable fungicide recommendations in the United States: Should more be done to limit the risks of fungicide resistance development? Online. Journal of Extension. June 2011.

**Wyenandt, C. A.,** Ward, D. L., and Maxwell, N. L. 2010. Determining "practical" fungicide resistance development and drift in the control of cucurbit powdery mildew in pumpkin. Online. Plant Health Progress doi:10.1094/PHP-2010-1122-02-RS.

Wyenandt, C.A., R.M. Riedel, L.H. Rhodes, M.A. Bennett, and S.G.P. Nameth. 2010. Survey of *Fusarium* spp. associated with fruit rot of pumpkin in Ohio. Online. (pp. 8). Plant Health Progress doi:10.1094/PHP-

2010-0827-01-RS.

**Wyenandt, C.A.**, S.L. Rideout, B.K. Gugino, M.T. McGrath, K.L. Everts and R.P. Mulrooney. 2010. Fungicide resistance management guidelines for the control of important tomato diseases in the mid-Atlantic and Northeast regions of the United States. Online. (pp. 6). Plant Health Progress doi:10.1094/PHP-20100827-01-MG.

**Wyenandt, C.A.**, M.T. McGrath, S.L. Rideout, B.K. Gugino, K.L. Everts, and R.P. Mulrooney. 2009. Fungicide resistance management guidelines for cucurbit downy and powdery mildew control in the mid-Atlantic and Northeast regions of the United States. Online. (pp. 5). Crop Management. doi:10.1094/CM-2009-0629-01-BR.

http://www.plantmanagementnetwork.org/sub/cm/brief/2009/fungicide/

**Wyenandt, C.A.**, S.L. Rideout, K.L. Everts, R.P. Mulrooney, and N.L. Maxwell. 2009. Development of a fungicide resistance management guide for vegetable growers in the mid-Atlantic states. Online. (pp. 5). Crop Management doi:10.1094/CM-2009-0316-01-MG.

http://www.plantmanagementnetwork.org/sub/cm/management/2009/fungicide/

Pyne, R.M., Honig, J., Vaiciunas, J., **Wyenandt, C.A.**, and Simon, J.E. 2017. Population structure, genetic diversity and downy mildew resistance among *Ocimum* species germplasm. BMC Plant Biology (submitted 8/20/17)

## Articles in Refereed Journals

**Wyenandt, C.A.,** Maimone, L.R., Homa, K., Madeiras, A.M., Wick, R.L., and Simon, J.E. 2017. Detection of downy mildew (Peronospora belbahrii) in seed of basil (Ocimum spp.) following field epidemics in southern New Jersey. HortTechnology. (Submitted 8/15/17)

Kraskow, C.S., **Wyenandt**, A., Kline, W.L., Carey, J.B., Hausbeck, M.K. 2017. Evaluation of pepper root rot resistance in an integrated phytophthora blight management program. HortTechnology 27:408-415.

**Wyenandt, C.A.**, Kline, W.L., Ward, D.L., and Brill, N.L. 2017. Production system and cultivar effects on skin separation development in bell pepper fruit. HortTechnology 27:37-44.

Homa, K., Barney, W.P., Ward, D.L., **Wyenandt, C.A.**, and Simon, J.E. 2016. Morphological Characteristics and Susceptibility of Basil Species and Varieties to *Peronospora belbahrii*. HortScience 51:1-8.

Rivera, Y., Stommel, J., Dumm, J., Ismaiel, A., **Wyenandt, C.A.**, and J.A. Crouch. 2016. First report of *Collectotrichum nigrum* causing anthracnose disease on tomato fruit in New Jersey. Plant Dis. 100: 2162.

**Wyenandt, C. A.**, Simon, J. E., Pyne, R. P., Homa, K., McGrath, M. T., Zhang, S., Raid, R. N., Ma, Li-Jun, Wick, R., Guo, Li, and Madeiras, A. 2015. Basil downy mildew (*Peronospora belbahrii*): Discoveries and challenges relative to its control. Phytopathology 105:885-894.

Pyne, R.M., Koroch, A.R., **Wyenandt, C.A.**, and Simon, J.E. 2015. Inheritance of Resistance to Downy Mildew (*Peronospora belbahrii*) in Sweet Basil. J. AMER. SOC. HORT. SCI. 140(5):1-8.

Pyne, R.M., Koroch, A.R., **Wyenandt, C.A.**, and Simon, J.E. 2014. A rapid screening approach to indentify resistance to basil downy mildew (*Peronospora belbahrii*). Hortscience 49:1041-1045.

Homa, K., Barney, W.P., Ward, D.L., **Wyenandt, C.A.**, and Simon, J.E. 2014. Evaluation of fungicides for the control of *Peronospora belbahrii* on sweet basil in New Jersey. Plant Dis. 89:1561-1566.

W. E. Fry, M. T. McGrath, A. Seaman, T. A. Zitter, A. McLeod, G. Danies, I. Small, K. Myers, K. Everts, A. Gevens, B. Gugino, S. Johnson, H. Judelson, J. Ristaino, P. Roberts, G. Secor, K. Seebold, K. Snover-Clift, **A. Wyenandt**, N.J. Grunwald, and C. D. Smart. 2013. The 2009 late blight pandemic in the Eastern United States - Causes and results. Plant Dis. 97:296-306

Heckman, J.R., **Wyenandt, C.A.**, and Provance-Bowley, M. 2011. Residual effects of leaf mulch on sweet corn and rye. Journal of Sustainable Agriculture 35:639-649.

**Wyenandt, C.A.**, R.M. Riedel, L.H. Rhodes, M.A. Bennett, and S.G.P. Nameth. 2010. Fall and spring-sown cover crop mulches affect yield, fruit cleanliness and Fusarium fruit rot development in pumpkin. HortTechnology 21: 343-354.

Kline, W.L., **C.A. Wyenandt**, D.L. Ward, J.F. Sudal, and N.L. Maxwell. 2011 Evaluation of six nitrogen fertility programs on marketable yield and development of skin separation in bell pepper fruit. HortTechnology 21:323-328.

**Wyenandt, C.A.**, J.E. Simon, and M.T. McGrath. 2010. Susceptibility of basil cultivars and breeding lines to downy mildew (*Peronospora belbahrii*). HortScience 45:1416-1419.

**Wyenandt, C.A.**, L.H. Rhodes, Bennett, and R.M. Riedel. 2009. Control of fruit rots of processing tomato using cover crop mulch and Tom-Cast. HortTechnology 19:511-517.

Fonseca, F.M., H.J. Kim, W.L. Kline, **C.A. Wyenandt**, M. Hoque, H. Ajwa and N. French. 2009. Effect of preharvest application of a second-generation harpin protein on microbial quality, antioxidants, and shelf-life of fresh-cut lettuce. J. Amer. Soc. Hort. Sci. 134: 141-147.

**Wyenandt, C. A.**, N.L. Maxwell, and D.L. Ward. 2008. Fungicide programs affect 'practical' resistance development in cucurbit powdery mildew of pumpkin. HortScience 43:1838-1845.

**Wyenandt. C.A.**, L.H. Rhodes, M.A. Bennett, and R.M. Riedel. 2008. Cover crop mulch and fungicide program affect development of septoria leaf spot and marketable yield in processing tomato production. HortScience 43:807-810.

**Wyenandt, C.A.**, J.R. Heckman, and N.L. Maxwell. 2008. Pumpkin fruit size and quality improve with leaf mulch. HortTechnology 18:361-364.

Both, A.J., E. Riess, K.E. Holmstrom, C.A. Wyenandt, W.L. Kline, and S.A. Garrison. 2007. Evaluation of a manual energy curtain for tomato production in high tunnels.HortTechnology 17:467-472.

**Wyenandt C.A.,** Kline, W.L., Ward, D.L., and N. Maxwell. 20xx. Exploring the relationship between skin separation and Phytophora-tolerance in bell pepper. (in prep, Plant Dis.)

#### **Electronic Publications, Not Refereed**

McGrath, M.T., LaMarsh, K.A., Pyne, R., Simon, J.E., and **C.A. Wyenandt.** 2014. Assessment of downy mildew resistance in basil breeding lines and experimental lines. Plant Disease Management Reports (on-line). Report No. 9. The American Phytopathological Society, St. Paul, MN.

McGrath, M.T., LaMarsh, K.A., Pyne, R., Simon, J.E., and C.A. Wyenandt. 2013. Assessment of downy mildew susceptibility in basil cultivars, breeding lines, and crosses in New York. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN.

**Wyenandt, C.A.** 2013. Evaluation of fungicides for control of anthracnose fruit rot in bell pepper. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2013. Evaluation of fungicides for management of septoria leaf spot in flat leaf parsley. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2013. Evaluation of foliar fungicides for management of downy mildew in cucurbit. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2013. Evaluation of foliar fungicides for management of downy mildew in sweet basil. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2013. Evaluation of fungicides for the control of phytophthora blight in bell pepper. Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2013. Evaluation of pepper breeding lines and cultivars for tolerance to the crown rot phase of phytophthora blight and development of 'silvering' or skin separation in fruit . Plant Disease Management Reports (on-line). Report No. 8. The American Phytopathological Society, St. Paul, MN.

Wyenandt, C.A. 2012. Evaluation of fungicides for management of downy mildew in cucurbit. Plant Disease

Management Reports (on-line). Report No. 7. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2012. Evaluation of fungicides for management of powdery mildew in cucurbits. Plant Disease Management Reports (on-line). Report No. 7. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2012. Evaluation of fungicides for the control of anthracnose fruit rot in bell pepper. Plant Disease Management Reports (on-line). Report No. 7. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2011. Evaluation of fungicides for the control of anthracnose fruit rot in bell pepper. Plant Disease Management Reports (on-line). Report No. 6. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2010. Evaluation of fungicides for managment of anthracnose fruit rot in processing tomato. Plant Disease Management Reports (on-line). Report No. 5. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2010. Evaluation of fungicides for the control of anthracnose fruit rot in bell pepper. Plant Disease Management Reports (on-line). Report No. 5. The American Phytopathological Society, St. Paul, MN. (2 pages)

McGrath, M., **Wyenandt**, A., and J. Simon. 2010. Downy mildew wars: A monitoring program can help growers determine if the downy mildew pathogen is present in their area. American Vegetable Grower - Bonus Coverage. February 2010. (4 pages) url:http://www.growingproduce.com/americanvegetablegrower/? <a href="https://stroryid=3310">stroryid=3310</a>

**Wyenandt, C.A.** 2009. Evaluation of fungicides for control of the aerial phase of Phytophthora blight in bell pepper fruit, 2009. Plant Disease Management Reports (on-line). Report No. 4:V129. doi:10.1094/PDMR03. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2009. Evaluation of fungicides for control of anthracnose fruit rot in bell pepper, 2009. Plant Disease Management Reports (on-line). Report No. 4:V130. doi:10.1094/PDMR03. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2009. Evaluation of MasterCop for the control of the aerial phase of Phytophthora blight in bell pepper fruit, 2009. Plant Disease Management Reports (on-line). Report No. 4:V131. doi:10.1094/PDMR03. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2009. Evaluation of fungicides for management of powdery mildew in cucurbits, 2009. Plant Disease Management Reports (on-line). Report No. 4:V132. doi:10.1094/PDMR03. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** 2009. Evaluations of fungicides for management of downy mildew in yellow summer squash, 2009. Plant Disease Management Reports (on-line). Report No. 4:V133. doi:10.1094/PDMR03. The American Phytopathological Society, St. Paul, MN. (2 pages)

Gugino, B.K., **A. Wyenandt**, M.T. McGrath, and P.S. Ojiambo. 2009. Fighting downy mildew: Learn to forecast and manage this important pest. American Vegetable Grower. February 2009. (2 pages) url: http://www.growingproduce.com/americanvegetablegrower/?storyid=1269#

**Wyenandt, C.A.** and N.L. Maxwell. 2008. Evaluation of K-Phite for control of the aerial phase of Phytophthora blight in bell pepper fruit, 2008. Plant Disease Management Reports (on-line). Report No. 3:V024. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** and N.L. Maxwell. 2008. Evaluation of fungicides for the control of anthracnose fruit rot in bell pepper, 2008. Plant Disease Management Reports (on-line). Report No. 3:V024. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** and N.L. Maxwell. 2008. Evaluation of Presidio for control of the aerial phase of Phytophthora blight in bell pepper fruit, 2008. Plant Disease Management Reports (on-line). Report No. 3:V024. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, C.A.** and N.L. Maxwell. 2008. Evaluation of fungicides for control of the aerial phase of Phytophthora blight in bell pepper fruit, 2008. Plant Disease Management Reports (on-line). Report submitted 2/09. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, A.** and M.T. McGrath. 2007. Rating risk: Mode of action plays a key role in fungicide resistance development. American Vegetable Grower. May 2007. (3 pages) Url. <u>http://www.growingproduce.com/americanvegetablegrower/?storyid=856</u>#

**Wyenandt, C.A.** and N.L. Maxwell. 2007. Evaluation of fungicides for control of Phytophthora blight in bell pepper, 2007.Plant Disease Management Reports (on-line). Report 2:V172. DOI:10.1094/PDMR01. The American Phytopathological Society, St. Paul, MN. (2 pages)

**Wyenandt, A.** and N. Maxwell. 2007. Support groups: Understanding FRAC code groups can help you maintain the effectiveness of valuable fungicide treatments. American Vegetable Grower - Bonus Coverage. April 2007. (2 pages)

McGrath, M.T. and **A. Wyenandt**. 2007. Managing fungicide resistance and cucurbit powdery mildew. American Vegetable Grower - Bonus Coverage. July 2007. (2 pages)

**Wyenandt, A.** and G. Holmes. 2007. Understanding fungicide resistance management for cucurbit downy mildew control. American Vegetable Grower - Bonus Coverage. July 2007. (2 pages)

**Wyenandt, C.A.** and N.L. Maxwell. 2006. Evaluation of fungicides for management of powdery mildew and downy mildew in pumpkin, 2006. Plant Disease Management Reports (on-line). Report 1:V060. DOI:10.1094/PDMR01. The American Phytopathological Society, St. Paul, MN. (1 page)

**Wyenandt, C.A.** and N.L. Maxwell. 2006. Evaluation of fungicides for control of Phytophthora blight and anthracnose fruit rot in bell pepper, 2006. Plant Disease Management Reports (on-line). Report 1:V061. DOI:10.1094/PDMR01. The American Phytopathological Society, St. Paul, MN. (1 page)

#### **Published Conference Proceedings**

J. Carleo, R. Brumfield, J. Heckman, D. Kluchinski, J. Matthews, M. V. Melendez, P. Nitzsche, N. Polanin, K. Reynolds-Allie, R. VanVranken, and **C. Wyenandt.** 2016. Ultra-niche crops project for beginning farmers. Northeastern Plant, Pest and Soils Conference. Philadelphia, PA 3-7 January 2016. pp. xx

Homa, K, Pyne, R., **Wyenandt**, A., and Simon, J. 2016. Screening for genetic resistance to Fusarium wilt for introgression into sweet basil. Northeastern Plant, Pest and Soils Conference. Philadelphia, PA 3-7 January 2016. pp. xx

Simon et al., 2015. Breeding basil for resistance to basil downy mildew and fusarium: Where are we now? 2015 Basil Workshop, NJ-VGA ACTS Show, Atlantic City, NJ Feb 5-6, 2015 pp. 21.

Wyenandt, C.A., Simon, J.E., Homa, K., and Barney, W.P. 2015. Fungicides for managing basil downy mildew - New Jersey. 2015 Basil Workshop, NJ-VGA ACTS Show, Atlantic City, NJ Feb 5-6, 2015 pp. 16.

Pyne, R., Koroch, A., **Wyenandt, C.A.**, and Simon, J.E. 2015. Breeding sweet basil for improved disease tolerance. 2015 Basil Workshop, NJ-VGA ACTS Show, Atlantic City, NJ Feb 5-6, 2015 pp. 20.

**Wyenandt, C.A.,** and Kline, W.L. 2014. Evaluation of bell pepper cultivars and breeding lines for resistance to the crown rot phase of *Phytophora capsici* and skin separation or 'silvering' in New Jersey. International Pepper Conference, Vina Del Mar, Chili Nov. 17-20, 2014 pp. 86.

Kline, W.L., **Wyenandt, C.A.**, and Holmstrom, K. 2014. Bacterial leaf spot (*Xanthomonas euvesicatoria*) second most serious disease in New Jersey. International Pepper Conference, Vina Del Mar, Chili Nov. 17-20, 2014 pp. 96.

Kline, W.L., and **Wyenandt, C.A.** 2014. Internal fruit rot and premature seed germination in field grown colored peppers. International Pepper Conference, Vina Del Mar, Chili Nov. 17-20, 2014 pp. 118.

**Wyenandt, C.A.,** and Homa, K. 2013. Controlling basil downy mildew with conventional chemical agents and organic materials - what works and what hasn't? Our Experiences in New Jersey. 2013 Basil Workshop, Homestead, FL Dec. 19-20, 2013.

Homa, K., Barney, W.P., Ward, D.L., Wyenandt, C.A., and Simon, J.E. 2013 Evaluating fungicide efficacy in

developing control strategies for basil downy mildew (*Peronospora belbahrii*). 2013 Basil Workshop, Homestead, FL Dec. 19-20, 2013.

McGrath, M.T., **Wyenandt, C.A.**, and Stevenson, K., 2012. Occurrence of fungicide resistance in nonsolanaceous vegetable crops. Fungicide Resistance in North America for the 21st Century. American Phytopathology Society, Providence, Rhode Island, Aug. 3-4, 2012. pp 17-18.

Komar, S., Bamka, R., Casella, M., Gugino, B., Kline, W., Kluchinski, D., McGrath, M., Mickel, R., Williams, and **C. Wyenandt.** 2010. Participants Acceptance of Web-Based Extension Program Delivery. Proceedings 95th Annual Meeting and Professional Improvement Conference, Tulsa, Ok, p. 70.

Casella, M.L., and **C.A. Wyenandt**. 2010. Kabocha squash variety evaluations in New Jersey. *Cucurbitaceae* 2010. Charleston, NC. November 14-18. pp. 270-271.

**Wyenandt, C.A.,** D.L. Ward, and N.L. Maxwell. 2010. 'Practical' fungicide resistance and cross resistance development in cucurbit powdery mildew of pumpkin in New Jersey. *Cucurbitaceae* 2010. Charleston, NC. November 14-18. pp. 255-258.

Rideout, S.L., **C.A. Wyenandt**, B.K. Gugino, M.T. McGrath, K.L. Everts and R.P. Mulrooney. 2010. Fungicide resistance management guidelines for control of important tomato diseases in the mid-Atlantic and Northeast regions of the US. Proceedings of the 3<sup>rd</sup> International Symposium on Tomato Diseases, Ischia, Italy. July 25-30. (submitted)

Orton, T., Zaurov, D., and **Wyenandt, C.A.** 2010. Central asian melons in the United States of America. In: Proceedings International Conference: Plant Introduction, Biodiversity, and Conservation. Bishkek, Kyrghystan, September 7-9, 2010. Goreev Botanical Garden, Kyrgyz Academy of Sciences, pp. 176-182.

**Wyenandt, C.A.**, W.L. Kline, D.L. Ward, and N.L. Maxwell. 2009. Cultivar and production system effects on the development of skin separation (or 'silvering') in fruit of bell pepper. Proceedings of The 2<sup>nd</sup> International *Phytophthora capsici* Meeting. December 1-2, 2009, Duck Key, FL. pp. 10-11.

Kline, W.L., and **C.A. Wyenandt**. 2009. Evaluation of bell pepper cultivars and breeding lines for resistance to the crown-rot phase of phytophthora blight, the development of 'skin separation' in fruit, and marketable yield in New Jersey. Proceedings of The 2<sup>nd</sup> International *Phytophthora capsici* Meeting. December 1-2, 2009, Duck Key, FL. pp. 16.

**Wyenandt, C.A.**, W.L. Kline, and N.L. Maxwell. 2009. Evaluation of fungicides for the control of the fruit rot phase of Phytophthora blight in bell pepper production in New Jersey. Proceedings of The 2<sup>nd</sup> International *Phytophthora capsici* Meeeting. December 1-2, 2009, Duck Key, FL. pp. 19.

**Wyenandt, C.A.**, K.L. Everts, R.P. Mulrooney, S.L. Rideout, B.K. Gugino and N.L. Maxwell. 2009. Fungicide resistance management guidelines for vegetable crops grown in the mid-Atlantic region. Proceedings of The 6<sup>th</sup> International Integrated Pest Management Symposium. March 24-26, 2009, Portland, OR. pp. 100-101.

**Wyenandt, C.A.**, W.L. Kline, D.L. Ward, J.F. Sudal, and N.L. Maxwell. 2008. Current understanding of the relationship between skin separation and phytophthora-resistance in bell pepper cultivars and breeding lines. Proceedings of The 19<sup>th</sup> International Pepper Conference, September 7-10, Atlantic City, New Jersey. pp. 17-18.

Kline, W.L., **C.A. Wyenandt**, D.L. Ward, J.F. Sudal, and N.L. Maxwell. 2008. Production method and fertility effects on the development of skin separation in fruit of bell pepper. Proceedings of The 19<sup>th</sup> International Pepper Conference, September 7-10, Atlantic City, New Jersey. pp. 24-25.

Kline, W.L., **C.A. Wyenandt**, D.L. Ward, J.F. Sudal, and N.L. Maxwell. 2008. Evaluation of Phytophthoratolerant bell pepper breeding lines and cultivars for yield and fruit characteristics. Proceedings of the 19<sup>th</sup> International Pepper Conference, September 7-10, Atlantic City, New Jersey. pp. 29-30.

Ward, D.L., **C.A. Wyenandt**, W.L. Kline, and J.F. Sudal. 2008. Effect of planting date and row cover on high tunnel strawberry production. Proceedings of The 34<sup>th</sup> Annual National Plastics Congress. March 9, 2008, Tampa, FL.

**Wyenandt, C.A.,** and M.L. Infante-Casella. 2008. Yield evaluation of powdery mildew resistant zucchini and yellow summer squash varieties. Proceedings of The 93<sup>rd</sup> Annual Meeting and Professional Inprovement Conference. National Association of County Agricultural Agents (NACAA). July 13-17, 2008, Greensboro, NC. pp 62.

**Wyenandt, C.A.**, W.L. Kline, D.L.Ward, J.F. Sudal, and N. L. Maxwell. 2007. Current understanding of the relationship between skin separation and Phytophthora-resistance in bell pepper cultivars and breeding lines. Proceedings of The 1<sup>st</sup> International *Phytophthora capsici* Meeting. November 27-29, 2007, Islamorada, FL. pp. 14-15.

Kline,W.L., and **C.A. Wyenandt**. 2007. Evaluation of Phytophthora-tolerant bell pepper breeding lines and cultivars for yield and fruit characteristics. Proceedings of The 1<sup>st</sup> International *Phytophthora capsici* Meeting. November 27-29, 2007. Islamorada, FL. pp. 15-16.

Kline, W.L., **C.A. Wyenandt, C.A.**, D.L. Ward, J.F. Sudal, and N. L. Maxwell. 2007. Production method and fertility effects on the development of skin separation in fruit of bell pepper. Proceedings of The 1<sup>st</sup> International *Phytophthora capsici* Meeting. November 27-29, 2007, Islamorada, FL. pp. 18-19.

**Wyenandt, C.A.,** and W.L. Kline. 2006. Relationship between *Phytophthora capsici* and skin separation (silvering) in bell pepper fruit. Proceedings of the 18th International Pepper Conference, May 21-23, 2006, Palm Springs, CA.

Kline, W.L., and **C.A. Wyenandt**. 2006. Evaluation of bell pepper breeding lines and cultivars for yield and Phytophthora- tolerance. Proceeding of The 18<sup>th</sup> International Pepper Conference. May 21-23, 2006, Palm Springs, CA.

**Wyenandt, C.A.,** and J.R. Heckman. 2006. Mulch and nitrogen fertilizer effects on pumpkin yield and quality. The 18<sup>th</sup> World Congress of Soil Science Abstracts, July 9-15, 2006. Philadelphia, PA. pp. 558-559.

Infante-Casella, M.L., **C.A. Wyenandt**, and M.R. Henninger. 2006. Evaluation of zucchini and straightneck summer squash breeding lines and varieties for powdery mildew and downy mildew tolerance. *Cucurbitaceae* 2006 Proceedings. Asheville, NC. pp.116-120.

**Wyenandt, C.A.**, M.L. Infante-Casella, M.R. Henninger, R. Buckley, S. Tirpak, K. Holmstrom, P.J. Nitzsche, W.H. Tietjen, R.J. Samulis, W.L. Kline, W. Cowgill, and J.R. Heckman. 2006. Survey for cucurbit viruses in commercial fields and evaluation of virus resistant summer squash breeding lines in New Jersey. *Cucurbitaceae* 2006 Proceedings. Asheville, NC. pp. 539-541.

**Wyenandt, C.A.** 2006. Effect of fungicide chemistry and cultivar on the development of cucurbit powdery mildew on pumpkin in New Jersey. *Cucurbitaceae* 2006 Proceedings. Asheville, NC. pp. 534-538.

Carleo, J. S., P. J. Nitzsche, N. Polanin, P. Perdomo, G. Wulster, **A. Wyenandt**, and A.Brooks Gould. 2006. Performance of zinnia and sunflower cultivars raised on black plastic mulch for cut flower production. Proceedings of The 33<sup>rd</sup> National Agricultural Plastics Congress. November 2-3, 2006, San Antonio, TX. pp. 21.

Fonseca, J., W.L. Kline, **C.A.Wyenandt,** M. Hoque, and H. Ajwa. 2005. Microbial quality and shelf-life of harpin-treated head lettuce. Proceedings of The 32<sup>nd</sup> Annual Meeting of Plant Growth Regulation Society of America. July 24-27, 2005, Newport Beach, CA.

Kline, W.L., **C.A. Wyenandt**, and M.D. Zimmerman. 2004. Evaluation of Phytophthora-resistant bell pepper cultivars and breeding lines. Proceedings of The 16<sup>th</sup> International Pepper Conference. Naples, FL. pp. 14.

## Abstracts

Pyne, R., **Wyenandt, A.**, Koroch, A., and Simon, J.E. 2014. Inheritance of resistance to basil downy mildew (*Peronospora belbahrii*). HortScience 49(9):245.

Muehlbauer, N., Cowgill, W.P., **Wyenandt, C.A.,** Holmstrom, K., Sollner-Figler, S., Magron, R., and Autio., W. 2014. 2013 New Jersey fungicide efficacy trial for powdery mildew control of *Cucurbita pepo* 'Solid Gold'. HortScience 49(9):S8

Kline, W.L., and **Wyenandt, C.A.**, 2013. Internal fruit rot and premature seed formation of field grown colored peppers. HortScience 48(9):S5.

Myers, K.L., Smart, C.D., Gugino, B.K., Shepard, R., Johnson, S.B., McGrath, M.T., **Wyenandt, C.A.**, and Fry, W.E. 2013. US23 was the dominant genotype of Phytopthora infestans in northeastern U.S.A. in 2013. Phytopathology 104(Suppl. 1)S1.1. <<u>http://dx.doi.org/10.1094/</u>PHYTO-104-3-S1.1>

Ward, D.L., Kline, W.L., **Wyenandt, C.A.**, and Carleo, J. 2012. Row cover and planting date in high tunnel strawberry production. HortScience 47(9):S133.

Kline, W.L. and **Wyenandt, C.A.** 2012. Red pepper cultivar evaluations for summer and fall market. HortScience 47(9):S8

Carleo, J., Polanin, N., **Wyenandt, A.,** Ghidui, G., Ward, D., and Autio, W. 2012. Results of application of Coragen (rynaxpyr) on reduction of suflower moth lavae damage. HortScience 47(9):S2.

Homa, K., Simon, J.E., **Wyenandt, C.A.**, and Barney, W.P. 2011. Evaluating fungicides for the control of basil downy mildew. Phytopathology (102):S1.3

Kline, W., and **C.A. Wyenandt**. 2011. Two year study to evaluate bacterial leaf spot and phytophthora resistant bell peppers for yield. HortScience 46(9):S4

Carleo, J., **Wyenandt, C.A.,** Ghidiu, G., and W. Autio. 2011. Applications of Coragen (Rynaxypyr) for reudction of sunflower moth larvae damage in New Jersey. HortScience 46(9):S2

McGrath, M.T., **Wyenandt**, C.A., Raid, R.N., Babadoost, M., and Wick, R.L. 2010. Occurence of basil downy mildew in the eastern US in 2009. Phytopathology 100:S196.

Cowgill, W., W. Autio, S. Sollner-Figler, K. Holmstrom, R. Magron, M. Maletta, M. Muehlbauer, G. Sliffer and **C.A. Wyenandt**. 2010. Evaluation of fungicide chemistries and programs for practical resistance development in cucurbit powdery mildew in New Jersey in 2009. HortScience 45:483.

**Wyenandt, C.A.**, and Maxwell, N.L. 2010. Determining the development of practical fungicide resistance in cucurbit powdery mildew of pumpkin. Phytopathology 100:S139.

**Wyenandt, C.A.**, Simon, J.E., and Park, C. 2009. Evaluation of Basil (*Ocimum* spp.) cultivars and breeding lines for susceptibility to downy mildew. Phytopathology 100:S198.

Carleo, J.S., D. L. Ward, N. Polanin, A. Wyenandt, P. Nitzsche, G. Wulster, and P. Perdomo. 2009. Zinnia variety evaluation for powdery mildew and bacterial leaf spot. HortScience 44:1093.

Carleo, J.S., P., Polanin, N., P. Nitzsche, **A. Wyenandt**, D. Ward, G. Wulster, and P. Perdomo. 2009. Incidence and severity of foliar diseases in five varieties of zinnia. HortScience 44:551.

**Wyenandt, C.A.**, McGrath, M.T., Rideout, S.L., Gugino, B.K., Everts, K.L., and Mulrooney, R.P. 2009. Fungicide resistance management guidelines for cucurbit downy and powdery mildew control in the mid-Atlantic and Northeast regions of the U.S. Phytopathology 99:S144.

Infante-Casella, M., **A. Wyenandt**, N. Maxwell, and R. Samulis. 2008. Evaluation of pumpkin cultivars for yield and powdery mildew tolerance. HortScience 43:1255-1256.

**Wyenandt, C.A.**, Everts, K.E., Mulrooney, R.L., and Rideout, S.L. 2008. Developing a fungicide resistance management guide for vegetable crops grown in the mid-Atlantic region. Phytopathology 98:S173-S174.

Kline, W.L., **C.A. Wyenandt**, D.L. Ward, and J.F. Sudal. 2008. Tomato yields in high tunnel production influenced by the number and placement of drip lines in soilless bags. HortScience 43:599.

Casella, M.L. and **C.A. Wyenandt**. 2008. Yield evaluation of powdery mildew resistant zucchini and yellow summer squash varieties. HortScience 43:595.

Kline, W.L., **C.A. Wyenandt**, D.L.Ward, and J.F. Sudal. 2008. Bell pepper skin separation (silvering) influenced by fertilizer treatments. HortScience 43:1158.

**Wyenandt, A.,** W.L. Kline, A.J. Both, and D.L. Ward. 2007. Effects of soilless bag production and soil fumigation on the development of white mold (*Sclerotinia*) in tomato high-tunnel production. HortScience 42:431.

Carleo, J.S., P. Nitzsche, N. Polanin, P. Perdomo, G. Wulster, **A. Wyenandt**, and A. Brooks Gould. 2007. Preliminary review of zinnia and sunflower cultivars for cut flower production in New Jersey. HortScience 42:434.

Infante-Casella, M., **C.A.Wyenandt**, and M.R. Henninger. 2007. Evaluation of zucchini and yellow summer squash breeding lines and varieties for powdery mildew and downy mildew tolerance. HortScience 42:433.

Kline, W.L., **C.A. Wyenandt**, and J.F Sudal. 2007. Effect of fertilizer rates and materials on bell pepper silvering (skin separation). HortScience 42:433-434.

**Wyenandt, C.A.**, Kline, W.L., Ward, D.L., Sudal, J.F., and Maxwell, N.L. 2007. Relationship between skin separation and phytophthora-resistance in bell pepper cultivars and breeding lines. Phytopathology 97:S125.

**Wyenandt, A.** and Maxwell, N. 2006. Effect of fungicide chemistry and cultivar on the development of cucurbit powdery mildew in pumpkin in New Jersey. Phytopathology 97:S179.

**Wyenandt**, A., and Kline, W.L. 2006. Effects of cultivar and production system on the development of skin separation (silvering) in bell pepper fruit in New Jersey. Phytopathology 96:S125.

Kline, W.L. and **A. Wyenandt**. 2006. Evaluation of skin separation (silvering) in fruit of bell pepper cultivars. HortScience 40:494.

Cowgill, W., K. Holmstrom, A. Wyenandt, J. Clements, and M. Malatta. 2005. Evaluation of phostrol for downy mildew control on pumpkin (*C. pepo*). HortScience 40:1055.

#### **Rutgers Cooperative Extension Fact Sheets**

**Wyenandt, A.** and P. Nitzsche. 2010. Fungicides for controlling diseases in the home garden. New Jersey Agricultural Experiment Station Fact Sheet (FS1224). Rutgers NJAES Cooperative Extension.

**Wyenandt, A.**, Kline, W. and A.J. Both. 2006. Important diseases of tomatoes grown in high-tunnels and greenhouses in New Jersey. New Jersey Agricultural Experiment Station Fact Sheet (FS358). Rutgers NJAES Cooperative Extension.

**Wyenandt, A.**, Nitzsche, P., and W. Cowgill. 2006. Diagnosing and managing important cucurbit diseases in the home garden. New Jersey Agricultural Experiment Station Fact Sheet (E310). Rutgers NJAES Cooperative Extension.

**Wyenandt**, A., and P. Nitzsche. 2005. Diagnosing and controlling fungal diseases of tomato in the home garden. New Jersey Agricultural Experiment Station Fact Sheet (FS547). Rutgers NJAES Cooperative Extension.

**Wyenandt**, A., and P. Nitzsche. 2005. Diagnosing and controlling Phytophthora in the home garden. New Jersey Agricultural Experiment Station Fact Sheet (FS548). Rutgers NJAES Cooperative Extension.

#### **Trade Articles**

Ghidiu, G.M. and A. Wyenandt. 2011. Extend the growing season. Growing Magazine. April 2011. pp. B1-B3.

McGrath, M.T., **C.A. Wyenandt**, and J.E. Simon. 2010. Downy mildew wars: A monitoring program can help growers determine if basil downy mildew the basil downy mildew pathogen is present in their area. American Vegetable Grower. Feb. 2010. pp. 10.

Gugino, B., **Wyenandt**, A, Ojiambo, P. and M. McGrath. 2009. Fighting downy mildew: Learn to forecast and manage this important pest. American Vegetable Grower. Feb. 2009. pp. 52-53.

**Wyenandt, A.** and M.T. McGrath. 2007. Protecting our crops. American Vegetable Grower. 100th Anniversary Issue. Dec. 2007 pp. 9.

**Wyenandt, A.** and M.T. McGrath. 2007. Rating risk: Mode of action plays a key role in fungicide resistance development. American Vegetable Grower. Vol 55:4 pp. 24.

**Wyenandt A.** and N. Maxwell. 2007. Support groups: Understanding FRAC code groups can help you maintain the effectiveness of valuable fungicide treatments. American Vegetable Grower. Vol 55:4 pp. 20,22.

Kline, W.L. and C.A. Wyenandt. 2006. Evaluation of bell pepper breeding lines and cultivars for yield and

fruit characteristics. in Book Of Abstracts, Supplement to The Grower magazine. pp 8.

**Wyenandt, C.A.** and W.L. Kline. 2006. Evaluation of skin separation (silvering) in fruit of bell pepper cultivars. *in Book Of Abstracts, Supplement to The Grower* magazine, pp 11.

# **Vegetable Production Guides**

Wyenandt et al. 2016. Fungicide Resistance Management Guidelines for Vegetable Crops in the Mid-Atlantic Region.

Wyenandt et al. 2016. Commercial Vegetable Production Recommendations Guide for New Jersey. Senior Editor, Vegetable Disease Control.

# **Teaching Activities**

**Teaching Table** 

Date	Program/Event/Location	Class/Course/Prese Title of Presentation	Program Duration	Audience	Resp	Enrolled
04/23/15	Spring Twilight	Vegetable disease control options for spring crops	45 min	Farmers, Extension Agents, Industry Reps	total	20
3/24/15	Cumberland County Master Gardeners	Developing an integrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20
03/11/15	Potato Growers Meeting, RAREC	Potato disease update	30 min	Farmers, Extension Agents, Industry Reps	total	25
03/10/15	Stokes Seed Meeting	Update from the basil downy mildew workshop	60 min	Farmers, Industry Reps	total	100
03/04/15	Climate Change and Agriculture in NJ: A workshop for Extension faculty and staff	Climate change and plant disease	15 min	Extension Agents, NJAES	total	35
03/03/15	Greenhouse Short Course, EcoComplex, Mt Holly	Powdery and downy mildew management in the greenhouse	30 min	Farmers, Extension Agents, Industry Reps	total	25
02/27/15	Central Jersey Vegetable Growers Meeting, Monmouth County	Update on disease control in peppers	30 min	Farmers, Extension Agents, Industry Reps	total	100
02/18/15	North Jersey Vegetable Growers Meeting, Snyder Farm	Vegetable disease control update	30 min	Farmers, Extension Agents, Industry Reps	total	50
02/04/15	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on disease identification and control in cucurbits	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/04/15	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Fungicides for managing downy mildew in basil	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/03/15	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on disease control in peppers	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/22/15	Pepper Advisory Meeting, RAREC	Update on disease control in peppers	30 min	Farmers, Extension Agents, Industry Reps	total	25
01/15/15	Processing Tomato Meeting, FIRE Center, Bridgeton, NJ	Update on disease control in tomatoes	30 min	Farmers, Extension Agents, Industry Reps	total	25
04/22/14	Spring Twilight	Vegetable diseases control options for spring crops	30 min	Farmers, Extension Agents, Industry Reps	total	25
03/23/14	Cumberland County Master Gardeners	Developing an integrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20
02/25/14	Salem County Meeting	Update on disease control in vegetable crops	30 min	Farmers, Extension Agents, Industry Reps	total	40
03/27/14	Potato Growers Meeting, RAREC	Potato disease update	30 min	Farmers, Extension Agents, Industry Reps	total	25
02/20/14	North Jersey Vegetable Growers Meeting, Snyder Farm	Update on diseases and fungicides for vegetables	30 min	Farmers, Extension Agents, Industry Reps	total	40
)2/12/14	Organic Advisory Meeting, Mercer County Office	Managing important diseases in organic vegetable production	30 min	Organic Farmers	total	20
02/04/14	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Breeding for basil downy mildew resistance:Where are we now?	30 min	Farmers, Extension Agents, Industry Reps	total	50
02/04/14	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on disease identification and control in cucurbits	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/04/14	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on disease control in tomatoes	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/04/14	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update of disease control in peppers	30 min	Farmers, Extension Agents, Industry Reps	total	50
02/04/14	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Controlling basil downey mildew with conventional control agents and organic materials-What works and what hasn't:Our experiences in New Jersey	30 min	Farmers, Extension Agents, Industry Reps	total	50
01/27/14	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Vegetable diseases-what you need to know	30 min	Farmers, Extension Agents, Industry Reps	total	50
01/20/14	New Holland Vegetable Growers Meeting, New Holland, PA	Managing bacterial diseases in tomato	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/20/14	New Holland Vegetable Growers Meeting, New Holland, PA	Phytophthora control in vegetable production	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/10/14	Pepper Advisory Meeting, RAREC	Update on disease control in pepper	30 min	Farmers, Extension Agents, Industry Reps	total 25	1
		Update on vegetable pathology research in New Jersey	20 min	Extension Agents	total	25

04/15/13	Cumberland County Master Gardeners	Developing and integrated disease management plan for the home gardener	4 hrs	Master Gardeners	total	20
03/28/13	Spring Twilight	Disease control update	30 min	Farmers, Extension Agents, Industry Reps	total	20
03/20/13	Potato Growers Meeting, RAREC	Potato disease update	30 min	Farmers, Extension Agents, Industry Reps	total	20
02/21/13	Processing Tomato Growers Meeting, FIRE Center, Bridgeton, NJ	Disease management in processing tomatoes	30 min	Farmers, Extension Agents, Industry Reps	total	20
02/05/13	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Evaluating fungicides for the control of basil downy mildew	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/05/13	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Integrated disease management options for leafy greens and herbs	30 min	Farmers, Extension Agents, Industry Reps	total	30
02/05/13	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Tomato disease control in high tunnels	30 min	Farmers, Extension Agents, Industry Reps	total	60
02/05/13	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Pepper anthracnose control	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/26/13	NOFA-NJ	Managing important diseases in organic vegetable production	60 min	Organic Farmers	total	75
01/21/13	New Holland Vegetable Growers Meeting, New Holland, PA	Pepper Disease Control	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/21/13	New Holland Vegetable Growers Meeting, New Holland, PA	Heat treatment of seeds: A component of bacterial disease management	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/18/13	Pumpkin Growers Workshop, Gloucester County	Update on disease control in pumpkin	30 min	Farmers, Extension Agents, Industry Reps	total	20
04/17/12	Cumberland County	Developing an integrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20
03/21/12	Potato Growers Meeting, RAREC	NEWA: A new disease and pest forecasting system for NJ	20 min	Farmers, Extension Agents, Industry Reps	total	40
03/02/12	Salem County Pesticide Training Meeting	Pesticide control products for vegetable disease	30 min	Farmers, Extension Agents, Industry Reps	total	40
02/24/12	Pumpkin Growers Workshop, Gloucester County	Update on cucurbit disease control	30 min	Farmers, Extension Agents, Industry Reps	total	15
02/21/12	Processing Tomato Growers Meeting, FIRE Center, Bridgeton, NJ	Review of processing tomato fungicide trials at RAREC	30 min	Farmers, Extension Agents, Industry Reps	total	20
02/03/12	Central Jersey Vegetable Growers Meeting, Monmouth County	Transplants and early-season vegetable diseases	30 min	Farmers, Extension Agents, Industry Reps	total	100
02/01/12	Hershey, PA	Pepper disease management update	30 min	Farmers, Extension Agents, Industry Reps	total	50
01/31/12	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Pumpkin and vine crop disease control	30 min	Farmers, Extension Agents, Industry Reps	total	50
01/28/12	NOFA-NJ	Managing diseases in organic vegetable production	1 hr	Organic Farmers	total	110
01/25/12	Pepper Advisory Meeting, RAREC	Update on fungicides for the control of important pepper diseases	30 min	Farmers, Extension Agents, Industry Reps	total	25
01/17/12	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on cucurbit disease control	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/17/12	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Mitigating transplant and early- season vegetable diseases in IPM approach	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/17/12	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on fungicides for the control of important pepper diseases	30 min	Farmers, Extension Agents, Industry Reps	total	60
01/17/12	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Evaluating fungicides for the control of basil downy mildew	30 min	Farmers, Extension Agents, Industry Reps	total	50
01/10/12	23rd Eastern Shore Ag Conference and Trade Show, Belle Haven, VA	Heat Vegetable Seed Treatment Workshop	4 hrs	VA Tech graduate students	total	5
04/12/11	Burlington County Master Gardeners, Burlington County Office	Developing and integrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20
	Cumberland County Master Gardeners	Developing an integrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20

03/30/11	DelMarVA Vegetable Working Group Meeting, Univ of Delaware	Update on vegetable pathology research in New Jersey	30 min	Farmers, Extension Agents, Industry Reps	total	20
03/01/11	Mercer County Vegetable Growers Meeting, Trenton, NJ	Anthracnose and phytophthora control in peppes	30 min	Farmers, Extension Agents, Industry Reps	total	20
02/17/11	Processing Tomato Growers Meeting, FIRE Center, Bridgeton, NJ	Review of processing tomato fungicide trials at RAREC	30 min	Farmers, Extension Agents, Industry reps	total	20
02/16/11	North Jersey Vegetable Growers Meeting, Snyder Farm	Update on disease control in vegetables	30 min	Farmers, Extension Agents, Industry Reps	total	35
02/03/11	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Fungicide resistance management for cucurbit crops	30 min	Farmers, Extension Agents, Industry Reps	total	40
01/20/11	Pepper Advisory Meeting, RAREC	Update on disease control in bell pepper	30 min	Farmers, Extension Agents, Industry reps	total	20
01/17/11	New Holland Vegetable Growers Meeting, New Holland, PA	Cucurbit downy and powdery mildew control	30 min	Farmers, Extension Agents, Industry Reps	total	40
01/11/11	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Pepper anthracnose and other disease control	30 min	Farmers, Extension Agents, Industry Reps	total	60
11/15/10	Mid-Atlantic Crop Management School, Rehobeth Beach, MD	Managing Phytophthora in Vegetable Production	2 hrs	Farmers, Agents, Crop Advisors	total	100
04/27/2010	Master Gardener Training, Cumberland County	Developing an intergrated disease management plan for the home garden	4 hrs	Master Gardeners	total	20
04/06/10	Master Gardener Training, Burlington County	Developing an integrated disease management plan for the home garden	2 hrs	Master Gardeners	total	45
03/10/10	Potato Growers Meeting, RAREC	Update on disease control	15 min	Farmers, Extension Agents, Industry Reps	total	20
03/05/10	Salem County Pesticide Safety Training Meeting	Pesticide controls for vegetable disease	30 min	Farmers	total	40
02/23/10	Pepper Anthracnose Meeting, Gloucester County	Results of the pepper variety trial - 2009	30 min	Farmers, Extension Agents, Industry reps	total	30
02/23/10	Pepper Anthracnose Meeting, Gloucester County	Overview of pepper diseases	1 hr	Farmers, Extension Agents, Industry Reps	total	30
02/19/10	North Jersey Vegetable Growers Meeting, Snyder Farm	Update on tomato and pepper disease control	30 min	Farmers, Extension Agents, Industry reps	total	50
02/16/10	Hot Water Seed Treatment	Overview of bacterial diseases of tomato and their control	1 hr	Farmers, Extension Agents, Industry Reps	total	30
02/05/10	Central Jersey Vegetable Growers Meeting, Monmouth County	Update on tomato and pepper disease control	30 min	Farmers, Extension Agents, Industry Reps	total	150
02/04/10	Processing Tomato Growers Meeting	Update on fungicide use in processing tomatoes	20 min	Growers, Extension agents, Industry Reps	total	30
01/30/10	Northeast Organic Farming Association of New Jersey (NOFA-NJ) Annual Meeting, New Brunswick, NJ	Managing hard to control diseases in organic vegetable production	1 hr	Organic Farmers	total	40
01/28/10	Pepper Advisory Meeting, RAREC	Update on Pepper Disease Control	15 min	Farmers, Extension Agents, Industry Reps	total	25
01/13/10	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City	Pepper variety trial and disease evaluation - 2009	20 min	Farmers, Extension Agents, Industry Reps.	total	100
01/13/10	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City	Pepper disease control and options for 2010	30 min	Farmers, Extension Agents, Industry Reps	total	75
01/12/10	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City	Update on basil downy mildew	30 min	Farmers, Extension Agents, Industry reps	total	75
12/16/09	Tomato Advisory Meeting, Burlington County	Update on tomato disease control in 2009	15 min	Farmers, Extension Agents, Industry Reps.	total	20
04/07/09	DelMarVA Vegetable Working Group Meeting, Univ. of Delaware	Vegetable Pathology Update for New Jersey	20 min	Extension Agents, Extension Specialists	total	35
04/02/09	Master Gardener Training, Burlington County	Developing an integrated disease management plan for the home garden	2 hrs	Master Gardeners	total	30
02/19/09	Processing Tomato Growers Meeting, Food Innovation Center, Bridgeton, NJ	Improved cultural practices for yield and disease avoidance	30 min	Farmers, Extension Agents, Industry representatives	total	30
02/18/09	Pepper Advisory Meeting, RAREC	Update on pepper disease control	30 min	Farmers, Extension Agents, Industry representatives	total	20
02/10/09	Master Gardener Training, Cumberland County	Developing an integrated disease management plan for the home garden	2 hrs	Master Gardeners	total	20
02/09/09	Tomato Heat Seed Treatment Workshop, Gloucester County	Controlling bacterial diseases in	30 min	Farmers, Extension Agents	total	45

	Office Central Jersey Vegetable					
2/06/09	Growers Meeting, Monmouth County Office	pumpkins	30 min	Farmers, Extension Agents, Industry Reps	total	125
1/28/09	Mid-Atlantic Pumpkin School	Update on disease control in pumpkin	45 min	Farmers, Extension Agents, Industry Reps	total	45
01/21/09	Tomato Advisory Meeting, Burlington County Office	Update on tomato disease control for 2009	30 min	Farmers, Extension Agents, Industry Reps	total	20
01/13/09	Atlantic Coast Agricultural Conference and Trade Show	Update on pepper disease control	30 min	Farmers, Extension Agents, Industry reps	total	75
01/13/09	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on tomato disease control	30 min	Farmers, Extension Agents, Industry reps	total	125
11/18/08	Western PA Vegetable Growers Meeting	Stubborn disease problems: Bacterial diseases of tomato and Phytophthora on pepper and vine crops	30 min	Farmers, Extension Agents, Industry Reps	total	125
11/18/08	Western PA Vegetable Growers Meeting, Butler, PA	Downy mildew and powdery mildew control in vine crops	45 min	Farmers, Extension Agents, Industry Reps	total	125
10/16/08	Cape May County Grower Training	Pesticide resistance prevention	30 min	Vegetable Farmers	total	10
05/12/08	WERA-60 Annual Meeting, Ft. Collins, CO	Fungicide resistance management in New Jersey and mid-Atlantic region	30 min	University Researchers	total	20
03/27/08	Master Gardener Training, Burlington County	Developing an integrated disease management plan for the home garden	2 hrs	Master Gardeners	total	30
03/25/08	Vegetable Integrated Crop Management Twilight Meeting, Vineland, NJ		30 min	Farmers, Extension Agents	total	20
02/29/08	DelMarVA Vegetable Working Group Meeting, Univ. of Delaware	Vegetable Pathology Update from New Jersey	20 min	Extension Agents	total	20
02/28/08	Master Gardener Training, Cape May County	Developing an integrated disease management plan for the home garden	2 hrs	Master Gardeners	total	17
02/26/08	North Jersey Vegetable Growers Meeting, Snyder Farm	High Tunnel tomato production in soilless bags	15 min	Farmers, Extension Agents, Industry representatives	total	50
02/26/08	North Jersey Vegetable Growers Meeting, Snyder Farm	Update on disease control in tomato and cucurbits	30 min	Farmers, Extension Agents, Industry representatives	total	30
02/22/08	Tomato Advisory Meeting, Burlington County Office	Update on tomato disease control	20 min	Farmers, Extension Agents, Industry representatives	total	15
02/19/08	Processing Tomato Growers Meeting, RAREC	Update on processing tomato disease control	30 min	Farmers, Extension Agents, Industry representatives	total	10
02/08/08	Central Jersey Vegetable Growers Meeting, Monmouth County Office	Update on disease control in tomato and cucurbit	30 min	Farmers, Extension Agents, Industry representatives	total	120
02/01/08	Pepper Advisory Meeting, RAREC	Update on pepper disease control	20 min	Farmers, Extension Agents, Industry representatives	total	20
01/30/08	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA		30 min	Farmers, Extension Agents, Industry representatives	total	25
01/30/08	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Disease and disorders of pepper	30 min	Farmers, Extension Agents, Industry representatives	total	60
01/29/08	Mid-Atlantic Fruit and Vegetable Trade Show, Hershey, PA	Update on diseases of vine crops	30 min	Farmers, Extension Agents, Industry representatives	total	50
01/17/08	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Update on diseases and disorders in pepper	30 min	Farmers, Extension Agents, Industry representatives	total	50
01/16/08	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City	Update on cucurbit disease control	30 min	Farmers, Extension Agents, Industry representatives	total	50
01/15/08	Atlantic Coast Agricultural Conference and Trade Show, Atlantic City, NJ	Tomato disease control	30 min	Farmers, Extension Agents, Industry representatives	total	50
11/14/07	Potato Growers Meeting, RAREC	Update on Potato Disease Control	30 min	Potato Growers	total	15
9/27/07	Vegetable Integrated Crop Management Twilight Meeting, RAREC	Update on vegetable disease control	30 min	Farmers, Extension Agents	total	30
5/1/07	Master Gardener Training, Cumberland County	Developing a disease management plan for your home garden	20 min	Master Gardeners	total	25
5/1/07	Master Gardener Training, Cumberland County	Loto blight and other immediate	30 min	Master Gardeners	total	25
5/1/07	Master Gardener Training, Cumberland County	Late blight and important	30 min	Master Gardeners	total	25

5/1/07	Cumberland County	Introduction to basic plant pathology	30 min	Master Gardeners	total	25
/26/07	Cumberland County High School Tour of RAREC	Overview of vegetable pathology program	20 min	High school biology students	total	30
/11/07	Vegetable Integrated Crop Management Twilight Meeting, Vineland, NJ	Spring disease management for vegetable crops	30 min	Farmers, Extension Agents, Industry representatives	total	30
/13/07	Master Gardener Training	Developing a disease management plan for your home garden	20 min	Master Gardeners	total	60
/13/07	Master Gardener Training, Cape May County	Downy mildew and other important diseases of pumpkin	30 min	Master Gardeners	total	60
/13/07	Master Gardener Training, Cape May County	Late blight and important diseases of tomato	30 min	Master Gardeners	total	60
/13/07	Master Gardener Training, Cape May County	Introduction to basic plant pathology	30 min	Master Gardeners	total	60
/1/07	North Jersey Commercial Vegetable Growers Meeting	Update on disease control in vegetable crops	30 min	Farmers, Extension Agents	total	40
/9/07	Central Jersey Vegetable Growers Conference, Monmouth County	Cucurbit diseases and updates of fungicide use	30 min	Farmers, Extension Agents, Industry representatives	total	120
/7/07	Violet Packing Processing Tomato Grower Meeting	Update on tomato disease control	30 min	Industry Representatives, processing tomato growers	total	25
/25/07	Mid-Atlantic Pumpkin School, Burlington County	Update on disease control in pumpkin	30 min	Farmers, Extension Agents, Industry representatives	total	75
/16/07	52nd Annual Vegetable Growers Meeting, Atlantic City, NJ		30 min	Farmers, Extension Agents, Industry representatives	total	100
/16/07	52nd Annual Vegetable Growers Meeting, Atlantic City, NJ		1 hr	Farmers, Extension Agents, Industry representatives	total	100
/16/07	52nd Annual Vegetable Growers Meeting, Atlantic City, NJ		30 min	Farmers, Extension Agents, Industry representatives	total	75
/16/07	52nd Annual Vegetable Growers Meeting, Atlantic City, NJ		30 min	Farmers, Extension Agents, Industry representatives	total	100
1/1/06	Mid-Atlantic Vegetable Workers Conference, Univ. of Delaware		15 min	Extension Agents	total	30
0/25/06	Pesticide Education Classes, Cape May County	IPM for pesticide resistance management	1 hr	Farmers	total	20
0/28/06	Design and Operation of Greenhouse, High Tunnel and Nursery Systems - 2006 Introductory Greenhouse Short Course	Disease management in high tunnels	30 min	Greenhouse and high tunnel operators	total	25
/22/06	Vegetable Integrated Crop Management Twilight Meeting, RAREC	Update on Phytophthora-tolerant bell pepper breeding lines and cultivars	15 min	Farmers, Extension Agents, Industry representatives	total	75
/22/06	Vegetable Integrated Management Twilight Meeting, RAREC	Update on production system and cultivar effects on skin separation (silvering) in bell pepper fruit	15 min	Farmers, Extension Agents, Industry representatives	total	75
/22/06	Vegetable Integrated Management Twilight Meeting, RAREC	Update on fungicide resistance management for cucurbit powdery mildew	15 min	Farmers, Extension Agents, Industry representatives	total	75
/22/06	Vegetable Integrated Crop Management Twilight Meeting, RAREC	Update on cucurbit powdey and downy mildew control programs	15 min	Farmers, Extension Agents, Industry representatives	total	75
/25/06	Vegetable Integrated Crop Management Twilight Meeting, Gloucester County	Spring disease management in vegetable crops	30 min	Farmers, Extension Agents, Industry representatives	total	25
/19/06	DelMarVa Vegetable Working Group Meeting, Univ. of Delaware	Update on vegetable pathology research in New Jersey	15 min	Extension Agents, Industry representatives	total	35
/28/06	Vegetable Integrated Crop Management Twilight Meeting, Atlantic County	Soil-borne diseases and early foliar disease management for herbs	30 min	Farmers, Extension Agents, Industry representatives	total	25
		Update on vegetable research in	15 min	Researchers, Extension Agents, Industry Representatives	total	75
/15/06	APS, Potomac Division	New Jersey		industry Representatives		
	APS, Potomac Division Master Gardener Training, Cumberland County	New Jersey Introduction to basic plant pathology	30 min	Master Gardeners	total	20
/14/06	Master Gardener Training,	Introduction to basic plant				20 20
/14/06	Master Gardener Training, Cumberland County Master Gardener Training,	Introduction to basic plant pathology Late blight and other important	30 min	Master Gardeners	total	
/15/06 /14/06 /14/06 /14/06	Master Gardener Training, Cumberland County Master Gardener Training, Cumberland County Master Gardener Training,	Introduction to basic plant pathology Late blight and other important diseases of tomato Downy mildew and other	30 min 30 min 30 min	Master Gardeners Master Gardeners	total total	20

3/2/06	Vegetable Growers Meeting, Snyder Research Farm	cucurbits	30 min	Industry Representatives	total	33
/16/06	Master Gardener Training, Burlington County	Late blight and other diseases of tomato	45 min	Master Gardeners	total	60
/16/06	Master Gardener Training, Burlington, County	Downy mildew and other important diseases of pumpkin	45 min	Master Gardeners	total	60
/16/06	Master Gardener Training, Burlington County	Introduction to basic plant pathology	45 min	Master Gardeners	total	60
/16/06	Master Gardener Training, Burlington County	Developing a disease management plan for your home garden	15 min	Master Gardeners	total	60
2/3/06	Central Jersey Vegetable Growers Conference	Disease control in pumpkin and tomato	30 min	Farmers, Extension Agents, Industry Representatives	total	120
/2/06	Mid-Atlantic Fruit and Vegetable Trade Show	Phytophthora control for eggplant and pepper	30 min	Farmers, Extension Agents, Industry Representatives	total	45
/16/06	Delaware Agricultural Week, Dover, DE	Disease control programs and fungicide updates for fresh- market vegetables	30 min	Farmers, Agricultural agents	total	100
/10/06	51st Annual Vegetable Growers Meeting, Atlantic City, NJ	Fungicides for disease control and resistance management in strawberry production	30 min	Farmers, Extension Agents, Industry Representatives	total	40
/10/06	51st Annual Vegetable Growers Meeting, Atlantic City, NJ	Managing fungicide resistance in vegetable crops	30 min	Farmers, Extension Agents, Industry Representatives	total	120
/10/06	51st Annual Vegetable Growers Meeting, Atlantic City, NJ	Tomato disease control	30 min	Farmers, Extension Agents, Industry Representatives	total	50
/10/06		Use of Tom-Cast to manage asparagus disease	30 min	Farmers, Extension Agents, Industry Representatives	total	30
/10/06	51st Annual Vegetable Growers Meeting, Atlantic City, NJ	Fungicides for control of downy and powdery mildew in pumpkin and managing fungicide resistance is key to controlling Powdery mildew	30 min	Farmers, Extension Agents, Industry Representatives	total	90
1/30/05	New Jersey Agribusiness Association Annual Meeting, Mt. Holly, NJ	2005 fungicide trials for powdery and downy mildew control	30 min	Farmers, Extension Agents, Industry Representatives	total	70
1/10/05	NJ Potato Growers Association Meeting, RAREC	Update on potato disease control	30 min	Potato growers, extension agents	total	20
1/3/05	DelMarVa Vegetable Working Group Meeting	Research results for 2005	15 min	Extension Agent and Specialists	total	35
0/26/05	Vegetable Integrated Cop Management Twilight Meeting, Atlantic County	Updates on vegetable disease control	30 min	Farmers, Extension Agents	total	30
0/27/05	Vegetable Integrated Crop Management Twilight Meeting, Gloucester County	Update on Vegetable Disease Control	30 min	Farmers, Extension Agents, Industry Representatives	total	30
/8/05	Weed Science Field Day, RAREC	Update on vegetable disease research trials	30 min	Farmers, Extension Agents, Industry Representatives	total	50
/25/05	Gro-Mark vegetable Growers Meeting	Soybean rust in New Jersey	1 hr	Farmers, Industry Representatives	total	100
/24/05	Vegetable Integrated Crop management Twilight Meeting, RAREC	Update on Vegetable Disease Control	30 min	Farmers, Extension Agents	total	30
/26/05	Vegetable Integrated Crop Management Twilight meeting, Gloucester County	Disease control and label updates	30 min	Farmers, Extension Agents	total	30
/5/05	Master Gardener Training, Burlington County	Late blight and other important diseases of tomato	1 hr	Master Gardeners	total	30
/5/05	Master Gardener Training, Burlington County	Downy mildew and other important diseases in cucurbits	1 hr	Master Gardeners	total	30
/5/05	Master Gardener Training, Burlington County	Understanding vegetable	1 hr	Master Gardeners	total	30
3/30/05	Field Crop Weed Control and Pesticide Safety Training, Salem County	Soybean rust - Disease life cycle and management	30	Farmers, extension agents, industry reps	total	25
6/22/05	Vegetable Integrated Crop Management twilight meeting, Cumberland County	Spring vegetable disease control	30 min	Farmers, extension agents, industry reps	total	30
/18/05	Pumpkin Growers Workshop, Gloucester County	FRAC groupings important for risk management in pumpkin/cucurbit crops	30 min	Farmers, extension agents, industry reps	total	10
/9/05	NJ Potato Growers Association, RAREC	Potato seed treatments and understanding fungicide resistance	30 min	Farmers, extension agents, industry reps	total	20
/21/05	Gro-Mark Vegetable Growers Meeting, Bridgeton, NJ	Spring disease control measures	1 hr	Farmers, extension agents, industry reps	total	100
/15/05	North Jersey Commercial Vegetable Growers Meeting, Snyder Research Farm	Pumpkin Downy mildew control research results and recommendations for 2005	30 min	Farmers, extension agents, industry reps	total	30

2/15/05	North Jersey Commercial Vegetable Growers Meeting, Snyder Research Farm	Control and Management of Late blight for tomato and potato	15 min	Farmers, extension agents, industry reps	total	30
2/4/05	Central Jersey Vegetable Growers Conference, Monmouth County	Downy mildew and other important diseases on pumpkin	30 min	Farmers, extension agents, industry reps	total	100
1/10/05	50th Annual Vegetable Growers Meeting, Atlantic City, NJ	Downy mildew and other important diseases on pumpkin	30 min	Farmers, extension agents, industry reps	total	50
1/10/05	50th Annual Vegetable Growers Meeting, Atlantic City, NJ	Late blight and other important diseases of tomato	30 min	Farmers, Extension Agents, Industry Reps	total	75
12/1/04	11th Annual New Jersey Pest Control and Soil Fertility Conference. Mt. Holly, NJ	Vegetable Pathology Observations from the Field	30 min	Farmers, Extension Agents, Industry Representatives	total	75
8/14/04	Vegetable and Specialty Crops Field Day, RAREC	Update on vegetable disease control	30 min	Farmers, extension agents, industry reps	total	30

# **Invited Addresses**

Invited Speaker, 2010 Mid-Atlantic Crop Management School. 'Managing phytophthora in vegetable production'. University of Maryland. 11/18/2010.

Invited Speaker, 2009 Mid-Atlantic Crop Management School. 'Fungicide resistance management: guidelines for mid-Atlantic crops'. University of Maryland. 11/17/2009.

Invited Speaker. Current Concepts Course. 'An integrated approach to managing important vegetable diseases in the mid-Atlantic region'. University of Delaware, Newark, DE. 2/27/09

Invited Speaker. North American Fungicide Resistance Action Committee (NA-FRAC) Annual Meeting. Minneapolis, MN. July 26, 2008. title: 'Developing a fungicide resistance management guide for vegetable crops grown in the mid-Atlantic region.'

## Papers, Abstracts, and Lectures

Brumfield, R. G., Carleo, J., Govindasamy, R., Gohil, H., Heckman, J., Kluchinski, D., Matthews, J., Melendez, M., Nitzsche, P. J., Polanin, N., Wyenandt, C. A. 2017. Budgets for 'Ultra-Niche' Crops (poster). Extension Risk Management Education National Conference, Cincinnati, OH. April 27-28, 2017.

**Wyenandt, C.A.,** D.L. Ward, and N.L. Maxwell. 2010. 'Practical' fungicide resistance and cross resistance development in cucurbit powdery mildew of pumpkin in New Jersey. *Cucurbitaceae* 2010. Charleston, NC. November 14-18.

**Wyenandt, C.A.**, W.L. Kline, D.L. Ward and N.L. Maxwell. 2009. Cultivar and production system effects on the development of skin separation (or 'silvering') in fruit of bell pepper. Proceedings of the 2<sup>nd</sup> International *Phytophthora capsici* Conference. Longboat Key, FL. Dec. 1-2, 2009.

**Wyenandt, C.A.**, Kline, W.L. and N.L. Maxwell. 2009. Evaluation of fungicides for the control of the fruit rot phase of phytophthora blight in bell pepper production in New Jersey. Proceedings of the 2<sup>nd</sup> International *Phytophthora capsici* Conference. Longboat Key, FL. Dec. 1-2, 2009.

**Wyenandt, C.A.**, J.E. Simon and C. Park. 2009. Evaluation of Basil (*Ocimum* spp.) cultivars and breeding lines for susceptibility to downy mildew. Northeast American Phytopathological Society Division Meeting. Quebec City, Quebec, Oct. 28-30, 2009.

**Wyenandt, C.A.**, McGrath, M.T., Rideout, S.L., Gugino, B.K., Everts, K.L., and R.P. Mulrooney. 2009. Fungicide resistance management guidelines for cucurbit downy and powdery mildew control in the mid-Atlantic and Northeast regions of the U.S. American Phytopathological Society Annual Meeting. Portland, OR, August 1-5, 2009.

**Wyenandt, C.A.**, K.L. Everts, R.P. Mulrooney, S.L. Rideout, B.K. Gugino and N.L. Maxwell. 2009. Fungicide Resistance Management Guidelines for Vegetable Crops Grown in the mid-Atlantic Region. The 6<sup>th</sup> International Integrated Pest Management Symposium. Portland, OR, March 24-26, 2009.

**Wyenandt, C.A.**, Kline, W.L., Ward, D., Sudal, J., and N. Maxwell. 2008. Current understanding of the relationship between skin separation and phytophthora-resistance in bell pepper cultivars and breeding lines. The 19<sup>th</sup> International Pepper Conference, September 7-10, Atlantic City, New Jersey. pp. 17.

Wyenandt, C.A., Everts, K.E., Mulrooney, R.L., and S.L. Rideout. 2008. Developing a fungicide resistance

management guide for vegetable crops grown in the mid-Atlantic region. American Phytopathological Society Annual Meeting. July 28-August 1, Minneapolis, MN.

**Wyenandt, A.** 2007. Understanding FRAC and fungicide resistance management. The 22<sup>nd</sup> Tomato Disease Workshop, October 24-26, Williamsburg, VA.

**Wyenandt, C.A**, Kline, W.L., Ward, D.L., Sudal, J.F., and N.L. Maxwell. 2007. Relationship between skin separation and Phytophthora-resistance in bell pepper cultivars and breeding lines. American Phytopathological Society Annual Meeting, July 28- August 1, San Diego, CA.

**Wyenandt**, A., Kline, W.L., Both, A.J. and D. Ward. 2007. Effects of soilless bag production and soil fumigation on the development of white mold (Sclerotinia) in tomato high-tunnel production. Northeast Region - American Society for Horticultural Science, January 4-6, College Park, MD.

**Wyenandt, A.** and Maxwell, N. 2006. Effect of fungicide chemistry and cultivar on the development of cucurbit powdery mildew in pumpkin in New Jersey. Northeast Division - American Phytopathological Society Annual Meeting, November 7-9, Burlington, VT.

**Wyenandt, A.,** and Kline, W.L. 2006. Effects of cultivar and production system on the development of skin separation (silvering) in bell pepper fruit in New Jersey. American Phytopathological Society Annual Meeting, July 29-August 1, Quebec City, Canada.

**Wyenandt, C.A.,** and Kline., W.L. 2006. Relationship between *Phytophthora capsici* and skin separation (silvering) in bell pepper fruit. The 18<sup>th</sup> International Pepper Conference, May 21-23, 2006, Palm Springs, CA.

**Wyenandt, C.A.** 2006. Effect of fungicide chemistry and cultivar on the development of cucurbit powdery mildew in New Jersey. *Cucurbitaceae* 2006, September 17-21, Asheville, North Carolina.

**Wyenandt**, C.A, Infante-Casella, M., Henninger, M.R., Buckley, R., Tirpak, S., Holmstrom, K., Nitzsche, P.J., Tietjen, W.H., Samulis, R.J., Kline, W.K., Cowgill, W., and J.R. Heckman. 2006. Survey for cucurbit viruses in commercial fields and evaluation of virus resistant summer squash breeding lines in New Jersey. *Cucurbitaceae* 2006, September 17-21. Asheville, North Carolina.

**Wyenandt, A.** and Heckman, J.R. 2006. Mulching and nitrogen fertilizer effects on pumpkin yield and quality. World Congress of Soil Science, July 9-15, 2006. Philadelphia, PA.

**Wyenandt, C.A.** and Kline, W.L. 2006. Relationship between *Phytophthora capsici* and skin separation (silvering) in bell pepper fruit. The 18<sup>th</sup> International Pepper Conference, May 21-23. Palm Springs, CA.

W. Cowgill, K. Holmstrom, A. Wyenandt, J. Clements and M. Malatta. 2005. Evaluation of phostrol for downy mildew control in pumpkin (*C. pepo*). American Society for Horticultural Science (ASHS) Annual Conference, July 18-21, 2005. Las Vegas, NV.

# **Other Presentations, Lectures, Demonstrations**

Basil downy mildew threatens New Jersey basil crop again. Philadelphia Inquirer, July 24, 2010. http://www.philly.com/inquirer/food/20100724\_Downy\_mildew\_threatens\_New\_Jersey\_basil\_crop\_again.html

Television interview with Ed Rogers, NJN News, on the impacts of basil downy mildew on basil production in New Jersey. August 4, 2010. <u>http://www.youtube.com/watch?</u> v=afahYU K8U4&p=9AE9C6EF0D96315A&index=0

Channel 6ABC News. Television interview with Kathy Gandolfina in Salem County, NJ on the Late blight epidemic in 2009. <u>http://abclocal.go.com/wpvi/story?section=news/local&id=6941105</u>

'Late blight in New Jersey' phone interview with John Weber, 101.5 FM, August 10, 2004

# **Organizing and Chairing Activities**

Participation in Organizing or Chairing Conferences, Workshops, and Organizations

2009-2012	Chair, Fungicide Resistance Development in North America for the 21st Century Workshop, American Phytopathological Society Annual Meeting, Providence, Rhode Island, August 3-4, 2012.
2009-2012	Chair, Northeast Vegetable IPM Working Group
2011	Organizing Committee, 100th Anniversary of Plant Pathology at Rutgers University 1911-2011.
12/2008-ongoing	Member of Northeast IPM Vegetable Working Group
05/2008-05/2009	WERA-060: Management of Pesticide Resistance Multistate Research Project. Chair for 2009 Annual Meeting
06/2007-09/2008	The 19 <sup>th</sup> International Pepper Conference, Atlantic City, New Jersey, September 7-10, 2008. Co-Chair with Wesley L. Kline, Cumberland County Agricultural Agent.
2007-2009	Northeast Division - American Phytopathological Society - Symposium Chair (2007-2009).

# **Editorial Activities**

#### **Editorship of Scholarly or Professional Journals**

#### Membership on Editorial Boards of Scholarly or Professional Journals

2013-ongoing Senior Editor, Vegetable pathology, fungicide trials, resistance, and breeding. Plant Health Progress. The American Phytopathological Society.

2007-2013 Section Editor - Citrus, tropical, vegetable and miscellaneous crops - Plant Disease Management Reports. The American Phytopathological Society

# Memberships

## Membership/Offices Held in Scholarly and Professional Societies

2005-ongoing Member of American Phytopathological Association (APS), Northeast Division-American Phytopathological Society (NED-APS)

- Past President of Northeast Division-American Phytopathological Society (2012) (NED-APS)
- Past Vice-President of Northeast Division-American Phytopathological Society (2011) (NED-APS)
- Past Secretary of Northeast Division-American Phytopathological Society (2010) (NED-APS)
- Workshop Coordinator, Fungicide Resistance Development in North America for the 21st Century. 2012 American Phytopathological Association Annual Meeting, 3- 4 August 2012.
- Northeast Division-American Phytopathological Society Graduate Award Committee (2007-2009)
- Resistance Management Committee American Phytopathological Association (2009 present)
- Moderator for Diseases of Vegetable Crops Session at 2007 American Phytopathological Association Annual Meeting, San Diego
- Symposium coordinator, 2007 Northeast Division-American Phytopathological Society Annual Meeting held in Cape May, New Jersey.

2010-2011	Chair, Pathogen Resistance Committee, American Phytopathological Society
2009-ongoing	Member of Scientific Committee (formerly International <i>Phytophthora capsici</i> Conference). Currently known as Soilborne Oomycete Conference, Co-chair of Chemical Control Session
01/2009-ongoing	Member to the Northeast Vegetable IPM Working Group
	Member of American Society for Horticultural Science (ASHS); Northeast American Society for Horticultural Science (NE-ASHS)
2006-ongoing	Member of WERA-060: Management of Pesticide Resistance Multistate Research Project.
	New Jersey Agribusiness Association (NJAA) – Board of Directors 1/05 to 1/07, Vice- President 1/08, President 1/09 - 1/11
2004-ongoing	Rutgers Cooperative Extension Vegetable Working Group
2004-ongoing	Mid-Atlantic Vegetable Working Group

#### Funding

#### **Externally-Funded Research and/or Training Grants**

- 2016 (Grant Amount: \$52,000) Industry-supported field research, A. Wyenandt, PI
- 2016 (Grant Amount: \$34,000) Industry-supported contract field research, A. Wyenandt, PI
- 2015-2019 (Grant Amount: \$2,300,000) USDA-NIFA. Agriculture and Food Research Initiative Competitive Grants Program:Food Security Challenge Area. A production system for high value crops at risk from downy mildew: Integrating detection, breeding, extension and education. (\$563,852 total Rutgers Budget; Wyenandt, Simon, Govindasamy -CoPIs) (\$105,000 Wyenandt Budget), Hausbeck et al. (MSU lead)
- 2015-2019 (Grant Amount: \$299,998) USDA-NIFA. Crop Protection and Pest Management Program: Applied Research and Development Competetive Grants Program. Cucurbit IPM for reducing pollinator exposure to key fungicides. (\$23,874 Wyenandt budget), Everts et al. (UMD lead)
  - 2015 (Grant Amount: \$46,000) Industry-supported contract field research, A. Wyenandt, PI
  - 2015 (Grant Amount: \$74,000) Industry-supported field research, A. Wyenandt, PI
  - 2014 (Grant Amount: \$66,000) Industry-supported contract field research, A. Wyenandt, PI
  - 2014 (Grant Amount: \$69,000) Industry-supported field research, A. Wyenandt, PI
  - 2013 (Grant Amount: \$63,000) Industry-supported contract field research, A. Wyenandt, PI
  - 2013 (Grant Amount: \$53,000) Industry-supported field research, A. Wyenandt, PI
  - 2012 (Grant Amount: \$65,000) Industry-supported contract field research, A. Wyenandt, PI
  - 2012 (Grant Amount: \$105,000) Indusry-supported field research, A. Wyenandt, PI
- 2011-2015 (Grant Amount: \$1,800,000) Simon et al. USDA-SCRI Grant. Strategies for Improving the U.S. Responses to Fusarium, Downy Mildew and Chilling Injury in Production of Sweet Basil (*Ocimum basilicum* L.). (\$119,000 Wyenandt budget), Simon et al. (Rutgers lead)
  - 2011 (Grant Amount: \$40,000) Industry-supported contract field research, A. Wyenandt, PI
  - 2011 (Grant Amount: \$75,000) Industry-supported field research, A. Wyenandt, PI

- 2011 (Grant Amount: \$7,000) Northeast IPM Center Partnership Grant. Fungicide Resistance Management Guidelines for the mid-Atlantic Region, Wyenandt et al.
- 2011 (Grant Amount: \$15,000) Northeast IPM Center Partnership Grant. Expansion of the Northeast Vegetable IPM Working Group, Wyenandt et al.
- 2011-2013 (Grant Amount: \$69,000) Northeast IPM Center RIPM Grant. Training the trainers: Expanding the use of seed heat treatment for management of bacterial diseases of tomato in the Northeast region., A. Wyenandt and K. Holmstrom
  - 2010 (Grant Amount: \$13,500) Evaluation of fertility programs in bell pepper production in New Jersey., Andy Wyenandt, P.I.
  - 2010 (Grant Amount: \$73,000) Industry-supported field research trials., Andy Wyenandt, P.I.
  - 2010 (Grant Amount: \$6,300) Monsanto Company. Evaluation of pumpkin cultivars for virus resistance., Andy Wyenandt, P.I.
  - 2010 (Grant Amount: \$8,000) IR-4 grant. Evaluation of biopesticides for the control of basil downy mildew., Andy Wyenandt, P.I.
- 2009-2011 (Grant Amount: \$20,154) USDA Crops At Risk Grant Program. Integrated management of snap bean pythium cottony leak through isolate characterization, fungicide sensitivity and host resistance. Co-PI. (Wyenandt budget \$20,154), Rideout et al. (VA Tech lead)
  - 2009 (Grant Amount: \$42,000) Industry-supported field research trials., Andy Wyenandt, P.I.
  - 2009 (Grant Amount: \$7,125) Fungicide resistance management guidelines for cucurbit downy and powdery mildew control in the northeastern US. Northeast IPM Center., A. Wyenandt, P.I.
  - 2008 (Grant Amount: \$24,500) Industry-supported field research trials., Andy Wyenandt, P.I.
  - 2008 (Grant Amount: \$20,000) Developing a fungicide resistance management guide for vegetable growers in the mid-Atlantic region. Northeast IPM Center, Andy Wyenandt, P.I.
- 2008-2010 (Grant Amount: \$1,000,000) Expanding IPM-PIPE for Cucurbit Downy Mildew Forecasting. USDA PIPE GRANT. (\$8,000 Wyenandt budget), Holmes et al. (NCSU lead)
  - 2007 (Grant Amount: \$15,500) Industry-supported field research trials, Andy Wyenandt, P.I.
  - 2007 (Grant Amount: \$10,000) Developing a fungicide resistance management guide for vegetable growers in the mid-Atlantic states. 2007 Northeast IPM Center Partnership Grant Program., Andy Wyenandt, P.I.
  - 2006 (Grant Amount: \$9,860) Evaluating the effects of production system and cultivar on the development of silvering in bell pepper fruit. 2006 Northeast SARE Partnership Grants Program, Andy Wyenandt and Wesley Kline, Co-P.I.'s
  - 2006 (Grant Amount: \$25,500) Industry-supported field research trials, Andy Wyenandt, P.I.
- 2006-2007 (Grant Amount: \$9,824) Evaluating the effects of variety and production system on the development of silvering in bell pepper fruit. 2006 Northeast SARE partnership grant, Andy Wyenandt and Wesley Kline, Co-P.I.'s
- 2005-2007 (Grant Amount: \$40,000) Development and Dissemination of an integrated Management Plan for Bacterial Canker of tomato. 2005 Northeast IPM Center Partnership Grant. (5% effort), Co-PI's: Andy Wyenandt, Kris Holmstrom, Joseph Ingerson-Mahar
  - 2005 (Grant Amount: \$24,000) Industry-supported field research trials, Andy Wyenandt, P.I.
  - 2005 (Grant Amount: \$10,000) IR-4 Pilot performance Project for the control of Phytophthora blight in Bell Pepper, Andy Wyenandt, P.I.

#### Internally-Funded Research and/or Training Grants

- 2016 (Grant Amount: \$7,500) The Charles E. and Lena Maier Research Award presented be the New Jersey Vegetable Growers Association., W.L. Kline and A. Wyenandt, Co-PIs
- 2015 (Grant Amount: \$15,000) The Charles E. and Lena Maier Research Award., W.L. Kline and A. Wyenandt, Co-PIs
- 2014 (Grant Amount: \$15,000) The Charles E. and Lena Maier Research Award., W.L. Kline and A. Wyenandt, Co-PIs
- 2013 (Grant Amount: \$2,000) The Charles E. and Lena Maier Research Award., W.L. Kline and A. Wyenandt, Co-PIs
- 2012 (Grant Amount: \$7,900) The Charles E. and Lena Maier Research Award., W.L. Kline and A. Wyenandt, Co-PIs
- 2009 (Grant Amount: \$3,004) Determination on the casues of russetting in bell pepper fruit. The Charles E. and Lena Maier Research Award., Co-PI's: Andy Wyenandt and Wesley Kline
- 2006 (Grant Amount: \$5,000) Evaluation of bell pepper breeding lines and cultivars for phytophthora-tolerance and development of 'silvering' in fruit. Internal Hatch Awards Program. NJAES., Andy Wyenandt, P.I.
- 2006 (Grant Amount: \$1,500) Growing quality pumpkins on a leaf mulch bed, Snyder Farm Policy Committee, Special Local Needs Grant, Co-PI's: Andy Wyenandt and Joe Heckman
- 2005 (Grant Amount: \$4,600) Evaluation of fungicide maintenance programs for downy mildew control in cucurbit crops. The Charles E. and Lena Maier 2005 Research Award., Andy Wyenandt, P.I.

#### Service

#### Service to Rutgers University

2014-ongoing Executive Committee, Department of Plant Biology and Pathology

2014-ongoing Section Leader: Sustainable Agricultural Systems, Department of Plant Biology and Pathology

2005-ongoing Greenhouse Committee, Rutgers Agricultural Research & Extension Center, Bridgeton.