

**BRUCE B. CLARKE - CURRICULUM VITAE (Long Version)**

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**EDUCATION**

**Ph.D. in Plant Pathology** - Rutgers, The State University, 1982

**B.S. in Forest Management** - Rutgers, The State University, 1977

**CAREER EXPERIENCE**

<b>Extension Specialist in Turfgrass Pathology</b> , Department of Plant Biology and Pathology, Rutgers Cooperative Extension (RCE), NJ Agric. Exp. Stn. (NJAES), School of Environmental and Biological Sciences (SEBS), Rutgers, The State University of New Jersey. 70% Extension, 20% Research, 10% Teaching	July 1, 1997 to present
<b>Director, Center for Turfgrass Science</b> NJAES/SEBS, Rutgers University	July 1, 1994 to present
<b>Chairman, Department of Plant Biology and Pathology</b> NJAES/SEBS, Rutgers University	Oct. 1, 2012 to Dec. 31, 2014
<b>Adjunct Professor</b> , Department of Plant Pathology College of Agric. and Life Sci., NC State University, Raleigh, NC	Jan. 1, 2011 to Nov. 31, 2014
<b>Ralph Geiger Endowed Chair in Turfgrass Science</b> NJAES/SEBS, Rutgers University	Nov. 28, 2005 to June 30, 2011
<b>Vice Chairman, Department of Plant Biology and Pathology</b> NJAES/SEBS, Rutgers University	July 1, 2001 to June, 30, 2011
<b>Chair, Department of Plant Pathology</b> NJAES/Cook College, Rutgers University	Jan. 1, 1999 to June 30, 2001
<b>Associate Extension Specialist in Turfgrass Pathology</b> , Department of Extension Specialists, RCE, NJAES/Cook College, Rutgers University	July 1, 1988 to June 30, 1997
<b>Assistant Extension Specialist in Turfgrass and Ornamental Pathology</b> , Department of Extension Specialists, RCE, NJAES/Cook College, Rutgers, University	July 1, 1982 to June 30, 1988
<b>Consultant in Plant Pathology, Department of Plant Pathology</b> NJAES/Cook College, Rutgers University	Dec. 1, 1981 to June 30, 1982

## SCHOLARSHIP

### Research Focus

My research has focused on the identification and control of biotic and abiotic diseases of cool-season turfgrasses. This has involved the use of field studies to assess pathogen dynamics, as well as controlled environment and greenhouse studies to ascertain the relationship between environmental stress, cultural management, and disease development. Research has also been conducted on disease forecasting and detection systems, and the identification of disease resistance in turfgrass germplasm. The principal goal of my outreach program has been the development of best management practices for the control of turfgrass diseases such as anthracnose, dollar spot, gray leaf spot, and patch diseases caused by root- and crown-infecting fungi. My research findings have been utilized by turf managers in North America, Europe and Austral-Asia to improve disease control and turfgrass quality, while reducing chemical inputs through the use of improved disease management strategies.

### REFEREED PUBLICATIONS

#### Books:

- Smiley, R.W., P.H. Dernoeden, and B.B. Clarke. 2005. *Compendium of Turfgrass Diseases*. 3<sup>rd</sup> ed. APS Press, St. Paul, MN. 167 pp.
- Clarke, B. B., and A. B. Gould, eds. 1993. *Turfgrass Patch Diseases Caused by Ectotrophic Root-Infecting Fungi*. 2<sup>nd</sup> ed. APS Press, St. Paul, MN. 161 pp.
- Smiley, R. W., P. H. Dernoeden, and B. B. Clarke. 1992. *Compendium of Turfgrass Diseases*. 2nd ed. APS Press, St. Paul, MN. 128 pp.

#### Chapters in Books:

- Bonos, S.A., Clarke, B.B. and W.A. Meyer. 2006. *Breeding for disease resistance in the major cool-season turfgrasses*. Annual Review of Phytopathology 44: 213-234.
- Tredway, L.P., M. D. Richardson, J. F. White, Jr., and B. B. Clarke. 2001. *Genetic and phenotypic relationships among symbionts of the Epichloe festucae – fine fescue complex*. Pg. 307-320. *in*: Proc. Int. Symp. on Neotyphodium/Grass Interact., 4th., V. H. Paul, and P. D. Dapprich, eds. Universitat Paderborn, Soest, Germany.
- Schumann, G. L., J. M. Clark, J. J. Doherty, and B. B. Clarke. 2000. *Application of DMI fungicides to turfgrass with three delivery systems*. Pg. 150-163 *in*: Management of Turfgrass Chemicals. J. M. Clark and M. P. Kenna, eds. ACS Books, Washington, D.C.
- Landschoot, P. J., A. B. Gould, and B. B. Clarke. 1993. *Ecology and epidemiology of ectotrophic root-infecting fungi associated with patch diseases of turfgrasses*. Pg. 73-106 *in*: Turfgrass Patch Diseases Caused by Ectotrophic Root-Infecting Fungi. B. B. Clarke and A. B. Gould, eds. APS Press, St. Paul, MN. 161 pp.

#### Refereed Journal Articles (Accepted, In Press or in Print): (\*indicates senior author was one of Clarke's graduate students or was from Clarke's Laboratory).

- Schmid\*, C.J., J.A. Murphy, B.B. Clarke, M. DaCosta, and J.S. Ebdon. 2016. *Observations on the effect of potassium on winter injury of annual bluegrass in New Jersey in 2015; Accepted for publication 27 Sept. 2015 in Crops, Forage, and Turfgrass Management manuscript number ATSBR-15-0170.*
- Beirn\*, L.A., Meyer, W.A., Clarke, B.B., and Crouch, J.A. 2016. *A Greenhouse-Based Inoculation Protocol for Fungi Causing Crown Rust and Stem Rust Diseases of Kentucky Bluegrass Turf; in internal review for submission to HortScience: In Press*

- Beirn\*, L.A., R. Wang, B.B. Clarke, and J.A. Crouch. 2015. *Development of a greenhouse-based inoculation protocol for the fungus Colletotrichum cereale pathogenic to annual bluegrass (Poa annua)*; PeerJ 3:e1153 <https://dx.doi.org/10.7717/peerj.1153>.
- Hempfling\*, J.W., B. B. Clarke, and J. A. Murphy. 2015. *Anthracoze disease on annual bluegrass as influenced by spring and summer topdressing*. Crop Sci. 55 (1-2): 437-443; doi: 10.2135/cropsci2014.04.0297.
- Beirn\*, L.A., B.B. Clarke, and J A. Crouch. 2014. *Influence of host and geographic locale on the distribution of Colletotrichum cereale lineages*; PLoS ONE 9(5): e97706. doi:10.1371/journal.pone.0097706
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2013. *Topdressing sand particle shape and incorporation effects on anthracnose severity of an annual bluegrass putting green*. J. Int.Turf Soc. 12: 127-134
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2012. *Sand topdressing rate and interval effects on anthracnose disease severity of an annual bluegrass putting green*. Crop Sci. 52:1406-1415
- Roberts\*, J.A., B.B. Clarke, and J.A. Murphy. 2012. *Lightweight rolling effects on anthracnose of annual bluegrass putting greens*. Agron. J. 104(4):1176-1181.
- Zhao,S., B.B. Clarke, Q. Shen, J. Hu, L. Zhang and N. Zhang 2012. *Development and application of a TaqMan real-time PCR assay for rapid detection of Magnaporthe poae*. Mycologia: 104:1250-1259. doi:10.3852/11-365
- Beirn\*, L.A., M. Moy, W.A. Meyer, B.B. Clarke, and J.A. Crouch. 2011. *Molecular analyses of turfgrass rusts reveals the widespread distribution of Puccinia coronata as a pathogen of Kentucky bluegrass in the United States*. Plant Dis. 95:1547-1557.
- Roberts\*, J. A., J. C. Inguagiato\*, B. B. Clarke, and J. A. Murphy. 2011. *Irrigation Quantity Effects on Anthracnose Disease of Annual Bluegrass*. Crop Sci.51: 1244-1252.
- Espevig, T., M. DaCosta, L. Hoffman, T. S. Aamlid, A. Tronsmo, B.B. Clarke and B. Huang. 2011. *Freezing tolerance and carbohydrate changes of two Agrostis species during cold acclimation*. Crop Sci. 51:1188-1197.
- Njambere, E.N., B.B. Clarke, and N. Zhang. 2011. *Dimeric oligonucleotide probes enhance diagnostic macroarray performance*. Journal of Microbiological Methods 86: 52–61. doi:10.1016 / j.mimet.2011.03.015
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2010. *Anthracoze development on annual bluegrass affected by seedhead and vegetative growth regulators*. Applied Turf Sci.: DOI:10.1094/ATS-2010-0923-01-RS
- Crouch\*, J.A., L.A. Beirn, L.M. Cortese, S.A. Bonos, and B.B. Clarke. 2009. *Anthracoze disease of switchgrass caused by the novel fungal species Colletotrichum navitas*. Mycological Res 113: 1411-1421.
- Bonos, S.A., E.N. Weibel, T.J. Lawson and B.B. Clarke. 2009. *Tolerance of Creeping Bentgrass Cultivars and Selections to Anthracnose in New Jersey*. Online. App. Turf Sci. DOI:10.1094/ATS-2009-0806-01-BR
- Crouch\*, J.A., B.B. Clarke, and B.I. Hillman. 2009. *What is the value of ITS sequence data in Colletotrichum systematics and species diagnosis? A case study using the falcate-spored graminicolous Colletotrichum group*. Mycologia 101(5): 648-656. DOI: 10.3852/08-231.

- Crouch\*, J.A., B.B. Clarke, J.F. White, and B.I. Hillman. 2009. Systematic analysis of the falcate-spored graminicolous *Colletotrichum* and a description of six new species from warm season grasses. *Mycologia* 101 (5): 717-732. DOI: 10.3852/08-230.
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2009. *Anthracnose of annual bluegrass putting green turf influenced by trinexapac-ethyl application interval and rate*. *J. Int. Turf Soc.* 11: 207-218
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2009. *Anthracnose disease and annual bluegrass putting green performance affected by mowing practices and lightweight rolling*. *Crop Sci.* 49: 1454-1462
- Crouch\*, J.A., L.P. Treadway, B.B. Clarke, and B.I. Hillman. 2009. *Phylogenetic and population genetic divergence correspond with habitat for the pathogen *Colletotrichum cereale* and allied taxa across diverse grass communities*. *Molecular Ecology* 18:123-135.
- Crouch\*, J.A., B.M. Glasheen, M.A. Giunta, B.B. Clarke, and B.I. Hillman. 2008. *The evolution of transposon repeat-induced point mutation in the genome of *Colletotrichum cereale*: Reconciling sex, recombination and homoplasy in an "asexual" pathogen*. *Fungal Genet. Biol.* 45:190-206. doi:10.1016/j.fgb.2007.08.004
- Crouch\*, J.A., B.M. Glasheen, W. Uddin, B.B. Clarke, and B.I. Hillman. 2008. *Patterns of diversity in populations of the turfgrass pathogen *Colletotrichum cereale* as revealed by transposon fingerprint profiles*. *Crop Sci.* 48:1203-1210.
- Inguagiato\*, J.C., J.A. Murphy, and B.B. Clarke. 2008. *Anthracnose severity on annual bluegrass as influenced by nitrogen fertilization, growth regulators, and verticutting*. *Crop Sci.* 48:1595-1607.
- Fidanza, M.A., B.B. Clarke, M.L. Agnew, J.E. Kaminski, and T.R. Reed. 2007. *Pesticide application research demonstrated at a field day event*. *JOE* 45: 11AW7 ([www.joe.org/joe/2007february/iw7.shtml](http://www.joe.org/joe/2007february/iw7.shtml))
- Clarke, B.B., J.F. White, R.H. Hurley, M.S. Torres, S. Sun, and D.R. Huff. 2006. *Endophyte-mediated suppression of dollar spot disease in fine fescues*. *Plant Dis.* 90:994-998.
- Crouch\*, J., B.B. Clarke, and B.I. Hillman. 2006. *Unraveling the evolutionary relationships among the divergent lineages of *Colletotrichum* causing anthracnose disease in turfgrass and maize*. *Phytopathology* 96: 46-60. (article featured on the cover of *Phytopathology*; + online supplements)
- Han, Y., S.A. Bonos, B.B. Clarke, and W.A. Meyer. 2006. *Inheritance of Resistance to Gray Leaf Spot Disease in Perennial Ryegrass*. *Crop Science.* 46:1143-1148.
- Crouch\*, J., B.B. Clarke, and B.I. Hillman. 2005. *Phylogenetic relationships and fungicide resistance in *Colletotrichum* isolates from turfgrass in North America*. *J. Int. Turf Soc.* 10: 186-195.
- Bonos, S.A., C. Kubik, B.B. Clarke, and W.A. Meyer. 2004. *Breeding perennial ryegrass for resistance to gray leaf spot*. *Crop Sci.* 44:575-580.
- Heckman, J.R., B.B. Clarke, and J.A. Murphy. 2003. *Optimizing manganese fertilization for the suppression of take-all patch disease on creeping bentgrass*. *Crop Sci.* 43:1395-1398.
- Hill, W., J. R. Heckman, B. B. Clarke, and J. A. Murphy. 2003. *Summer patch disease severity on Kentucky bluegrass in response to fertilizer source*. *Journal of Plant Nutrition* 26 (7):1499-1512.
- Hill, W. J., J. R. Heckman, B. B. Clarke, and J. A. Murphy. 2002. *Soil pH management for control of summer patch of Kentucky bluegrass*. *J. Int. Turf. Soc.* 9:388-393.

- Tredway\*, L. P., M. D. Soika, and B. B. Clarke. 2001. *Red Thread development in perennial ryegrass in response to nitrogen, phosphorous, and potassium fertilizer applications*. J. Int. Turf Soc. 9:715-722.
- Hill, W. J., J. R. Heckman, B. B. Clarke, and J. A. Murphy. 1999. *Take-All patch control on bentgrass in relation to manganese and copper nutrition*. Hort Sci. 34:891-892.
- Tredway\*, L. P., J. F. White, Jr., B. S. Gaunt, M. D. Richardson, and B. B. Clarke. 1999. *Phylogenetic relationships within and between Epichloe and Neotyphodium endophytes as determined by AFLP markers and rDNA sequences*. Mycological Research. 103:1593-1603.
- Thompson\*, D. C., B. B. Clarke, and D. Y. Kobayashi. 1998. *Suppression of summer patch by rhizosphere competent bacteria and their establishment on Kentucky bluegrass*. Soil Biol. Biochem. 30:257-263.
- Plumley\*, K. A., A. B. Gould, and B. B. Clarke. 1997. *Impact of temperature, osmotic potential, and osmoregulant on the growth of ectotrophic root-infecting fungi of Kentucky bluegrass*. Plant Dis. 81:873-879.
- Bunting\*, T. E., K. A. Plumley, B. B. Clarke, and B.I. Hillman. 1996. *Identification of Magnaporthe poae using PCR and sequence analysis of the ITS-1 region of the nuclear rDNA from several fungi*. Phytopathology 86:398-404.
- Thompson\*, D. C., D. Y. Kobayashi, and B. B. Clarke. 1996. *Evaluation of bacterial antagonists for the reduction of summer patch symptoms in Kentucky bluegrass*. Plant Dis. 80:856-862.
- Kobayashi, D. Y., M. Guglielmoni, and B. B. Clarke. 1995. *Isolation of the chitinolytic bacteria Xanthomonas maltophilia and Serratia marcescens as biological control agents for summer patch disease of turfgrass*. Soil Biol. Biochem. 27:1479-1487.
- Thompson\*, D. C., B. B. Clarke, and J. R. Heckman. 1995. *Nitrogen form and the rate of nitrogen and chloride application for the control of summer patch in Kentucky bluegrass*. Plant Dis. 79:51-56.
- Schumann, G. L., B. B. Clarke, L. V. Rowley, and L. L. Burpee. 1994. *Use of environmental parameters and immunoassays to predict Rhizoctonia blight and schedule fungicide applications on creeping bentgrass*. Crop Protection 13:211-218.
- Landschoot\*, P. J.\*, B. F. Hoyland, and B. B. Clarke. 1993. *Variation in cultural characteristics and pathogenicity within a local population of Magnaporthe poae*. Int. Turfgrass Soc. Res. J. 7:335-341.
- Thompson\*, D. C., B. B. Clarke, J. R. Heckman, and J. A. Murphy. 1993. *Influence of nitrogen source and soil pH on summer patch development in Kentucky bluegrass*. Int. Turfgrass Soc. Res. J. 7:317-323.
- Peterson R. J., B. B. Clarke, M. L. Fraser, J. A. Murphy, S. Sun, and C. R. Funk. 1993. *Registration of 'Shenandoah' tall fescue*. Crop Sci. 33:1404-1405.
- Clarke B. B., B. Greenhalgh-Weidman, and E. Brennan. 1990. *An assessment of the impact of ambient ozone on field-grown crops in New Jersey using the EDU method: I. White Potato (Solanum tuberosum)*. Envir. Pollut. 66:351-360.
- Robinson, M. F., B. B. Clarke, R. W. Duell, and C. R. Funk. 1990. *Registration of 'Titan' tall fescue*. Crop Sci. 30:956-957.
- Brennan, E., B. B. Clarke, G. Smith, and B. Greenhalgh-Weidman. 1990. *An assessment of the impact of ambient ozone on field-grown crops in New Jersey using the EDU method: II. Soybean (Glycine max L. Merr.)*. Envir. Pollut. 66:361-373.

- Clarke, B. B., J. M. Johnson-Cicalese, and C. R. Funk. 1989. *Development of perennial ryegrass cultivars with improved resistance to Rhizoctonia brown patch*. Int. Turfgrass Soc. Res. J. 6:337-340.
- Funk, C. R., and B. B. Clarke. 1989. *Turfgrass breeding-with special reference to turf-type perennial ryegrass, tall fescue and endophytes*. Int. Turfgrass Soc. Res. J. 6:3-10.
- Clarke, B. B., and E. Brennan. 1989. *Differential cadmium accumulation and phytotoxicity in sixteen tobacco cultivars*. J. Air Pol. Control Assoc. 39(10):1319-1322.
- Robinson, M. F., B. B. Clarke, D. C. Saha, R. W. Duell, and C. R. Funk. 1989. *Registration of 'SR3000' hard fescue*. Crop Sci. 29:826-827.
- Clarke, B. B., G. Smith, B. Greenhalgh-Weidman, and E. Brennan. 1988. *Assessing the impact of ambient ozone on field-grown potato and soybean crops*. J. Air Pol. Control Assoc. 88:1-13.
- Hurley, R. H., S. K. Jones, G. W. Jones, B. B. Clarke, and C. R. Funk. 1988. *Registration of 'Tara' perennial ryegrass*. Crop Sci. 28:192-193.
- Brilman, L. A., A. W. Jacklin, S. J. Patterson, B. B. Clarke, and C. R. Funk. 1988. *Registration of 'Classic' Kentucky bluegrass*. Crop Sci. 28:188-189.
- Pepin, G. W., W. K. Wiley, D. E. King, B. B. Clarke, and C. R. Funk. 1988. *Registration of 'Victory' Chewings fescue*. Crop Sci. 28:1020-1021.
- Wulster, G.J., T.J. Gianfagna, and B.B. Clarke. 1987. *Comparative effects of ancymidol, propiconazole, triadimefon, and Mobay RSW041 on Easter lily height*. Hort Sci. 22(4):601-602.
- Brennan, E. G., I. A. Leone, and B. B. Clarke. 1987. *EDU: A chemical for evaluating ozone foliar injury and yield reduction in field-grown crops*. Int. J. Tropical Plant Diseases 5:35-42.
- Hurley, R. H., B. B. Clarke, W. A. Meyer, D. M. Kopec, and C. R. Funk. 1987. *Registration of Rebel II tall fescue*. Crop Sci. 27:1086-1087.
- Brilman, L. A., A. W. Jacklin, R. H. Hurley, B. B. Clarke, and C. R. Funk. 1987. *Registration of 'Nassau' Kentucky bluegrass*. Crop Sci. 27:1084-1085.
- Clarke, B. B., C. R. Funk, and P. M. Halisky. 1985. *Development of tall fescue (Festuca arundinacea Schreb.) cultivars with improved resistance to Rhizoctonia solani Kuhn*. Int. Turfgrass Soc. Res. J. 5:641-646.
- Clarke, B. B., M. Henninger, and E. Brennan. 1983. *An assessment of potato losses caused by oxidant air pollution in New Jersey*. Phytopathology 73(1):104-108.
- Clarke, B. B., and E. Brennan. 1983. *Tobacco leaves accumulate cadmium from root applications of the heavy metal*. Tobacco Science 27:152-153.
- Kazimir, J., B. B. Clarke, and E. Brennan. 1982. *Trees indicate decreased lead pollution along New Jersey highways*. J. Air Pol. Control Assoc. 32(9):957-958.
- Clarke, B. B., R. Harkov, and E. Brennan. 1982. *Tomato root: site of initial alteration in minor elements in cadmium treated plants*. J. Air Pol. Control Assoc. 32:84-86.

- Clarke, B. B., and E. Brennan. 1980. *Evidence for a cadmium-ozone interaction in Populus tremuloides*. Mich. J. Arboric. 6(5):130-134.
- Harkov, R. S., B. B. Clarke, and E. Brennan. 1979. *Cadmium contamination may modify response of tomato to atmospheric ozone*. J. Air Pol. Control Assoc. 29:1247-1249.
- Harkov, R. S., B. B. Clarke, T. Lewis, and E. Brennan. 1979. *The significance of oxidant injury on urban trees and agricultural crops in New Jersey during 1978*. J. Arboric. 5(7):157-158.
- Clarke, B. B., and E. Brennan. 1978. *The effects of two antioxidants on foliar injury and tuber production in 'Norchip' potato plants exposed to ambient oxidants*. Plant Dis. Repr. 62:715-717.

#### Refereed First Reports:

- E. N. Njambere, B. B. Clarke, S. A. Bonos, J. A. Murphy, R. Buckley, S. Tirpak, and N. Zhang. 2011. *First Report of Brown Ring Patch Caused by Waitea circinata var. circinata on Poa annua and Agrostis stolonifera in New Jersey*. Plant Dis. 95: 78.

#### Taxonomy: New Descriptions of Plant Pathogenic Fungi

- Colletotrichum cereale* Manns sensu lato Crouch, Clarke, and Hillman. 2009. Phytopathology 96:46–60.
- Colletotrichum axonopodi* J.A. Crouch, B.B. Clarke, J.F. White et B.I. Hillman, sp. nov. 2009. Mycologia 101 (5): 717-732; DOI: 10.3852/08-230.
- Colletotrichum hanaui* J.A. Crouch, B.B. Clarke, J.F. White et B.I. Hillman, sp. nov. 2009. Mycologia 101 (5): 717-732; DOI: 10.3852/08-230.
- Colletotrichum jacksonii* J.A. Crouch, B.B. Clarke, J.F. White et B.I. Hillman, sp. nov. 2009. Mycologia 101 (5): 717-732; DOI: 10.3852/08-230.
- Colletotrichum miscanthi* J.A. Crouch, B.B. Clarke, J.F. White et B.I. Hillman, sp. Nov. 2009. Mycologia 101 (5): 717-732; DOI: 10.3852/08-230.
- Colletotrichum nicholsonii* J.A. Crouch, B.B. Clarke, J.F. White et B.I. Hillman, sp. nov. 2009. Mycologia 101 (5): 717-732; DOI: 10.3852/08-230.

#### Plant Variety Protection Certificates

- Rose-Fricker, C.A., B.B. Clarke and W.A. Meyer. 2009. United States Plant Variety Protection Application no. 200900232. '*Gazelle II*' tall fescue.
- Meyer, W.A., C.R. Funk, B.B. Clarke and T. Molnar. 2009. United States Plant Variety Protection Certificate no. 200400132. '*Mercury*' Kentucky bluegrass.
- Meyer, W. A, K. Hignight, B. B. Clarke and B. Fitzgerald. 2007. United States Plant Variety Protection Certificate no. 20040051. '*Riverside*' tall fescue.
- Zajac, J., R. F. Bara, M. Wilson, B. B. Clarke and W. A. Meyer. 2007. United States Plant Variety Protection Application no. 200700168. '*Apple*' GL perennial ryegrass.
- Johnson, S., B. B. Clarke, W. Dickson and W. A. Meyer. 2007. United States Plant Variety Protection Application no. 200700271. '*Attribute*' perennial ryegrass.

**NJAES Hatch Projects**

- Roberts, J., B. Clarke, J. Murphy, N. Zhang, et al. 2016-2021, *Explorations into the Turfgrass Phytobiome: Establishing Standardized Research Methodology for Studying Microbial Communities and Developing Reliable Applications for Turfgrass Management*. (NE\_TEMP2361 Turfgrass Regional Research Project; coordinated writing of project proposal with J. Roberts along with 15 scientists from throughout North America)
- Koppenhofer, A., F. Wong, B. B. Clarke, et al. 2011-2016. *Management of Annual Bluegrass on Golf Courses: Improved Practices for Maintenance, Pest Control, and Viable Techniques for Transition to More Desirable Grasses* (NE-1046 Turfgrass Regional Research Project; Coordinated writing of project proposal with A. Koppenhofer and F. Wong along with 20 other scientists from throughout North America and Canada).
- Clarke, B. B., et al. 2005-2010. *Biology, ecology, and control of anthracnose and the annual bluegrass weevil*. (NE-1025 Turfgrass Regional Research Project; Coordinated writing of project proposal with 20 scientists from throughout North America and Canada, Chair 2006)
- Funk, C. R., J. Goffreda, E. Orton, J Heckman, B. Clarke, and J. White. 2001-2006, revision 2006-2011. *Genetic improvement of underutilized perennial crop plants*. (NJ 12186 Hatch Research Project)
- Murphy, J. A., B. B. Clarke, et al. 1999-2005. *Best management practices for turf systems in the East*. (NE-187 Turfgrass Regional Research Project)
- Murphy, J. A., B. B. Clarke, et al. 1993-1998. *Integrated turfgrass management for environmental protection and resource conservation*. (NE-169 Turfgrass Regional Research Project)
- Kobayashi, D. Y., and B. B. Clarke. 1991-1995. *Functional analysis of avirulence genes from plant pathogenic bacteria*. (Hatch Research Project)

**NON-REFEREED PUBLICATIONS**

**Non-Refereed Journal Articles:** (\*indicates senior author was one of Clarke's graduate students or was from Clarke's Laboratory).

- Schmid\*, C. J., J.W. Hempfling, B. B. Clarke, and J.A. Murphy. 2015. *Tackling anthracnose disease on annual bluegrass greens*. NZ Turf Mgmt J. Autumn 2015: 8-10.
- Clarke, B.B. and J. Murphy. 2015. *Working outline of best management practices for anthracnose control of annual bluegrass putting green turf0 2015 update*. Rutgers Center for Turfgrass Science Website ([www.turf.rutgers.edu](http://www.turf.rutgers.edu))
- Clarke, B.B. 2015. *2015 International Turfgrass Society (ITS) mid-conference meeting and 2017 International Research Conference planning meeting*. International Turfgrass: The Newsletter of the ITS (November 2015 edition. ISSN 2312-6558)
- Beirn\*, L.A., Schmid, C.J., Hempfling, J.W., Murphy, J.A., Clarke, B.B., and Crouch, J.A. 2015. *Impact of fertility on microorganism communities in the Poa annua rhizosphere*. Golf Course Management 83(1):120
- McDonald, S. J., R. Grala, and B. B. Clarke. 2014. *Brown ring patch severity on Poa annua greens*. Golf Course Management 82: 86-94
- Schmid\*, C. J., B. B. Clarke, and J.A. Murphy. 2014. *Potassium affects anthracnose*. Golf Course Management 82(1):150



- Murphy, J.A., J. Hempfling, R. Wang, and B. B. Clarke. 2013. *Topdressing versus anthracnose: A look at the best topdressing practices for preventing anthracnose in annual bluegrass*. Golfdom 69(12): 30-33
- Murphy, J., B. Clarke, C. Schmid, J. Hempfling, and R. Wang. 2013. Best management practices for anthracnose disease on annual bluegrass putting greens. USGA Turfgrass and Environmental Research Online. March/April. 12(2): p. 16-17.
- Schmid\*, C., J. Murphy, and B. B. Clarke. 2013. *Rutgers researchers seek best management practices to keep anthracnose at bay*. Tri-state Newsletter, Fall 2013 issue
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#### **(b) National and State**

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**(c) Rutgers Turfgrass Symposium Proceedings**

See 127 archived symposia proceedings papers authored or co-authored by Bruce B. Clarke from 1993-present at: (<http://turf.rutgers.edu/research/abstracts/>)

**(d) Rutgers Turfgrass Proceedings**

See 181 archived turfgrass proceedings papers authored or co-authored by Bruce B. Clarke from 1992-present at: (<http://turf.rutgers.edu/research/reports/>)

**Technical Research Reports (United States Golf Association):**

Murphy, J., C. Schmid, and B. Clarke. 2014. Best management practices for anthracnose disease on annual bluegrass putting greens. USGA Turfgrass and Environmental Research Online. March/April. 13(2): p. 12-13.

Murphy, J., C. Schmid, B. Clarke, J. Hempfling, and R. Wang. 2014. *Annual Bluegrass Response to Potassium and Calcium Fertilization and Soil pH*. USGA Turfgrass and Environmental Research Online. March/April. 13(2): p. 2-4.

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Clarke, B.B., J.A. Murphy, and J.C. Inguagiato. 2008. Evaluating management practices influencing anthracnose severity of annual bluegrass putting green turf. In Nus, J.L. (ed.) 2007 Turfgrass and Environmental Research Summary. USGA Green Section, Far Hills, NJ.

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J. A. Murphy, and B. B. Clarke. 2007-2015. Developing Best Management Practices for Anthracnose Control on Annual Bluegrass Putting Greens Turf. 4pp. (<http://www.turf.rutgers.edu>)

Clarke, B. B., A. Koppenhofer, and S. Hart. 2000-2008. *Pest Control Recommendations on Lawn and Turf Areas*. Rutgers Cooperative Extension Publication E037T:30pp. (revised each year).

Clarke, B. B., and J. A. Murphy. 2004-2007. Management Practices Associated with Anthracnose and Abiotic Stress in Golf Course Turf. (3<sup>rd</sup> rev.) 9pp. (<http://www.turf.rutgers.edu>)

Gould, A. B., A. Koppenhofer, and B. B. Clarke. 2000-2003. *Recommendations for Ornamental Turf and Household Pests in Pesticides for New Jersey*. A. B. Gould and G. C. Hamilton, eds. Rutgers Cooperative Extension Publication E045R: 89 pp. (<http://www.rce.rutgers.edu>; revised each year).

Clarke, B. 2001. *Utilizing proper cultural practices to reduce turfgrass diseases*. Pages 213-214. in: Landscape Integrated Pest Management: An Alternative Approach to Traditional Landscape Maintenance. 6<sup>th</sup> edition. D. Smith-Fiola, ed. Rutgers cooperative Extension. Ocean County Printing and Graphic Arts Department, Toms River, N.J.

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Clarke, B. B., and P. Vittum. 1999. *Insect and Disease Control on Lawn and Turf Areas*. Rutgers Cooperative Extension Publication E0370: 11pp.

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Gould, A. B., L. M. Vasvary, and B. B. Clarke. 1992-1995. *Recommendations for Ornamental, Turf and Household Pests*. Pesticides for New Jersey. A. B. Gould and G. C. Hamilton, eds. Rutgers Cooperative Extension Publication E045. 85 pp.

Clarke, B. B. and L. M. Vasvary. 1984-1995. *Insect and Disease Control on Lawn and Turf Areas*. Rutgers Cooperative Extension Publication E037. 11 pp.

#### **Extension Fact Sheets:**

Bonos, S, R. J. Buckley, and B. B. Clarke. 2007. An integrated approach to dollar spot control in turfgrass. FS 1070 (<http://www.rcrc.rutgers.edu/pubs/publication.asp?pid=FS1070>)

Bonos, S, J. A. Murphy, and B. B. Clarke. 2006. Integrated control of gray leaf spot on perennial ryegrass. FS 1048 (<http://www.rcrc.rutgers.edu/pubs/publication.asp?pid=FS1048>)

Clarke, B. B., and J. A. Murphy. 2005. *Management practices associated with anthracnose and abiotic stress*. FS (In review) 6 pp.

Clarke, B. B., and J. Vaiciunas. 2004. *Bentgrass dead spot: a new disease of golf course greens and tees*. FS 815. 4 pp.

Clarke, B. B. 1986-2002 *Chemical control of turfgrass diseases*. Rutgers Cooperative Extension, New Brunswick, NJ. FS184. 2 pp. (updated each year).

Clarke, B. B. and K. Kackley-Dutt. 1993. *An integrated approach to summer patch control in turfgrass*. Rutgers Cooperative Extension, New Brunswick, NJ. FS162. 2 pp.

Clarke, B. B. and K. Kackley-Dutt. 1993. *An integrated approach to necrotic ring spot control in turf*. Rutgers Cooperative Extension, New Brunswick, NJ. FS166. 2 pp.

**Extension Manuals:**

Clarke, B.B. and S. McDonald. 2013. *Cutting Edge Disease Identification and Management*. Golf Course Superintendents Association of America, Lawrence, KS. 168 pp. (text revised each year for a one day workshop, and 3 to 4 regional seminars held throughout the United States, presented to golf course superintendents from different parts of the world).

Clarke, B.B. and B. Martin. 2004-2012. *Cutting Edge Disease Identification and Management*. Golf Course Superintendents Association of America, Lawrence, KS Ranged from 132 to 198. (text revised each year for a one day workshop, and 3 to 4 regional seminars held throughout the United States, presented to golf course superintendents from different parts of the world).

Gould, A.B. and Clarke, B.B. 1990-1993. *Fungicide specimen label booklet for ornamentals and turfgrasses*. Extension Plant Pathology Technical Report No. 003. 208 pp. (revised biannually)

**Turf Center/Department of Plant Biology and Pathology Bulletins:**

Clarke, B. and R. Hurley. 2002-2008. *Undergraduate degree in turfgrass management at Cook College*. Center for Turfgrass Science, New Brunswick, N.J. (revised annually).

Hurley, R. and B. B. Clarke. 2002-2008. *Why study turfgrass management at Cook College?* Center for Turfgrass Science, New Brunswick, N.J. (revised annually).

**Rutgers Turf Blog (<http://turfblog.rutgers.edu>): contributor (2012 – present)**

**Fund Raising Accomplishments: Corporate, Association and Individual Donor Gifts**

- 2009-15** Sand-based Greens Reconstruction Project (30,000 sq ft) at the Turf Hort Farm II – Funded by the New Jersey Turfgrass Assn., the Golf Course Superintendents Assn. of NJ, the GCSANJ Foundation and individual turf industry donors (with J. Murphy).....\$350,000
- 1996-2015** *The Rutgers Turf Research Golf Classic* – Corporate, Association, and Individual Donations (with B. Meyer et al.).....\$1,422,000
- 1990-2015** *Scholarships for Undergraduate, Graduate and Continuing Education Student in Turfgrass Management* – Corporate, Association, and Individual Donations (with faculty in the Center for Turfgrass Science).....\$1,498,000



2008	<i>The Eileen Brennan Endowed Graduate Scholarship</i> in the Department of Plant Biology and Pathology (with E. Pell, Penn State University) - Alumni Gifts .....	\$ 70,000
2007	<i>The Henry Indyk Endowed Graduate Fellowship</i> (with J. Murphy) – Corporate, Association and Individual Gifts (with J. Murphy, S. Hart, et al.).....	\$400,000
2006-7	Ralph Geiger Bequest - from estate of R. Geiger.....	\$ 4,800,000
2006	New <i>Irrigation System</i> for Turf Research Facility at Hort Farm II provided by the Toro Corporation (with J. Murphy).....	\$100,000
2005	<i>The Ralph Geiger Endowed Chair in Turfgrass Science</i> – Individual Gift .....	\$2,000,000
2003	<i>Turfgrass Industry Economic Survey</i> – Gifts from Turf Associations .....	\$150,000
2001	<i>The Ralph Geiger Education Complex</i> at Hort Farm II – Corporate, Association and Individual Gifts (with J. Murphy, W. Meyer et al.).....	\$1,000,000
1996	<i>The C. Reed Funk Equipment Storage Facility</i> – Gift from the New Jersey Turfgrass Association (with J. Murphy).....	\$100,000
<b>Total External Gifts Acquired as Center Director.....</b>		<b>\$11,890,000</b>

## GRANTS

### Grants - (a) External Competitive

2016-2018	United States Golf Association. <i>Bentgrass Tolerance, Disease Predictive Models and Fungicide Timing to Control Dollar Spot on Fairway Turf</i> . Co-principal investigator with J. Murphy, James Hempfling.....	\$ 90,000
2016-2018	Golf Course Superintendents Association of New Jersey. <i>Bentgrass Tolerance, Disease Predictive Models and Fungicide Timing to Control Dollar Spot on Fairway Turf</i> . Co-principal investigator with J. Murphy, James Hempfling.....	\$30,000
2015-2018	Tri-State Research Foundation. <i>Bentgrass Tolerance, Disease Predictive Models and Fungicide Timing to Control Dollar Spot on Fairway Turf</i> . Co-principal investigator with J. Murphy, James Hempfling.....	\$ 30,000
2012-2017	U.S.D.A.- Agriculture National Institute of Food and Agriculture: Specialty Crop Research Initiative. <i>Germlasm Improvement of Low-Input Fine Fescues in Response to Consumer Attitudes and Behaviors</i> . A collaborative research and extension project between Rutgers Univ., Univ. of MN and the Univ. of WI. Co PI with S. Bonos, W. Meyer, J. Murphy, B. Huang and four faculty from MN and one from WI.....	\$2,136,489
2013-2015	Tri-State Research Foundation. <i>Influence of soil pH, potassium, and best management practices on anthracnose severity</i> . Co-principal investigator with J. Murphy.....	\$ 30,000
2014	Northeastern Regional Association of State Agricultural Experiment Station Directors Planning Grant entitled, " <i>Organic Lawn Care Practices for the Northeast [NE1410]</i> ." J. Murphy PI, B. Clarke et al. Co-PI.....	\$ 5,600
2013-2014	Golf Course Superintendents Association of America – Chapter Research Grant. <i>Influence of Best Management Practices on Anthracnose Disease Control of Annual Bluegrass Turf</i> . with J. A. Murphy.....	\$ 20,000

- 2013-2014** United States Golf Association. *Annual bluegrass response to potassium and calcium fertilization and soil pH*. Co-principal investigator with J. A. Murphy and C. Schmid .....\$ 36,000
- 2012-2014** Golf Course Superintendents Association of New Jersey. *Nitrogen Effects on Anthracnose Disease of Annual Bluegrass Putting Green Turf*. Co-principal investigator with J. Murphy, J. Roberts and J. Inguagiato.....\$30,000
- 2011-2013** United States Golf Association. *Development of Best Management Practices for Anthracnose Disease on Annual Bluegrass Putting Green Turf*. Co-principal investigator with J. A. Murphy, C. Schmid and J. Hempfling.....\$ 60,000
- 2011-2013** United States Golf Association. *Promotion of Turf Health Through Early Pathogen Detection-Development of a Turf PathoCHIP*. Co-principal investigator with N. Zhang, F. Wong, P. Harmon and S. B. Martin.....\$ 60,000
- 2011-2012** Syngenta Crop Protection AG. Proprietary Grant. Co-PI with B. Huang.....\$175,000
- 2009-2010** Golf Course Superintendents Association of New Jersey. *Nitrogen Effects on Anthracnose Disease of Annual Bluegrass Putting Green Turf*. Co-principal investigator with J. Murphy, J. Roberts and J. Inguagiato.....\$20,000
- 2009-2010** Tri-State Research Foundation. *Nitrogen Fertilization Programming Effects on Anthracnose Disease of Annual Bluegrass Putting Green Turf*. Co-PI with J. Murphy.....\$ 16,000
- 2008-2010** United States Golf Association. *Development of Best Management Practices for Anthracnose Disease on Annual Bluegrass Putting Green Turf*. Co-PI with J. A. Murphy, J. Roberts and J. Inguagiato.....\$ 90,000
- 2007-2008** Golf Course Superintendents Association of America and the Golf Course Superintendents Association of New Jersey. *Management Practices Effects on Anthracnose Severity of Annual Bluegrass Putting Green Turf*. Co-principal investigator with J. Murphy, J. Roberts and J. Inguagiato.....\$30,000
- 2005-2008** USDA NE IPM *Long-term evaluation and improvement of golf turf management systems with reduced chemical inputs* . Co-PI with J. Murphy, J. Honig and S. Murphy .....\$90,000
- 2006-2007** United States Golf Association. *Evaluating management practices for influences on anthracnose severity of annual bluegrass putting green turf*. Co-principal investigator with J. A. Murphy and J. Inguagiato.....\$ 60,000
- 2005-2006** Golf Course Superintendents Association of America /Golf Course Superintendents Association of New Jersey. *Assessment of mowing and rolling practices on anthracnose severity and ball distance of annual bluegrass putting green turf*. Co-principal investigator with J. Murphy and J. Inguagiato.....\$30,000
- 2004-2007** United States Golf Association. *Assessing maturation of putting green rootzone mixes under two microclimates*. Co-PI with J. A. Murphy, S. L. Murphy, and D. Gimenez.....\$ 75,000
- 2002-2004** United States Golf Association and Golf Course Superintendents Association of America. *Long term assessment of putting green root zone mixes under two microenvironments*. Co-principal investigator with J. Murphy, J. Honig and S. Murphy.....\$ 90,000
- 2002-2005** Tri-State Research Foundation. *Management practices associated with anthracnose and abiotic stress on golf course turf*. Co-PI with J. Murphy.....\$ 25,000

- 1997-2000** United States Golf Association and Golf Course Superintendents Association of America. *Cultivar and traffic effects on population dynamics of Agrostis spp. and Poa annua mixtures.* Co-principal investigator with J. Murphy, J. Honig, W. Meyer .....\$ 74,820
- 1996-2000** United States Golf Association / Golf Course Superintendents Association of America. *Assessing differential root zone mixes for putting greens over time and under two environmental conditions.* Co-PI with J. Murphy, H. Motto, R. Tate III, and S. Murphy..\$100,000
- 1996-2000** Tri-state Research Foundation. *Assessing differential root zone mixes for putting greens over time and under two environmental conditions.* Co-principal investigator with J. Murphy, R. Tate III, and S. Murphy. ....\$55,000
- 1996-1997** Foundation for Agronomic Research. *Evaluation of liming practice and ammonium sulfate for control of summer patch in Kentucky bluegrass.* Co-PI with J. Heckman. ....\$3,000
- 1993-1997** United States Golf Association. *Identification of parasitic bacteria as biological control agents against summer patch disease.* Co-principal investigator with D. Y. Kobayashi .....\$78,050
- 1989-1994** Tri-State Research Foundation and the Golf Course Superintendents Association. *Ecology, epidemiology, and control of summer disease.* Co-PI with B. I. Hillman and J. Murphy..\$120,000

Total External Competitive Funding: \$3,659,959

**Grants – (b) Internal Competitive**

- 2015** NJAES/Center for Turfgrass Science Competitive Grants Program. *Using Bentgrass Tolerance, Disease Predictive Models and Fungicide Timing to Control Dollar Spot on Fairway Turf.* Co-principal investigator with J. Murphy. ....\$60,000
- 2003-2014** NJAES/Center for Turfgrass Science Competitive Grants Program. *Biology, ecology and management of anthracnose basal rot on Poa annua turf.* Co-PI with J. Murphy. ....\$578,841
- 2010-2013** NJAES/Center for Turfgrass Science Competitive Grants Program. *Identity and population structure of pathogens causing dollar spot, anthracnose and Rhizoctonia diseases of cool-season turf.* Co-principal investigator with J. Crouch .....\$99,000
- 2001** NJAES Competitive Grants Program. *An automated rainout shelter for conducting turf research on drought stress and disease development in the field.* Co-principal investigator (with B. Huang, J. Murphy, S.Hart, and W. Meyer) ..... \$50,000
- 1992-1995** NJAES/Center for Turfgrass Science Competitive Grants Program. *Influence of Nitrogen form, pH modifiers, and method of application on soil pH and summer patch.* Co-principal investigator with J. Murphy.....\$98,519
- 1990-1992** NJAES/Center for Turfgrass Science Competitive Grants Program. *Effect of chloride and nitrogen form on the suppression of root and crown-infecting fungi associated with patch diseases of turfgrasses.* Co-PI with J. Heckman and D. C. Thompson.....\$25,500

Total Internal Funding – Competitive: \$911,860

**Grants - (c) External Contract Funding:**

- 1983-2015** Private Industry Service Income (product efficacy evaluation/testing) - *Maximizing turf disease control through improved chemical application strategies.* Sole PI .....\$ 5,274,633

<b>1990-2014</b>	Private Industry Service Income (product efficacy evaluation/testing) - <i>Biological control of turfgrass pathogens</i> . Sole PI.....	\$798,015
<b>1988- 2014</b>	Private Industry Service Income (product efficacy evaluation/testing) - <i>Improving turf disease control through proper cultural management strategies</i> . Sole PI.....	\$1,010,555
<b>2005-2007</b>	New Jersey Sports and Exhibition Authority <i>Design and oversight of the reconstruction for the Monmouth Park Racetrack</i> Co-PI J Murphy .....	\$345,000
<b>2001-2002</b>	Bayer Specialty Product. <i>Graduate research assistantship for E. Weibel</i> . Sole PI.....	\$ 23,500
<b>1999-2000</b>	Novartis Crop Protection. <i>Graduate research assistantship for E. Weibel</i> . Sole PI.....	\$46,000
<b>1987-1995</b>	Research support from Golf Course Superintendent's Associations in New Jersey, Connecticut, and Massachusetts, and from the Bergen County Landscape Contractors Association (New Jersey). Sole PI. ....	\$16,122
<b>1987-1994</b>	Agri-Diagnostics Assoc. and Neogen Corp. <i>Using immunoassays and weather-based disease forecasts to schedule fungicide applications on turf</i> . Sole PI.....	\$33,700
<b>1991-1993</b>	Ciba Turf & Ornamental. <i>Graduate research assistantship for M. Guglielmoni</i> . Sole PI...	\$29,320

Total External Contract Funding : \$7,576,845

#### Grants - (d) Internal Contributed (Development Grant)

<b>1991-1996</b>	NJAES Special Initiative Fund. <i>Development of a plant diagnostic laboratory and nematode detection service to enhance agricultural viability in New Jersey</i> . Co-PI with A. Gould...	\$500,000
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Total Internal Contributed (Development Grant): \$500,000

**Grand Total Grants, Contracts, and Service Income: \$12,648,664**

### TEACHING

#### Graduate Instruction

<u>Plant Disease Diagnostics</u> (16:765:536) - 3 credits. Sole responsibility Summer (alternate even numbered year schedule since 1996)	1982-present
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#### Guest Lectures

<u>Principles of Plant Pathology</u> (16:765:531) - <i>Field disease ID</i> (alternate years)	1990-present
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#### Undergraduate Instruction

<u>Applications of Irrigation and Equipment Technology</u> (11:776:389). 3 credits. Sole responsibility (alternate even numbered year schedule)	2007-present
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<u>Turfgrass Pest Science</u> (11:776:408). 4 credits. Co-developed and co-taught with A. Koppenhofer. (alternate odd numbered year schedule)	1999-present
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#### Guest Lectures

<u>General Plant Pathology</u> (11:770:301). <i>Field disease ID</i> (each year)	2000-present
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Turfgrass Management (11:930:304). *Etiology and control of turfgrass diseases.* (each year) 1986-present

### Continuing Professional Education: Rutgers University

Case Studies in Turfgrass Management (Fall and Winter semesters each year) 2000-present  
Co-taught with either J. Murphy for the Office of Continuing Professional Education (OCPE) Two Year Professional Golf Turf Mgm't School.

#### Guest Lectures

Guest lecture presented in three to four OCPE short courses each year. 1982-present

### Continuing Professional Education: Golf Course Superintendents Assn. of America (GCSAA)

Cutting Edge Disease Identification and Management. A one day seminar taught at each year at the GCSAA National and selected regional mtgs. with Dr. Bruce Martin, Clemson University, to golf course superintendents from different parts of the world 2005-2013

Turfgrass Disease Identification and Control. A two-day seminar taught at GCSAA National and selected regional meetings each year with Dr. Bruce Martin, Clemson University, to golf course superintendents from different parts of the world. 1998-2005

Case studies in Management. A one-day seminar taught at GCSAA National and selected regional meetings each year with J. Murphy, Rutgers University, to golf course superintendents from different parts of the world. 1996-1998

Maximizing Turfgrass Disease Control. A one-day seminar taught at GCSAA National and selected regional meetings each year with Dr. Houston Couch, VPI, to golf course superintendents from different parts of the world. 1993-1995

### Extension/Outreach Presentations:

Presents over 65 educational presentations, workshops, and in-service programs each year to extension clientele and county staff at national and state meetings, conferences, and field days.

### Internet Webcast / Distance Learning:

Patch Disease Management: Take-all and Summer Patch. A web cast research update for Syngenta Crop Protection Corp. May 29, 2014

Biology and Management of Anthracnose Disease. A web cast research update for TurfNet, Inc. March 12, 2014

Anthracnose Prevention and Control. A web cast research update for Syngenta Specialty Products, Inc. May 29, 2013

Development of Best Management Practices for Anthracnose on Annual Bluegrass Putting Green Turf. A USGA webcast conducted with J. Murphy November 16, 2012

Best Management Practices for the Control of Anthracnose on Annual Bluegrass Putting Greens. A GCSAA webinar conducted with J. Murphy November 13, 2012

Anthracnose Prevention and Control. A web cast research update for Bayer Crop Science Corp. May 11, 2010

Getting to the Root of the Problem: Biology and Management of Patch Diseases. A web cast research update for TurfNet, Inc. January 26, 2010

<u>Best Management Practices for the Control of Anthracnose on Annual Bluegrass Putting Greens.</u> A GCSAA webcast conducted with J. Murphy	November 10, 2009
<u>Best Management Practices for Anthracnose Basal Rot on Golf Course Greens.</u> A GCSAA international webcast conducted with M. Agnew on.	April, 26 2006
<u>Anthracnose: Improving efficacy.</u> A GCSAA international web cast conducted with M. Agnew	May 18, 2005
<u>Recent advances in anthracnose management on golf courses.</u> A GCSAA web cast conducted with M. Agnew.	May 13, 2004
<u>Understanding anthracnose and dollar spot diseases of golf course turf.</u> Presented with M. Agnew golf course superintendents in US and Europe.	March 12, 2003

### Graduate Students / Post-Doctoral Fellows Advising: Rutgers University

#### Doctoral Thesis: Primary Advisor

2015 – present	Ruying Wang – Identifying the mechanism of endophyte-induced resistance to <i>Sclerotinia homoeocarpa</i> in fine fescue turf. (Co-advise with F. Belanger)
2013 – present	James Hempfling – Understanding how bentgrass tolerance, disease predictive models and fungicide timing to affects dollar spot development and control on fairways. (Co-advise with J. Murphy)
2011 - present	Lisa Beirn – Biology, ecology, and taxonomy of dollar spot and anthracnose diseases of cool- and warm-season turfgrasses
2009 – present	Charles Schmid – <i>Nitrogen programming effects on the development and pathogenicity of Colletotrichum cereale in annual bluegrass putting green turf.</i> (Co-advise with J. Murphy)
2010 - 2014	Joseph Roberts (N.C. State) – On the biochemical mechanism of <i>Sclerotinia homoeocarpa</i> resistance to boscalid in cool- and warm-season turfgrasses of (Co-advise with N. C. State faculty member L. Tredway).
2003 – 2008	John Inguagiato – <i>The influence of cultural management practices and plant growth regulators on anthracnose disease in annual bluegrass</i> (Co-advise with J. Murphy)
2002 – 2008	Jo Anne Crouch – <i>Evolution of Colletotrichum species inhabiting grasses of the Poaceae in diverse ecosystems.</i> (Co-advise with B. Hillman).
1991-1996	Tracy E. Bunting - <i>Identification, phylogeny, and infection process of Magnaporthe poae.</i> (Co-advise with B. Hillman).
1990-1995	Karen A. Plumley - <i>Impact of temperature and osmotic potential on the growth of three ectotrophic root-infecting fungi.</i>

#### Masters Thesis: Primary Advisor

2015 – present	Kyle Genova – <i>Influence of dew removal on dollar spot in creeping bentgrass.</i> (Co-advise with J. Murphy)
2011 – 2015	Ruying Wang – <i>Utilization of best management practices to suppress anthracnose and reduce fungicide inputs on annual bluegrass turf.</i> (Co-advise with J. Murphy)
2009 – 2013	James Hempfling – <i>Effect of sand topdressing and cultivation practices on the development of anthracnose on annual bluegrass turf.</i> (Co-advise with J. Murphy)

2008 - 2011	Lisa Beirn – <i>Development of molecular typing methods to study shifts in races and species in turfgrass rust populations</i>
2007 - 2010	Joseph Roberts – On the impact of irrigation scheduling, traffic stress and nitrogen on anthracnose basal rot of annual bluegrass (Co-advise with J. Murphy).
2001-2004	Eric Weibel – <i>Behavior of trifloxystrobin in turf: mesostemic activity, translaminar movement, and methods to optimize efficacy</i>
1999-2002	Jennifer Vaiciunas – <i>Response of eight bentgrass cultivars to foliar diseases under different nitrogen, mowing, and fungicide regimes</i> (part-time for first 1.5 yrs)
1998-2001	Saul Vaiciunas - <i>Etiology and control of gray leaf spot on perennial ryegrass and tall fescue.</i>
1997-1999	Lane Treadway - <i>Molecular characterization of Neotyphodium endophytes in cool-season grasses.</i>
1991-1993	Mirta Guglielmoni - <i>Isolation and evaluation of chitinolytic soil bacteria as biocontrol agents of summer patch on Kentucky bluegrass.</i> (Co-advised with D. Kobayashi).

Doctoral Thesis: Committee Member

2014-present	Trent Tate– Plant Biology and Pathology Program
2005-2010	Joshua Honig– Plant Biology and Pathology Program
2004-2009	Jon Bokmeyer – Plant Biology and Pathology Program
2005-2008	Ben McGraw – Entomology Program
1997-2008	Eric Gaulin (part-time) – Environmental Science Program
2001-2005	Y. Han – Plant Biology and Pathology Program
1997-2001	Stacy Bonos – Plant Biology and Pathology Program
1993-1996	Michael DeMilia - Plant Science Program
1990-1995	Chan-Seok Oh - Plant Pathology Program

Masters Thesis: Committee Member

2010-2013	Jess Baculis – Plant Biology and Pathology Program
2008-2013	Lisa Schlitt – Plant Biology and Pathology Program
2007-2009	Timothy Sibicky– Plant Biology and Pathology Program
2005-2009	James Devaney (part-time) – Plant Biology and Pathology Program
2004-2006	Robert Cashel – Plant Biology and Pathology Program
1999-2002	Russell Duncan – Plant Biology and Pathology Program
1998-2000	Eric Watkins – Plant Science Program
1997-2000	Joshua Honig – Plant Science Program
1995-1998	Wendy Hill - Plant Science Program
1993-1998	Craig Tolley - Plant Science Program
1995-1997	Gary Gentilluci - Plant Science Program
1994-1996	Hsaio Wang - Plant Science Program
1993-1995	Michael Ventola - Plant Science Program

Post-Doctoral Fellows

2008-2009	Jo Anne Crouch (Currently working for the USDA Cereal Lab, St. Paul, MN).
1991-1995	David Thompson (Currently Coordinator IR-4 Program, New Brunswick, NJ)

1989-1990 Peter Landschoot (Currently Professor of Turfgrass Management, PSU)

#### Visiting Scientists

2014-15 Shuxia Yin. *Molecular analysis of Colletotrichum cereale*. Beijing Forestry University, Beijing, China (June 2014 – May 2015).

2009 Tanja Espevig. *Snow mold susceptibility and physiological changes during cold acclimation for creeping and velvet bentgrass*. (January – October 2009)

2004 Ian Chievers, Agronomist, Native Seeds, Inc., Melbourne, Australia (September – October 2004.)

2003 Ruth Mann, Pathologist, Sports Turf Research Institute, Bingley, England July – August 2003)

#### **The University of Massachusetts**

##### Masters Thesis: Committee Member

1992-1998 Jeffrey Doherty - *Distribution of fungicides in the soil profile after application to cool-season turf*. (Advisor: G. Schumann).

#### **Undergraduate Independent Study**

2014 Josephine Roosli - biotechnology undergraduate, Rutgers University

2013 Victor Paulino - biotechnology undergraduate, Rutgers University

2013 Shannon Hennessey - visiting undergraduate, NewBio Bioenergy Summer Scholar, State University of New York

2010-2012 Shamal Buhdev - Masters of Business and Science Student, Rutgers University

2009 Nigel Scott - high school student, American Chemical Society's SEED Summer Research Internship Program, Health Sciences Technology High School

#### **Graduate Program Memberships**

Plant Biology (founding member)	2001 - present
Microbial Biology Graduate Program (founding member)	2010 - present
Plant Pathology Graduate Program	1982-2001

#### **SERVICE**

#### **Contributions to the advancement of the academic profession.**

##### **(a) National / International**

1. International Turfgrass Society (member 1985-present)
  - President (2013-2017), President-Elect (2009-2013), Board of Directors (2001-2009), Educational Program Committee (2000/2001), Nominations Committee (2005-2009), Session Chair 2005 ITRC Conference in Wales
2. American Phytopathological Society (member 1978-present)
  - Turf and Ornamentals Committee, 1988-1990, 1995-1997 (Chair 1990), Environmental Quality and Plant Health Committee, 1987-1990 (Chair 1989); (For NED-APS Service see regional section "b" below).



3. Crop Science Society of America (1993-present)
  - Fred K. Grau Turfgrass Science Award Committee (2005-2008), Ad hoc Finance Committee for development *Applied Turfgrass Science* (2003-2004), Turfgrass Mgm't Information Directory (2002-present), Education Committee (2002-present), Symposium Committee (1997-2000), Graduate Student Oral Presentation Judge - CSSA Annual Meeting (2006)
4. European International Turfgrass Society (member 2008-present)
5. American Society of Agronomy and Crop Science Society of America (member 1993-present)
6. Journal Reviewer: Plant Disease (1989-present), Phytopathology (1991-present), Applied Turf Sci. (2000- present), Agronomy Journal (1995-present), Soil Biology and Biochemistry (1995-present), Journal of Turfgrass Management (1994-2003), Journal of the International Turfgrass Soc. (2001, 2009, 2013), Crop Science (2002-present), Mycological Research (2009-present), Plant Management Network (APS, 2015-present).
7. Associate Editor - Plant Disease (1997-1999)
8. Research Program Reviews: Univ. of FL Turf Program (1997), NC State Center for Turfgrass Science (2015)
9. Grants Reviewer: Canadian National Science and Engineering Council (NSERC; 1 each year from 1998-2008) and the Tri-State Research Foundation (1998)
10. Book Reviewer: (a) Couch, H. B. 1995. Diseases of Turfgrasses, 3rd ed. Krieger Publishing Co. Malabar, FL. 421 pp, (b) Gussack, E., and F. Rossi. 2003. *Turfgrass Problems: Picture Clues and Management Options*. Natural Resource, Agriculture, and Engineering Service, Cornell Cooperative Extension, Ithaca, NY 35 pp., Book Chapter Review – Allan, E., et al. 2013. *Fungicide Resistance in Turfgrass*.
11. Tenure Packet Reviewer: three to five packets reviewed each year for other universities in US and Canada (1997-present).

#### **(b) Regional**

1. Northeastern Turfgrass Regional Projects (NE-1046, NE-1025, NE-169; NE-187) (member 1985-present)
  - NE-1025 coordinator for project proposal approval for 2005-2009 (12 states and Canada); chair 2005-2006, member 2005-2011.
  - NE-1046 co-coordinator for project proposal approval for 2011-2016 with A. Koppenhofer (12 states and Canada); member 2011- 2016.
2. American Phytopathological Society: Northeast Division (NED-APS)
  - President (2000/2001), Vice President (1999/2000), Secretary-Treasurer (1998/1999)
  - NED-APS Committees: Local arrangements Committee Chair for Division Mtg., New Brunswick, NJ (2011), Symposium Planning Committee (2008-2010, chair 2010), Turfgrass Symposium Chair - annual meeting in Bromont, Canada (2002) and Newport, RI (2008), Awards Committee (2002-2004), Graduate Student Awards Review Committee (2003-2005, chair 2005), Extension Committee (1982-present, chair 1995), Breeding for Disease Resistance Symposium Moderator, Quebec City, Quebec Canada (2009)
3. Rutgers Turfgrass Proceedings Coordinator and author (1988-present)
4. Tri-State Research Foundation - Grants Reviewer/Technical Advisory Committee (1991-1997)
5. Environmental Stewardship Committee - Metropolitan Golf Course Superint. Assn. (2012-14)

**(c) State**

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| 1. New Jersey Turfgrass Association Board/Directors                  | 1996-present |
| 2. New Jersey Turfgrass Research Foundation Board of Trustees        | 1991 to 2002 |
| 3. New Jersey Landscape Contractors Association, Board of Directors  | 1999-present |
| • NJLCA Education and Scholarship Committee                          | 2010-2011    |
| 4. Golf Course Superintendents Association of NJ, Board of Directors | 1995-present |

**Contributions to the effective operation of the University.****(a) Plant Diagnostic Services**

- Oversight of Plant Diagnostic Laboratory and Soil Testing Laboratory 1992-present

**(b) School of Environmental and Biological Science (SEBS, formerly Cook College) / NJAES**

- NJAES Advisory Council for Implementing RCM for Off-Campus sites 2013-14
- Non-Tenure Track Faculty Task Force (SEBS) 2012
- Search Committees: Grant Facilitator for NJAES (2011), Director of Development - Cook College (chair 2005-2006), Executive Dean of Cook College (chair 2000-2001, first search and vice chair 2001-2002, second search), Rutgers University Conflict of Interest Committee (2010-present), SEBS Conflict of Interest Committee (2006-2009), G.H. Cook Scholars Program advisor (2004-2005)
- SEBS Committees: NJAES Millennium Viability Initiative Steering Committee (2001-2002), Snyder Research Farm Policy Committee (1997-present), Cook College Planning Committee (1991-1993), Cook College Grounds Maintenance Committee (1991-1998), Turfgrass Working Group (chair 1990-1993)

**(c) Rutgers Center for Turfgrass Science**

- Director, Center for Turfgrass Science (1994-present), Interim Director (1993)
- Center Committees: Turfgrass Economic Survey (chair 2003-2005), Scholarship Committee (Chair 1997-present), Symposium Planning (1993-present), Golf Classic Committee (1995-present), Academic Planning Committee (1991-present), Finance Committee (1991-present; chair 1991-1993), Executive Committee (1991-present; chair 1991-1993, Turfgrass Industry Advisory Board (chair 1993-present)
- Search Committees: Populations and Evolutionary Biologist (2008), Turfgrass Breeder (2004), Turfgrass Physiologist/Ecologist (chair 1995; 2000), - Turfgrass Breeder /Associate Director of the Turf Center (1996), Research Farm Supervisor I, Adelphia, NJ (1996), Head soils and Plant Technician, Hort Farm II, North Brunswick, NJ (1994)
- Developed and implemented a four year, \$3.1 million plan with the Cook College Administration to hire and support four new research faculty and two new extension faculty (1995 to 2001).
- Oversight of the Internal Competitive Grants Program (2.4 million/year) in the Center for Turfgrass Science (1993-present).
- Coordinator Annual Rutgers Turfgrass Symposia (1993-present) and proceedings (1993-present; B. Fitzgerald)..
- Oversight Center for Turfgrass Science Website (<http://turf.rutgers.edu>) (1996-present).
- Coordinator Rutgers Turf Research Golf Classic Fundraiser (1996-present); raised \$1.5 million.
- Coordinator of the Rutgers Turfgrass proceedings (1995-present; with A. B. Gould)
- Student Scholarship Awards Committee (1987 to present) raised \$85,000/yr.
- Turf Club Advisor (1999-present).

**(d) Rutgers Cooperative Extension (RCE)**

- RCE Committees: RCE Awards Selection Committee (2003-2013, chair 2003), Department Extension Specialists Awards Committee (2006-2009), Extension Mentoring Oversight Committee (2008- present), RCE Visioning Committee (2002), FCP Evaluation Committee (1999, 2002, 2004, 2006 [chair] and 2008)
- Junior Faculty Mentor Committees: A. Gould (1990-1995), N Lalancette (1998-2003), S. Bonos (2005- 2001), J. Murphy (1991-1996), G. Zinati (2002-2004) , A. Wyenandt (2009-2011), Koppenhofer (1998-2003), J. Grabosky (2002-2005)
- Search Committees: Director of Rutgers Cooperative Extension (1993, chair) , Extension Specialist in Ornamental and Nut Tree Breeding (2008), Extension Specialist in Ornamental Plant Pathology (1990, chair), Extension Specialist in Turfgrass Management (1991, chair), Extension Specialist in Turf and Ornamental Weed Science (1995-1998, chair), Extension Specialist in Turf and Ornamental Entomology (1995-1996)
- Reading Committees: A. Gould (1995 chair), N. Lalancette (2003), J. Murphy (1996 and 2005 [chair]), G. Hamilton (1995), A. Koppenhofer (2003), Cesar Rodriguez (2015), J. Heckman (2002), S. Hart (2004)

**(e) Department of Plant Biology and Pathology**

- Chairman of Department (2012-2014), Vice-chairman (2001-2011)
- Dept. Committees: Dept. Executive Committee (2014-15), Executive Steering Committee for the Reorganization of the Dept. (2012-present), Assessment Committee for the Undergraduate Program in Plant Biology (2015-2016), CORE Facility Advisory Board member (2010-2012), MS Degree Committee for the Plant Biology Graduate Program (2006), Dept. Advisory Board (2002-2011), Graduate Program in Plant Biology - Recruitment Committee (2003-2005), Professional Awards Committee (2003-2004), Depart. representative Rutgers University Environmental Council (2001-2005), Strategic Planning Committee (1992 and 2010).
- Editor for all Extension Publications developed by Extension Specialists in the Dept (2009-2011)
- Junior Faculty Mentoring Committee: A. Gould (1990-1995, chair), Jim Murphy (1991-1996, chair), Albrecht. Koppenhofer (1998-2003), Faith Belanger (1998-2003), Steve Hart (1999-2004), Jason grobosky (2002-2006), Stacy Bonos (2004-2009, chair), Andy Wyenandt (2004-2009), Ning Zhang (2009-2014, chair), Juan Dong (2011-2016), Andrea Gallavotti (2015-2017)
- Search Committees: Mycologist (1995), Host Pathogen Physiology and Molecular Biology (1997), Plant Genomics Position (2003), Administrative Assistant II (2002 and 2006)

**(f) Department of Microbiology**

- Microbial Biology Graduate Program
  - Membership and Nominations Committee (2010-2012)

**Contributions to society at large.**

1. New Jersey Turfgrass Association (NJTA)
  - University liaison to the NJTA Board (1987-present), Expo Educational Program Committee (1982-present), Rutgers Turfgrass Research Field Day Committee (1984-present)
2. New Jersey Landscape Contractors Association
  - University liaison to the Association (1996 - present), Certified Landscape Technician Certification Testing Committee (1997-2004)
3. Golf Course Superintendents Association of New Jersey
  - University liaison to the Association (1999-Present)

4. Teleconference with Cornell Cooperative Extension Agents to discuss turf pathology issues – twice each year (2000-present)
5. Advisor to the Community Involvement Personal Educational Development Program for South Brunswick High School, South Brunswick, NJ (1988 - 1992); 4 students
6. General Support
  - Provides technical information to University faculty, state and local agencies, commercial growers, and New Jersey citizens on turf plant pathology via E-mail, extension publications, slide sets, telephone contacts, letters, etc. (1982-present).
  - Provides technical information at industry workshops, field days, and annual meetings (1982-present).
  - Turf and Ornamental Disease Diagnostic Clinic, Home Gardeners Open House, New Brunswick, NJ (1982-1993).

#### **AWARDS AND RECOGNITION: B. B. Clarke**

- 2016 USGA Green Section Award** from the United States Golf Association(USGA) in recognition of distinguished service to golf through work with turfgrass
- 2014 Col. John Morley Distinguished Service Award** from the Golf Course Superintendents Association of America (GCSAA). This award is presented to an individual who has made an outstanding contribution to the advancement of the golf course superintendent's profession.
- 2012 American Phytopathological Society Fellow Award**
- 2011 Visionary Leadership Award** from the Epsilon Sigma Phi National Extension Society
- 2011 Northeastern Division of APS Award of Merit**
- 2011 Northeast Award for Excellence in Multistate Research** from the Northeastern Regional Association of State Agricultural Experiment Station Directors for the NE1025 Turfgrass Research Multistate Regional Research project entitled, "*Biology, Ecology and Management of Emerging Pests of Annual Bluegrass on Golf Courses.*"
- 2011 Best of the Best Team Research and Extension Award** presented by Rutgers Cooperative Extension to the Anthracnose and Annual Bluegrass Weevil Multi-State Turf Research Project Team (N E-1046)
- 2008 President's Award for 2008** presented to the Rutgers Center for Turfgrass Science by the New Jersey Golf Course Owner's Association
- 2008 Distinguished Alumni Award** from the Graduate School, Rutgers University
- 2007 Rutgers Cooperative Extension Team Research Award** – for project entitled. "Integrated Program for the Control of Gray Leaf Spot Disease in Golf and Landscape Turf."
- 2007 Dennis M. Fenton Distinguished Cook College Graduate Alumni Award** present by the Cook College Alumni Assoc.
- 2007 Outstanding Professor of the Year Award** presented by the Plant Biology Graduate Student Assn.
- 2006 Crop Science Society of America Fellow Award**
- 2005 Ralph Geiger Endowed Chair in Turfgrass Science**
- 2005 Invited keynote address at the 10<sup>th</sup> International Turfgrass Conference in Wales** entitled, "*Prospects for managing destructive turfgrass diseases without protective chemicals.* Presented July 11, 2005)

- 2004 American society of Agronomy Fellow Award**
- 2003 Distinguished Service Award** from the Golf Course Superintendents Association of New Jersey
- 2003 Rutgers Cooperative Extension Excellence Award**
- 2002 John Reid Lifetime Achievement Award** from the Metropolitan Golf Course Superintendents Assn.
- 2001 Weisblat Award for Excellence in Research, Teaching, and Outreach** presented by NJAES/Cook College
- 1998 Media Award of Excellence** for the CD-ROM entitled "Turfgrass Diseases: Diagnosis and Management." presented by the National Association of Colleges and Teachers of Agriculture.
- 1996 Turfgrass Hall of Fame Award** - A distinguished service award presented by the New Jersey Turfgrass Association.
- 1996 Rutgers Cooperative Extension Team Research/Outreach Award** – Project entitled. "*Development of an integrated summer patch control program for golf and landscape turf.*"
- 1987 Recognition Award** presented by the New Jersey Turfgrass Association in recognition of excellence in research and outreach to the turfgrass industry in the state.

#### **AWARDS AND RECOGNITION: Student Advisees**

- 2015 Gerald O. Mott Scholarship** awarded to graduate advisee **C. Schmid** for excellence in research by the Crop Science Society of America's
- 2015 Watson Fellowship Award** - a national research award presented to graduate advisee **C. Schmid** by the Golf Course Superintendents Association of America.
- 2015 Wilbur M. Runk Merit Scholarship** awarded to graduate advisee **J. Hempfling** by Rutgers Cooperative Extension
- 2015 Spence H. Davis Rresearch Award**, presented to graduate advisee **C. Schmid** by the Dept. of Plant Biology and Pathology
- 2014 Graduate Student Oral Paper Award (1<sup>st</sup> place)**, presented to graduate advisee **C. Schmid** at the NE Division of the American Phytopathological Society annual meeting in Portsmouth, NH,
- 2014 Graduate Student Oral Paper Award, Turfgrass Science Division (1<sup>st</sup> place)**, presented to graduate advisee **L. Beirn** at the Crop Science Society of America's annual meeting in Long Branch, CA.
- 2014 Gerald O. Mott Scholarship** awarded to graduate advisee **J. Roberts** for excellence in research by the Crop Science Society of America's annual meeting in Long Branch, CA
- 2014 Watson Fellowship Award** - a national research award presented to graduate advisee **L. Beirn** by the Golf Course Superintendents Association of America
- 2013 Gerald O. Mott Scholarship** awarded to graduate advisee **L. Beirn** for excellence in research by the Crop Science Society of America's annual meeting in Tampa, FL
- 2013 Graduate Student Oral Paper Award (2<sup>nd</sup> place)**, presented to graduate advisee **L. Beirn** at the Potomac Division of the American Phytopathological Society annual meeting in Morgantown, WVA
- 2012 Best Graduate Student Oral Paper Award- Turfgrass Pathology Category**, presented to graduate advisee **L. Beirn** at the Crop Science Society of America's annual mtg in Cincinnati, OH
- 2011 Watson Fellowship Award** - a national research award presented to graduate advisee **J. Roberts** by the Golf Course Superintendents Association of America
- 2011 Spence H. Davis Rresearch Award (2<sup>nd</sup> place)**, presented to graduate advisee **L. Beirn** by the Dept. of Plant Biology and Pathology at their 100<sup>th</sup> Anniversary of Plant Pathology

- 2011 Wilbur M. Runk Merit Scholarship** awarded to graduate advisee **C. Schmid** by Rutgers Cooperative Extension
- 2011 Best Graduate Student Oral Paper Award- Turfgrass Pathology Category**, presented to graduate advisee **L. Beirn** at the Crop Science Society of America's annual meeting in San Antonio, TX
- 2011 Graduate Student Oral Paper Award (2<sup>nd</sup> place)**, presented to graduate advisee **J. Hempfling** at the NE Division of the American Phytopathological Society annual meeting in New Brunswick, NJ.
- 2011 Graduate Student Poster Award Competition- Best Basic Research Poster**, presented to graduate advisee **L. Beirn** by the New Jersey Agricultural Experiment Station, Rutgers University
- 2011 Graduate Student Poster Award Competition- Best Applied Research Poster**, presented to graduate advisee **C. Schmid** by the New Jersey Agricultural Experiment Station, Rutgers University
- 2010 Wilbur M. Runk Merit Scholarship** awarded to graduate advisee **L. Beirn** by Rutgers Cooperative Extension
- 2010 Best Graduate Student Oral Paper Award- Turfgrass Management Category**, presented to graduate advisee **L. Beirn** at the Crop Science Society of America's annual meeting in Long Beach, CA
- 2010 Graduate Student Oral Paper Award (third place) - Turfgrass Management Category**, presented to graduate advisee **J. Roberts** at the Crop Science Society of America's annual meeting in Long Beach, CA
- 2009 Best Graduate Student Poster Award- Turfgrass Management Category**, presented to graduate advisee **J. Roberts** at the Crop Science Society of America's annual meeting in Pittsburgh, PA
- 2009 Best Graduate Student Oral Paper Award - Turfgrass Breeding Category**, presented to graduate advisee **L. Beirn** at the Crop Science Society of America's annual meeting in Pittsburgh, PA
- 2009 Best Graduate Student Oral Paper Award**, presented to graduate advisee **J. Roberts** at the NE Division of the American Phytopathological Soc.annual meeting in Quebec City, Quebec Canada
- 2009 Musser International Turfgrass Foundation's Research Scholarship Award** for research excellence presented to graduate advisee **J. Crouch**
- 2008 Rutgers Graduate Student Research Award** presented to graduate advisee **J. Crouch** by the Rutgers Graduate School of New Brunswick
- 2008 NAMA Memorial Fellowship awarded** to graduate advisee **J. Crouch** by the Mycological Society of America
- 2008 Gerald O. Mott Scholarship** awarded to graduate advisee **J. Crouch** by the Crop Science Society of America's annual meeting in Houston, TX
- 2008 Best Graduate Student Oral Paper Award**, presented to graduate advisee **J. Inguagiato** at the Crop Science Society of America's annual meeting in Houston, TX
- 2007 Wilbur M. Runk Merit Scholarship** awarded to graduate advisees **J. Crouch** and **J. Inguagiato** by Rutgers Cooperative Extension
- 2005 Best Graduate Student Oral Paper Award**, presented to graduate advisee **J. Inguagiato** at the NE Division of the American Phytopathological Society.
- 2005 STARR Fellowship awarded** to graduate advisee **J. Crouch** by the EPA (2005-2007)
- 2002 Musser International Turfgrass Foundation's Research Scholarship Award** presented to graduate advisee **L. Tredway**

- 1998 Watson Fellowship Award** - a national research award presented to graduate advisee **L. Tredway** by the Golf Course Superintendents Association of America.
- 1998 Best Graduate Student Oral Poster** awarded to graduate advisee **L. Tredway** at the C-5 Turfgrass Science Division, Crop Science Society of America
- 1994 Musser International Turfgrass Foundation's Research Scholarship Award** presented for research excellence to graduate advisee **K. Plumley**
- 1993 Best Graduate Student Paper Award**, presented to graduate advisee **K. Plumley** at the Northeast Division of the American Phytopathological Society.

#### **PROFESSIONAL AFFILIATIONS**

Alpha Zeta-Honorary Service Fraternity  
American Phytopathological Society  
American Society of Agronomy  
American Association for the Advancement of Science  
Council for Agricultural Science and Technology  
Crop Science Society of America  
Epsilon Sigma Phi National Extension Fraternity  
European International Turfgrass Society  
Golf Course Superintendents Association of America  
Golf Course Superintendents Association of New Jersey  
International Turfgrass Society  
New Jersey Landscape Contractors Association of New Jersey  
New Jersey Turfgrass Association  
Northeast Division American Phytopathological Society  
Sigma Xi - The Scientific Research Society of North America  
Sports Field Managers Association of America  
Sports Field Managers Association of New Jersey  
United States Golf Association