

CURRICULUM VITAE

MICHELE CHRISTINE MARRA

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North Carolina State University

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EDUCATION

1984 Ph.D. North Carolina State University

Major: Economics

Minor: Statistics

Dissertation Title: An Examination of Double Cropping Patterns in the Southeast: An Application of the Expected Utility Maximization Approach

1982 M.S. North Carolina State University

Major: Agricultural Economics

Minor: Statistics

Thesis Title: On Refining and Implementing Herbicide Treatment Guidelines for Soybeans

1979 B.S. North Carolina State University

Major: Agricultural Economics, *Summa Cum Laude*

FIELDS OF SPECIALIZATION

Production economics, Biotechnology, Risk management, Decision theory, Pest management, Farm management

EXPERIENCE

2000 to present. Professor and Specialist, Department of Agricultural and Resource Economics, North Carolina State University, Raleigh, North Carolina.

1995 to 2000. Associate Professor and Specialist, Department of Agricultural and Resource Economics, North Carolina State University, Raleigh, North Carolina. Adjunct Associate Professor, Department of Resource Economics and Policy, University of Maine, Orono, Maine (1995-97).

1990 to 1995. Associate Professor, Department of Resource Economics and Policy (formerly the Department of Agricultural and Resource Economics), University of Maine, Orono, Maine.

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Spring, 1994. Visiting Associate Professor, Department of Agricultural and Resource Economics, North Carolina State University, Raleigh, North Carolina.

1985 to 1990. Assistant Professor, Department of Agricultural and Resource Economics, University of Maine, Orono, Maine.

1984. Visiting Assistant Professor, North Carolina State University.
Conducted research on the input use implications of double cropping under a cooperative agreement with NRED/ERS/USDA.

1984. Taught short course on the Economics of Pest Management for the Crop Science Department, North Carolina State University.

1983-1984. Teaching Assistant, North Carolina State University. Taught Principles of Macroeconomics.

1979-1984. Research Assistant, North Carolina State University.
Conducted research, gave seminars, and taught classes on various issues involved in Integrated Pest Management for soybeans.

TEACHING EXPERIENCE

Introductory Macroeconomics (NC State)

Introductory Economics (Maine and NC State))

Farm Management (Maine and NC State)

Agricultural Finance (Maine)

Senior Seminar (Maine)

Pest Ecology (team-taught, interdisciplinary course, Maine)

Masters-level Production Economics (Maine and NC State)

Agricultural Policy (NC State)

Prepared Power Point slides and other materials about the Economics of Biotechnology for an interdisciplinary course on biotechnology (NC State)

OTHER PROFESSIONAL ACTIVITIES AND HONORS

Honors and Awards

AAEA Award for Professional Excellence: Outstanding *Choices* article, 2011.

Who's Who in America (publications), 2011.

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Review panel (invited): Review of the School of Agricultural and Resource Economics, University of Western Australia, 2011.

Review panel: Agricultural Issues Center, University of California, June, 2008.

Expert panel for a USDA/CEAP project, Tifton, GA., July, 2007.

Pledge Award, 2008. Development of the *Biotech Yield Endorsement*, Monsanto Company. Highest award given for contributions to society.

Pride of the Wolfpack Award, 2005.

Associate Editor, American Journal of Agricultural Economics, 2004-2007.

Named Research Fellow, Rural Development Research Consortium, UC-Berkeley, Berkeley, CA, 2002 – present.

Best Published Research Award - 2000, Western Agricultural Economics Association.

Certificate of Excellence presented by the American Society of Agronomy for outstanding development of agronomic education material in the area of publications, November 1, 1999.

Part of a 1997 USDA team award for excellence to NC Cooperative Extension for their extension efforts after the hurricanes of 1996.

Outstanding Teacher of the Year, 1993, Department of Agricultural and Resource Economics, University of Maine. First runner-up for the Teacher of the Year Award, College of Applied Sciences and Agriculture, University of Maine.

Finalist for the Kenneth R. Keller Research Award for outstanding doctoral research contribution, School of Agriculture and Life Sciences, North Carolina State University, 1984.

Outstanding Masters Thesis, Department of Economics and Business, North Carolina State University, 1982.

Undergraduate Honors Program, NCSU, 1979.

Elected to: PHI KAPPA PHI, GAMMA SIGMA DELTA, and OMICRON DELTA EPSILON honor fraternities.

Professional Activities

Current Member: American Agricultural Economics Association, International Association of Agricultural Economists, Southern Agricultural Economics Association, Western Agricultural Economics Association, Australian Agricultural Economics Society, Southern Extension Policy Committee (SEPAC)

Member, AAEA John Galbraith Awards Committee, 2011-2013.

Member, National Academies of Science, National Research Council Committee to Evaluate the Farm Level Impacts of Crop Biotechnology – Economics and Sustainability, 2008-2009.

Member, SAEA Master's Thesis Award Committee, 2006-2008, Chair, 2008.

Associate Editor, American Journal of Agricultural Economics, 2004-2007.

Member, AAEA Quality of Research Discovery Award Committee, AAEA, 2004-2006.

Member, Focus Group on Agricultural Biotechnology, Research Triangle Institute, 2003.

Member, AAEA Selected Papers Committee, 2004-2007, chair – productivity and biotechnology sections, 2004.

Board Member, Southern Agricultural Economics Association, 2002 - 2005.

Board Member, C-FARE, 1999 - 2002.

Member, Consortium on the Economics of Agricultural Biotechnology. 2000 to present.

Member, SRIEG 70: Economics and Management of Risk in Agricultural Resources, Program Chair, 1998, President, 1999.

Member, AAEA Employment Services Committee, 1993-1999, Chair 1997-1999.

Member, *Journal of Agricultural and Applied Economics* Editorial Council, 1998-2000.

Member, Southern Agricultural Economics Association Extension Awards Committee, 1995-97.

Member, *Journal of Food Distribution Research* Editorial Review Board, 1995-98.

Member, Class 1, CSRS-ESCAP Leadership Development Course, 1992.

Member, Board of Directors, NAREA, 1990-1993.

Member, Editorial Board, *Northeastern Journal of Agricultural and Resource Economics*, 1989-1992.

Member, USDA Consortium on Agricultural Resources, 1988-1993.

Member, NAREA Membership Committee, 1988-1989, Chair, 1990.

Member, S-232 Program Committee, 1988-1989, Local Arrangements Coordinator, 1990, Program Committee Chair, 1991, President of the Technical Committee, 1992.

Reviewer

American Journal of Agricultural Economics
Journal of Agricultural and Resource Economics
Journal of Agricultural and Applied Economics
Agricultural and Resource Economics Review
Australian Journal of Agricultural Economics
Agricultural Economics
Review of Agricultural Economics

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Ecological Economics
Journal of Agribusiness
Canadian Journal of Agricultural Economics
Journal of Production Agriculture
Journal of Technology and Development
Journal of Cotton Science
Journal of Economic Entomology
Maine Agricultural Experiment Station
North Carolina Agricultural Research Service
North Carolina Cooperative Extension
USDA – National Research Initiative
AAEA Selected Papers (several years)
SAEA Selected Papers (several years)
AgBioForum
Agricultural Systems
Nature Biotechnology
USDA-CSREES-PREISM project proposals (several years)

Reviewed several promotion packages for economists at other universities:

George Frisvold, U. of Arizona
Jennie Popp, U. of Arkansas
Keith Coble, Miss. State U.
James Larsen, U. of Tennessee
Barry Barnett, Miss. State U.
Karen Klonsky, UC-Davis
Jennie Popp, U. of Arkansas
Karina Shoengold, U. of Nebraska

University, College and Departmental Committees

Chair, ARE Ad Hoc Committee on Common Spaces, 2010.
Chair, ARE Dissertation Awards Committee, 2009
ARE Teaching Reviews, various years.
Member, ARE Ad Hoc Committee on updating our Compact document, 2006.
Member, Department of Biological and Agricultural Engineering, Search Committee, 2006.
Member CALS, Faculty Recruitment and Retention Committee, 2005.
Member, CALS Reappointment, Promotion and Tenure Committee, 2004-2006.
Leader, NCARS CSREES Reporting Committee, Goal 5, 2003 –2007.
Member, CSREES Review Committee, 2002-2003.
Member, ARE Post Tenure Review Committee, ARE, 2001-2003, Chair, 2003.

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Member, ARE Faculty Search Committee, 1999-2000, Chair 2001-2003.
ARE Graduate Curriculum Representative to the Economics Graduate Program, 1999-2000.
Member, NCSU Economics Graduate Program Admissions Committee, 1998.
Member, NCSU Sustainable Agriculture Task Force, 1995 -2001.
Member, NCSU IPM Advisory Committee, 1995 -2006.
Member, ARE Department Master Farm Management Seminar Committee, 1995-present.
Member, NCSU Water Quality Task Force, 1995-2001.
Member, NCSU Center for Environmental Farming Systems Faculty Advisory Committee, 1996.
Chair, Southern Extension Farm Management Committee Task Force on Comprehensive Risk Management Curriculum Development, 1996-1998.
Member, U. Maine Graduate School Curriculum Committee, 1987-1989; Chair, 1989.
Member, U. Maine President's Ad Hoc Task Force on Salary Adjustment, 1987.
Member, U. Maine Search Committee for Director of Extension, 1988.
Member, U. Maine Sustainable Agriculture Curriculum Committee and Research Group, 1988 - 1994.
Member, Maine Agricultural Experiment Station Research Council, 1990-1992.
Graduate Admissions Committee, Department of Resource Economics and Policy, U. Maine, 1986-1992.
Graduate Coordinator, Department of Resource Economics and Policy, U. Maine, 1986-1992.
Policy Advisory and Promotion and Tenure Committees, Department of Resource Economics and Policy, U. Maine, 1986-1988.

PUBLICATIONS

51. Kostiri, S, R. Rejesus, M. Marra, and S. Larkin. 2014. "Adoption of Precision Technologies and Perceived Improvements in Cotton Quality." *Journal of Agribusiness*, in press.
50. Marra, M.C., N.E. Piggott, and B.K. Goodwin. 2013. "On the Economics of Crop Rotations for Inhibiting Corn Rootworm Resistance." *AgBioforum*,16(3):187-193. Available at: <http://www.agbioforum.org>.
49. Jacobs, K., W. Thurman, and M. Marra. 2013. "How Farmers Bid into the Conservation Reserve Program: An Empirical Analysis of CRP Offers Data". *Land Economics*, lead article.
48. Marra, M.C., Piggott, N.E., & Goodwin, B.K. (2012). The impact of corn rootworm protected biotechnology traits in the United States. *AgBioForum*, 15(2), 217-230. Available at: <http://www.agbioforum.org>.

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47. Rejesus, R.M. M.C. Marra, R.K. Roberts, B.C. English, J.A. Larson, and K.W. Paxton. 2013. "Changes in Producers' Perceptions of Within-Field Yield Variability Following Adoption of Cotton Yield Monitors." *Journal of Agricultural and Applied Economics* 45(2):295-312.

46. Hasing, T, C.E. Carpio, D. Willis, O. Sydorovych and M. Marra. "The Effect of Label Information on Pesticide Choice." *Agricultural and Resource Economics Review* 41,2 (August 2012): 200-214.

45. Zilberman, D., S. Sexton, M. Marra, J. Fernandez-Cornejo. 2010. "The Economic Impact of Genetically Engineered Crops" *Choices*,25(2). Available at: <http://www.choicesmagazine.org/magazine/article.php?article=129>

44. Marra, M.C., N.E. Piggott, and B.K. Goodwin. 2010. "The Anticipated Value of SmartStax for U.S. Corn Growers," *AgBioforum*, 1:1-12 (lead article).

43. Roberts, R., J. Larsen, B. English, S. Larkin, M. Marra, S. Martin, J. Reeves. 2010. "Grid Soil Sampling Adoption and Abandonment in Cotton Production" *Precision Agriculture*, available at <http://www.springerlink.com/content/22r5lk1tpu073554/fulltext.pdf>.

42. Walton, Jonathan, J. Larson, R. Roberts, D. Lambert, B. English, S. Larkin, M. Marra, S. Martin, K. Paxton, and J. Reeves. 2010. "Factors influencing farmer adoption of portable computers for site-specific management: A case study for cotton production", *Journal of Agricultural & Applied Economics*, Volume 42, Number 2, 1573-1618.

41. Marra, M.C., R. Rejesus, R. Roberts, B. English, J. Larson, S. Larkin, and S. Martin, S. 2010. "Estimating the demand and willingness-to-pay for cotton yield monitors". *Precision Agriculture*, 11(3):215-238 (lead article).

40. Piggott, N.E. and M.C. Marra. 2008. "Biotechnology Adoption Over Time In the Presence of Non-Pecuniary Characteristics that Directly Affect Utility: A Derived Demand Approach." *AgBioforum*, 11(1), 58-70.

39. Lambert, D., R. Roberts, J. Larsen, S. Larkin, M. Marra, and J. Reeves. 2008. "Adoption and Abandonment of Precision Soil Sampling in Cotton Production," *Journal of Agricultural and Resource Economics*, 33 (3):428-448.

38. Larson, J., R. Roberts, B. English, S. Larkin, M. Marra, S. Martin, K. Paxton, J. Reeves. 2008. "Factors affecting farmer adoption of remotely sensed imagery for precision management in cotton production." *Precision Agriculture*, 9:195-208.

37. Vukina, T., X. Zheng, M.C. Marra, and A. Levy. 2008. "Do farmers value the environment? Evidence from a conservation reserve program auction.", *International Journal of Industrial Organization* 26:1323-1332.

Sydorovych, Olha and M.C. Marra. 2008. "Valuing the Changes in Herbicide Risks Resulting from Adoption of Roundup Ready Soybeans by U.S. Farmers: A Revealed-Preference Approach", *Journal of Agricultural and Applied Economics*, 40(3):777-788.

35. Swagata "Ban" Banerjee, Steven W. Martin, Roland K. Roberts, Sherry L. Larkin, James A. Larson, Kenneth W. Paxton, Burton C. English, Michele C. Marra, and Jeanne M. Reeves. 2008. "A Binary Logit Estimation of Factors Affecting Adoption of GPS Guidance Systems by Cotton Producers", *Journal of Agricultural and Applied Economics* Vol. 40, No. 1, 345-356.

34. Marra, M.C. and S. Martin. 2007. "Important Innovations in Cotton Production: An Assessment by U.S. Cotton Growers and Other Experts". *Journal of Cotton Science*, 4: 259-265.

33. Sydorovych, Olha and M.C. Marra. 2007. "A Genetically Engineered Crop's Impact on Pesticide Use: A Revealed-Preference Index Approach," *Journal of Agricultural and Resource Economics*, 32(3): 476-491.

32. Martin, S., R. Roberts, B. English, M. Marra, and J. Reeves. 2007. "Revealed Characteristics of Guidance Systems Adopters in Cotton Production." *Crop Management*, available at: <http://www.plantmanagementnetwork.org/cm/element/cmsum2.asp?id=6724>

31. Piggott, N. E. and M. C. Marra. 2007. "The Net Gain to Cotton Farmers of a Natural Refuge Plan for Bollgard II[®] Cotton". *AgBioforum*, Jan.: 1-10 (lead article).

30. Larkin, S., R. M. Marra, R. Roberts, B. English, J. Larson, and S. Martin. 2005. "Southern cotton farmers' perceptions of environmental benefits from precision agriculture." *Journal of Agricultural and Applied Economics*, 37(3): 577-588.

29. Marra, M.C. 2004. "Review of the *Economic and Environmental Impacts of Agbiotech: A Global Perspective*, Nicholas G. Kalaitzandonakes, Editor." *AgBioForum*, 6(3), 144-145.

28. Roberts, R.K., B.C. English, J.A. Larson, R.L. Cochran, W.R. Goodman, S.L. Larkin, M.C. Marra, S.W. Martin, and W.D. Shurley. 2004. "Adoption of site-specific information and variable rate technologies in cotton precision farming." *Journal of Agricultural and Applied Economics* 36(1): 143-158.

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27. Norwood, Bailey and Michele C. Marra. 2003. "Measuring pesticide productivity: Of bugs and biases." *Journal of Agricultural and Resource Economics*, Vol. 28, No. 3:596-610.
26. Alston, Julian M., Jeffrey Hyde, Michele C. Marra, and Paul D. Mitchell. 2003. "An ex-ante analysis of the benefits from the adoption of corn rootworm resistant, transgenic corn technology." *AgBioForum* 5(3), 71-84.
25. Marra, Michele C., David J. Pannell, and Amir Abadi Ghadim. 2003. "The economics of risk, uncertainty, and learning in the adoption of new agricultural technologies: Where are we on the learning curve?" *Agricultural Systems*, 75: 215-234.
24. Marra, Michele C., Julian M. Alston, and Philip G. Pardey. 2002. "The payoff to transgenic field crops: A review of the evidence." *AgBioForum*, 5(2): 43-50.
23. J. Mueller, M. Barbercheck, M. Bell, C. Brownie, N. Creamer, A. Hitt, S. Hu, L. King, H. Linker, F. Louws, S. Marlow, M. Marra, C. Raczkowski, D. Susko, and M. Waggener. 2002. "Development and implementation of a long-term agricultural systems study: Challenges and opportunities." *Hort. Technology* 12(3): 362-268.
22. Marra, Michele C., Bryan J. Hubbell, and Gerald A. Carlson. 2001. "Information quality, technology depreciation, and Bt cotton adoption in the Southeast." *Journal of Agricultural and Resource Economics* 26 (1): 158-175.
21. Hubbell, B.J, M.C. Marra, and G.A. Carlson. 2000. "Estimating the demand for a new technology: Bt cotton and pesticide policies." *American Journal of Agricultural Economics*, 82(1) (February): 118-132.
20. Alston, J.M., M.C. Marra, P.N. Pardey, and TJ Wyatt. 2000. "Research returns redux: A meta-analysis of the returns to agricultural R&D." *Australian Journal of Agricultural and Resource Economics*, 44(2): 185-215.
19. Marra, M.C. and P. Kaval. 2000. "The relative profitability of sustainable cropping systems: A meta-analytic comparison." *Journal of Sustainable Agriculture*, 16(4):19-32.
18. Marra, M.C. 1999. "Factors affecting the adoption of transgenic crops: Some evidence from southeastern US cotton farmers". *AgBiotechNet*, CAB International, Wollingford, UK, September.
17. Marra, M.C. 1998. "Sources of and solutions for southern agricultural risk: The view from the coast." *Journal of Agricultural and Applied Economics*, 30(1): 65-67.

16. Gallandt, E., A. Alford, M. Liebman, M. Marra, G. Porter, and J. McBurnie. 1998. "Potato cropping systems: Ecology, agronomy and economics." *Journal of Production Agriculture*, 13(4): 146-161.
15. Carlson, G., M.C. Marra, and Brian Hubbell. 1997. "Transgenic technology for crop protection: The new super seeds." *Choices*, 3rd Quarter: 31-36.
14. Yarborough, D.E. and M. C. Marra. 1997. "Economic thresholds for weeds in wild blueberry fields." *Acta Horticulturae*, 446:293-301.
13. Marra, M.C. and B. Schurle. 1994. "Wheat yield risk and aggregation: A meta-analysis approach." *Journal of Agricultural and Resource Economics*, 19(1): 69-77.
12. Liebman, M., R.J. Rowe, S. Corson, M.C. Marra, C.W. Honeycutt, and B. Sutch. 1993. "Agronomic and economic performance of low input dry beans in Maine." *Journal of Production Agriculture*, 6(3): 369-78.
11. Carlson, G.A., M. Cochran, M.C. Marra, and D. Zilberman. 1992. "Agricultural resource economics and the environment." *Review of Agricultural Economics*, 14(2): 313-26.
10. Cheng, H.T., M.C. Marra, and J.D. Leiby. 1992. "Commodity program flexibility and U.S. potato acreage." *American Potato Journal*, 69: 677-90.
9. Hoelper, A.L and M.C. Marra. 1991. "Quality changes and limited marketing season effects on the demand for fresh blueberries." *Northeastern Journal of Agricultural and Resource Economics*, 20(1): 174-80.
8. Cheng, H.T., J.D. Leiby and M.C. Marra. 1991. "Spatial and temporal linkages in potato markets." *Journal of Food Distribution Research*, June,: 11-17.
7. Woods, T.A., M.C. Marra and J.D. Leiby. 1990. "Toward a marketing strategy for fresh wild blueberries in the Northeast." *Journal of Food Distribution Research*, June, 53-62.
6. Marra, M.C., and G.A. Carlson. 1990. "The decision to double crop: An application of expected utility theory using Stein's theorem." *American Journal of Agricultural Economics* 72(2): 337-345.
5. Marra, M.C., Thomas D. Gould and Gregory A. Porter. 1989. "A computable economic threshold model for weeds in field crops with multiple pests, quality effects and an uncertain spraying period length." *Northeastern Journal of Agricultural and Resource Economics*, 18(1): 12-17.

4. Marra, M.C. and Gerald A. Carlson. 1987. "The relationship between farm size and technology adoption: Some empirical evidence on the role of risk." *Western Journal of Agricultural Economics*, 12(2): 109-18.
3. Marra, M.C., S.M. Goltz, A.S. Kezis, W.E. Hedstrom, and R.D. Hews. 1987. "The economic implications of potato response to irrigation: Results from 1985 Field Tests in Maine." *American Potato Journal*, 64: 249-60.
2. Marra, M.C. 1985. "Is it wrong to fluctuate?: Policy uses of risk management, Discussion." *Northeastern Journal of Agricultural and Resource Economics*, 14(2): 120-21.
1. Marra, Michele C. and Gerald A. Carlson. 1983. "An economic threshold model for weeds in soybeans." *Journal of Weed Science*, 31: 604-609.

Books, Monographs, and Book Chapters

21. Ervin, D., Y. Carriere, W. Cox, J. Fernandez-Cornejo, R. Jussaume, M. Marra, M. Owen, P. Raven, L. Wolfenbarger, D. Zilberman. 2010. *The Impacts of Genetically Engineered Crops on Farm Sustainability in the United States*. Washington, DC: The National Academies Press. Senior authorship not assigned.
20. Marra, M.C. and S. Martin. 2007. *Important Innovations in Cotton Production: An Assessment by U.S. Cotton Growers and Other Experts*. NSF Center for Integrated Pest Management, CIPM Tech Bull. 2007-1.
19. Marra, M.C. and N.E. Piggott. 2008. The Value of Non-Pecuniary Characteristics of Crop Biotechnologies: A New Look at the Evidence, Chapter 8 in Just, Alston, and Zilberman, eds *Regulating Agricultural Biotechnology: Economics and Policy*, Springer-Verlag Publishers, New York, pp.145-178.
18. Marra, M.C. 2001. The Farm Level Impacts of Transgenic Crops: A Critical Review of the Evidence. Chapter 8 in *The Future of Food: Agricultural Biotechnology: Markets and Policies in an International Setting*, P.Pardey, Ed. Baltimore: Johns Hopkins Press and International Food Policy Research Institute, pp. 155-184.
17. Marra, M.C. and G.A. Carlson. 2001. Agricultural Technology and Risk, Chapter 15 in Richard Just and Rulon Pope (Eds.), *The Role of Risk in Agriculture*, Norwell, MA: Kluwer Academic Publishers, pp. 325-353.

16. Carlson, G. and M.C. Marra. 2000. Property Rights and Regulations for Transgenic Crops in North America, Chapter 13 in *Agriculture and Intellectual Property Rights: Economic, Institutional and Implementation Issues in Biotechnology*, ed. V. Santaniello, R.E. Evenson, D. Zilberman and G. Carlson, New York: CABI Publishing, 209-222.
15. Alston, J.M., Chan-Kang, C., M.C. Marra, P.G. Pardey, and TJ Wyatt. 2000. *A Meta-Analysis of the Rates of Return to Agricultural R&D: Ex Pede Herculem?*, IFPRI Research Report Number 113, International Food Policy Research Institute, Washington DC.
14. Marra, M.C., Editor. 1996. *The Ecology, Economics, and Management of Potato Cropping Systems: A Report of the First Four Years of the Maine Potato Ecosystem Project*, Maine Agricultural and Forest Experiment Station Publication 843, University of Maine, Orono, ME.
13. Marra, M.C., 1996. "Introduction", Ch. I *in The Ecology, Economics, and Management of Potato Cropping Systems: A Report of the First Four Years of the Maine Potato Ecosystem Project*, Maine Agricultural and Forest Experiment Station Publication 843, University of Maine, Orono, ME.
12. Marra, M.C., 1996. "Economic Results", Ch. VI *in The Ecology, Economics, and Management of Potato Cropping Systems: A Report of the First Four Years of the Maine Potato Ecosystem Project*, Maine Agricultural and Forest Experiment Station Publication 843, University of Maine, Orono, ME.
11. Drummond, F.A., Matt Liebman, and M.C. Marra, 1996. "Ecological Interactions", Ch. VII *in The Ecology, Economics, and Management of Potato Cropping Systems: A Report of the First Four Years of the Maine Potato Ecosystem Project*, Maine Agricultural and Forest Experiment Station Publication 843, University of Maine, Orono, ME.
10. A. Randall Alford and M.C. Marra, 1996. "The Future", Ch. VIII *in The Ecology, Economics, and Management of Potato Cropping Systems: A Report of the First Four Years of the Maine Potato Ecosystem Project*, Maine Agricultural and Forest Experiment Station Publication 843, University of Maine, Orono, ME
9. Zilberman, David, Michael Wetzstein and M.C. Marra. 1993. "Renewable and Nonrenewable Resources". Chapter 3 in *Agricultural and Environmental Resource Economics*, ed. G.A. Carlson, D. Zilberman and J. Miranowski, Oxford University Press, New York, 69-141.
8. Zilberman, David and M.C. Marra. 1993. "Agricultural Externalities". Chapter 6 in *Agricultural and Environmental Resource Economics*, ed. G.A. Carlson, D. Zilberman and J. Miranowski, Oxford University Press, New York, 221-267.

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7. Leiby, J.D. and M.C. Marra. 1993. Cranberry Industry Overview and Background. Chapter 1 in *Cranberry Agriculture in Maine: A Grower's Guide*, ed. J.D. Leiby, MDAFRR, Augusta, ME.
6. Marra, M.C., T.A. Woods, and J.D. Leiby. 1993. "Marketing Maine Cranberries", Chapter 2 in *Cranberry Agriculture in Maine: A Grower's Guide*, ed. J.D. Leiby, MDAFRR, Augusta, ME.
5. Marra, M.C. (ed.) 1993. Quantifying Long Run Agricultural Risks and Evaluating Farmer Responses to Risk, Seminar Proc. Issue, UM, June, 1993.
4. Smith, Stewart N. and M.C. Marra. 1993. "Values and Community: The Promise of Sustainable Agriculture and the Role of Government" *in* *Toward a More Sustainable Maine*, Muskie Institute for Public Policy, USM, Portland, ME., 235-254.
3. Leiby, J.D. and M.C. Marra. "Cranberry Industry Overview and Background" *In* *Cranberry Agriculture in Maine: Opportunities and Challenges*. Maine Cranberry Dev. Comm., U.S. Dept. of Comm., Econ. Dev. A., 1990, 1-8.
2. Marra, M.C., T. Woods and J.D. Leiby. "Marketing Maine Cranberries". *In* *Cranberry Agriculture in Maine: Opportunities and Challenges*. Maine Cranberry Dev. Comm., U.S. Dept. of Comm., Econ. Dev. A., 1990, 8-15.
1. Leiby, J.D. and M.C. Marra. "The Costs of Growing Cranberries in Maine" *In* *Cranberry Agriculture in Maine: Opportunities and Challenges*. Maine Cranberry Dev. Comm., U.S. Dept. of Comm., Econ. Dev. A., 1990, 16-35.

USDA, Experiment Station, and Extension Publications

Mooney, D. F., R. K. Roberts, B. C. English, D. M. Lambert, J. A. Larson, M. Velandia, S. L. Larkin, M. C. Marra, S. W. Martin, A. Mishra, K. W. Paxton, R. Rejesus, E. Segarra, C. Wang and J. M. Reeves. 2010. Precision Farming by Cotton Producers in Twelve Southern States: Results from the 2009 Southern Cotton Precision Farming Survey. Research Report 10-02. Department of Agricultural and Resource Economics, The University of Tennessee, Knoxville.

Piggott, N.E. and M.C. Marra. 2008. Developing an Outlook Talk: Lessons in Supply and Demand. http://www.ag-econ.ncsu.edu/faculty/piggott/outlook_talk.html

Rodney L. Clouser, Nathan B. Smith, Michele C. Marra, and James L. Novak, 2007. Farm Bill Survey: Characteristics of Southern Producers, University of Florida Extension Bulletin FE 686.

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Roberts, R.K., B.C. English, J.A. Larson, R.L. Cochran, W.R. Goodman, S.L. Larkin, M.C. Marra, S.W. Martin, W.D. Shurley, and J. Reeves. "Cotton Precision Farming Technology Adoption as Influenced by Farm Attributes and Farmer Characteristics and Perceptions." Tennessee Agricultural Experiment Station, Department of Agricultural Economics, Staff Paper No. SP 01-03 (R11-1216-044-001-04), 2003.

Wu, Ellen and M.C. Marra. 2002. North Carolina Cotton Farmers' Precision Farming Perceptions and Practices. North Carolina Agricultural Research Service Technical Bulletin 216, September, 60 p.

Roberts, R.K., B.C. English, J.A. Larson, R. L. Cochran, R. Goodman, S. Larkin, M. Marra, S. Martin, J. Reeves, and D. Shurley, 2002. Precision Farming by Cotton Producers in Six Southern States: Results from the 2001 Southern Precision Farming Survey, Department of Agricultural Economics, Knoxville, TN., Research Series 03-02, March.

Feitshans, Ted, M.C. Marra, Pamela Kaval and Brandon King (eds.) 1999. Swine Farm Zoning Notebook, Vols. 1 and 2. NCSU Dept. of Agricultural and Resource Economics miscellaneous publication.

Marra, M.C. 1998. The 1996 Farm Bill and North Carolina Farmers: The Conservation Provisions. AG 578. NC Cooperative Extension Service, 5pp.

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Marra, M.C., J.M. Alston, J. Hyde, and P. Mitchell, 2003. "An Ex-Ante Assessment of a New Agricultural Biotechnology: YieldGard Rootworm. Australian Agricultural Economics Society Annual Meeting, Fremantle, Australia, February 12.

Marra, M.C. "The 2002 Farm Bill: What to Do About It," January 13, 2003, Perquimans Co., NC, January 23, 2003, Greenville, NC, and January 24, Greensboro, NC.

Roberts, R, English, B., Larson, J., Cochran, R., Goodman, R, Larkin, S. Marra, M., Martin, S, Reeves, J, and Shurley, D. "Factors Affecting Use of Precision Soil Sampling and Variable Rate Lime Application", Beltwide Cotton Conferences, Nashville, TN, January 9, 2002.

Marra, M.C. "The 2002 Farm Bill: And Still the Saga Continues," In-Service Training Workshop presented September 19, 2002, Greensboro, N.C. and September 20, 2002, Greenville, NC.

Marra, M.C. "The 2002 Farm Bill: and Still the Saga Continues," Presentation to the Philip Morris Leadership Group, Summer, 2002.

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Marra, M.C. "The Devil in the Details of Farm Level Impact Evidence." Invited presentation at the Workshop on Biotechnology for Horticultural Crops: Challenges and Opportunities, Sponsored by the University of California Agricultural Issues Center, Monterey, CA, March 7-9, 2002.

Marra, M.C. "2002 Farm Policy Update." Presented to the Guilford County Farmers' Association meeting, Greensboro, NC, Feb, 2002.

Marra, M.C. "The Value of Information in Agricultural Risk Management - Farm Policy." Presentation at regional in-service training workshop, Greenville, NC, Jan. 2002.

Marra, M.C. "The 2002 Farm Bill: The Saga Continues." Presentation at multi-county growers' meeting, Siler City, NC, Jan. 2002.

Marra, M.C., R.K. Roberts, B.C. English, J.A. Larson, R. Goodman, S. Larkin, S. Martin, W.D. Shurley, and R.L. Cochran. "Southeastern Cotton Farmers' Willingness to Pay for Yield Monitors with GIS." Symposium presentation at the Southern Agricultural Economics Association meetings, Orlando, FL, Feb. 3-6, 2002.

Wu, Ellen and M.C. Marra. "North Carolina Cotton Farmers' Precision Farming Practices and Perceptions." Poster Presentation at the Beltwide Cotton Conferences, Atlanta, GA, Jan. 10-12, 2002.

Graybow, G. and Michele C. Marra. "The Economics of Sub-Surface Irrigation in NC Corn." Poster presentation at the Small Grain Growers' Conference, Raleigh, NC. January, 2002.

Roberts, R.K., B.C. English, J.A. Larson, R. Goodman, S. Larkin, M. Marra, S. Martin, W.D. Shurley, and R.L. Cochran. "A Six-State Survey of Cotton Precision Farming Practices and Perceptions." Presented at the Annual S-283 Meeting, Raleigh, NC, December 3-4, 2001.

Marra, Michele C. "Technology Adoption and Risk: A Review." SRIEG 70 Annual meeting, Gulf Shores, Alabama, March, 2001.

Marra, Michele C. "The Farm Level Impacts of Transgenic Crops: A Critical Review of the Evidence to Date." Pre-Conference Workshop presentation at the annual meeting of the Australian Agricultural and Resource Economics Association, Adelaide, AU, January, 2001.

Marra, Michele C. "Risk Management for NC Strawberry Growers," NC Strawberry Growers' EXPO, McKimmon Center, Raleigh, NC, November, 2000.

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Marra, Michele C. "Ag Policy Update." Multi-county wheat growers' meeting, eastern North Carolina, September, 2000.

Marra, Michele C. "The Economics of Economic Thresholds," Invited symposium presentation at the Organization of Nematologists of Tropical America annual meeting, Auburn, AL, April, 2000.

Marra, Michele C. "The Biotechnology Revolution: What It has Meant to Agricultural Economists." Symposium presentation at the AAEA annual meeting, Nashville, TN, August, 1999.

Marra, Michele C. "Employment and the Role of Agricultural Economists in the Private Sector", Symposium organizer and moderator, AAEA annual meeting, Nashville, TN, August, 1999.

Marra, Michele C. Prepared materials for, helped in the planning, and helped to conduct Horticultural Risk Management Education Workshops in the Northeast Region (Maine - North Carolina). These workshops were held at Batavia, NY, Springfield, MA, Lancaster, PA, and Richmond, VA, June, 1999.

Marra, M.C. "Bt Cotton Adoption and Insecticide Policies," Presented at the ICABR Conference - The Shape of the Coming Agricultural biotechnology Transformation: Strategic Investment and Policy Approaches from an Economic Perspective, Rome, Italy, June, 1999.

Marra, M.C. "Comparing the Profitability of Organic and Conventional Systems: Long-term Trials and Other Methodologies," invited presentation, at a conference, The Economics of Organic Farming: What Can the Long-term Cropping Systems Tell Us?, Washington, DC, April, 1999.

Marra, M.C., B.J. Hubbell and G.A. Carlson. "Information Quality and Technology Adoption: The Case of Bt Cotton Adoption in the Southeast," presented at the annual meeting of SRIEG 70, Gulf Shores, AL, March, 1999.

Carlson, G.A. and M.C. Marra. "Policy Implications of Bt Cotton Demand," presented at the annual meeting of the Western Regional Project on the Economics of Agricultural Research and Investment, Phoenix, AZ, February, 1999.

Marra, Michele C. NCSU Master Farm Management Workshop - presented a session on risk management, Raleigh, NC, February, 1999.

Marra, Michele C. Risk Management Education: Planned, organized, prepared materials for and conducted four regional agricultural risk management education workshops for field faculty, crop

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insurance agents, other third party influencers. The NC workshops were held at Plymouth, Fayetteville, Greensboro and Fletcher in January/February, 1999.

Marra, Michele C. North Carolina Small Grain Growers Meeting - organized, partially presented and moderated a session, "Policy Changes Affecting Small Grain Growers in NC." Research Triangle, NC, January, 1999.

Alston, J.M., M.C. Marra, P. Pardey and TJ Wyatt. "A Meta-analysis of the Returns to Agricultural Research," presented at the annual meeting of the Australian Association of Agricultural Economists, Melbourne, Australia, January, 1999.

McNew, Kevin and M.C. Marra. "Managing Risk in Grains and Cotton." Presented at the Mid-Atlantic Risk Management Education Conference, Williamsburg, VA, August, 1998.

Wefering, F.M., M.C. Marra, and L.E. Danielson. "Using the AMOEBA Approach to Measure Progress Toward Ecosystem Sustainability." Presented at the International INDEX Workshop on Environmental Indicators and Indices. Gross-Soelk, Austria, July, 1998.

Marra, M.C. and Tomislav Vukina. "The Conservation Benefit-Cost Trade-off in the Conservation Reserve Program." Presented at the World Congress of Environmental and Resource Economists, Venice, Italy, June, 1998.

Carlson, G.A. and M.C. Marra. "Property Rights and Regulations for Transgenic Crops in North America." Presented at Agricultural Biotechnology Conference, Universita' degli Studi di Rome, June, 1998.

Carlson, G.A., M.C. Marra and B.J. Hubbell. "Property Rights Issues with Transgenic Crops," Conference on Intellectual Property Rights, Mexico City, April, 1998.

Marra, M.C. "Partial Budgeting: A Tool for Evaluating Changes in Farm Enterprises." Invited presentation at the workshop, "Cover Crops: Making Them Work For You," Easton, MD, March, 1998.

Marra, M.C. "Sources of and Solutions for Southern Agricultural Risk: The View from the Coast." Invited paper presentation at the Southern Agricultural Economics Association annual meeting, Little Rock, AR, February, 1998.

Marra, M.C. "What We Know and What We Suspect about the Economics of Precision Farming." Organized symposium presentation at the Southern Agricultural Economics Association annual meeting, Little Rock, AR, February, 1998.

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Marra, M.C., Bryan Hubbell, and G.A. Carlson. "Combining Contingent and Actual Data in Evaluating Adoption of Bt Cotton in the Southeast." Selected paper presentation at the Southern Agricultural Economics Association annual meeting, Little Rock, AR , February, 1998.

Marra, M.C., G.A. Carlson, and Bryan Hubbell. "Yield, Pesticide Use Changes and Profit from Bt Cotton Adoption." Selected paper presentation at the Beltwide Cotton Conference, San Diego, CA, January, 1998.

Marra, M.C. and Jake Pasternak. "The Economics of Various Waste Management Technologies." Poster presentation at the NC Conference on the Neuse Basin, New Bern, NC, December, 1997.

Marra, M.C., G.A. Carlson, and Bryan Hubbell. "The Economics of Biotechnology: A National Perspective." Invited panel presentation, 13th International Conference of Agricultural Economists, Sacramento, CA, August, 1997.

Carlson, G.A., M.C. Marra, and Bryan Hubbell. "Economic Implications of the Transgenic Crops." Symposium presentation at the American Agricultural Economics Association annual meeting, Toronto, Canada, July, 1997.

Marra, M.C., Frank Drummond and J. Mena-Covarrubias. "Economic Thresholds with Two Life- Stages of Insect Pests." Selected paper presentation, Southern Agricultural Economics Association meeting, Birmingham, AL, February, 1997.

Marra, M.C. "The Farm Bill and Tobacco," Presented at the Philip Morris Leadership Conference, Pinehurst, NC, January, 1997.

Marra, M.C. "The Farm Bill and the Fertilizer Industry," Presentation at the NC Plant Food Society Annual Meeting, Raleigh, NC, January, 1997.

Marra, M.C. "Farming Without a Safety Net: Risky Business," Presentation given to Wayne Co. Cotton Growers meeting, March, 1997 and to members of SMP14 Risk Management/Planning Committee, May, 1997.

Marra, M.C. "The 1996 Farm Bill," Presented at the Philip Morris Leadership Conference, Raleigh, NC, December, 1996.

Marra, M.C. "The Farm Bill, conservation Provisions and Water Quality," Presented at the NC IPM Consortium meeting, Raleigh, NC December, 1996.

Marra, M.C. "The Conservation Provisions of the Farm Bill: Implications for Managing Growth in the Piedmont," Siler City, NC, September, 1996.

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Marra, M.C. "Disaster Recovery and Preparedness," Presented at several county grower meetings, Fall, 1996.

Yarborough, D. and M.C. Marra. "Economic Thresholds for Weeds in Wild Blueberry Fields." Presentation at the 1996 International *Vaccinium* Congress, Montreal, Canada, August, 1996.

Marra, M.C. "The Economics of Natural Resource Policymaking." Natural Resources Leadership Institute, Raleigh, NC July, 1996.

Marra, M.C. "Farm Bill information flows." Presentation to a group of Danish agricultural professionals, Raleigh, NC, June, 1996.

Marra, M.C. "Financial risk and sources and levels of risk with the new Farm Bill." Presentation to a group of agricultural bankers, Four Oaks, NC, June, 1996.

Marra, M.C. and Kelly Zering. "Finding the "Best of the Best" in BMP's: The Economists Viewpoint". Poster presentation at Solutions: A Technical Conference on Water Quality, Raleigh, NC, March, 1996.

Marra, M.C. and G.A. Carlson. "The Economics of Crop Protection: IPM and Transgenic Crops." Selected paper presentation at the 3rd National IPM Symposium, Washington, DC, February 29, 1996.

Marra, M.C. "The Role of Incentives in the Success of IPM Implementation Projects." Selected poster presentation at the 3rd National IPM Symposium, Washington, DC, February 29, 1996.

Marra, M.C. "The 1995(6) Farm Bill - Business As Usual or Brave New World?" In-service training for area farm management and county crops agents, October, 1995: Raleigh, NC.

Marra, M.C., Barry Goodwin and William Foose. "The Crop Insurance Reform Act of 1994." In-service training for area farm management and county crops agents, February, 1995: Statesville, NC; Fletcher, NC; Greenville, NC; and Fayetteville, NC. Also presented at grower meetings in Carteret Co. and Currituck Co.

Porter, G.A., M.C. Marra, and J.A. Sisson. "Refinement of an economic threshold model for postemergence herbicide applications in potato." Presented at the annual meeting of the American Society of Agronomy, Seattle, WA, November 1994.

Marra, M.C. "Yield Risk Measurement and Aggregation." Presented at North Carolina State University, Raleigh, NC, April, 1994.

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Smith, Stewart N. and M.C. Marra. "Toward a More Sustainable Agriculture: The Role of Public Institutions." Presented at a seminar, Toward a More Sustainable Maine, Bowdoin College, Brunswick, ME, March, 1993

Leiby, J.D. and M.C. Marra. "Albania: An Economy in Transition." Presented at the ARE Seminar Series, January, 1993.

Marra, M.C. "Measuring Farm Level Risk Using Meta-Analysis." Presented at the ARE Seminar Series, October, 1992.

Marra, M.C. and B. Schurle. "Wheat yield risk measurement: A meta-analysis approach." Invited presentation at the annual meeting of the Western Agricultural Economics Association, Colorado Springs, CO, July, 1992.

Marra, M.C. and T.D. Gould. "Looking at the last dollar spent for profitable weed control," Selected paper presented at the annual meetings of the American Agricultural Economics Association and the Soil and Water Conservation Society of America, Baltimore, MD. August, 1992.

Marra, M.C. and B. Schurle. "Wheat yield risk measures and aggregation: A meta-analysis approach." Presented at the S-232 annual meeting, Orlando FL, March, 1992.

Porter, G.A., M.C. Marra, and J.A. Sisson. "Barley response to nitrogen, fungicide and pgr applications in Maine," Poster presented at the Annual Meeting of the American Society of Agronomy, Denver, CO. November, 1991.

Marra, M.C. and B. Schurle. "What rabbits are we hunting in the yield variability dataset?" Presented at the S-232 Annual Meeting, San Antonio, TX. February, 1991.

Marra, M.C. "Will supplemental irrigation pay for Maine potatoes?" Paper presented at the annual Extension Potato Workers' Conference, Presque Isle ME, January, 1991.

Marra, M.C. A panel discussion on irrigation water availability in Aroostook County. Convened and moderated at the annual Extension Potato Workers' Conference, Presque Isle ME, January, 1991.

Marra, M.C., J.D. Leiby and H.T. Cheng. " Spatial and temporal linkages in potato markets." Presented at the annual meeting of the Food Distribution Research Society, College Park, MD, October, 1990.

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Hoelper, A., and M.C. Marra. "Quality changes and limited marketing season effects on the demand for fresh blueberries." Paper presented at the annual meeting of the American Agricultural Economics Association. Vancouver, B.C., August, 1990.

Leiby, J.D. and M.C. Marra. "The profitability of cranberry production in Maine." Paper presented at the annual meeting of the Northeastern Agricultural and Resource Economics Association, Truro, N.S. June, 1990.

Leiby, J.D., H.T. Cheng and M.C. Marra. "Farm program flexibility effects on the U.S. potato industry." Paper presented at the annual meeting of the Northeastern Agricultural and Resource Economics Association, Truro, N.S. June, 1990.

Marra, M.C. "The profitability of mechanical blueberry harvesters." Paper presented at the annual meeting of the Wild Blueberry Association of North America. Augusta, ME., January, 1990.

Woods, T.A., Michele C. Marra and James D. Leiby. "Toward a Cooperative Marketing Strategy for Fresh Wild Blueberries," presented at the annual meeting of the Food Distribution Research Society, Albuquerque, NM, November, 1989.

Marra, M.C. "The trade-offs in achieving higher water quality." Presented at the UMCE conference, Bangor, ME, October, 1989.

Marra, Michele C. "Measuring Risk Attitudes from Real Economic Decisions," presented at the Graduate School of Business, University of Chicago, November, 1989.

Marra, Michele C. "Using Stein's Theorem to Measure Risk Attitudes," presented at the ARE Seminar Series, October, 1989.

Marra, Michele C. and Katherine Reichelderfer. "Public Choices of Production Technologies which Deal with Non-embodied Agricultural Externalities," Symposium paper presented at the annual meeting of the American Agricultural Economic Association, Baton Rouge, LA, August, 1989.

Marra, M.C. "The relative profitability of blueberry harvesters." Presented at the annual Lowbush Blueberry Workers Conference, Augusta ME, April, 1989.

Marra, M.C. "The 1988 irrigation study results - What do we know so far?" Presented at the Agriculture Seminar Series, SCS, Houlton, ME, March, 1989.

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Marra, Michele C., Thomas D. Gould and Gregory A. Porter. "A Computable Economic Threshold Model for Weeds in Field Crops with Multiple Pests, Quality Effects and an Uncertain Spraying Period Length." Paper presented at the annual meeting of the American Agricultural Economics Association, Knoxville, TN, August, 1988.

Marra, Michele C., Thomas D. Gould and Gregory A. Porter. "Post Emergence Herbicide Decisions for Round White Potatoes." Paper presented at the annual meeting of the Northeast Agricultural and Resource Economics Association, Orono, Maine, June, 1988.

Marra, M.C. and G.A. Porter. "Economic Threshold Research for Weeds in Soybeans and Potatoes." UM/Entomology Department Seminar Series presentation, Orono, ME, April, 1987.

Marra, Michele C. "The Future Profitability of Wolfe's Neck Farm." Paper presented at the Agricultural and Resource Economics Seminar Series, University of Maine, October, 1985.

Marra, Michele C. and Gerald A. Carlson. "The Relationship Between Farm Size and Technology Adoption: Some Preliminary Results." Presented at the annual meeting of Northeastern Association of Agricultural and Resource Economics, Amherst, Mass., June, 1985.

Marra, Michele C. "Is it Wrong to Fluctuate?: Policy Uses of Risk Management," Presented at the annual meeting of Northeastern Association of Agricultural and Resource Economics, Amherst, Mass., June, 1985.

Marra, Michele C. and Gerald A. Carlson. "Examining Double Cropping with Utility Theory." Presented at the annual meeting of the American Association of Agricultural Economics, Cornell University, Ithaca, NY., August, 1984.

Marra, Michele C. "An Economic Threshold Model for Soybean Weed Management," Presentation to the North Carolina Soybean Growers' School, Raleigh, NC, July, 1984.

Marra, Michele C. and Wade C. Reece. "An Economic Evaluation of the Pattison Proposal to Reduce Cigarette Bootlegging." Undergraduate Selected Paper, AAEA Meetings, Virginia Polytechnic Institute and State University, Blacksburg, VA. August, 1979.

GRADUATE STUDENT ADVISING

Major professor for dissertation that won the Nancy Pollock Award for the dissertation that most benefits the people of North Carolina, College of Management, 2005.

Graduate student advisory committees chaired or co-chaired: 14

Graduate student advisory committee membership: 26.

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Departmental Graduate Coordinator, University of Maine: 1986-1992

Recent Ph.D. students, committee chair:

Olga Sydorovych, Post Doc, NCSU-ARE, Nancy Pollock Award Winner, Ph.D. 2006

Clifford Mensah, Associate Professor, Pembroke State University, Ph.D. 2005

Bailey Norwood, Professor, Oklahoma State University, Ph.D. 2003

Served as an outside doctoral committee member for two graduate students at the University of Western Australia, one graduate student at the Waikaido University, New Zealand and one graduate student at Melbourne University, Melbourne, Australia.

INTERNATIONAL EXPERIENCE

1992 - Taught Principles of Farm and Risk Management and consulted on curriculum development with the Faculty of Agricultural Economics at the Agriculture University of Tirana, Tirana, Albania, through Volunteers in Overseas Cooperative Assistance.

1999 - Presented a paper at the International Consortium for Research in Agricultural Biotechnology Conference, Rome, Italy.

2000 - Presented a paper at the International Consortium for Agricultural Biotechnology Research Annual Conference, Ravello, Italy.

2001 - Presented a paper at the Australian Agricultural Economics Society annual meeting in Adelaide, Australia.

2003 - Presented a paper at the Australian Agricultural Economics Society annual meeting in Fremantle, Australia.

2004 – Presented papers at the Australian Agricultural Economics Society annual meeting in Melbourne, Australia.

2004 – Presented a paper at the International Consortium for Agricultural Biotechnology Research Annual Conference, Ravello, Italy.

2006 – Presented a contributed paper at the International Association of Agricultural Economists triennial conference, Brisbane, Australia.

EXTERNAL FUNDING

Principal Investigator, Economics of Grain Sorghum Production in the Mid-Atlantic States, Murphy Brown, 2012-2014, \$46,000.

Cooperator, Fusarium Head Blight adoption project, 2013-2014, U.S. Environmental Protection Agency, \$23,000

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Cooperator, Economics of Cockroach Control in Public housing Projects, National Science Foundation, 2013-2015, \$13,000.

Principal Investigator, Bayer CropScience and Ducks Unlimited, Economics of wheat cropping systems in the Prarie Pothole region, 2011-2014, \$146,000.

Monsanto Company, Corn yield response to price, 2011-2012, \$60,000.

Principal Investigator, Cotton, Inc. “2009 Survey of Cotton Farmers”, 2009, \$5,000.

Monsanto Company, 2008, General Support of Research, \$7,500.

Principal Investigator, Cotton, Inc., “Disadoption of Cotton Precision Farming Technologies”, 2008, \$18,000.

Principal Investigator, Cotton Inc., “Further Analysis of Risk Perceptions in the Precision Farming Survey Data,” 2007, \$11,500

Principal Investigator, Southern Region Risk Management Education Center. “A Manual for Preparation of an Outlook Presentation-Year 2.” 2006-2007, \$16,677.

Principal Investigator, Cotton, Inc., “Precision Farming Working Group – North Carolina” 2006-2007, \$12,500.

Principal Investigator, Cotton Inc., “Precision Farming Working Group – North Carolina.” 2005-2006, \$8,000.

Principal Investigator, Southern Region Risk Management Education Center. “A Manual for Preparation of an Outlook Presentation.” 2005-2006, \$40,000.

Co-Investigator, Southern Region Risk Management Education Center. “Helping Ag Agents and Farmers Understand the Effects of Using Multiple Risk Management Tools.” 2004-2005. \$29,960.

Principal Investigator, Farm Foundation. “Interdisciplinary Seminar on Crop Biotechnology at the SAEA Annual Meeting, Tulsa, OK.” 2004, \$3,500.

Co-Investigator, NSF Center for Integrated Pest Management: Estimation of Convenience Value and Other Factors Associated with "Flex Cotton" in the United States: An Ex Ante Approach. 2002-2004, \$62,500.

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Co-Investigator, Southern Region Risk Management Center, USDA: Where the Rubber Hits the Road: Opportunities for County Agent Education. 2002-2003, \$20,000.

Co-Investigator, NC Biotechnology Center: Understanding the Economic Impact of Herbicide Tolerant Crop Technology on North Carolina Farmers, 2002-2003, \$84,907.

Co-Investigator, Center for Integrated Pest Management: The Role of Convenience in the Adoption of Roundup Ready Soybeans, 2002-2003, \$50,000.

Principal investigator, Cotton, Inc.: Precision Farming Adoption by Cotton Farmers - North Carolina, 1999-2001, \$6,000.

Co-investigator, Center for Integrated Pest Management: Farm Level Impacts of Transgenic Crops, 2000-2001, \$30,000.

Co-investigator, USDA/CSREES: A Tool for Evaluating Pricing and Crop Insurance Strategies for the Southeast, 2000-2001, \$84,000.

Principal investigator, IFPRI: A Critical Evaluation of the Evidence on the Farm Level Impact of Crop Biotechnologies, 2000-2001, \$15,000.

Co-investigator, USDA/CSREES: A Tool for Evaluating Pricing and Crop Insurance Strategies for the Southeast, 1999-2000, \$68,000.

Co-investigator, USDA/NRI: Strategies for Transition to Organic Systems: Ecological and Economic Indices, 1999-2003, \$311,000.

Co-investigator, North Carolina Agricultural Research Service: Seed Grant for Development of Crop Risk: A Risk Management Tool, 1999, \$21,333.

USDA/RMA. Risk Management Education Grant, 1999-2000, \$10,000.

Co-investigator, USDA/Southern Region SARE: A Model for Long-term, Large-scale Systems Research Directed Toward Agricultural Sustainability, 1998-2000, \$575,000.

NCSU Cooperative Extension Administration: Farm Bill Fact Sheets, 1998, \$700.

Principal Investigator, USDA/ARS, Florence, SC: Preliminary Economic Analysis of Precision Agriculture in the Eastern Coastal Plain, 1997-2000, \$39,400.

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Co-investigator, USDA/SRPIAP: The Economics of Transgenic Crops in the Southeast, 1996-1998, \$45,000.

Co-investigator, USDA/NRI: Effect of Vegetable Production Systems on Pest Populations and Soil Environmental Factors, 1996-1998, \$125,000.

NCSU Cooperative Extension, Office of Agriculture and Natural Resources, Farm Bill Extension Notebooks for County Offices, 1996, \$1,200.

Extension Administration (IPM Advisory Committee), IPM Adoption in North Carolina: A Proposal for Preliminary Work, \$9,200.

Principal Investigator, USDA/ ARS, Florence, SC, Cooperative Agreement Proposal: The Economics of Water Quality Improvement Techniques and Technologies in the Harrings Marsh Run Watershed, 1996-98, \$45,000.

Principal Investigator, USDA (sub-contract through Clemson University), NC In-service Training on the Crop Insurance Reform Act. 1995-97, \$10,200.

Sub-contractor, SARE-ACE grant, Improving Pollination for the Northeast: On-farm Testing, Demonstration and Management of the Alfalfa Leafcutting Bee, 1994-97, \$107,123.

Co-Investigator, CSRS Special Grant, Potato Cropping Systems Study, 1994-95, \$228,000.

Principal Investigator, Maine Blueberry Commission, Economic Comparisons of New Harvester Technologies, 1994-95, \$18,500.

Co-Investigator, USDA, SARE, Ecological Potato Management. 1993-96, \$150,000.

Co-Investigator, U.S. Department of Defense, Army Corps of Engineers, Analysis of the Potential for Supplemental Irrigation in Aroostook County, Maine. 1993-94, \$258,000.

Co-Investigator, Maine Blueberry Commission, Irrigation Decision Model. 1992-1994, \$6,000.

Co-Investigator, U.S. Department of Defense, Army Corps of Engineers, Analysis of the Potential for Supplemental Irrigation in Aroostook County, Maine. 1992-93, \$233,197.

Principal Investigator, U.S. Department of Agriculture, Cooperative Agreement, Agricultural Resources Consortium. 1992-1993, \$10,000.

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Principal Investigator, NEPIAP, Refining Economic Loss Functions for Potato Weeds. 1991-1993, \$57,000.

Co-Investigator, CSRS Special Grants for 1992 and 1993, Agroecosystem Study, \$279,000.

Co-Investigator, CSRS Special Grant for Blueberry Research, Blueberry Irrigation. 1992 (2nd year funding), \$12,000.

Principal Investigator, U.S. Department of Agriculture, Cooperative Agreement, Agricultural Resources Consortium. 1990-91, \$10,000.

Co-Investigator, Eastern Maine Development Corp. and the Maine Department of Agriculture, Food and Rural Resources, Study of the Potential for Cranberry Production in Maine. 1989-90, \$6781.

Co-Investigator, Maine Blueberry Commission, The Economics of Blueberry Irrigation. 1990-1991, \$15,000.

Co-Investigator, CSRS Special Grants for 1990 and 1991, Agroecosystem Study. \$393,000.

Principal Investigator, U.S. Department of Agriculture, Cooperative Agreement, Study of Agricultural Resources. 1989-90, \$15,000.

Maine Potato Commission (Board) and the Maine Department of Agriculture, Food and Rural Resources, Study of the Feasibility of Center Pivot Irrigation in Aroostook County, Maine. 1985-90, \$92,400.

Principal Investigator, USDA, Agricultural Cooperative Service Research Agreement and Maine Agricultural Experiment Station, A Study of the Optimal Scale and Timing of Marketing of a Fresh Blueberry Cooperative. 1987-89, \$109,857.

Principal Investigator, Maine Blueberry Commission and Maine Department of Agriculture, Food and Rural Resources, An Economic Comparison of Mechanical and Hand Harvesting Technologies in Wild Blueberries. 1988-89, \$7,500.

Co-Investigator, University Faculty and Instructional Development Grant. Purchase of Economic Threshold Decision Software, HERB. 1989, \$21,000.