

Curriculum Vitae

Personal

First name: Uwe
Last name: Schneider
Birthday: Nov. 17, 1967
Place of Birth: Dippoldiswalde, Germany
Citizenship: German
Marital Status: Married, 2 Sons
Languages: German, English, Spanish
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Research Interests

- Global Forest and Agricultural Sector Modeling
- Environmental and Rural Development Analysis
- Environmental, Agricultural, and Energy Policy Assessment
- Land Use Impacts on Food, Energy, Water, and Wildlife Security
- Global Change Impacts, Mitigation and Adaptation
- Mathematical Programming, Optimization, Integrated Assessment

Biography

Dr. Uwe A. Schneider is an agricultural and resource economist with a strong background in agricultural science. His research interests relate to land use externalities regarding climate, water, soils, and nature reserves; impacts of land scarcity on food, biomass, timber, and species protection potentials; and market and welfare effects of environmental policies related to land use. Uwe has a decade long expertise in mathematical programming with Generalized Algebraic Modelling System (GAMS) and developed, coordinated, and supervised several large-scale optimization models of various scopes in the realm of agriculture, forestry, bioenergy, and fisheries.

Uwe grew up on a farm in a small village in the Eastern Ore Mountains about 20 km south of Dresden. After his high school education and the mandatory military service, he briefly worked for large farm cooperatives in East Germany. He then studied crop husbandry at Humboldt University, Berlin. In 1994, he went to College Station to study plant breeding and genetics at Texas A&M University. However, upon arrival he decided to switch to Agricultural Economics. While pursuing a Master's Degree at TAMU, he began to be interested in integrated forest and agricultural sector analysis. He added a comprehensive greenhouse gas emission module to the US agricultural sector model. The application of the new Agricultural Sector and

Mitigation of Greenhouse Gas (ASMGHG) model to study important policy questions resulted in his dissertation and several follow-up publications. Since 2002, Uwe works at Hamburg University where he teaches courses on mathematical programming, dynamic optimization, agriculture and environment, GAMS, and the European Forest and Agricultural Sector Optimization Model (EUFASOM). He is the principle developer of EUFASOM and most of his current research uses this model or contributes to its development. Uwe was a contributing author to the IPCC's fourth assessment report. He serves as regular reviewer for a wide variety of academic journals and research grant proposals and he is actively engaged in two International Max-Planck Research Schools.

Higher Education

Ph.D. in Agricultural Economics (2000)

Department of Agricultural Economics

Texas A&M University, College Station, TX

Specializations: resource economics, mitigation of climate change

Dissertation Title: "Agricultural Sector Analysis on Greenhouse Gas Emission Mitigation in the U.S."

Advisors: Dr. Bruce A. McCarl (Chair), Dr. James M. Mjelde, Dr. Ronald C. Griffin, Dr. Thomas W. Boutton

Graduate Diploma (~ M.S.) in Soil and Crop Science (1996)

Faculty of Horticultural and Agricultural Science

Humboldt University, Berlin, Germany

Advisor: Prof. Dr. sc. Frank Pohlheim

Diploma thesis title: "Quantitative analysis of intra-individual tissue competition at various stages of cell differentiation" German

M.S. in Agricultural Economics (1995)

Department of Agricultural Economics

Texas A&M University, College Station, TX

Advisors: Dr. Bruce A. McCarl (Chair), Dr. Thomas Knight, Dr. Frederick W. Plapp

Project paper title: "Economic Implications of the Boll Weevil Eradication"

Pre-Degree Diploma in Agriculture (1991)

Faculty of Horticultural and Agricultural Science

Humboldt University, Berlin, Germany

Advisor: Dr. Dirk Freese

Project title: "Capacity limits of phosphate absorption in soils" (in German)

Academic Affiliations

Hamburg University

Research Unit Sustainability and Global Change
Departments of Geosciences and Economics
Hamburg, Germany
Research Group Leader (October 2005 - present)
Interim Professor (October 2008 - present)
Acting Director (September 2005 - February 2006, July 2006 - present)
Assistant Professor (October 2002 - September 2008)
International Max Planck Research School for Maritime Affairs
Hamburg, Germany
Member of Board of Directors (February 2006 - present)

International Max-Planck Research School for Earth System Modeling

Hamburg, Germany
Member of Executive Committee (December 2005 - present)
International Institute for Applied Systems Analysis (IIASA)
Forestry Program
Laxenburg, Austria
Research Partner (January 2004 - present)

Iowa State University

Center for Agricultural and Rural Development
Ames, IA, USA
Post Doctoral Research Associate (March 1996 - June 2000)

Texas A&M University

Department of Agricultural Economics
College Station, TX, USA
Research Associate (September 1998 - May 2000)
Research Assistant (September 1997 - August 1998)
Teaching Assistant (September 1996 - August 1997)
Graduate Student (September 1996 - May 2000)

Humboldt University

Faculty of Horticultural and Agricultural Science
Humboldt University, Berlin, Germany
Graduate Student (September 1991 - August 1994, September 1995 - April 1996)
Undergraduate Student (September 1989 - August 1991)

Scientific Publications

In Preparation (substantial work completed)

88. Schneider, U.A. (2009), *Stability of Regional Solutions in Global Optimizations*.
87. Ramos, C.I. and U.A. Schneider (2008), Competitive potential assessments of European agricultural bioenergy options through an integrated modeling approach.
86. Ramos, C.I. and U.A. Schneider (2008), Assessment of European biofuel potentials through an integrated modeling approach.
85. Ramos, C.I. and U.A. Schneider (2008), The competitive economic potential of willow-based heat and electricity in Europe.
84. Schneider, U.A. (2009), *Confidence Intervals on Alternative Solutions of Mathematical Programs*.
83. Winiwarter, W., L. Bouwman, W. de Vries, J. Galloway, J.-P. Hettelingh, A. Hopkins, Z. Klimont, U.A. Schneider, T. Spranger, P. Witzke (2009), *Future scenarios of nitrogen in Europe*, Chapter 22 being prepared for European Nitrogen Assessment.
82. Schneider, U.A., P. Havlík, A.M.I. Kallio, P. Lauri, M. Obersteiner, C.I. Ramos, E. Schmid (2009), *The Impact of Global Trade and Development Scenarios on Bioenergy Potentials from European Agriculture and Forestry*, Abstract accepted for EFORWOOD conference.
81. Lauri, P., A.M.I. Kallio, U.A. Schneider and G. Fiedler (2009), *Battle over forest-based biomass - impact of climate policies on the European forest industries*, Abstract submitted to EFORWOOD conference.
80. Jantke, K. and U.A. Schneider (2009), *Multiple-species conservation planning for European wetlands with different degrees of coordination*.
79. Genova Koleva, N., U.A. Schneider and B.A. McCarl (2009), *Pesticide externalities from the US agricultural sector – The impact of internalization, reduced pesticide application rates, and climate change*.

Submitted to Peer-reviewed Journal

78. Jantke, K. and U.A. Schneider (2009), *Opportunity costs in conservation planning – of the case of European wetland species*, submitted to Conservation Letters.
77. Schönhart, M., E. Schmid, and U.A. Schneider (2009), *Crop Rotation Modeling for Integrated Environmental Assessment using Field and Farm Land Use Data*, submitted to Agricultural Systems.
76. Lychnaras, V. and U.A. Schneider (2009), *Multi-farm or Regional Economic Analysis of Perennial Energy Crops, Taking into Account CAP Reform. A case for Central Greece* submitted to Biomass and Bioenergy.
75. Genova Koleva, N. and U.A. Schneider (2009), *The impact of climate change on the external cost of pesticide applications in US agriculture*, submitted to International Journal of Agricultural Sustainability.

74. Genova Koleva, N., U.A. Schneider, and R.S.J. Tol (2009), *The impact of climate change on aquatic risk from agricultural pesticides in the US*, submitted to Agriculture, Ecosystems & Environment.
73. Schneider U.A., P. Havlík, E. Schmid, M. Obersteiner, T. Sauer, R. Skalský, S. Fritz (2009) *Food production impacts of alternative global development scenarios*, submitted to Population and Environment.
72. Genova Koleva, N., U.A. Schneider, and R.S.J. Tol (2009), *The impact of weather variability and climate change on pesticides application in the US - An empirical investigation*, submitted to Journal of Agricultural Economics.
71. Havlík, P., U.A. Schneider, E. Schmid, H. Böttcher, S. Fritz, R. Skalský, Kentaro A., S. de Cara, G. Kindermann, F. Kraxner, S. Leduc, I. McCallum, A. Mosnier, T. Sauer, and M. Obersteiner (2009), *Global land-use implications of first and second generation biofuel targets*, submitted to Energy Policy.
70. Link, P.M., C.I. Ramos, U.A. Schneider, E. Schmid, J. Balkovič and R. Skalský (2008), *The interdependencies between food and biofuel production in European agriculture - an application of EUFASOM*, submitted to Biomass and Bioenergy.

In Revision after first Peer-review

69. Schneider, U.A. and V. Lychnaras (2009), *The Effect of CAP Reform, Farm Diversity, and International Markets on Economic Potentials of Energy Crops in Central Greece*, revised for Energy Policy.
68. Sauer, T.P. Havlík, U.A. Schneider, G. Kindermann, M. Obersteiner (2009), *Agriculture and resource availability in a changing world - the role of irrigation*, revised for Water Research.
67. Schneider, U.A., B.A. McCarl, and C.C. Chen (2008) *Assessing Economic Effects of Pesticide Regulations - The Effect of Alternative Assumptions*, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg, revised for Journal of Agricultural and Applied Economics.

Peer-reviewed and Published

66. Schneider, U.A. and P. Smith (2009). *Energy Intensities and Greenhouse Gas Emission Mitigation in Global Agriculture*. Energy Efficiency 2(2):195-206 [Available online](#).
65. Röckmann, C., R.S.J. Tol, U.A. Schneider, and M.A. St.John (2009). *Rebuilding the Eastern Baltic cod stock under environmental change - Part II: Taking into account the costs of a marine protected area*. Natural Resource Modeling 22(1):1-25. [Available online](#).
64. Schneider, U.A. and P. Kumar (2008). *Greenhouse Gas Mitigation through Agriculture*. Choices 23(1):19-23. [Available online](#).
63. Smith, P., Janzen, H., Martino, D., Zucong, Z., Kumar, P., McCarl, B. A., Ogle, S., O'Mara, F., Rice, C., Scholes, B., Sirotenko, O., Howden, M., McAllister, T., Genxing, P., Romanekov, V., Schneider, U. A., Towprayoon, S., Wattenbach, M., and Smith, J.

- (2008). Greenhouse gas mitigation in agriculture. Philosophical Transactions of the Royal Society 363(1492):789-813. [Available online.](#)
62. Schneider, U.A. (2007). Soil organic carbon changes in dynamic land use decision models. Agriculture, Ecosystems and Environment 119:359-367. [Available online.](#)
61. Schneider, U.A., McCarl, B.A., and Chen, C.C. (2007). Leakage and comparative advantage implications of agricultural participation in greenhouse gas emission mitigation. Mitigation and Adaptation Strategies for Global Change 12(4):471-494. [Available online.](#)
60. Schneider, U.A., McCarl, B.A., and Schmid, E. (2007). Agricultural sector analysis on greenhouse gas mitigation in US agriculture and forestry. Agricultural Systems 94:128-140. [Available online.](#)
59. Cowie, A., U.A. Schneider and L. Montanarella (2007). Potential synergies between existing multilateral environmental agreements in the implementation of Land Use, Land Use Change and Forestry activities. Environmental Science & Policy 10(4):335-352 [Available online.](#)
58. Schlamadinger, B., N. Bird, T. Johns, S. Brown, J. Canadell, L. Ciccarese, M. Dutschke, J. Fiedler, A. Fischlin, P. Fearnside, C. Forner, A. Freibauer, P. Frumhoff, N. Hoehne, M.U.F. Kirschbaum, A. Labat, G. Marland, A. Michaelowa, L. Montanarella, P. Moutinho, D. Murdiyarso, N. Pena, K. Pingoud, Z. Rakonczay, E. Rametsteiner, J. Rock, M.J. Sanz, U.A. Schneider, A. Shvidenko, M. Skutsch, P. Smith, Z. Somogyi, E. Trines, M. Ward and Y. Yamagata (2007). Options for including LULUCF activities in a post-2012 international climate agreement Part I – Synopsis of LULUCF under the Kyoto Protocol and Marrakech Accords and criteria for assessing a future agreement. Environmental Science & Policy 10(4):271-282. [Available online.](#)
57. Röckmann, C., U.A. Schneider, M.A. St. John, and R.S.J. Tol (2007). Rebuilding the Eastern Baltic cod stock under environmental change - a preliminary approach using stock, environmental, and management constraints. Natural Resource Modeling 20(2):223-262. [Available online.](#)
56. Röckmann, C., M.A. St. John, U.A. Schneider, F.W. Köster, F.W. and R.S.J. Tol (2007) Testing the implications of a permanent or seasonal marine reserve on the population dynamics of Eastern Baltic cod under varying environmental conditions. Fisheries Research 85:1-13. [Available online.](#)
55. Smith, P., Janzen, H., Martino, D., Zuccong, Z., Kumar, P., McCarl, B.A., Ogle, S., O'Mara, F., Rice, C., Scholes, B., Sirotenko, O., Howden, M., McAllister, T., Genxing, P., Romanekov, V., Schneider, U.A., and Towprayoon, S. (2007). Policy and technological constraints to implementation of greenhouse gas mitigation options in agriculture. Agriculture, Ecosystems and Environment. 118:6-28. [Available online.](#)
54. Schneider, U.A. and McCarl, B.A. (2006). Appraising agricultural greenhouse gas mitigation potentials: Effects of alternative assumptions. Agricultural Economics. 35(3):277-287. [Available online.](#)
53. Schneider, U. A. and McCarl, B. A. (2005). Implications of a carbon-based energy tax for US agriculture. Agricultural and Resource Economics Review 34(2):265-279. [Available online.](#)

52. Schneider, U. A. and McCarl, B. A. (2003). Economic potential of biomass based fuels for greenhouse gas emission mitigation. Environmental & Resource Economics 24(4):291-312. [Available online.](#)
51. Schneider, U.A. and B.A. McCarl. "Greenhouse Gas Mitigation Through Energy Crops in the U.S. With Implications for Asian-Pacific Countries." IN: Global Warming and the Asian Pacific. Edited by Ching Cheng Chang, Dai Gee Shaw, and Robert Mendelsohn(eds) Edward Elgar Publishing, England, 2003.
50. Schneider, U.A. "Les coûts de stockage de carbone dans les sols agricoles." Translated by T. Chevallier and P.A. Jayet, In: Arrouays, D., J. Balesdent, J.C. Germon, P.A. Jayet, J.F. Soussana, and P. Stengel (eds.). (October 2002). Mitigation of the greenhouse effect. Increasing carbon stocks in French agricultural soils? An assessment report compiled by the French Institute for Agricultural Research (INRA) on the request of the French Ministry for Ecology and Sustainable Development.
49. Marland, G., McCarl, B. A., and Schneider, U. A. (2001). Soil carbon: Policy and economics. Climatic Change 51(1):101-117. [Available online.](#)
48. McCarl, B. A. and Schneider, U. A. (2001). Climate change - Greenhouse gas mitigation in US agriculture and forestry. Science 294(5551):2481-2482. [Available online.](#)
47. Marland, G., B.A. McCarl, and U.A. Schneider, "Soil Carbon: Policy and Economics". IN: Storing Carbon in Agricultural Soils: A Multi-Purpose Environmental Strategy. Edited by N.J. Rosenberg and R.C. Izaurralde , Kluwer Academic Publishers, Boston, MA, 111-117, 2001.
46. McCarl, B. A. and Schneider, U. A. (2000). US agriculture's role in a greenhouse gas emission mitigation world: An economic perspective. Review of Agricultural Economics 22(1):134-159. [Available online.](#)
45. McCarl, B. A. and Schneider, U. A. (1999). Curbing greenhouse gases: Agriculture's role. Choices 14(1):9-12.
44. Marland, G., B.A. McCarl, and U.A. Schneider, "Soil and Carbon Policy and Economics". IN: Carbon Sequestration in Soils: Science Monitoring and Beyond. Edited By N.J. Rosenberg, R.C. Izaurralde and E.L. Malone , Battelle Press, Columbus OH, 153-169 , 1999.

Conference Papers and Proceedings

43. Fritz, S. P. Havlík, U.A. Schneider, E. Schmid, R. Skalský and M. Obersteiner (2009) "Uncertainties in global land cover data and its implications for climate change mitigation policies assessment", 33rd International Symposium on Remote Sensing of Environment (ISRSE-33), Stresa, Italy, May 4-8, 2009.
42. Jantke, K., C. Schlepner, and U.A. Schneider (2009), "Benefits of increased data resolution for European conservation planning", 33rd International Symposium on Remote Sensing of Environment (ISRSE-33), Stresa, Italy, May 4-8, 2009.
41. Schönhart, M.; E. Schmid, U.A. Schneider, P. Liebhard (2009), "Crop Rotation Modelling for Integrated Environmental Assessment - Case Study Results and Empirical Evidence",

In: van Ittersum, M., J. Wolf, and G. von Laar (Eds.), *Integrated Assessment of Agriculture and Sustainable Development; Setting the Agenda for Science and Policy. Proceedings*, 234-235

40. Schneider, U.A., C. Lull, and P. Havlik (2008), "Modeling Income Effects in a Partial Equilibrium Model", The XIIth EAAE Congress, Ghent, Belgium, August 26-29, 2008.
39. Sauer, T.P. P. Havlik, U.A. Schneider, G. Kindermann, and M. Obersteiner (2008), "Agriculture, Population, Land and Water Scarcity in a changing World – The Role of Irrigation", The XIIth EAAE Congress, Ghent, Belgium, August 26-29, 2008.
38. Johnson, D.E., H.W. Phetteplace, A.F. Seidl, U.A. Schneider, and B.A. McCarl (2003), "Selected Variations in Management of U.S. Dairy Production Systems: Implications for Whole Farm Greenhouse Gas Emissions and Economic Returns". 3rd International Methane and Nitrous Oxide Mitigation Conference. Beijing, China, November 17-21, 2003
37. McCarl, B.A., U.A. Schneider, B.C. Murray, R.D. Sands, and J.R. Williams, "Economic Potential of Greenhouse Gas Emission Reductions: Comparative Role for Soil Sequestration in Agriculture", in *Proceedings of DOE First National Carbon Sequestration Conference*, Washington, May 14-17, 2001.
36. McCarl, B.A., and U.A. Schneider, "Economic Potential of Biomass Based Fuels from Agricultural Sources", in *Proceeding of Conference Sustainable Energy: New Challenges for Agriculture and Implications for Land Use*. Edited by E. van Ierland, A. Oude Lansink and E. Schmieman. 2000.
35. Marland, G., B.A. McCarl, and U.A. Schneider. "Soil Carbon: Policy and Economics." *Carbon Sequestration in Soils: Science, Monitoring, and Beyond. Proceedings of the St. Michaelis Workshop*. N.J. Rosenberg, R.C. Izaurralde, and E.L. Malone, ed., pp. 151-178, St. Michaels, MD, Dezember 3-5, 1998.

Working Papers

34. Genova Koleva, N. and U.A. Schneider (2009), *The impact of climate change on aquatic risk from agricultural pesticides in the US*, **FNU-173**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
33. Genova Koleva, N., U.A. Schneider, and R.S.J. Tol (2009), *The impact of weather variability and climate change on pesticide applications in the US - An empirical investigation*, **FNU-171**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
32. Link, P.M., C.I. Ramos, U.A. Schneider, E. Schmid, J. Balkovič and R. Skalský (2008) *The interdependencies between food and biofuel production in European agriculture - an application of EUFASOM*, **FNU-165**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
31. Schneider, U.A. and P. Smith (2008) *Greenhouse Gas Emission Mitigation and Energy Intensities in Agriculture*, **FNU-164**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.

30. Schneider U.A., P. Havlík, E. Schmid, I. Huck, M. Obersteiner, T. Sauer, C. Llull, R. Skalský, J. Balkovič, S. Fritz, B. Dorin, and S. Leduc (2008), Global interdependencies between population, water, food, and environmental policies, **FNU-161**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
29. Schlepner, C. and U.A. Schneider (2008), A cost-efficient spatial wetland site-selection model for European biotope restoration, **FNU-159**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
28. Schlepner, C. and U.A. Schneider (2008), Evaluation of European wetland restoration potentials by considering economic costs under different policy options, **FNU-158**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
27. Schneider U.A., J. Balkovič, S. De Cara, O. Franklin, S. Fritz, P. Havlík, I. Huck, K. Jantke, A.M.I. Kallio, F. Kraxner, A. Moiseyev, M. Obersteiner, C.I. Ramos, C. Schlepner, E. Schmid, D. Schwab, R. Skalský (2008), The European Forest and Agricultural Sector Optimization Model – EUFASOM, **FNU-156**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
26. Schneider, U.A. and P. Kumar (2008), Greenhouse Gas Emission Mitigation through Agriculture, **FNU-155**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
25. Schneider, U.A., B.A. McCarl, M. Obersteiner, and E. Schmid (2007), Agricultural adaptation to climate policies and technical change, **FNU-133**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
24. Lychnaras, V. and U.A. Schneider (2007), Dynamic Economic Analysis of Perennial Energy Crops - Effects of the CAP Reform on Biomass Supply in Greece, **FNU-132**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
23. Cowie, A., U.A. Schneider and L. Montanarella (2006), Potential synergies between existing multilateral environmental agreements in the implementation of Land Use, Land Use Change and Forestry activities, **FNU-123**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
22. Röckmann, C., R.S.J. Tol, U.A. Schneider, and M.A. St.John (2006), Rebuilding the Eastern Baltic cod stock under environmental change - Part II: The economic viability of a marine protected area, **FNU-106**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
21. Röckmann, C., U.A. Schneider, M.A. St.John, and R.S.J. Tol (2005), Rebuilding the Eastern Baltic cod stock under environmental change - a preliminary approach using stock, environmental, and management constraints, **FNU-84**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
20. Schneider, U.A. and Bruce A. McCarl, (2005), Appraising Agricultural Greenhouse Gas Mitigation Potentials: Effects of Alternative Assumptions, **FNU-81**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
19. Ronneberger, K., R.S.J. Tol and U.A. Schneider (2005), KLUM: A simple model of global agricultural land use as a coupling tool of economy and vegetation, **FNU-65**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.

18. Röckmann, C., M.A. St.John, U.A. Schneider, F.W. Köster, F.W. and R.S.J. Tol (2006), Testing the implications of a permanent or seasonal marine reserve on the population dynamics of Eastern Baltic cod under varying environmental conditions, **FNU-63**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
17. Schneider, U.A. (2004), Land Use Decision Modelling with Soil Status Dependent Emission Rates, **FNU-51**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
16. Link, P.M., U.A. Schneider and Tol, R.S.J. (2004), Economic impacts of changes in fish population dynamics: the role of the fishermen's harvesting strategies, **FNU-50**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
15. Schneider, U.A. and B.A. McCarl (2003), "Measuring Abatement Potentials When Multiple Change is Present: The Case of Greenhouse Gas Mitigation in U.S. Agriculture and Forestry." **FNU-23**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
14. Schneider, U.A. and B.A. McCarl (2003), "Implications of a Carbon Based Energy Tax for U.S. Agriculture." **FNU-18**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
13. Schneider, U.A., H.C. Lee, B.A. McCarl, and C.C. Chen (2003), "Leakage and Comparative Advantage Implications of Agricultural Participation in Greenhouse Gas Emission Mitigation." **FNU-17**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg.
12. Schneider, U.A. (2002), "The Cost of Agricultural Carbon Savings." **CARD-WP-306**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
11. Schneider, U.A. and B.A. McCarl (2002), "The Potential of U.S. Agriculture and Forestry to Mitigate Greenhouse Gas Emissions: An Agricultural Sector Analysis." **CARD-WP-300**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
10. Schneider, U.A., McCarl, B.A., and R. Woodward (2001), "Harvesting the Greenhouse through Altered Land Management: Economic Potential and Market Design Challenges." **CARD-WP-288**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
9. McCarl, B.A., Murray, B.C., and U.A. Schneider (2001), "Influences of Permanence on the Comparative Value of Biological Sequestration versus Emissions Offsets." **CARD-WP-282**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
8. Schneider, U.A., McCarl, B.A., Murray, B.C., Willams, J.R., and R.D. Sands (2001), "Economic Potential of Greenhouse Gas Emission Reductions: Comparative Role for Soil Sequestration in Agriculture and Forestry." **CARD-WP-281**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
7. Schneider, U.A. and B.A. McCarl (2001), "Economic Potential of Biomass-Based Fuels for Greenhouse Gas Emission Mitigation." **CARD-WP-280**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.

6. Schneider, U.A., Lee, H.C., McCarl, B.A., and C.C. Chen (2001), "Effects of Agricultural Greenhouse Gas Emission Mitigation Policies: The Role of International Trade." **CARD-WP-279**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
5. Schneider, U.A. and B.A. McCarl (2001), "Greenhouse Gas Mitigation through Energy Crops in the United States with Implications for Asian-Pacific Countries." **CARD-WP-274**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.
4. Babcock, B.A., J.C. Beghin, M.D. Duffy, H. Feng, B. Hueth, C.L. Kling, L.A. Kurkalova, U.A. Schneider, S. Secchi, Q. Weninger, J. Zhao (2001) "Conservation Payments: Challenges in Design and Implementation." **CARD-BP-34**, Center for Agricultural and Rural Development, Iowa State University, Ames, USA.

Diplomarbeit, Master thesis, Dissertation

3. Schneider, U.A. "Agricultural Sector Analysis on Greenhouse Gas Emission Mitigation in the U.S." **PhD-Dissertation**, Department of Agricultural Economics, Texas A&M University, December 2000.
2. Schneider, U.A. " Quantitative Untersuchungen zur Gewebekonzurrenz auf verschiedenen Differenzierungsebenen." **Diplomarbeit**, Humboldt Universität, Berlin, April 1996.
1. Schneider, U.A. and B.A. McCarl. "Economic Implications of the Boll Weevil Eradication." **Professional Paper**. Submitted to the College of Agriculture of Texas A&M University in partial fulfillment of the requirements for the degree of Master of Science, Department of Agricultural Economics, Texas A&M University, August 1995.

Other Works

EUFASOM Interfaces

- Schneider, U.A. "GAMS Interface for linking the Global Forest Model (GFM) and the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated June 2009.
- Schneider, U.A. "GAMS Interface for integrating global development scenario data from the Special Report on Emissions Scenarios (SRES) and the Millenium Ecosystem Assessment (MA) into the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated April 2009.
- Schneider, U.A. "GAMS Interface for linking the Environmental Policy Impact Calculator (EPIC) and the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated January 2009.
- Schneider, U.A. "GAMS Interface for linking the Spatial Wetland Distribution Model (Swedi) and the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated December 2008.
- Schneider, U.A. "GAMS Interface for integrating forest and agricultural data from the online database of the Statistics Division of the Food and Agricultural Organisation

(FAOSTAT) and the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated June 2008.

Schneider, U.A. "GAMS Interface for integrating agricultural data from the Farm Accountancy Data Network (FADN) into the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated 2008.

Schneider, U.A. "GAMS Interface for linking the OSKAR model and the European Forest Agricultural Sector Optimization Model (EUFASOM)." Hamburg University, last updated 2007.

GAMS Interfaces

Schneider, U.A. (2008), "GAMS - Stata". An interface to automatically link GAMS and [Stata](#). Last updated February 2008.

Schneider, U.A. (2007), "GAMS - A GAMS interface to SHADEMAP". May 2007.
http://www.uni-hamburg.de/Wiss/FB/15/Sustainability/schneider/shademap/GAMS_to_Shademap.htm

Schneider, U.A. (2007), "GNUPLOTXYZ - A GAMS interface to GNUPLOT 4.2" Software Interface and Documentation, Last updated March 2007. <http://www.uni-hamburg.de/Wiss/FB/15/Sustainability/schneider/gnuplot/>

Schneider, U.A. and B.A. McCarl (2006), "GNUPLTXY - Linking GAMS to GNUPLOT" Software Interface and Documentation, August 1998, Last Update in September 2006.

Miscellaneous

Schneider, U.A. (2007), "Cooperation in Development and Implementation of Agricultural Greenhouse Gas Emission Mitigation Technologies", Strategy Paper prepared for the German Association for Technical Cooperation (Deutsche Gesellschaft fuer Technische Zusammenarbeit, GTZ), October 2007

Schneider, U.A. (2001), "Documentation of Cropping Budget Computations.", July 2001

Schneider, U.A. (2001), "Iowa State-Consortium for Agricultural Soils Mitigation of Greenhouse Gases (I-CASMGS)." Web page, June 2001.

Refereeships

Academic Appointments

Hamburg University; International Max-Planck Research School for Earth System Modeling; International Max-Planck Research School for Maritime Affairs; International Institute for Applied Systems Analysis; University of Natural Resources and Applied Sciences Vienna

Scientific Journals

African Journal of Biotechnology; Agricultural Economics; Agricultural Systems; Agriculture, Ecosystems & Environment; Choices; Climatic Change; Climate Research; Ecological Economics; Ecological Modelling; Energy Economics; Energy Efficiency; Energies;

Environment and Development Economics; Environmental and Resource Economics; Forest Policy and Economics; International Journal of Energy Research; Global Environmental Change; Journal of Agrobiotechnology Management & Economics; Journal of Environmental Economics and Management; Journal of Environmental Management; Journal of Environmental Quality; Natural Resources Forum; New Zealand Journal of Crop & Horticultural Science; Review of Agricultural & Environmental Studies; Review of Agricultural Economics; Springer Publisher

Organizations

Austrian Science Fund (FWF); Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ); European Commission (EC); German Academic Exchange Service (DAAD); Intergovernmental Panel on Climate Change (IPCC); International Institute for Applied Systems Analysis (IIASA); German Marshall Fund (GMF); Netherlands Organisation for Scientific Research (NWO); Ökosozielles Forum Österreich (ÖSFO); Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS); US Department of Agriculture (USDA); US Environmental Protection Agency (US EPA)

Teaching and academic supervision

Courses

Agriculture and Environment (WS 2003/2004, WS 2005/2006, WS 2007/2008)

- Part I: Introduction (Definitions, Questions, Economic concepts, Requirements, Readings)
- Part II: Evolution of agriculture Biological factors, Geographical factors, Economic factors, Jared Diamond hypotheses, Evolutionary game theory)
- Part III: Traditional agriculture and its impact on the environment (Private market objectives, Profit maximization, Dynamics optimization in forestry, Externalities, public goods and bads of agriculture, Erosion, water pollution, salinity, desertification, deforestation, greenhouse gas emissions and sequestration, habitat and biodiversity, Land use intensity and environment, Non-point source pollution, private property rights, transaction cost, market failure, welfare economics, Pareto optimality, Mathematical representation of private decision making, externality, dynamic optimization)
- Part IV: Global change and agriculture Global change impacts on agriculture, Climate change and yields, product suitability, pests, costs; Human population effects; Technical changes; Mitigation of global change through agriculture; Theories and evidence (Malthus, demographic transition, technical change in agriculture); Comparative review of assessment methodologies and results
- Part V: Agriculture and sustainability Definition and concept, Historical evidence, Food vs. environment, Land use intensity, Dynamics
- Part VI: Governmental policies Justification and objectives, Traditional agricultural policies, New environmental policies, Income vs. environment, Review of alternative policy designs, Mathematical representation of policy, Policy analysis

Rather than following one specific textbook this course covers material from different sources. Listed below are some of these sources. Diamond, Jared (1997). *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W.W. Norton. Jürgen W. Weinbull (1996). *Evolutionary game theory*. London, England: MIT Press. Brouwer, Floor and Straaten, Jan von der (2002).

Nature and Agriculture in the European Union: New Perspectives on Policies the Shape the European Countryside. Cheltenham, United Kingdom: Edward Elgar Publishing.

Mathematical Programming Using Algebraic Systems (SS 2004, SS 2006, WS 2008)

This course teaches applied mathematical programming and concentrates on the formulation and interpretation of mathematical programs utilizing multiple objective, quadratic, integer, dynamic, and general nonlinear programming:

- The Mathematical Programming Approach
- Linear Programming
- Theory - Matrix Solution, Interpretation, Duality, and Sensitivity
- Formulation and Duality
- Applied Use
- Multiple Objective Programming
- Nonlinear Programming
- Quadratic Programming
- Risk Programming
- Integer Programming
- Model Validation

Text: "Applied Mathematical Programming Using Algebraic Systems" by Bruce A. McCarl and Thomas H. Spreen

Dynamic Optimization (WS 2004/2005, WS 2006/2007)

This courses introduces different methods for dynamic optimization focusing on:

- Calculus of Variation
- Optimal Control
- Dynamic Programming
- Phase Diagrams
- Differential Equations

Text books: Kamien, M.I. and N.L. Schwartz. Dynamic Optimization: The Calculus of Variations and Optimal Control in Economics and Management; Boyce, William E. and Richard C. DiPrima. Elementary Differential Equations and Boundary Value Problems

Generalized Algebraic Modelling System (SS 2003, SS 2005, WS2008)

- GAMS (Overview, Capabilities, Applicability, Requirements, Documentation, Resources, Help)
- Basic Modeling with GAMS (Representation of mathematical problems in GAMS Sets, Data entry, Variables, Equations, Dollar controls, GAMS IDE use, Model types Model solving, Error detection and correction)
- GAMS Output (Standard output, Interpretation, Ordering, Output modification, Option commands, Report Writing, Put files,
- GAMS - More Modeling (Good modeling practices, Calculations, Naming conventions, Small vs. Large, Save - Restart, Infeasible and unbounded models, Tips and tricks)
- Advanced GAMS (Scaling, Memory, Speed, GAMS links to Excel, Shademap, Stata, and Gnuplot, GAMS check)

The European Forest and Agricultural Sector Optimization Model (WS 2006/2007, SS 2008, WS 2008)

- Concept, Structure, Execution of FASOM (Scope, Purpose, Concept, Theories; Data sources and handling; Objective function; Linear approximations; Resource constraints; Resource balance; Forest inventory; Production balance; Markov chains; Crop mix constraints; Resource stock inventories; Emissions balances)
- Analysing Solutions (Diagnosis using GAMSCHK: Analysis, Postopt)
- Using FASOM (Scenario analysis, Model development)

Text: Schneider U.A., J. Balkovič, S. De Cara, O. Franklin, S. Fritz, P. Havlík, I. Huck, K. Jantke, A.M.I. Kallio, F. Kraxner, A. Moiseyev, M. Obersteiner, C.I. Ramos, C. Schleupner, E. Schmid, D. Schwab, R. Skalský (2008), *The European Forest and Agricultural Sector Optimization Model - EUFASOM*, **FNU-156**, Hamburg University and Centre for Marine and Atmospheric Sciences, Hamburg. [download](#)

Academic Supervision

Main Advisor (Master)

06/2004 – 12/2004	Ina Hruby (Die Landwirtschaft im Spannungsfeld zwischen Ökonomie und Ökologie – eine modellgestützte Analyse der EU-Agrarpolitik)
06/2006 – 03/2007	Torsten Krüger (Produktions-, Energie- und Emissionsintensitäten in der globalen Landwirtschaft)
09/2007 – 03/2008	Christian Llull (Impact of Bioenergy Development on Food Security in Sub-Sahara Africa)

Main Advisor (PhD)

10/2005 –	Nikolinka Genova (Econometric Analysis of Pesticides under Climate Change)
12/2005 –	Kerstin Jantke (Systematic Conservation Planning)
01/2006 –	Chrystalin Ivie Ramos (Competitive Economic Potentials of Bioenergy and Impacts on Rural Development)
03/2008 –	Korbinian Freier (Agricultural Water Use Adaptation)
07/2008 – 02/2009	Christian Llull (Land Use, Food Security, and Rural Development)

Advisory Panel Member (PhD)

- Dr. Christine Schleupner, GIS as integrating tool in Sustainability and Global Change, Department of Geosciences, 2008
- Dr. P. Michael Link, Modeling the economic impacts of changes in thermohaline circulation with an emphasis on the Barents Sea fisheries, Department of GeoSciences, November 2006
- Dr. Christine Röckmann, Sustainable Management of the Eastern Baltic Cod Fishery, Department of Geosciences, July 2006
- Dr. Malte Schwoon, Managing the Transition to Hydrogen and Fuel Cell Vehicles - Insights from Agent-based and Evolutionary Models, July 2006

Dr. Kerstin E. Ronneberger, The Global Agricultural Land-use Model KLUM – A Coupling Tool for Integrated Assessment, Department of GeoSciences, June 2006

Dr. Marianne Zandersen, Valuing Forest Recreation in Europe: Time and Spatial Considerations, Department of Economics, November 2005

GAMS Model Advisor for external PhD students and senior Researchers:

- Anke Garmhausen (Humboldt University, Berlin, Germany) built a GAMS model within her dissertation on the economics of alternative soil management systems
- Erwin Schmid (University of Natural Resources and Applied Life Sciences, Vienna, Austria) built several farm level and regional agricultural sector models for Austria
- Daniel Blank (Hohenheim University, Germany) converted and extended a German farm model into GAMS
- Vassilis Lychnaras (Agricultural University of Athens, Greece) developed a recursive dynamic GAMS model for more than 50 farms in Central Greece with focus on agricultural policy and biomass for bioenergy production
- Dr. Dagmar Schwab (International Institute for Applied Systems Analysis, Laxenburg, Austria) contributed to EUFASOM and GLOBIOM development
- Gregor Fiedler (Dresden University of Technology, Germany) uses and contributes to EUFASOM within his dissertation
- Martin Schönhart (University of Natural Resources and Applied Life Sciences, Vienna, Austria) develops a GAMS model to simulate crop rotations within his dissertation
- Pekka Lauri (The Finnish Forest Research Institute, Vantaa, Finland) contributes to EUFASOM development with focus on the forest industry sector
- Dr. Anke Möhring (Agroscope Reckenholz-Tänikon Research Station, Tänikon, Switzerland) develops a farm level model for 3000 farms in Switzerland

Research Grants

Clisap

- Wetland Preservation Potentials under Climate Change
- Modeling of International Environmental Agreements

EU FP7 (research management and own research contribution)

- A European approach to GEOSS (EuroGEOSS)
- [Climate Change – Terrestrial Adaptation and Mitigation in Europe](#) (CCTAME)
- [Biomass Energy Europe](#) (BEE)

EU FP6 (research management and own research contribution)

- [Global Earth Observation Benefits](#) (GEOBENE)
- [Realising the Economic Potential of Sustainable Resources - Bioproducts from Non-food Crops](#) (EPOBIO)
- [European Non-Food Agriculture](#) (ENFA)

- [New Energy Externalities Development for Sustainability](#) (NEEDS)
- [Integrated Sink Enhancement Assessment](#) (INSEA)
- [ENSEMBLE-based Predictions of Climate Changes and their Impacts](#) (ENSEMBLES)

EU-Life Program (own research contribution)

- [European Consortium for Modelling of Air Pollution and Climate Strategies](#) (EC4MACS)

EU FP6 (research management)

- [Quantifying the Climate Impact of Global and European Transport Systems](#) (Quantify)
- [Methods and data on environmental and health externalities; harmonising and sharing of operational estimates](#) (Methodex)
- [Scanning Policy Scenarios for the Transition to Sustainable Economic Structures](#) (Transust.scan)
- [Climate Change and Impact Research: the Mediterranean Environment](#) (Circe)

Research Grant Proposals

Obersteiner, M. (Coordinator) et al. "Reduced Emissions from Deforestation and Degradation – Drivers, Impacts, Policy options (REDD – DIP)." Proposal submitted to the European Commission under ENV.2008.1.1.5.1., IIASA, February 25, 2008.

Makipaa, R. (Coordinator) et al. "Implications of land-use policy and conservation measures on the biodiversity across spatial and temporal scales (SCALES)." Proposal submitted to the European Commission under FP7-ENV.2008.2.1.4.4, Metla, February 25, 2008.

Bertrand F. (Coordinator) et al. "EuroGEOSS: A European approach to GEOSS." Proposal submitted to the European Commission under FP7-ENV-2008-1, Bureau de Recherches Géologiques et Minières, France, February 25, 2008.

Nagaraj, N. and U.A. Schneider (Principal Investigators). "Development of policies for sustainable use of land and water to address land degradation and global warming in India." Proposal submitted to the Indo-German (DST-DFG) Programme of Co-Operation In Science and Technology, University of Agricultural Sciences, Bangalore, India and University of Hamburg, Germany, September 15, 2007.

Obersteiner, M. (Coordinator) et al. "Climate Change - Terrestrial Adaptation and Mitigation in Europe (CC-TAME)." Proposal submitted to the European Commission under FP7-ENV-2007-1, IIASA, May 02, 2007.

Koch, B. (Coordinator) et al. "Biomass Energy Europe (BEE)". Proposal submitted to the European Commission under FP7-ENV-2007-3, IIASA, May 02, 2007.

Makipaa, R. (Coordinator) et al. "Innovative methods to measure impacts of use of natural resources on biodiversity and ecosystem services (INNOMES)." Proposal submitted to the European Commission under FP7-ENV-2007-1, Metla, May 02, 2007.

Abler, D., D. Blandford, E. Marshall, F. Stolle, and U.A. Schneider. "Biocomplexity and Biofuels: Global Environmental Implications of Biofuel and Biofeedstock Production."

Proposal submitted to the National Science Foundation (NSF), Pennsylvania State University, February 7, 2007

- Pflaum, H. (coordinator) et al. "Biorefineries: A strategy for evolutionary processes and products (BIOSTEPP)." Proposal submitted to the European Commission under call FP6-2005-SSP-5A, Fraunhofer-Institut für Umwelt-, Sicherheits- und Energietechnik (UMSICHT), March 22, 2006
- Obersteiner, M. (Coordinator) et al. "Climate Change Agricultural Practices - ADaptation, MITigation for Rural Development and Agriculture in Europe (CAP-ADMIRAE)." Proposal submitted to the European Commission under FP6-2005-SSP-5A, IIASA, March 22, 2006.
- Obersteiner, M. (Coordinator) et al. "Global Earth Observation: Benefit Estimation: Now, Next and Emerging (GEO-BENE)." Proposal submitted to the European Commission under FP6-2005-Global-4, Proposal No. 037063 GEO-BENE, IIASA, November 03, 2005.
- Obersteiner, M. (Coordinator) et al. "Monitoring and analysis of land use in Siberia, Africa and Amazon (MONALISA)" Proposal submitted to the European Commission under FP6-2005-Global-4, IIASA, November 03, 2005.
- Schneider, U.A. „Szenarienmodell für Nährstoffeinträge aus der Landwirtschaft in die Flüsse.“ Proposal module IN: K.H. Schlünzen (Coordinator) „Der ökologische Zustand der Nordsee von morgen – Reaktion auf den globalen Wandel (NORGLOW)“ Proposal submitted to the German Federal Ministry of Education and Research, Hamburg University, March 29, 2004
- Schneider, U.A. „European Non-Food Agriculture (ENFA).“ Specific Support Action (SSA) Proposal submitted to the European Commission under Call FP6-2003-SSP-3, Proposal No. 6581ENFA, Hamburg, January 13, 2004.
- Schneider, U.A. „A Dynamic Integrated Economic and Environmental Assessment of Carbon Sinks in European Agriculture and Forestry (EU-FASOM).“ Specific Targeted Research Project (STREP) Proposal submitted to the European Commission under FP6-2002-SSP-CALL-1, Proposal No. 502486 EU-FASOM, Hamburg, March 13, 2003.

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