

**GEORGE E. MEYER**

Biological Systems Engineering Department  
*Agronomy and Horticulture (Courtesy)*

University of Nebraska, Lincoln, NE 68583-0720

VOICE: (402) 472-3377 FAX: (402) 472-6338 E-MAIL: gmeyer1@unl.edu.

Webpage: <http://bse.unl.edu/About/Faculty/meyer.htm>

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**Education:**

B.S.	Cornell University	1967
M.S.	University of Massachusetts	1971
Ph.D.	University of Massachusetts	1972

**Professional Experience:**

- Professor, University of Nebraska Lincoln, 1995-present. Plant Growth Modeling and Instrumentation. Appointment: 55% Research, 40% Teaching, 5% Service.
- Associate Professor, University of Nebraska Lincoln, 1984-1995.
- Assistant Professor, University of Nebraska Lincoln, 1978-1984.
- Post Doctorate, Ohio Agricultural Research and Development Center, 1974-1978. Modeled soybean growth and development and solar grain drying research.
- Officer and Scientist, United States Air Force, Systems Command, 1972-1974 (Reserve 1973-1978) Conducted on-site surveys and monitored contractual research for ecological and environmental impact of tactical Air Force training activities and the space shuttle (at Vandenberg AFB). Investigated ecological aspects and prevention of aircraft bird-strikes.
- National Science Foundation Trainee, University of Massachusetts, 1967-1972, Plant Growth Modeling.

**Current Research Interests:**

Research interests include machine vision, electronic instrumentation, optical sensors (thermal and spectral) for plant growth response, water use, crop, weed, and residue detection, identification, enumeration, and identification of plant species, plant physiological properties and stress, applied to field or greenhouse site specific crop management. Mathematical modeling and simulation of plant growth and development. Use of statistical, soft computing methods, fuzzy logic, and neural-network systems for classification, modeling and control of plant growth and ecological systems. \$1.4 million in grants as PI (USGS, USDA, NSF).

**Teaching Experience (ABET accredited AGEN and BSEN degree programs):**

- AGEN/BSEN 460/860. *Instrumentation and Controls* (3 cr core).
- BSEN 244. *Thermodynamics of Living Systems* (3 cr core).
- AGEN/BSEN 951. *Bioengineering Relationships of Plant Systems* (3 cr).
- AGEN/BSEN 998/951. *Advanced Modeling in Biological and Environmental Systems* (3 cr).
- AGEN/BSEN 344. *Environmental Factors Affecting Biological Systems* (3 cr). (This course was retired in Fall 2000. First three University Distant Education Class – Nebraska, Idaho, Cornell, AgSAT 1992, 1993).

**Selected Career Publications for Last Five Years (Total: 43 refereed and 17 invited):**

- Al-Faraj, A. G.E. Meyer, G.R. Schade, and G.L. Horst. 2000. *Dynamic Analysis of Moisture Stress in Tall Fescue (Festuca Arundinacea) Using Canopy Temperature, Irradiation, and Vapor Deficit*. TRANSACTIONS of ASAE 43(1):101-109.
- Al-Faraj, G.E. Meyer, and G.L. Horst. 2001. *A Crop Water Stress Index for Tall Fescue (Festuca arundinacea Schreb.) Irrigation Decision-making - A Traditional Method*. Computers and Electronics in Agriculture (Elsevier) 31(2):107-124.
- Al-Faraj A., G.E. Meyer, and G.L. Horst, 2001. *A Crop Water Stress Index for Tall Fescue (Festuca arundinacea Schreb.) Irrigation Decision-making - A Fuzzy Logic Method*, Computers and Electronics in Agriculture (Elsevier) 32(2):69-84.
- Lin, X., K.G. Hubbard, and G.E. Meyer, 2001. *Air flow characteristics of commonly used temperature radiation shields*. J. Atmos. Oceanic Tech. 18(3):329-339.
- Lin, X., K.G. Hubbard, E.A. Walter-Shea, J.R. Brandle and G.E. Meyer, 2001. *Some perspectives on recent in-situ air temperature observations: modeling the microclimate inside radiation shields*. J. Atmos. Oceanic Tech.

18(9):1470-1484.

- Meyer, G.E., J. Camargo Neto, D. D. Jones, T. W. Hindman. 2004. *Intensified fuzzy clusters for determining plant, soil, and residue regions of interest from color images*. Computers and Electronics in Agriculture, 42(3):161-180.
- Meyer, G.E., T. W. Hindman, D.D. Jones, D. A. Mortensen. 2004. *Digital camera operation and fuzzy logic classification of plant, soil, and residue color images*. Engineering in Agriculture, 20(4):519-529.
- Heckman, N., G.E. Meyer, G.L. Horst, R.. Gaussoin, 2004. *Direct calorimetric analysis of turf grass sod for storage life assessment*. Scientia Horticulturae (Elsevier), 102(4):1-10.
- Camargo Neto, G.E. Meyer, D. D. Jones, A.K. Samal. 2006. *Plant Species Identification using Elliptic Fourier Analysis*. Computers and Electronics in Agriculture (Elsevier), 50:121-134.
- Camargo Neto, G.E. Meyer, D. D. Jones. 2006. *Individual Leaf Extractions from Young Canopy Images using Gustafson-Kessel Clustering and a Genetic Algorithm*. Computers and Electronics in Agriculture (Elsevier) 51:65-85.
- Meyer, G.E. 2003. *Thermodynamics for Living Systems, A Core Course*. Session 2108, American Society of Engineering Education, Annual Conference Proceedings, on CD-ROM.
- Camargo Neto, J., G.E. Meyer. 2005. *Crop species identification using machine vision of computer extracted individual leaves*. In: Chen, Y.R., Meyer, G.E., Tu S. (Eds.), *Optical Sensors and Sensing Systems for Natural Resources and Food Safety and Quality*, Proc. SPIE, Bellingham WA., Vol. 5996, pp 64-74.
- Leopold, D.A., B.B.Wrobel, E.H. Holbrook, A. Bien, J.Meza, N.A. Bratney, and G.E. Meyer, 2004. *Human Nasal Mucosal Sensitivity Patterns*. Paper III. Presented at the 20<sup>th</sup> Congress of the European Rhinologic Society (ERS.) and 23<sup>rd</sup> International Symposium on Infection and Allergy of the Nose (ISIAN), The Bosphorus Congress and Exhibition Center, Istanbul, Turkey.
- Meyer, G.E., R. M. Brand, Gary DeBerg, 2003. *Flow Measurement*. in Heldman, D.R.(ed) *Encyclopedia of Agricultural, Food, and Biological Engineering*, Marcel Dekker, inc., pp 337-341.

#### **Scientific and Professional Societies:**

- IBE - Institute of Biological Engineering (Charter and Executive Council member).
- ASABE – American Society for Agricultural and Biological Systems. Associate Editor, SE Division, Founder: BE-25 Education Committee. Other committees: SE-301, IET 312, and IET 254. (Instructor or co instructor for five continuing professional development workshops). Meetings Council BE Rep.
- ASEE - American Society for Engineering Education, member and manuscript reviewer.
- Gamma Sigma Delta - Honor Society of Agriculture, member.
- Sigma Xi – The Scientific research Society, member.
- SPIE - International Society for Optical Engineering (member and co-chair–nine specialty conferences).

#### **Honors and Awards:**

- University of Nebraska, Engineering College Teacher of the Year, 1999.
- ASAE Superior Paper Award, 2001 (Al-Faraj, et al., 2000).
- University of Nebraska, Teaching Department of the Year - 2002.
- ASAE Certificate of Appreciation - Outstanding Service Associate Editor - SE Division, 1994-2003.

#### **Institutional & Professional Service in the Last Five Years:**

- University Faculty Senate - elected member.
- College of Engineering Promotion and Tenure Committee - elected member.
- BSE Faculty Promotion and Tenure Committee - elected chair.
- USDA National Panel 306 (Quality and Utilization of Agricultural Products Program), invited 2004.
- Invited external reviewer for four full professor promotion files (one international), 2002-2004.

#### **Professional Development Activities in the Last Five Years:**

- ASAE Continuing Professional Development Workshop – Optical Filters, 2000.
- Nebraska Agricultural Technologies Association (NEATA) - Precision Agriculture, 2004, 2006.
- National Instruments LabVIEW Hands-On-Campus Workshop and Step-by-Step Data Acquisition Seminars. 2005, 2006.