

Thomas R. Sinclair

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Education

B.S., 1966, Purdue University, Agricultural Science
M.S., 1968, Purdue University, Plant Physiology
Ph.D., 1971, Cornell University, Field Crop Science (Micrometeorology)

Research Experience

Research Assoc., School of Forestry, Duke University, Oct. 1971 to Oct. 1973.
Plant Physiologist, Agricultural Research Service, U.S. Dept. Agriculture, July 1974 to Sept 2004.
Assistant Professor (Courtesy), Cornell University, July 1974 to July 1978.
Associate Professor (Courtesy), Cornell University, July 1978 to January 1980.
Visiting Professor, University of Florida, January 1980 to July 2010.
Adjunct Professor, North Carolina State University, July 2007 to Present.

General Research Interests

Research considers the influence of the abiotic environment on crop growth, development, and yield. Physiology studies include plant water relations, symbiotic nitrogen fixation, carbon accumulation, and developmental processes. Considerable attention has been focused on identifying genetic variation in these traits and using physiological information to expedite breeding efforts to enhance crop performance. Many of the results from this research have been synthesized into a family of relatively simple crop models to simulate growth and yield. The results of this research have now been applied to breeding programs for crop improvement, environmental assessments for increasing crop productivity, and evaluation of societal issues including plant water use, climate change and use of biofuels.

Scientific Publications

Papers: 400+

Invited Presentations: 260+

Books edited:

Limitations to Efficient Water Use in Crop Production (1983) Ed. Am. Soc. Agron.

Physiology and Determination of Crop Yield (1994) Ed. Am. Soc. Agronomy

Books authored:

Hands-on, Low-cost Laboratory Exercises for Middle and High School Biology Classes (1996)

T.R. Sinclair and M. Johnson, Natl. Assoc. Biology Teachers

Principles of Ecology in Plant Production (1998) CAB International

Bread, Beer and the Seeds of Change: The Imprint of Agriculture on World History (2010) T.R. Sinclair and C.J. Sinclair, CAB International.

Principles of Ecology in Plant Production, Second Edition (2010) T.R. Sinclair and A. Weiss, CAB International

Modeling Physiology of Crop Development, Growth and Yield (2012) A. Soltani and T.R. Sinclair, CAB International

Courses Taught (all graduate course at Cornell, Florida, or North Carolina State Universities)

Biophysical Plant Physiology
Crop Ecology
Water in Plant Production
Nitrogen in Plant Production

Honors

Laurea Honoris Causa (Honorary Doctorate Degree) in Agricultural Sciences. Univ. of Padova, Italy, October 1993.
Distinction in International Service Award, Florida Gamma Sigma Delta, April 1994.
Fellow of the Crop Science Society of America, October 1995.
Fellow of the American Society of Agronomy, November 1995.
1999 Crop Science Research Award, Crop Science Society of America, November 1999.

Personal Awards

Visiting Scientist Fellowship, Agricultural University, Wageningen, Netherlands (November 1973 to June 1974).
OECD (Organization for Economic and Cooperative Development) Study Fellowship University of Nottingham and University of Dundee, United Kingdom (July 1982).
CSIRO Senior Visiting Fellowship, Division of Tropical Crops and Pastures, Brisbane, Australia (January to August 1984).
JSPS (Japan Society for the Promotion of Science) Research Fellowship, Kyoto University, Kyoto, Japan (June to August 1987).
IICA Consultancy (Interamerican Institute for Cooperation in Agricultural Science), INTA Marcos Juárez, Argentina (June and July 1989).
Visiting Scientist, University of Padova, Padova, Italy (June and July 1991).
BARD Research Fellow, Gilat Experiment Station, Israel (June to August 1994).
Visiting Scientist, University of Florence, Florence, Italy (July 2001).
Bullard Fellowship, Harvard University, Cambridge, MA (June to November 2003)
Visiting Scientist, University of Queensland, Brisbane, Australia (September to October 2004)
Visiting Scientist, New Zealand Institute for Crop & Food Research, Christchurch, New Zealand (November to December 2004)
Bullard Fellowship, Harvard University, Cambridge, MA (September to November 2005)
White House Working Group on Agricultural Preparedness for President's Council of Advisers on Science and Technology (2011/2012)

Editorial Board of Journals

Crop Science
Plant Physiology
Tree Physiology
Field Crops Research
Journal of Experimental Botany
Plant Production Science

Cooperative Research with Commercial Companies

Pioneer Hi-bred International
Syngenta Corporation
Exelixis Plant Sciences
Louis Dryfus Corporation