

GERRIT HOOGENBOOM
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SUMMARY

Dr. Gerrit Hoogenboom is the Director of AgWeatherNet and Professor of Agrometeorology at Washington State University. He has over 25 years of experience in research, education and outreach in agricultural and environmental engineering. He has specialized in the development and application of crop simulation models and decision support systems and he currently coordinates the development of the Decision Support System for Agrotechnology Transfer (DSSAT), one of the most popular crop modeling systems across the world. He frequently organizes and facilitates international training workshops on crop modeling and decision support systems. He has published over 280 scientific papers in refereed journals as well as numerous book chapters and proceedings (h-index 47; i10-index 199; Google Scholar). He is an Editor for *Agricultural Systems*, *Journal of Agricultural Science* (Cambridge), *Climate Research*, the *Brazilian Journal of Agrometeorology*, and *Scientia Agricola*.

AREA OF SPECIALTY

- Impact of climate change and variability of agricultural production and water resource use
- Computer modeling and simulation of agricultural systems
- Decision Support Systems and Geographic Information Systems
- Information Technology
- Agrometeorology and climatology
- Automated weather station management
- Monitoring of weather and environmental variables

EDUCATION

Auburn University, Alabama, USA: September 1981 to August 1985
Degree: Doctor of Philosophy - Agronomy and Soils (Crop Science)
Wageningen University, Wageningen, the Netherlands: 1978 to 1981
Degree: Master of Science - Horticulture; Theoretical Production Ecology
Wageningen University, Wageningen, the Netherlands: 1974 to 1977
Degree: Bachelor of Science - Horticulture; Plant Physiology

EMPLOYMENT

Director, AgWeatherNet: Washington State University, Washington. 2010 – Present.
Professor of Agrometeorology: Department of Biological Systems Engineering, Washington State University, Washington. 2010 – Present.
Adjunct Professor: College of Engineering, the University of Georgia, Athens, Georgia. 2012 – Present.
Visiting Professor: Istituto Agronomico Mediterraneo-Bari, International Centre for Advanced Mediterranean Agronomic Studies, Valenzano, Bari, Italy. 2010 – 2014.

Faculty Fellow: Institute of Artificial Intelligence, the University of Georgia, Athens, Georgia. 2008 - Present.

Adjunct Professor: Department of Biological and Agricultural Engineering, the University of Georgia, Athens, Georgia. 2010 – 2012.

Coordinator of Research, Extension and Instruction: Dept. of Biological and Agricultural Engineering, the University of Georgia, Griffin, Georgia. February, 2006 – 2010.

Professor in Agrometeorology & Crop Modeling: Department of Biological and Agricultural Engineering, the University of Georgia, Georgia. 2000 - 2010.

Coordinator of the Georgia Automated Environmental Monitoring Network 1991-2010.

Assistant/Associate Professor in Agrometeorology & Crop Modeling: Department of Biological and Agricultural Engineering, the University of Georgia. 1989 - 2000.

Postdoctoral Research Associate: Department of Agricultural Engineering (in cooperation with Department of Agronomy), University of Florida. 1985 - 1989.

Graduate Research Assistant: Dept. of Agronomy and Soils, Auburn University, 1981 - 1985.

Visiting Research Scientist: Volcani Center, Bet Dagan, Israel. 1979.

SERVICE and AWARDS

2013 – Present. Associate Editor, *Scientia Agricola*.

2013 – Present. Member, Spinoza Selection Committee, Netherlands Organization for Scientific Research (NWO).

2012 – Present. Director, DSSAT Foundation.

2010 – Present. Member, Faculty Advisory Board Master's in Development Practice, Emory University – Laney Graduate School, Atlanta, Georgia.

2009 – Present. Editor, *The Journal of Agricultural Science (Cambridge)*.

2008 – Present. Editor, *Climate Research*

2005 – Present. Editorial Board, *Brazilian Journal of Agrometeorology*.

2003 – Present. Editorial Board and Book Review Editor, *Agricultural Systems*.

2001 – 2012. Vice-Chair, Scientific and Educational Advisory Board, Centre Regional AGRHYMET, Permanent Interstate Committee for Drought Control in the Sahel.

2002 – 2003. Chair, Division of Agroclimatology and Modeling, American Society of Agronomy.

1996 – 2002. Editorial Board and Associate Editor, *Agronomy Journal*.

2003 Neville Clark Award for Outstanding Teamwork. International Livestock Research Institute, Nairobi, Kenya, 2003.

2002 D.W. Brooks Faculty Award for Excellence in International Agriculture. The University of Georgia, 2002.

SELECTED PUBLICATIONS (Since 2011; Total 280+ refereed articles)

Bakhtiari, B., N. Ghahreman, A. Liaghat, and G. Hoogenboom. 2011. Evaluation of reference evapotranspiration models for a semiarid environment using lysimeter measurements. *Journal of Agricultural Science and Technology* 13(2):223-237.

Buddhaboon, C, A. Jintrawet, and G. Hoogenboom. 2011. Effects of planting date and variety on flooded rice production in the deepwater area of Thailand. *Field Crops Research* 124(2):270-277.

Crane, T.A., C. Roncoli, and G. Hoogenboom. 2011. Adaptation to climate change and climate variability: The importance of understanding agriculture as performance. *NJAS-Wageningen Journal of Life Sciences* 57(3-4):179-185.

- Chevalier, R.F., G. Hoogenboom, R.W. McClendon, and J.O. Paz. 2011. Support vector regression with reduced training sets for air temperature prediction: A comparison with artificial neural networks. *Neural Computing and Applications* 20(1):151-159.
- Fang, H., S. Liang, and G. Hoogenboom. 2011. Integration of MODIS LAI and vegetation index products with the CSM-CERES-Maize model for corn yield estimation. *International Journal of Remote Sensing* 32(4):1039-1065.
- Furman, C., C. Roncoli, T. Crane, and G. Hoogenboom. 2011. Beyond the “fit”: introducing climate forecasts among organic farmers in Georgia (USA). *Climatic Change* 109(3-4):791-799. (doi:10.1007/s10584-011-0238-y).
- Jongrunklang, N., B. Toomsan, N. Vorasoot, S. Jogloy, K.J. Boote, G. Hoogenboom, and A. Patanothai. 2011. Rooting traits of peanut genotypes with different yield responses to pre-flowering drought stress. *Field Crops Research* 120(2):262-270.
- Liu, H.L., J.Y. Yang, C.F. Drury, W.D. Reynolds, C.S. Tan, Y.L. Bai, P. He, J. Jin, and G. Hoogenboom. 2011. Using the DSSAT-CERES-Maize model to simulate crop yield and nitrogen cycling in fields under long-term continuous maize production. *Nutrient Cycling in Agroecosystems* 89(3):313-328.
- Liu, H.L., J.Y. Yang, C.S. Tan, C.F. Drury, W.D. Reynolds, T.Q. Zhang, Y.L. Bai, J. Jin, P. He, and G. Hoogenboom. 2011. Simulating water content, crop yield and nitrate-N loss under free and controlled tile drainage with subsurface irrigation using the DSSAT model. *Agricultural Water Management* 98(6):1105-1111.
- McNider, R.T., J.R. Christy, D. Moss, K. Doty, C. Handyside, A. Limaye, A. Garcia y Garcia and G. Hoogenboom. 2011. A real-time gridded crop model for assessing spatial drought stress on crops in the Southeast USA. *Journal of Applied Meteorology and Climatology* 50(7):1459-1475.
- Olatinwo, R.O., T. Prabha, J.O. Paz, D.G. Riley, and G. Hoogenboom. 2011. The Weather Research and Forecasting (WRF) model: application in the prediction of TSWV-vectors population. *Journal of Applied Entomology* 135(1-2):81-90.
- Persson, T., B. Ortiz, D.I. Bransby, S. Sladden, W. Wu, and G. Hoogenboom. 2011. Determining the impact of climate and soil variability on switchgrass (*Panicum virgatum* L.) production in the south-eastern USA; a simulation study. *Biofuels, Bioproducts, and Biorefining* 5(5):505-518.
- Prabha, T.V., G. Hoogenboom, and T.G. Smirnova. 2011. Role of land-surface parameterizations on modeling cold-pooling events and low-level jets. *Atmospheric Research* 99(1):147-161.
- Soler, C.M.T. V. B. Bado, K Traore, W.M. Bostick, J. W. Jones, and G. Hoogenboom. 2011. Soil organic carbon dynamics and yield for different crop rotations in a degraded ferruginous tropical soil in a semi-arid region: A simulation approach. *Journal of Agricultural Science* 149(5):579-593.
- Suriharn, B., A. Patanothai, K.J. Boote, and G. Hoogenboom. 2011. Designing a peanut ideotype for a target environment using the CSM-CROPGRO-Peanut model. *Crop Science* 51(5):1887-1902.
- White, J.W., G. Hoogenboom, P.W. Wilkens, P.W. Stackhouse, and J.M. Hoell. 2011. Evaluation of satellite-based, modeled-derived daily solar radiation data for the continental United States. *Agronomy Journal* 103(4):1242-1251.
- White, J.W., G. Hoogenboom, B.A. Kimball, and G.W. Wall. 2011. Methodologies for simulating impacts of climate change on agricultural production *Field Crops Research* 124(3):357-368.
- Yang, J.M., S. Dou, J.Y. Yang, G. Hoogenboom, X. Jiang, Z.Q. Zhang, H.W. Jiang, and L.H. Jia. 2011. Crop-soil nitrogen cycling and soil organic carbon balance in black soil zone of

- Jilin Province based on DSSAT model. *Chinese Journal of Applied Ecology* 22(8):2075-2083.
- Yang, J.M., J. Liu, S. Dou, J.Y. Yang, and G. Hoogenboom. 2011. Evaluation and optimization of best management practices of maize for black soil in Jilin China using the DSSAT model: I. Cultivar calibration and sensitivity analysis of maize yield parameters. *Acta Pedologica Sinica* 48(2):366-374.A
- Ahmad, S., A. Ahmad, C.M.T. Soler, H. Ali, M. Zia-ul-Haq, J. Anothai, A. Hussain, G. Hoogenboom, and M. Hasanuzzaman. 2012. Application of the CSM-CERES-Rice model for evaluation of plant density and nitrogen management of fine transplanted rice for an irrigated semiarid environment. *Precision Agriculture* 13(2):200-218.
- Amjed, A., S. Sanjani, G. Hoogenboom, A. Ahmad, T. Khaliq, S.A. Wajid, I.R. Noorka, and S. Ahmad. 2012. Application of crop growth models in agriculture of developing countries: A review. *New Horizons in Science & Technology* 1(4):95-99.
- Bidogeza, J, G. Hoogenboom, P.B.M. Berentsen, J. De Graaf, and A.G.J.M. Oude Lansink. 2012. Application of DSSAT crop models to generate alternative production activities under combined use of organic-inorganic nutrients in Rwanda. *Journal of Crop Improvement*. 26(3):346-363.
- Chevalier, R.F., G. Hoogenboom, R.W. McClendon, and J.O. Paz. 2012. A web-based fuzzy expert system for frost warnings in horticultural crops. *Environmental Modeling & Software* 35(1):84-91.
- He, Y., H. Wang, B. Qian, B. McConkey, H. Cutforth, R. Lemke, R. DePauw, K. Brandt, T. McCaig, K. Hu, and G. Hoogenboom. 2012. Effects of climate change on killing frost on the Canadian prairies. *Climate Research* 54(3):221-231. (DOI 10.3354/cr01114).
- Jongrunklang, N., B. Toomsan, N. Vorasoot, S. Jogloy, K.J. Boote, G. Hoogenboom, and A. Patanothai. 2012. Classification of root distribution patterns and their contributions to yield in peanut genotypes under mid-season drought stress. *Field Crops Research* 127(1):181-190.
- Liu, H.L., J. Yang, P. He, Y. Bai, J. Jin, C.F. Drury, Y. Zhu, X. Yang, W. Li, J. Xie, J. Yang, and G. Hoogenboom. 2012. Optimizing parameters of CSM-CERES-Maize model to improve simulation performance of maize growth and nitrogen uptake in Northeast China. *Journal of Integrative Agriculture* 11(11):1898-1913.
- Olatinwo, R.O., T. Prabha, J.O. Paz, and G. Hoogenboom. 2012. Predicting favorable conditions for early leaf spot of peanut using output from the Weather Research and Forecasting(WRF) model. *International Journal of Biometeorology* 56(2):259-268.
- Pathak, T.B., J.W. Jones, C.W. Fraisse, D. Wright, and G. Hoogenboom. 2012. Uncertainty analysis and parameter estimation for the CSM-CROPGRO-Cotton Model. *Agronomy Journal* 104(5):1363-1373.
- Paz, J.O., P. Woli, A. Garcia y Garcia, and G. Hoogenboom. 2012. Cotton yields as influenced by ENSO at different planting dates and spatial aggregation levels. *Agricultural Systems* 111(1):45-52.
- Romero, C.C., G. Hoogenboom, G.A. Baigorria, J. Koo, A.J. Gijsman, and S. Wood. 2012. Reanalysis of a global soil database for crop and environmental modeling. *Environmental Modeling & Software* 35(1):163-170.
- Roncoli, C., N. Breuer, D. Zierden, C. Fraise, K. Broad, and G. Hoogenboom. 2012. The art of the science: climate forecasts for wildfire management in the southeastern United States. *Climatic Change* 113(2):1113-1121. (DOI 10.1007/s10584-012-0526-1).
- Salazar, M.R., J.E. Hook, A. Garcia y Garcia, J.O. Paz, B. Chaves, and G. Hoogenboom. 2012. Estimating irrigation water use for maize in the Southeastern USA: A modeling approach. *Agricultural Water Management* 107(1):104-111.

- Saberali, S.F., S.A.M. Modarres-Sanavy, M. Bannayan, M.A. Baghestani, H. Rahimian-Mashadi, and G. Hoogenboom. 2012. Dry bean competitiveness with redroot pigweed as affected by growth habit and nitrogen rate. *Field Crops Research* 135(1):38-45.
- Tedihou, E., R. Olatinwo, K. Hell, B. Hau, and G. Hoogenboom. 2012. Effects of variety, cropping system and soil inoculation on *Aspergillus flavus* on aflatoxin levels during storage of maize. *Tropical Plant Pathology* 37(1):25-36.
- Thorp, K.R., J.W. White, C.H. Porter, G. Hoogenboom, G.S. Nearing, and A.N. French. 2012. Methodology to evaluate the performance of simulation models for alternative compiler and operating system configurations. *Computers and Electronics in Agriculture* 81(1):62-71.
- Wang, H., Y. He, B. Qian, B. McConkey, H. Cutforth, T. McCaig, G. McLeod, R. Zentner, R. DePauw, R. Lemke, K. Brandt, T. Liu, X. Qin, J.W. White, T. Hunt. 2012, and G. Hoogenboom. 2012. Climate change and biofuel wheat: a case study of southern Saskatchewan. *Canadian Journal of Plant Science* 92(3):421-425.
- Ahmad, A., A. Ali, T. Khaliq, S.A. Wajid, Z. Iqbal, M. Ibrahim, H.M.R. Javeed, and G. Hoogenboom. 2013. OILCROP-SUN model relevance for evaluation of nitrogen management of sunflower hybrids in Sargodha, Punjab. *American Journal of Plant Sciences* 4:1731-1735.
- Ahmad, S., A. Ahmad, H. Ali, A. Hussain, A. Garcia y Garcia, M.A. Khan, M. Zia-Ul-Haq, M. Hasanuzzaman, and G. Hoogenboom. 2013. Application of the CSM-CERES-Rice model for evaluation of plant density and irrigation management of transplanted rice for an irrigated semiarid environment. *Irrigation Science* 31(3):491-506. (DOI 10.1007/s00271-012-0324-6).
- Anothai, J., C.M.T. Soler, A. Green, T.J. Trout, and G. Hoogenboom. 2013. Evaluation of two evapotranspiration approaches simulated with the CSM-CERES-Maize model under different irrigation strategies and the impact on maize growth, development, and soil moisture content for semi-arid conditions. *Agricultural and Forest Meteorology* 176(1):64-76.
- Bannayan, M., E. Eyshi Rezaei, and G. Hoogenboom. 2013. Determining optimum planting dates for rainfed wheat using the precipitation uncertainty model and adjusted crop evapotranspiration. *Agricultural Water Management* 126(1):56-63.
- Ben-Asher, J., A. Garcia y Garcia, I. Flitcroft, and G. Hoogenboom. 2013. Effect of atmospheric water vapor on photosynthesis, transpiration and canopy conductance: A case study in corn. *Plant, Soil and Environment* 59(12):550-556.
- Chen, Y., G. Hoogenboom, Y. Ma, B. Li, and Y. Guo. 2013. Maize kernel growth at different floret positions of the ear. *Field Crops Research* 149(1):177-186.
- Deligios, P.A., R. Farci, L. Sulas, G. Hoogenboom, and L. Ledda. 2013. Predicting growth and yield of winter rapeseed in a Mediterranean environment: Model adaptation at a field scale. *Field Crops Research* 144(1):100-112.
- Ishikawa, D., G. Hoogenboom, Y. Ozaki, and E. Ishiguro. 2013. A study on the spectral change in a chlorophyll absorption band monitored during the growth of Japanese tea leaves. *Journal of Agricultural Meteorology* 69(4):255-263.
- Jongrunklang, N., B. Toomsan, N. Vorasoot, S. Jogloy, K.J. Boote, G. Hoogenboom, and A. Patanothai. 2013. Drought tolerance mechanisms for yield responses to pre-flowering drought stress of peanut genotypes with different drought tolerant levels. *Field Crops Research* 144(1):34-42.
- Liu, S., J.Y. Yang, X.Y. Zhang, C.F. Drury, W.D. Reynolds, and G. Hoogenboom. 2013. Modelling crop yield, soil water content and soil temperature for a soybean-maize rotation under conventional, reduced and conservation tillage systems in Northeast China. *Agricultural Water Management* 123(1):32-44.

- Nadig, K., W. Potter, G. Hoogenboom, and R.W. McClendon. 2013. Comparison of individual and combined ANN models for prediction of air and dew point temperature. *Applied Intelligence* 39(2):354-366. (DOI 10.1007/s10489-012-0417-1).
- Phakamas, N., A. Jintrawet, A. Patanothai, P. Sringam, and G. Hoogenboom. 2013. Estimation of solar radiation based on air temperature and application with the DSSAT v4.5 peanut and rice simulation models in Thailand. *Agricultural and Forest Meteorology* 180(1):182-193.
- Putto, C., A. Patanothai, S.Jogloy, K.J. Boote, and G. Hoogenboom. 2013. Determination of plant traits that affect genotype x location (G x L) interaction in peanut using the CSM-CROPGRO-Peanut model. *International Journal of Plant Production* 7(3):537-568.
- Salazar-Gutierrez, M.R., J. Johnson, B. Chaves-Cordoba, and G. Hoogenboom. 2013. Relationship of base temperature to development of winter wheat. *International Journal of Plant Production* 7(4):741-762.
- Soler, C.M.T., A. Suleiman, J. Anothai, I. Flitcroft, and G. Hoogenboom. 2013. Scheduling irrigation with a dynamic crop growth model and determining the relation between simulated drought stress and yield for peanut. *Irrigation Science* 31(5):889-901. (DOI 10.1007/s00271-012-0366-9).
- Suleiman, A.A., C.M. Tojo Soler, and G. Hoogenboom. 2013. Determining FAO-56 crop coefficients for peanut under different water stress levels. *Irrigation Science* 31(2):169-178.
- Venkadesh, S., G. Hoogenboom, W. Potter, and R. McClendon. 2013. A genetic algorithm to refine input data selection for air temperature prediction using artificial neural networks. *Applied Soft Computing* 13(5):2253-2260.
- Wajid, A. M.H.U. Rahman, A. Ahmad, T. Khaliq, N. Mahmood, F. Rasul, M.U. Bashir, M. Awais, J. Hussain, and G. Hoogenboom. 2013. Simulating the interactive impact of nitrogen and promising cultivars on yield of lentil (*Lens culinaris*) using CROPGRO-Legume model. *International Journal of Agriculture and Biology* 15(6):1331-1336.
- White, J.W., L.A. Hunt, K.J. Boote, J.W. Jones, J. Koo, S. Kim, C.H. Porter, P.W. Wilkens, and G. Hoogenboom. 2013. Integrated description of agricultural field experiments and production: The ICASA Version 2.0 Data Standards. *Computers and Electronics in Agriculture* 96(1):1-12.
- Woli, P., J.O. Paz, G. Hoogenboom, A. Garcia y Garcia, and C.W. Fraisse. 2013. The ENSO effect on peanut yield as influenced by planting date and soil type. *Agricultural Systems* 121(1):1-8.
- Yang, J.M., J.Y. Yang, S. Dou, X.M. Yang, and G. Hoogenboom. 2013. Simulating the effect of long-term fertilization on maize yield and soil C/N dynamics in northeastern China using the DSSAT and CENTURY-based soil model. *Nutrient Cycling in Agroecosystems* 95(3):287-303.
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- Chung, U., S. Gbegbelegbe, B. Shiferaw, R. Robertson, J.I. Yun, K. Tesfaye, G. Hoogenboom, and K. Sonder. 2014. Modeling the effect of a heat wave on maize production in the USA and its implications on food security in the developing world. *Weather and Climate Extremes* 5-6:67-77.
- Dzotsi, K.A., C.J. Matyas, J.W. Jones, G. Baigorria, and G. Hoogenboom. 2014. Understanding high resolution space-time variability of rainfall in southwest Georgia, USA. *International Journal of Climatology* 34(11):3188-3203.

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- Furman, C., C. Roncoli, D. R. Nelson, and G. Hoogenboom. 2014. Growing food, growing a movement: climate adaptation and civic agriculture in the southeastern United States. *Agriculture and Human Values* 31(1):69-82.
- Furman, C., C. Roncoli, W. Bartels, M. Boudreau, H. Crockett, H. Gray, and G. Hoogenboom. 2014. Social justice in climate services: engaging African American farmers in the American South. *Climate Risk Management* 2(1):11-25.
- Holzworth, D., I.N. Athanasiadis, S. Jansen, M. Donatelli, V. Snow, G. Hoogenboom, J.W. White, and P. Thorburn. Thematic issue on agricultural modeling and software. *Environmental Modeling & Software* 62(1):326.
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- Sanon, M., G. Hoogenboom, S.B. Traoré, B. Sarr, A. Garcia y Garcia, L. Somé, and C. Roncoli. 2014. Photoperiod sensitivity of local sorghum and millet varieties in West Africa. *NJAS - Wageningen Journal of Life Sciences* 68(1):29-39.
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- Thorp, K.R., E. M. Barnes, D. J. Hunsaker, B. A. Kimball, J. W. White, V. J. Nazareth, G. Hoogenboom. 2015. Evaluation of CSM-CROPGRO-COTTON for simulating effects of management and climate change on cotton growth and evapotranspiration in an arid environment. *Transactions of the ASABE* 57(6):1627-1642.
- Yang, J.M., J.Y. Yang, S. Liu, and G. Hoogenboom. 2014. An evaluation of the statistical methods for testing the performance of a crop simulation model with observed data. *Agricultural Systems* 127(1):81-89.
- Yang, J.Y, C. F. Drury, J. M Yang, Z.T. Li, and G. Hoogenboom. 2014. EasyGrapher: software for data visualization and statistical evaluation of DSSAT cropping system model and the CANM model. *International Journal of Computer Theory and Engineering* 6(3):210-214.
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- Woli, P., J.W. Jones, K.T. Ingram, G. Hoogenboom. 2014. Predicting crop yields with the Agricultural Reference Index for Drought (ARID). *Journal of Agronomy and Crop Science* 200 (3):163-171.
- Amaral, T.A., C. de L.T. Andrade, G. Hoogenboom, D. de Silva, A. Garcia y Garcia, and M. Noce. 2015. Nitrogen management strategies for smallholder maize production systems: Experimental data and crop modeling. *International Journal of Plant Production* 9(1):51-74
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